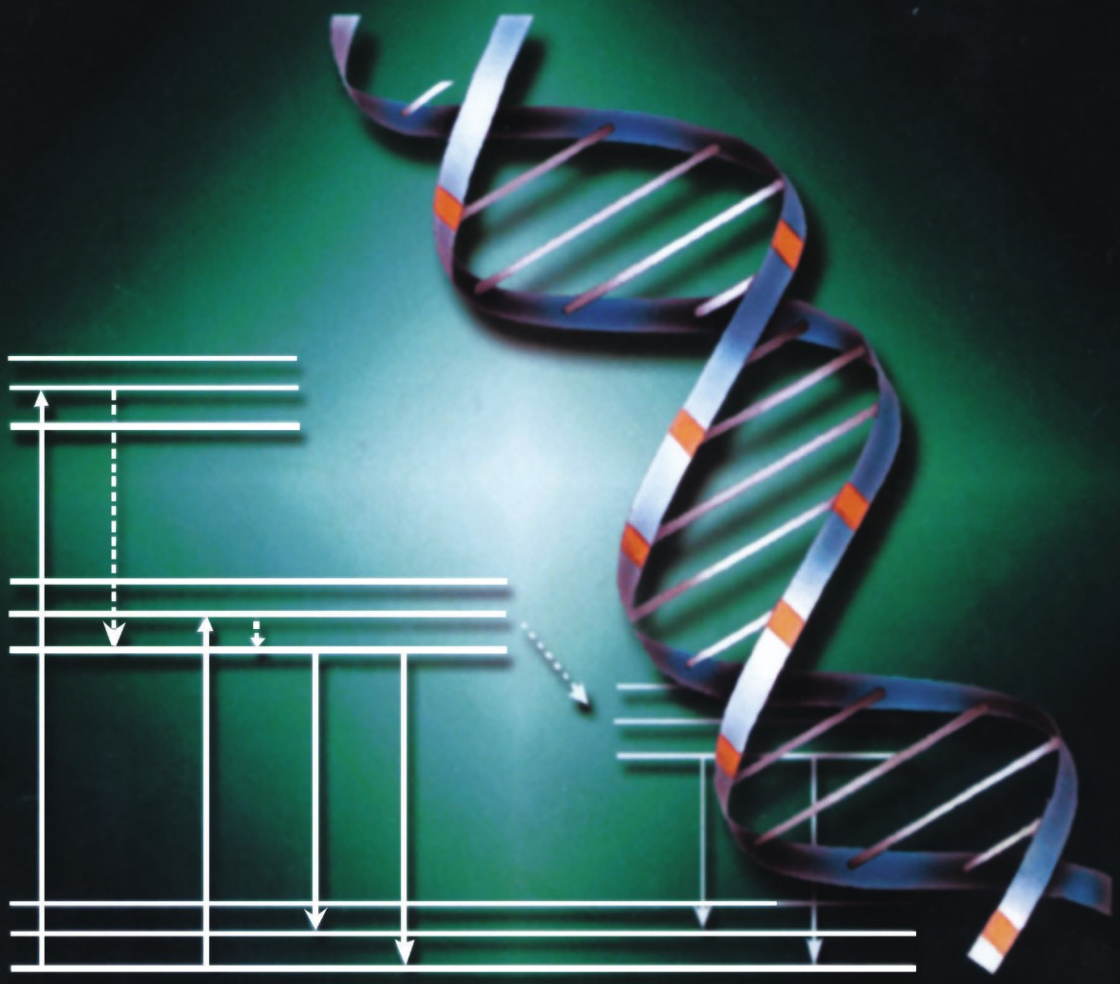
2005



# Who's Who in Fluorescence

Edited by: Chris D. Geddes
Joseph R. Lakowicz

# Who's Who in Fluorescence 2005

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*Edited by*

Chris D. Geddes

*Institute of Fluorescence*
*University of Maryland Biotechnology Institute*
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To all those who employ fluorescence in their working lives,

We hope you find this volume a useful resource,

Chris D. Geddes and Joseph R. Lakowicz
September 2004.

# Preface

The Who's Who in Fluorescence 2005 is the 3rd volume of the Who's who series. The previous two volumes (2003 and 2004) have been very well received indeed, with many copies being distributed around the world, through conferences and workshops, as well as through internet book sites.

In the last 2 years a great many of you have sent comments and suggestions, we thank you all. We have tried to accommodate many of these into the new 2005 volume. This new 2005 volume features some 382 entries from no fewer than 32 countries, an increase from 312 entries in the 2003 volume. In addition, we have a continued strong company support, which will enable us to further disseminate the volume in 2005. In this regard we especially thank the instrumentation companies for their continued support, where without their finical contributions; it is likely that the volume would not be the success it is today.

We have introduced a new author publication statistic into this volume, the Author Impact Measure (AIM) number. While voluntary, this number is intended to reflect an author's progress in past years. The AIM number simply summates the *impact number* (from the ISI database) of Journals published in, in that year, multiplied by the frequency of those publications. From those who chose to participate, we can see most impressive AIM numbers, in some instances, greater than 80 for an individual year.

Finally, we would like to thank Caroleann Aitken for both the architecture and the typesetting of the volume in a timely fashion. Thanks also go to Mary Rosenfeld for administrative support and Aaron Johnson and Kate Davis at Springer, for helping to make this volume possible, many thanks.

Chris D. Geddes,
Joseph R. Lakowicz

September 2004.

# Who's Who in Fluorescence 2005

# *Contents*

## Personal Entries

# *Company & Institution Contents*

# *AIM (Author Impact Measure) Number*

Date submitted: 13th September 2002

## Omoefe O. Abugo, Ph.D.

Unison Technology Services,
WorldCom Inc., 1201 Seven Locks Rd,
Rockville, MD 20854,
U.S.A.
Tel: 301 610 6184
oabugo@maranatha.net

*Specialty Keywords*: Lifetime Fluorescence, Polarization, Blood, Tissues, Drug Compliance.

Research has involved the use of fluorescence techniques in the detection and characterization of fluorescing moieties in biological systems and for biophysical measurements. Examples include the use of modulation and polarization sensing methods in the detection of red and NIR emitting dyes in tissue and whole blood. Other examples include the use of frequency domain fluorometry and FRET for the study of interactions between hemoglobin and proteins on the cytoplasmic domain of red cell membranes.

O.O. Abugo, Z. Gryczynski and J.R. Lakowicz (1999). J. Biomed. Optics, 4, 429-442.
O.O. Abugo, R. Nair and J.R. Lakowicz (2000). Anal. Biochem. 279, 142-150.

Date submitted: 31st July 2003

## M. P. Aguilar-Caballos, Ph.D.

Department of Analytical Chemistry,
Faculty of Sciences, Campus of Rabanales, Anexo C-3,
University of Córdoba,
140741-Córdoba, Spain.
Tel: 3495 721 8644 Fax: 3495 721 8644
qa2agcam@uco.es

*Specialty Keywords*: Lanthanide, Fluorimmunoassay, NIR dyes.

Some topics of interest are the use of lanthanide dry-reagent chemical technology and also the study of new reactions to increase the reactivity of long-wavelength fluorophores. Research is also focused on the development of new homogeneous fluoroimmunoassay methods using kinetic methodology to improve some of their analytical features. All reported methods have been applied to different areas such as clinical, environmental and food analysis.

M.P. Aguilar-Caballos and A. Gómez-Hens (2003). Stopped-flow Fluorescence Polarization Immunoassay. *Comb. Chem. T. Scr.* 6, 177-182.
M.P. Aguilar-Caballos and A. Gómez-Hens (2001). Terbium-sensitized luminescence: a selective and versatile analytical approach. *Trends Anal. Chem.* 21(2), 131-141.

Date submitted: 8th March 2003

## Ramesh C. Ahuja, Ph.D.

TauTec LLC.,
9140 Guilford Rd., Suite O,
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USA.
Tel: 301 725 7441 Fax: 301 725 2941
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www.tautec.com

*Specialty Keywords*: Time-resolved imaging, Spectroscopy and microscopy, Fluorescence lifetime, FLIM, FRET.

TauTec offers state-of-the-art, ultrahigh repetition rate (up to 110MHz) picosecond gated (down to 50ps), gain modulated (up to 1GHz) PicoStar ICCD cameras, low-light sensitive, ultrafast readout CCD cameras, modular multifocal multiphoton TriMScope workstations for real-time 3D fluorescence microscopy with time-lapse, ratio imaging, 2D and 3D kinetics, FLIM, FRET, FRAP, anisotropy and spectral imaging functionalities, live cell and animal imaging, TauScope for fluorescence lifetime imaging microscopy, time-gated Raman imaging and spectroscopy systems, OLED characterization, plasma kinetics spectroscopy, gating and ranging LIDAR.

Date submitted: 10th August 2002

## Engin U. Akkaya, Ph.D.

Department of Chemistry,
Middle East Technical University,
06531 Ankara,
Turkey.
Tel: 90 312 210 5126 Fax: 90 312 210 1280
akkayaeu@metu.edu.tr

*Specialty Keywords*: Fluorescent chemosensors, Molecular logic gates, Molecular devices.

Current interests: Design and synthesis of novel fluorogenic and chromogenic chemosensors for cations, anions and carbohydrates. Novel sensing schemes. Calixarene-based ion-pair sensors and allosterical modulation of binding interactions. Oxidative PET and cation/anion modulation of oxidative PET. Antenna systems. Diazapyrenium-based fluorescent pseudorotaxanes. Novel and efficient sensitizers for photodynamic therapy. Fluorescent chemosensors for dopamine.

C. N. Baki and Engin U. Akkaya (2001). Boradiazaindacene appended calix[4]arene: Fluorescence sensing of pH near neutrality, *J. Org. Chem.* 66, 1512-1513.
B. Turfan and Engin U. Akkaya (2002). Modulation of Boradiazaindacene Emission by Cation Mediated Oxidative PET, *Organic Lett.* 4, 2857-2859.

Date submitted: 27th July 2004

**Jihad-René Albani, Ph.D.**

Laboratoire de Biophysique Moléculaire,
Université des Sciences et Technologies de Lille,
Bâtiment C6,
59655 Villeneuve d'Ascq Cédex, France.
Tel: 33 32 033 7770
Jihad-Rene.Albani@univ-lille1.fr

*Specialty Keywords*: Structure, Dynamics, Fluorescence fingerprints.

We characterize structure and dynamics of proteins. For example, we were able to characterize the global spatial structure of $\alpha_1$ – acid glycoprotein showing the presence of a pocket where ligands can bind (Albani, 2004, Carbohydrate Research). Also, we showed that the carbohydrate residues of the protein possess a spatial structure (Albani et al. 2000, Carbohydrate Research). Also, we apply fluorescence to characterize species and varieties in animals and vegetals (Albani et al. 2003, Photochem. Photobiol).

J. R. Albani. 2004. Structure and Dynamics of Macromolecules: Absorption and Fluorescence Studies. Book in English (418 Pages) published by Elsevier Sciences Ltd.
J. R. Albani. 2001. Absorption et Fluorescence: Principes et Applications. Book in French (248 pages) published by Lavoisier-Tec et Doc.

Date submitted: 16th May 2002

**Fabrizio Alfieri, (Ph.D. Student)**

Institute of Protein Biochemistry,
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Naples, 80131,
Italy.
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alfier@dafne.ibpe.na.cnr.it
*Specialty Keywords*: Biosensor, Fluorescence, Thermophilic enzymes.

My scientific interests deal with the development of innovative protein biosensor for analytes of high clinical, environment and food interests based on the utilization of enzymes and proteins isolated from mesophilic and thermophilic organisms.
My primary goal is to contribute to the realization of new methods for analytes sensing using fluorescence techniques.
In this regard, my Ph.D. thesis is focused on the development of a thermostable and non-consuming substrate fluorescence biosensor for glucose.

**Alfsen, A.**
**Allison, R. R.**

Date submitted: 17th June 2004

## Annette Alfsen, M.D., Ph.D.

Cell Biology, Institut Cochin,
22 rue Mechain, Paris,
75014,
France.
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alfsen@cochin.inserm.fr

*Specialty Keywords*: Cell biology, Biophysics, HIV-1-AIDS, Host cell-pathogen interaction.

The main activity of our group is to analyse the interactions between virus (HIV-1) and the epithelial cells from the mucosa, first contact of the virus by sexual contamination. All technics of spectrofluorimetry are used , first to describe molecular interactions, namely by fluorescence resonance energy transfer, then at the cellular level by fluorescence microscopy and also directly by spectrofluorimetry on plates, allowing to measure the virus penetration into cells on culture. The final aim of these studies is to obtain a peptide, immunogen and neutralizing the entry of the virus at the mucosal epithelial portal.

Nature,Molecular cell biol. Review. Bomsel M. and Alfsen A. 2003,vol.4 nb.1.

Date submitted: 11th June 2004

## Ron R. Allison, M.D.

Radiation Oncology, ECU School of Medicine,
600 Moye Blvd, Greenville,
Pitt County, 27858-4345,
USA.
Tel: 252 744 2900 Fax: 252 744 2812
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www.ecu.edu/radonc

*Specialty Keywords*: Cancer, Photodynamic therapy, Optical biopsy.

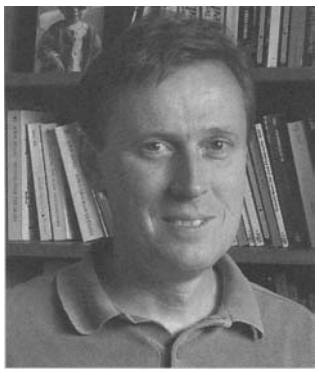
Research interests are photodynamic therapy optimization for oncology patients, refine and improve therapy both by clinical modifications and dosimetry enhancement. We have the largest number of chest wall recurrence patients treated with PDT.

Allison R, Downie G, Cuenca R, Hu XH, Childs C and Sibata C: Photosensitizers in Clinical PDT. *Photodiagnosis and Photodynamic Therapy, 2004*, (in press).

Cuenca RE, Allison R, Downie G, Sibata C. Breast cancer with chest wall progression: treatment with Photodynamic Therapy, *Ann. Surg. Onc.*, 10(1):31 Suppl. 2003.

Date submitted: 1st July 2004

## Wajih Al-Soufi, Ph.D.



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Campus Universitario s/n, E-27002 Lugo,
Spain.
Tel: +34 98 228 5900 Fax: +34 98 228 5872
alsoufi@lugo.usc.es

*Specialty Keywords*: Fluorescence, Data analysis.

Study of the influence of confined media on proton transfer and charge transfer processes. Design of fluorescent probes for the characterisation of supramolecular structures. Development and implementation of new data analysis methods for steady state and time resolved fluorescence data.

W. Al-Soufi, M. Novo y M. Mosquera (2001). Principal Component Global Analysis of fluorescence and absorption spectra of 2-(2'-hydroxyphenyl)benzimidazole. *Appl. Spectrosc.*, **55**, 630-636. W. Al-Soufi, P. Ramos Cabrer, A. Jover, R. M. Budal and J. Vázquez Tato (2003) Determination of second-order association constants by global analysis of $^{1}H$ and $^{13}C$ NMR chemical shifts. Application to the complexation of sodium fusidate and potassium helvolate by β- and γ-cyclodextrin *Steroids*, **68**, 43.

Date submitted: 31st August 2002

## Marcel M. Ameloot, Ph.D.

Biomedical Research Institute

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transnationale Universiteit
Limburg
**Belgium/the Netherlands**

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Marcel.Ameloot@luc.ac.be
www.luc.ac.be/biomed

*Specialty Keywords*: Microfluorimetry, Time-resolved fluorescence, Data analysis.

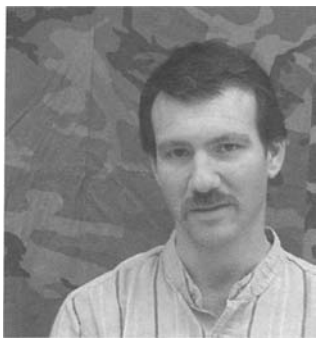
The research deals with the application of steady-state and time-resolved (imaging) microfluorimetry in cell physiology and in the development of biosensors. Currently the focus is on the behavior of oligodendrocytes and the myelin membrane within the framework of *multiple sclerosis* research.

S. Despa, J. Vecer, P. Steels and M. Ameloot (2000) Lifetime-based fluorescence microscopy of the ion indicator Sodium Green in HeLa cells *Anal. Biochem.* 281, 159-175.
N. Boens, J.P. Szubiakowski, E. Novikov and M. Ameloot (2000) Testing the identifiability of a model for reversible intermolecular two-state excited-state processes *J. Chem. Phys.* 112, 8260-8266.

**Anderson, J. E.**
**Andrews, D. L.**

Date submitted: 8th August 2002

## John E. Anderson, Ph.D.



U.S. Army Engineering Research and Development Center,
Fluorescence Remote Sensing Lab,
USAERDC-TEC, 7701 Telegraph Road, Alexandria,
Virginia, 22315 USA.
Tel: 703 428 6698 Fax: 703 428 8176
John.Anderson@erdc.usace.army.mil
www.tec.army.mil

*Specialty Keywords*: Fluorescence Remote Sensing, Enzyme Substrates, Waterborne pathogens.

Dr. Anderson's research interests involve active and passive fluorescence sensing to detect and identify waterborne pathogens. Both biotic (defined substrates) and abiotic (polymers) strategies are used with novel bioreporters to recover signatures relevant to pathogenic activity. A major research goal is the molecular-level characterization of relevant fluorophores scaled to the imaging domain for synoptic representation.

Anderson, J.E., Webb, S.R., Fischer, R.L., Smith, C.B., Dennis, J.R., and Di Benedetto, J. (2002). *In situ* detection of the pathogen indicator *E. coli* using active laser-induced fluorescence imaging and defined substrate conversion. *Journal of Fluorescence* (12) 1 p. 51-55.

Date submitted: 14th July 2004

## David L. Andrews, Ph.D.

Nanostructures and Photomolecular Systems,
School of Chemical Sciences,
University of East Anglia,
Norwich, NR4 7TJ, U.K.
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david.andrews@physics.org
www.uea.ac.uk/~c051

*Specialty Keywords*: Quantum Electrodynamics, Resonance Energy Transfer, Nonlinear Optics.
AIM 2002 = 16.7

Research in Andrews's group centers on molecular and condensed phase photophysics, based on the unified (QED) theory of energy transfer. This group was the first to identify and predict the characteristics of two-photon resonance energy transfer, anticipating FRET experiments on biological systems. In an ongoing project the group works on energy harvesting in optically nonlinear nanostructures, particularly with regard to dendrimers and photosynthetic systems.

R.D. Jenkins and D.L. Andrews, Multichromophore excitons and resonance energy transfer: Molecular quantum electrodynamics, *J. Chem. Phys*. **118**, 3470-3479 (2003).

P. Ball and D.L. Andrews, Light harvesting, *Chem. World* **1** (3), 34-39 (2004).

Date submitted: 15th August 2002

## Pavel Anzenbacher, Ph.D., D.Sc.

Inst. of Pharmacology, Faculty of Medicine,
Palacky University,
Hnevotinska st. 3, Olomouc,
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anzen@tunw.upol.cz

*Specialty Keywords*: Protein conformation, Tryptophans, Heme enzymes.

Active sites of cytochromes P450 and other heme enzymes differ in amino acid residues to reflect their function and specificity. Tryptophan fluorescence is studied by stationary approach as well as by time-resolved techniques. Interaction with enzyme substrates often produce fluorescence changes which are characteristic for different cytochrome P450 enzymes. FCS gives then information on changes in protein aggregation and overall conformation.

R. Lange, Anzenbacher P., Müller S., Maurin L., Balny C. (1994) Interact. of tryptophan residues in cytochrome P450scc with a fluorescence quencher *Eur.J.Biochem.* 226, 963-970.
Bemeš M., Hudeček J., Anzenbacher P., Anzenbacher P., Hof M. (2001) Coumarin 6, resorufins and flavins: Suitable chromophores for FCS of biol. molecules.*Coll.Czech.Chem.Commun.*66, 855-869.

Date submitted: 26th July 2004

## Jutta Arden-Jacob, Ph.D.

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www.atto-tec.com

*Specialty Keywords*: Fluorescent dyes, Biolabelling, Red-absorbing Chromophors.

My research is focused on the chemical synthesis and characterization of new red-absorbing fluorophors. I am particularly interested in new fluorescent dyes which are suitable for biolabelling.

J. Arden-Jacob, J. Frantzeskos, N.U. Kemnitzer, A. Zilles, and K.H. Drexhage (2001). New fluorescent markers for the red region *Spectrochim. Acta A* **57**(11), 2271-2283.

J. Arden-Jacob, N.J. Marx, and K.H. Drexhage (1997). New fluorescent probes for the red spectral region *J. Fluoresc.* 7(1), 91S-93S.

**Aslan, K.**
**Badugu, R.**

Date submitted: 30th June 2004

## Kadir Aslan, Ph.D.


Center for Fluorescence Spectroscopy,
Dept. of Biochemistry and Molecular Biology,
University of Maryland School of Medicine,
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*Specialty Keywords*: Biosensors, Nanotechnology, Surface Chemistry.

My research focuses on the development and application of plasmonic / fluorescence-based biosensors using noble metallic nanoparticles. I am also interested in self-organization of the nanoparticles on surfaces using specific biological interactions as well as other aspects of the subject nanotechnology.


Aslan, K., Lakowicz, J.R. and Geddes, C.D., "Nanogold-plasmon-resonance-based glucose sensing" Anal. Biochem.(2004), 30(1), pp.145-155.

Pérez-Luna, V.H., Betala, P., and Aslan, K. "Colloidal Gold", Review chapter for "Encyclopaedia of Nanoscience and Nanotechnology", Ed. H. S. Nalwa, American Scientific Publishers, California USA, 2004, Vol. 2., pp. 27-49.


Date submitted: 29th June 2004

## Ramachandram Badugu, Ph.D.


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*Specialty Keywords*: Fluorescence Sensing, Glucose, Anions, Transition metal ions, Polysilane photochemistry.
AIM 2003 = 17.1

Our current research interests including the design and development of charge stabilized quaternary nitrogen based boronic acid probes for fluorescence sensing of biologically important analytes such as glucose and other anions like cyanide, fluoride in solution and in solid hydro gel (contact lens). Other interest includes development of *d*- and *f*- block metal ion fluorescence sensors and polysilane photophysics.


R. Badugu, J. R. Lakowicz, and C.D. Geddes, The non-invasive continuous monitoring of physiological glucose using a monosaccaride sensing contact lens, Analytical Chemistry, 76 (2004) 610. R. Badugu, J. R. Lakowicz, and C.D. Geddes, A wavelength ratiometric fluoride sensitive probe based on the quinolinium nucleolus and boronic acid moiety, Sensors and Actuators B-Chemical, In press.

Date submitted: 7th August 2002

## Luis A. Bagatolli, Ph.D.

Memphys - Center for Biomembrane Physics,
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www.memphys.sdu.dk/

*Specialty Keywords*: Multiphoton microscopy, Polarity sensitive probes, Lipid, Lipid and Lipid, Protein interactions.

My primary research goal is to study lipid/lipid and lipid protein interactions in natural and model membranes. The fluorescence parameters measured in traditional experiments involving liposome solutions can be measured at the level of single vesicles using fluorescence microscopy. Using this last approach is possible to establish a correlation between the microscopic organization on the surface of single vesicles with the physical parameters determined at molecular level on the lipid bilayer (lipid mobility, lipid hydration, etc).

Bagatolli L.A. and E. Gratton. (2001) *J. of Fluorescence* 11:141-160.
Sanchez S., L. A. Bagatolli, E. Gratton, T. Hazlett (2002) *Biophys. J.* 82:2232-2243.

Date submitted: 15th August 2003

## Željko Bajzer, Ph.D.

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and Biochemistry, Mayo Clinic Rochester,
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*Specialty Keywords*: Multiexponental models, Parameter estimation, Deconvolution methods.

My focus in the field of biological fluorescence is on investigation and development of methods for data analysis and on study of multiexponential models. Previous work: The Pade-Laplace method for the analysis of time and frequencey domain lifetime measurements; a model for tryptophan fluorescence decay in proteins; new methods for discretization of convolution integrals, yielding more accurate determination of lifetimes and anisotropy decay parameters. Recently: Application of stretched exponential models and fractal kinetics.

**Baker, G. A.**
**Baker, S. N.**

Date submitted: 6th June 2004


## Gary A. Baker, Ph.D.

Los Alamos National Laboratory,
Bioscience Division, Mail Stop J586,
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USA.
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gabaker@lanl.gov



*Specialty Keywords*: Nanomaterials, Ionic liquids, Biosensing.
AIM 2003 = 28.4


Current efforts in my research group focus on the following research topics: biospectroscopy in ionic liquids & confining media, nanoparticles for fluorescence sensing, photoactive dendrimers, and green solvent systems, including water-in-$CO_2$ microemulsions and ionic fluid media.


S. Pandey et al., (2004). Generation and pH dependent superquenching of poly(amido) carboxylate dendrons hosting a single "focal point" pyrene. *Chem. Commun.,* 1318–1319.

S. N. Baker, T. M. McCleskey, S. Pandey, and G. A. Baker, (2004). Fluorescence Studies of Protein Thermostability in Ionic Liquids. *Chem. Commun.,* 940–941.


Date submitted: 30th August 2003


## Sheila N. Baker, Ph.D.

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Tel: 505 665 2923 Fax: 505 665 6255
sbaker@lanl.gov



*Specialty Keywords*: Ionic liquids, Nanocomposites, Self-assembly.


Topics of my current research include: Templated synthesis of nanoparticles; photonics of quantum dots and nanostructures; developing an intracellular understanding of chronic beryllium disease; environmental remediation of heavy or toxic metals; bactericidal surface design.


S. N. Baker et al. (2003) Effects of Solubilized Water on the Relaxation Dynamics Surrounding 6-Propionyl-2-(*N*,*N*-dimethylamino)naphthalene Dissolved in 1-Butyl-3-methylimidazolium Hexafluorophosphate at 298K. *Ind. Eng. Chem. Res.*, in press.

Date submitted: 22nd August 2002

## Aleksander Balter, Ph.D.

Institute of Physics, N. Copernicus University,
Grudziadzka 5,
87-100 Torun,
Poland.
Tel: +48 (56) 611 3216 Fax: +48 (56) 622 5397
balter@phys.uni.torun.pl

*Specialty Keywords*: Molecular biophysics, Photoluminescence, Sonoluminescence.

Current interests: Photophysical and photochemical properties of fluorescence probes. Fluorescence and Raman spectroscopy of protein-water interactions. Single bubble sonoluminescence.

A. Kamińska, M. Kowalska and A. Balter (1999). A comparative study of the effect of exogenous and endogenous photostabilizers in the lens crystallin photodegradation, *J.Fluorescence* 9, 213-219.

J. Szubiakowski, A. Balter, W. Nowak, K. Wisniewski and K. Aleksandrzak (1999) Substituent-sensitive anisotropic rotations of 9-acetoxy-10-phenylanthracenes. Fluorescence anisotropy decay and quantum-mechanical study, *Chem. Phys. Lett.* 313, 473-483.

Date submitted: 23rd September 2004

## Susan L. Bane, Ph.D.

Department of Chemistry,
State University of New York at Binghamton,
Binghamton, New York 13902,
USA.
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chemistry.binghamton.edu/BANE/bane.html

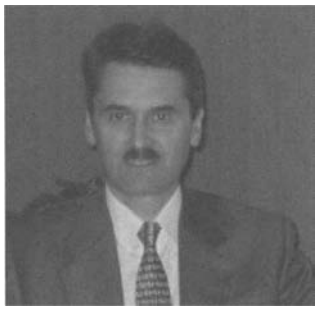
*Specialty Keywords*: Microtubules, Ligand / receptor interactions, New fluorescent probes.
AIM 2003 = 9.2

We are interested in determining the molecular mechanisms by which antimicrotubule drugs (such as paclitaxel (Taxol), colchicine, vinblastine, and combretastatin) interact with the protein tubulin and with microtubules. We use a variety of fluorescence spectroscopy techniques to elucidate these mechanisms. Design and synthesis of new fluorescent probes is also in progress.

Ganesh, T., Schilling, J. K., Palakodety, R. K., Ravindra, R., Shanker, N., Bane, S., Kingston, D. G. I. (2003) Synthesis and biological evaluation of fluorescently labeled epothilone analogs for tubulin binding studies. *Tetrahedron* **59**, 9979-9984.

Date submitted: 15th August 2003

## Beniamino F. Barbieri, Ph.D.



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*Specialty Keywords*: Fluorescence Instrumentation, Fluorescence Correlation Spectroscopy, Confocal Imaging.

As President of ISS, I am fostering our company's efforts and mission towards the development of innovative research-grade instrumentation, which will enable scientists to fully utilize the potentiality of fluorescence techniques in basic research. A parallel mission of our company is the development of novel medical instrumentation utilizing photonics tools. In our constant pursuit of innovations, ISS is wholly committed to offering quality and value added products and services that meet the present and future needs of our customers.

Date submitted: 13th September 2002

## Elisabeth Bardez, Ph.D.

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bardez@cnam.fr

*Specialty Keywords*: Excited-state proton transfer, Fluorescent sensors for aluminum(III), Photoinduced tautomerization.

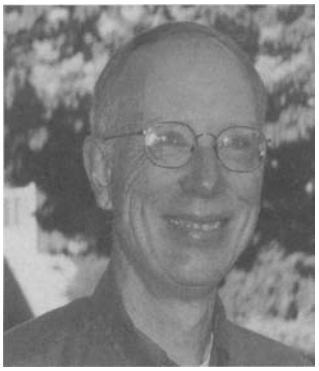
Current interests: Photoinduced tautomerization in amphoterous bifunctional compounds (hydroxyquinolines, hydroxycoumarins). Photoinduced proton ejection from dihydroxynaphthalenes. Design of hexadentate fluorogenic ligands for aluminum determination includind bidentate sub-units as 8-hydroxyquinoline, chromotropic acid, etc.

E. Bardez et al. (2001). From 8-hydroxy-5-sulfoquinoline to new related fluorogenic ligands for complexation of aluminium(III) and gallium(III). *New J. Chem.* 25, 1269 - 1280.

E. Bardez (1999). Excited-state proton transfer in bifunctional compounds *Israel J. Chem.* 39, 319 - 332.

Date submitted: 15th June 2004

## George B. Barisas, Ph.D.



Department of Chemistry,
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*Specialty Keywords*: Cell, Membrane, Dynamics.

We examine the dynamics and distributions of cell surface molecules in relation to membrane signal transduction events in cells of the immune system and in gonadotropin-responsive cells. We measure lateral motions through photobleaching recovery and single-particle tracking, rotational motions through time-resolved phosphorescence anisotropy and fluorescence depletion anisotropy and spatial distributions through fluorescence resonant energy transfer and photoproximity labeling. We have developed new or improved implementations of each of the above techniques.

Date submitted: 9th September 2002

## Grzegorz Bartosz, Ph.D.

Department of Molecular Biophysics, University of Łódź,
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*Specialty Keywords*: Reactive oxygen species, Transport, Membrane fluidit.

Membrane fluidity estimated with fluorescent probes and spin labels; fluorimetric and spin trap detection of reactive oxygen species; fluorimetric assays of total antioxidant capacity and cell survival; flow cytometric studies of apoptosis, fluorimetric studies of transport (mainly by Multidrug Resistance Proteins).

Grzelak A, Rychlik B, Bartosz G.:Light-dependent generation of reactive oxygen species in cell culture media. Free Radic Biol Med. 30:1418-425 (2001).
Jakubowski W, Bartosz G.:Estimation of oxidative stress in Saccharomyces cerevisae with fluorescent probes. Int J Biochem Cell Biol. 29:1297-1230 (1997).

**Baumann, C. T.**
**Becker, W.**

Date submitted: 14th August 2003

## Christopher T. Baumann, Ph.D.

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*Specialty Keywords*: Fluorescence Microscopy, Cytometry, Optics & Fluorochromes.

Providing technical applications support for those requiring precision optical filters and coatings to obtain the best results from their imaging equipment.

Chroma Technology's filters have been developed for a variety of applications: low-light microscopy, cytometry; spectroscopy and laser-based confocal and multi-photon instrumentation.

Date submitted: 12th July 2004

## Wolfgang Becker, Ph.D.

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*Specialty Keywords*: TCSPC, FLIM, Time-resolved spectroscopy.

W. B. is a specialist of optical short-time measurement techniques. Since 1993 he is the head of Becker & Hickl GmbH in Berlin. His field of interest is development and application of Time-Correlated Single Photon Counting techniques. He likes cats, skiing and beach volleyball.

W. Becker, H. Hickl, C. Zander, K.H. Drexhage, M. Sauer, S. Siebert, J. Wolfrum, Time-resolved detection and identification of single analyte molecules in microcapillaries by time-correlated single photon counting. Rev. Sci. Instrum. 70 (1999) 1835-1841.

Wolfgang Becker, Axel Bergmann, Christoph Biskup, Thomas Zimmer, Nikolaj Klöcker, Klaus Benndorf, Multi-wavelength TCSPC lifetime imaging. Proc. SPIE 4620 (2002) 79-84.

Date submitted: 21st August 2002

**Joseph M. Beechem, Ph.D.**

Molecular Probes Inc.,
Dept. of BioSciences,
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*Specialty Keywords*: Assays, Kinetics, Proteomics, Genomics, imaging.

My research focuses on the development of fluorescence-based technologies/tools in order to solve biomedically relevant problems. Research emphasis integrates the (supposedly) disparate technologies of: proteomics, genomics, high-throughput screening, microarrays, and high-resolution *ex-vivo* and *in-vivo* imaging. Emphasis is placed on obtaining multiplexed correlated kinetic data using multiple detection devices (e.g. microscopes, microplate readers, mass-specs, 2-D gels, microarrays, etc.) during physiological transitions. Currently, fluorescence technology is the only approach that has the inherent dynamic-range, sensitivity, and timing-resolution to span such a wide range of applications.

W. F. Patton and J. M. Beechem. "Rainbow's end: the quest for multiplexed fluorescence quantitative analysis in proteomics." *Curr. Opin. Chem. Biol.*, 6(1):63-69 (2002).
Beechem, J. M. (1992) Global analysis of Biophysical Data. *Methods in Enzymology 210*, 37-54.

Date submitted: 30th August 2002

**Martin J. Behne, M.D.**

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University of California San Francisco,
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*Specialty Keywords*: FLIM, Ion gradients, Epidermis.

The physiologic roles and effects of specific ion gradients, and the transporters that generate these gradients are the focus of my interest. With biochemical, molecular, and microscopic methods their expression in epidermal keratinocytes and in whole epidermis is investigated. In whole epidermis, fluorescence lifetime imaging is used to visualize the gradients generated and/or maintained by such transporters, and to further elucidate the spatio-temporal changes in these gradients, their functions, and effects in epidermal differentiation, homeostasis, and disease.

K. M. Hanson, M. J. Behne, N. P. Barry, T. M. Mauro, E. Gratton, and R. M. Clegg (2002)., Two-Photon Fluorescence Lifetime Imaging of the Skin Stratum Corneum pH Gradient *Biophys J* **83**(3), 1682-1690.

Date submitted: 8th August 2002

## Kevin D. Belfield, Ph.D.

Department of Chemistry and School of Optics / CREOL,
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4000 Central Florida Blvd., Orlando, 32816,
USA.
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www.cas.ucf.edu/chemistry/personnel/belfield.html

*Specialty Keywords*: Two-photon photochemistry, Microfabrication, Non-destructive imaging.

Molecular structure/linear absorption/nonlinear absorption relationships of organic molecules, the development of highly efficient two-photon fluorescent dyes, and two-photon polymerization and photochromism are being investigated.

K.D. Belfield, M.V. Bondar, O.V. Przhonska and K.J. Schafer (2002). Steady-State Spectroscopic and Fluorescence Lifetime Measurements of New Two-Photon Absorbing Fluorene Derivatives *J. Fluorescence* **12**, in press.
K.D. Belfield and K.J. Schafer (2002). A New Photosensitive Polymeric Material for Optical Data Storage using Multichannel Two-Photon Fluorescence Readout *Chem. Mater.* **14**, in press.

Date submitted: 3rd August 2004

## Mário N. Berberan-Santos, Ph.D.

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*Specialty Keywords*: Photophysical kinetics. Resonance energy transfer. Multichromophoric systems.

Current interests: Photophysics of fullerenes[1] and of multichromophoric systems. Radiative transport in atomic vapors and in scattering media (previous work on combined radiative and nonradiative transport[2] included development of a stochastic theory and its experimental test).

[1]M. Rae, A. Fedorov, and M.N. Berberan-Santos (2003). Fluorescence quenching with exponential distance dependence, *J. Chem. Phys.* **119**, 2223-2231.

[2]M.N. Berberan-Santos, E.N. Pereira, and J.G. Martinho (1999), Dynamics of radiative transport, in *Resonance Energy Transfer*, D.L. Andrews and A.A. Demidov eds., Wiley, Chichester.

Date submitted: 12th July 2004

## Axel Bergmann, Ph.D.

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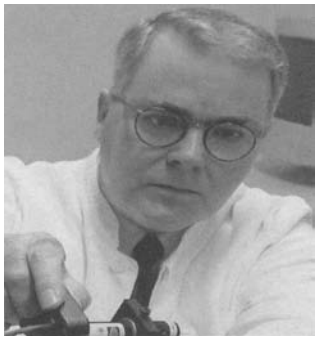
*Specialty Keywords*: FLIM, TCSPC, Lifetime analysis.

Axel Bergmann received his doctorate in physics from the Technical University of Berlin. He came to Becker & Hickl in 2000 and started to develop leading-edge hard and software products for photon counting instrumentation. As a scientific coworker within this company he is presently involved in the development of SPC-Image - an analysis tool which allows to create color-coded lifetime images from multidimensional TCSPC data. Research interests include the application of the FRET effect to biological systems by means of fluorescence lifetime imaging microscopy. During the last two years he had several publications about this topic in refereed scientific journals.

R. Duncan, A. Bergmann, M.A. Cousin, D.K. Apps & M.J. Shipston, Multi-dimensional time-correlated single photon counting (TCSPC) fluorescence lifetime imaging microscopy (FLIM) to detect FRET in cells. Journal of Microscopy, Vol. 215, pp.1-12, 2003.

Date submitted: 20th June 2002

## Jürgen Beuthan, Ph.D.



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*Specialty Keywords*: Optical Biopsy, Cell metabolism, Medical applications.

Current Research Interests: My research is focused on advancing fluorescence applications in medicine using native autofluorescence compounds like NADH and Cytokeratin. These investigations are carried out both time-resolved and in cw mode. They serve for investigating metabolic changes, such as cancer or ischemia, using optical methods.

J Beuthan, O. Minet, G. Müller (1993): Observations of the fluorescence response of the coenzyme NADH in biological samples. *Opt. Lett.,* **18,** 1098-1100.
J. Beuthan, O. Minet, G. Müller (1998): Optical Biopsy of Cytokeratin and NADH in the Tumor Border Zone. *Annals New York Academy Sciences,* **838**, 150-170.

**Bhattacharyya, K.**
**Bieschke, J. G.**

Date submitted: 23rd July 2004


## Kankan Bhattacharyya, Ph.D.

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*Specialty Keywords*: Ultrafast dynamics, Organized assembly.

We study solvation dynamics, proton/electron transfer, isomerization and orientational dynamics in various organized assemblies e.g. micelles & reverse micelles, lipids, cyclodextrin, proteins, zeolite etc. We found that solvation dynamics of water in an organized assembly displays a component 100-1000 times slower than that in bulk water.


K. Bhattacharyya, "Solvation dynamics & proton transfer in supramolecular assemblies", (2003) *Acc. Chem. Res.* **36**, 95.

K. Bhattacharyya et al. "Solvation dynamics in the molten globule state of a protein," (2003) *J. Phys. Chem. B* **107**, 14563.


Date submitted: 6th September 2002


## Jan G. Bieschke, Ph.D.

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*Specialty Keywords*: FCS, Protein misfolding, Single molecules.

We study aggregation processes in neurodegenerative diseases caused by protein misfolding on a single molecule level. Our aim is the characterization of intermediate steps in aggregation and detection and characterization of misfolded protein aggregates in diagnostic applications by multi-color confocal fluorescent spectroscopy. Systems examined include PrP (Prion diseases), Aß (Alzheimer's disease) and synuclein (Parkinson's disease).


Bieschke J, Giese A, Schulz-Schaeffer W, Zerr I, Poser S, Eigen M, and Kretzschmar H (2000) Ultrasensitive detection of pathological prion protein aggregates by dual-color scanning for intensely fluorescent targets. Proc. Natl. Acad. Sci. U. S. A **97**, 5468-5473.

Date submitted: 29th August 2003

## John J. Birmingham, Ph.D.

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United Kingdom.
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John.Birmingham@unilever.com

*Specialty Keywords*: Photobleaching, Lifetime imaging.

Research emphasis on development of fluorescence technologies to aid detection and imaging of industrially relevant ingredients deposited on both natural and man-made surfaces at low levels from consumer products. Key techniques include fluorescence photobleaching methods (time and frequency domains) and nanosecond timescale lifetime imaging, the latter implemented in the frequency domain for both widefield imaging and laser scanning geometries to suit a range of distance scales from microscopic to large macroscopic.

J.J.Birmingham (1997) J.Fluorescence 7(1):45-54.
J.J.Birmingham (1999) in A.Kotyk (ed) , Fluorescence Microscopy and Fluorescent Probes 3, Espero, Prague, pp.23-35.
J.J.Birmingham (2002) in R.Kraayenhof (ed), Fluorescence Spectroscopy, Imaging and Probes, Springer, pp.297-316.

Date submitted: 8th July 2004

## Giovanni Luca Biscotti, Ph.D.

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*Specialty Keywords*: TCSPC, FLIM, Time-resolved spectroscopy.
Scientific coworker for research and development of leading photon counting instrumentation at Becker & Hickl, Berlin. His university background provides a wide competence in Optics and Electronics environment. He supplies support on all elements involved in Fluorescence applications (from TCSPC basic principles to experiment devices).

W. Becker, A. Bergmann, G. Biscotti, K. König, I. Riemann, L. Kelbauskas, C. Biskup
High-Speed FLIM Data Acquisiton by Time-Correlated Single Photon Counting. Proc SPIE 5232 (2004).
W. Becker, A. Bergmann, G. Biscotti, A. Rück, Advanced time-correlated Single Photon Counting Technique. Proc. SPIE 5340 (2004).

**Bojarski, P.**
**Borie, C.**

Date submitted: 9th March 2003

**Piotr Bojarski, Ph.D.**

Institute of Experimental Physics,
University of Gdańsk,
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fizpb@univ.gda.pl

*Specialty Keywords*: Energy transport, Aggregation, Monte - Carlo simulation.

Areas of expertise: Multistep excitation energy transport and its trapping in disordered and ordered media, forward and reverse energy transfer, intermolecular aggregation, rotational depolarization of fluorescence, Kennard - Stepanov relation, excited state dipole moments, steady - state and time resolved fluorescence measurements, Monte - Carlo simulation.

P. Bojarski, A. Kamińska , L. Kułak and M. Sadownik, Chem. Phys. Lett. (2003) 375, 547-552.

P. Bojarski, L. Kułak, C. Bojarski and A. Kawski, J. Fluorescence (1995) **5** , 307 - 319.

Date submitted: 5th August 2002

**Christophe Borie.**

Aventis Pharama,
Assay Development, HTS,
13 quai J. Guesde,
Vitry 94400,
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Christophe.borie@aventis.com

*Specialty Keywords*: HTS, Assay development, HTRF.

The use of fluorescence in my activity is directed around two principal axes: on the one hand the use of the transfer of fluorescence in time resolved for the biochemical assays in homogeneous phase, on the other hand cells based assays with use of Acumen technology (scanner laser beam).

Date submitted: 17th July 2002

## Guido Böse, Ph.D.

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*Specialty Keywords*: FCS, DNA repair, RNA interference.

Fluorescence Correlation Spectroscopy is a versatile tool for the examination of biomolecules concerning binding and conformational changes. In my DNA repair project UvrAB are examined for DNA binding and conformational changes with dual color crosscorrelation analysis and single molecule FRET measurements.
In the RNA interference project fluorescently labelled RNAs are used for FCS measurements while silencing gene expression.

*Microplate Enzyme-Linked Immunosorbent Assay for the Detection of Primary DNA Alterations Based on the Interaction with UvrA/ UvrB*, Böse et al. (2001), Anal. Biochem. 292, 1-7.

Date submitted: 8th August 2004

## Rebecca A. Bozym, (Ph.D. Student)

Department of Biochemistry and Molecular Biology,
University of Maryland School of Medicine,
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Rbozy001@umaryland.edu

*Specialty Keywords*: Carbonic Anhydrase, Biosensor, Zinc.

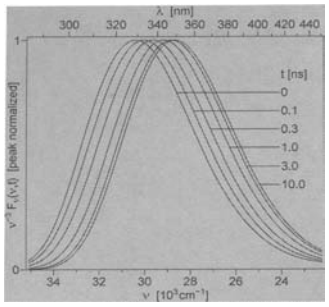
My thesis focuses on the use of human carbonic anhydrase II as a signal transducer for detecting the level of free zinc in cells using a FRET-based ratiometric approach. Carbonic anhydrase is very selective for zinc over calcium and magnesium. Dapoxyl sulfonamide, an inhibitor of CA, binds only in the presence of zinc in the active site. When excited, bound dapoxyl transfers energy to the fluorescent label on the protein which emits at 617 nm.

R.B. Thompson, M.L. Cramer, R. Bozym, and C.A. Fierke (2002). Excitation Ratiometric fluorescence biosensor for zinc ion at picomolar levels J. Bio. Optics 7(4), 555-560.

**Brand, L.**
**Braut – Boucher, F.**

Date submitted: 5th September 2002

## Ludwig Brand, Ph.D.

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*Specialty Keywords*: Fluorescence, Proteins, Membranes.

The interest of our laboratory is to understand the static and dynamic structure of proteins, biological membranes, and nucleic acids. The work includes studies of the interactions between macromolecules and the relation between structure and function. A variety of excited-state processes such as proton transfer, energy transfer, exciplex and excimer formation and solvent relaxation are being investigated so that these processes can be better used to study biological macromolecules in vivo and in vitro.

Toptygin, D. Savichenko, R.S., Meadow, N.D. and Brand, L.,"Homogeneous Spectrally and Time-Resolved Fluorescence Emission from Single-Tryptophan of $IIA^{Glc}$ Protein.", Journal of Physical Chemistry B, 105, 2043-2055 (2001).

Date submitted: 27th August 2002

## Françoise Braut – Boucher, Ph.D.

Inserm
Institut national
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médicale

Phagocytes et Réponses Inflammatoires, Unité INSERM 479,
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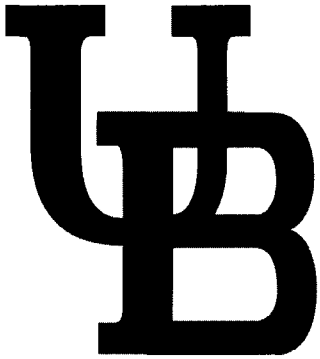
*Specialty Keywords*: Fluorescence microplate assays,
Oxidative agression, Cellular interactions.

Modifications of cellular adhesive capacities associated with oxidative agression are implicated in several pathologies: Cardiovascular diseases, inflammation and metastasis. The consequences of induced-oxidative stress on cellular interactions are studied on different models *in vitro*. Besides immunological methods or flow cytometry, fluorescence microplate assays are performed using specific fluorescent probes. Cell adhesion (1), reactive oxygen species production, intracellular thiols (2) and apoptosis are analysed in relation to the expression of adhesive molecules.

Braut-Boucher F, Pichon J, Rat P, Adolphe M, Aubery M, Font J. J Immunol Methods, 1995, **178**, 41-51.
Plantin-Carrenard E, Braut-Boucher F, Bernard M, Derappe C, Foglietti M.J, Aubery M. Journal of Fluorescence, 2000, **10**, 167-173.

Date submitted: 8th June 2004



**Frank V. Bright, Ph.D.**

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The State University of New York,
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USA.
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chefvb@acsu.buffalo.edu
www.chem.buffalo.edu/Bright.html

*Specialty Keywords*: Sensors, Materials, Benign Solvents.
AIM 2003 = 33.0

Research topics include: [i] Protein dynamics in restricted environments; [ii] Tailored nanoporous xerogel–based sensors and arrays; [iii] integrated sensor devices; [iv] luminophores in microheterogeneous systems; [v] polymer, solute and solute-fluid-surface interactions in environmentally benign solvents; [vi] chemical analysis of things as they arel and [vii] laser based instrumentation.

Y. Tang, E. C. Tehan, Z. Tao and F. V. Bright (2003). Sol-gel-derived sensor materials that yield linear calibrations plots, high sensitivity, and long term stability *Anal. Chem.*75, 2407-2413.

Date submitted: 5th June 2004

**Rasmus Bro, Ph.D.**

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*Specialty Keywords*: Multi-way analysis, PARAFAC, Multivariate analysis.

Research in automatic resolution of complex mixtures of EEM's using modern data analysis such as PARAFAC, PCA, PLS etc.

**Brochon, J.**
**Brouwer, F. A. M.**

Date submitted: 23rd August 2002

## Jean-Claude Brochon, Ph.D.

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*Specialty Keywords*: Proteins, Time-resolved anisotropy, Data analysis.

Structural dynamics and function of biological macromolecules from time-resolved fluorescence *in vitro*. Currently, protein dynamics, self-assembly of proteins, protein-nucleic acids and protein-protein interactions. A recent project in my laboratory is to extend these studies, *in vivo*, in using 2-photons confocal microscopy and FLIM techniques; application to retrovirus replication. High hydrostatic pressure for study of protein plasticity. Application of the Maximum Entropy Method of data analysis in time-resolved spectroscopies.

Deprez, E., Tauc, P., Leh, H., Mouscadet, J-F., Auclair, C. Hawkins, M. E., Brochon, J-C., DNA binding induces dissociation of the multimeric form of HIV-1 integrase : A time-resolved fluorescence anisotropy study, Proc. Nat. Acad. Sci. USA, (2001) 98, 10090- 10095.

Date submitted: 14th August 2003

## Fred A. M. Brouwer, Ph.D.

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*Specialty Keywords*: Fluorescent probes, Motor molecules, Photochemistry, Computational chemistry.

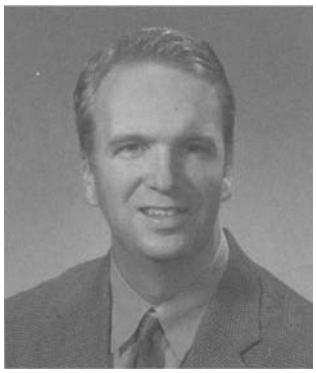
A traditional research theme of our group is photoinduced electron transfer. One of the subjects of study is a class of strongly fluorescent and highly solvatochromic electron-donor acceptor molecules which we apply as probes of the dynamics of solutions and polymer media. A second main theme is "motor molecules", synthetic analogs of motor proteins, that is: molecules which can be made to undergo large-amplitude motion. We mainly use electron transfer (photochemical or electrochemical) and E-Z isomerization as stimuli.

A. M. Brouwer, C. Frochot, F. Gatti, D. A. Leigh, L. Mottier, F. Paolucci, S. Roffia and G. W. H. Wurpel, (2001), *Science*, **291**, 2124-2128.

A.M. Brouwer *Structural aspects of exciplex formation,* In *Methods in Stereochemical Analysis* Waluk, J., Ed.; Wiley-VCH: New York, 2000, pp 177-235.

Date submitted: 21st August 2004

## Peter J. Butler, Ph.D.



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U.S.A.
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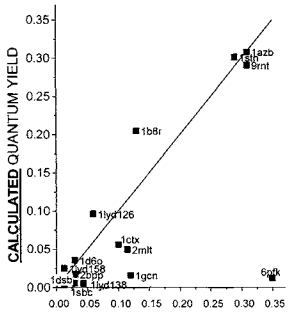
www.bioe.psu.edu

*Specialty Keywords*: Vascular biology, Endothelial cells, Mechanotransduction, Spectroscopy, Microscopy.

Our laboratory is interested in applying multimodal imaging techniques to study the effects of mechanical forces (e.g. fluid shear stress) on the dynamics of molecules in living cells and tissues involved in mechanotransduction. We employ confocal microscopy, time correlated, single photon counting spectroscopy, laser trapping, TIR and other modalities simultaneously on the same microscope to study the spatial and temporal aspects of mechano-activation of cells. We wish to use these techniques to understand the molecular bases of mechanically-induced changes in vascular biology.

Date submitted: 27th November 2003

## Patrik R. Callis, Ph.D.

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*Specialty Keywords*: Tryptophan, proteins, QM-MM simulations, Theory of one- and two-photon spectra of proteins.

We seek a fundamental understanding of what determines the emission wavelength, intensity, decay profile, and band shapes of electronic transitions in proteins using QM-MM simulations of explicitly solvated proteins based on information from our vibronically resolved jet and argon matrix spectra, and semiempirical and ab initio quantum computations. The most recent focus is on electron transfer quenching of tryptophan fluorescence in proteins.

J. T. Vivian and P. R. Callis, Mechanisms of tryptophan fluorescence shifts in proteins, *Biophys. J.* (2001) *80*, 2093-2109.

P. R. Callis and J. T. Vivian, Understanding the variable fluorescence quantum yield of tryptophan in proteins using QM-MM simulations. Quenching by charge transfer to the peptide backbone, Chem. Phys. Letters, in press (Nov. 2001).

Date submitted: 29th July 2002

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www.fisica.uminho.pt

*Specialty Keywords*: Molecular spectroscopy, Biophysics, Microheterogeneous systems.

Current interests: Fluorescent probes; self-assembly molecules; biocompatible colloids (structure and applications); polymer photophysics; dynamics of macromolecules; microaggregates (structure and applications); molecular spectroscopy; kinetics.

G. Hungerford, E.M.S. Castanheira, M.E.C.D. Real Oliveira, M.G. Miguel, H.D. Burrows (2002) Monitoring ternary systems of $C_{12}E_5$/water/tetradecane via the fluorescence of solvatochromic probes, *J. Phys. Chem. B* **106**, 4061-4069.
M.E.C.D. Real Oliveira, G. Hungerford, E.M.S. Castanheira, M.G. Miguel, H.D. Burrows (2000) Monitoring the phase transition of $C_{12}E_5$/water/alkane microemulsions through excimer formation, *J. Fluorescence* **10**, 347-353.

Date submitted: 31st August 2002

**Miguel A. R. B. Castanho, Ph.D.**

Dept of Chemistry and Biochemistry,
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Castanho@fc.ul.pt
www.dqb.fc.ul.pt/docentes/mcastanho

*Specialty Keywords*: Biomembrane, Quenching, Structure.

Fluorescence spectroscopy is used to obtain structural information on the organization of polyene antibiotics and peptides in aqueous media and lipidic bilayers. The agreement between experimental data and theoretical expectations in different techniques (e.g., quenching, energy transfer and migration, anisotropy and linear dichroism), leads to conclusions about, for instance, partition coefficients, aggregation, location, orientation and lateral and rotational dynamics of probes. Recently, the experimental results have been compared to predictions obtained by brownian dynamics simulations.

Date submitted: 11th September 2002

**Zoran G. Cerovic, D.Sc.**

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www.lure.u-psud.fr

*Specialty Keywords*: Photosynthesis, Chlorophyll, Polyphenols.

Studies on the interactions between photochemistry and biochemistry in photosynthesis. Spectroscopy of functional intact isolated chloroplasts and reconstituted chloroplast systems. Investigations on the origin of variable chlorophyll fluorescence *in vivo*. Time–resolved measurements of fluorescence (sub–nanosecond). Investigation on the origin of blue-green fluorescence of plants, and on the UV-excited fluorescence of leaves in general. Design of fluorescence signatures for remote sensing of vegetation.

Latouche, G., Cerovic, Z.G., Montagnini, F. & Moya, I. (2000) Light-induced changes of NADPH fluorescence in isolated chloroplasts: a spectral and fluorescence lifetime study. *Biochim. Biophys. Acta*, **1460**(2-3): 311-329. Ref 2: Ounis, A., Cerovic, Z.G., Briantais, J.-M. & Moya, I. (2001) Dual excitation FLIDAR for the estimation of epidermal UV absorption in leaves and canopies. *Remote Sens. Environ.*, **76**: 33-48.

Date submitted: 20th August 2003

**Olga Nikolaevna. Chaikovskaya, Ph.D.**

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tchon@phys.tsu.ru

*Specialty Keywords*: Photochemistry, Fluorescent spectroscopy, Photolysis.

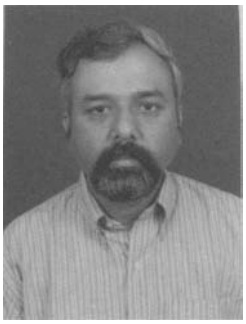
The method of fluorescent spectroscopy is used to investigate the influence of the pH of the medium and of the exciting radiation wavelength on phototransformations of *o*- and *p*-cresol in water under UV irradiation. It is demonstrated that the efficiency of cresol photodecomposition decreases with the increasing pH of the medium. The efficiency of cresol phototransformations in an alkaline medium is higher under irradiation at 283 nm, whereas in a neutral medium, it is higher under irradiation at 222 nm.

A. Svetlichnyi, O. N. Chaikovskaya, O. K. Bazyl', *et al.* (2001). *High-Energy Chemistry*, **35** 258 (Translated from Khimiya Vysokikh Energii, Russia).

**Chakrabarti, A.**
**Chan, P. J.**

Date submitted: 22nd August 2003

## Abhijit Chakrabarti, Ph.D.



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www.saha.ernet.in

*Specialty Keywords*: Spectrin, Membrane skeleton, Thalassemia.

Major research interest of my lab has been the study of the membrane skeletal network in the erythrocytes. We have been working on spectrin-based skeletal network to understand the protein-protein and lipid-protein interactions among the erythroid membrane components using hydrophobic fluorescent probes. We have been recently working on hemoglobin disorders and have shown differential spectrin interactions with the hemoglobin variants HbE & HbA2 implicated in β-thalassemia.

Sibnath Ray & *Abhijit Chakrabarti*. Erythroid spectrin in miceller detergents. (2003). Cell Motil. Cytoskeleton 54, 16-28.

Poppy Datta, Sudipa Basu Chakrabarty, Amit Chakrabarty & *Abhijit Chakrabarti*. Interaction of erythroid spectrin with hemoglobin variants : Implications in beta-Thalassemia. (2003). Blood Cells Mol Dis. 30, 248-253.

Date submitted: 23rd June 2004

## Philip J. Chan, Ph.D.

Gyn / Ob – IVF Dept., Loma Linda Uni School Medicine,
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California, 92354,
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www.llu.edu/lluhc/fertility

*Specialty Keywords*: Infertility, Andrology, Embryology.

The research interests center on the role of papillomavirus in gametes, embryos, the characteristics of transgenic sperm, and mutations in proto-oncogenes and BRCA1. In addition, the research extends to studying fluorescent assays based on dyes and nanoparticles / q-dots for preimplantation analyses.

Bouma, C.L., Patton, W.C., Jacobson, J.D., King, A., Chan, P.J. Sperm apoptosis in nonpregnant luteal phase sera after in vitro fertilization as assessed by comparative genomic hybridization. Arch. Androl. 2004:50:41-44.

Rowland, S.C., Jacobson, J., Patton, W., King, A. Chan, P.J. Dual fluorescence analysis of DNA apoptosis in sperm. Am. J. Obstet. Gynecol. 2003:188;:1156-1157.

Date submitted: 13th September 2002

## Lin L. Chandler, Ph.D.

SPEX Fluorescence, Jobin Yvon Inc.,
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Tel: 732 494 8660 ext 236
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*Specialty Keywords*: Anisotropy, Photon-counting, Frequency-domain.

Member of a team of scientists providing fluorescence applications support, training and new methods development for users of SPEX spectrofluorometers. Support is provided for all users interested in applying high sensitivity photon-counting, steady state fluorescence spectroscopy, fluorescence microscopy and picosecond time resolved, frequency-domain methods to their own research projects.

Date submitted: 25th July 2003

## Amitabha Chattopadhyay, Ph.D.

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India.
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*Specialty Keywords*: Biomembranes and other organized assemblies, Solvent relaxation, FRAP.

My major research interest is the application of fluorescence spectroscopic approaches to problems in membrane and receptor biology. We have successfully utilized approaches based on slow solvent relaxation rates in organized molecular assemblies such as membranes, micelles, and reverse micelles to address key questions related to their organization and dynamics including issues in membrane domains. Another area of interest is the application of fluorescence techniques to explore organization and dynamics of membrane receptors in order to understand their function.

R. Rukmini, S. S. Rawat, S. C. Biswas and A. Chattopadhyay (2001) *Biophys. J.* **81,** 2122-2134.
A. Chattopadhyay (2003) *Chem. Phys. Lipids* **122,** 3-17.

**Chen, A. F.**
**Cheung, H. C.**

Date submitted: 10th July 2004


## Alex F. Chen, Ph.D.

Departments of Pharmacology and Neurology,
The Neuroscience Program,
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chenal@msu.edu



*Specialty Keywords*: Vascular biology and disease, Gene therapy.


The research interest of my laboratory is mechanisms of vascular disease in general. Specifically, we study vascular dysfunction and complications in hypertension and diabetes in rodent models. Our experimental approaches consist of *in vitro* biochemical, molecular biology and pharmacological techniques and *in vivo* pharmacological methods in animal models, including routinely used gene transfer and fluorescent confocal microscopy techniques.


Li LX et al. *Circulation* 107, 1053-1058, 2003.

Zheng JS et al. *Circulation*, 108, 1238-1245, 2003.


Date submitted: 23rd August 2002


## Herbert C. Cheung, Ph.D.

Department of Biochemistry and Molecular Genetics,
University of Alabama at Birmingham,
490 MCLM, 1918 University Boulevard,
1530. 3rd Avenue South,
Birmingham, AL 35294-0005, USA.
hccheung@uab.edu



*Specialty Keywords*: Motor proteins, Troponin, FRET.


My research is focused on the application of fluorescence in general, and FRET in particular, to mechanistic studies of motor proteins (muscle myosin and kinesis), molecular and structural aspects of calcium activation and regulation of cardiac myofilaments, modeling of the actomyosin cycle, complemented by collaborative efforts using molecular modeling and other forms of spectroscopy. Recently, we started FRET on proteins exchanged into single skinned muscle fibers for simultaneous correlation of conformational changes with fiber activation.


W-J. Dong, J. Xing, M. Villain, M. Hellinger, J. R. Robinson, M. Chandra, R. J. Solaro, P. K. Umeda, and H. C. Cheung (1999) *J. Biol. Chem.* **274**, 31382-31390.
W.-J. Dong, J. M. Robinson, J. Xing, P. K. Umeda, and H. C. Cheung (2000) *Protein Sci.* **9**, 280-289.

Date submitted: 4th September 2002

**Rivka Cohen-Luria, Ph.D.**

Chemistry, Ben-Gurion University,
P.O. Box 653, Beer Sheva,
Israel, 84105.
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riky@bgumail.bgu.ac.il

*Specialty Keywords*: Prostaglandins, Membrane Dynamics, Lipid-Protein & Protein-Protein & Protein-Ligand / drug Interactions.

Research topics: The role of hydrophobic interactions in membranal and non-membranal protein function and regulation, signal transduction, cell cycle and proliferation, cell differentiation and intercellular interactions, angiogenesis, apoptosis, magnetic field effects on biological systems.
On the Regulatory Role of Dipeptidyl Peptidase IV ( = CD26 = Adenosine Deaminase Complexing Protein) on Adenosine Deaminase activity. I. Ben-Shooshan, A. Kessel, N. Ben-Tal, R. Cohen-Luria and A.H. Parola .*Biochim. Biophys. Acta*, 1587, 21-30 (2002).
Nature of interaction between basic fibroblast growth factor and the antiangiogenic drug 7,7-(carbonyl-bis[imino-N-methyl-4,2-pyrrolecarbonylimino[N-methyl-4,2-pyrrole]-carbonylimino])-bis-(1,3-naphtalene disulfonate): 2. Removal of polar interactions affects protein folding. M. Zamai, C. Hariharan, D. Pines, M. Safran, A. Yayon, V.R. Caiolfa, R. Cohen-Luria, E. Pines and A.H. Parola. *Biophys. J.*, in press.

Date submitted: 12th September 2002

**Jeffrey J. Comerford, Ph.D.**

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Life Science Group Product Manager,
Varian Australia Pty. Ltd.,
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Mulgrave, 3170, Australia.
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www.varianinc.com

*Specialty Keywords*: Life science, Molecular spectroscopy, Molecular biology, Analytical instrumentation.

My background is in molecular spectroscopy, in particular, the solution and photochemical behavior of square planar platinum(II) anti-cancer drugs. Experienced in the use of fluorescence, UV-Vis absorption and high pressure spectroscopy techniques with particular areas of interest including genomics, protein and cell based fluorescence applications, HTS assays and *ab initio* theoretical calculations. My current role is in marketing and business development, where I am responsible for Varian's fluorescence product line, which includes the Cary Eclipse fluorescence spectrophotometer.

**Cook, M.**
**Coutinho, P. J. G.**

Date submitted: 14th July 2002

## Matthew Cook, Ph.D.

Acumen Bioscience Limited,
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Tel: +44 (0) 176 326 2233 Fax: +44 (0) 176 326 6729
mcook@acumenbioscience.com
www.acumenbioscience.com

*Specialty Keywords*: Laser-Based Scanning, Fluorescent Detection, HTS.

Acumen Bioscience Ltd provides solutions to the drug discovery industry. The company develops and provides laser-based fluorescence detection instruments, assay protocols and reagents. The technologies combine high information screening with throughputs for both cell-based and cell-free assays.
The Acumen Explorer™ instrumentation uses of fluorescent dyes to monitor changes in intra and extra cellular biochemical events. The proprietary software algorithms allow measurements of cell morphology, size, and spectral characteristics utilizing either single or multiple fluorescent dyes.

Date submitted: 31st July 2002

## Paulo J. G. Coutinho, Ph.D.

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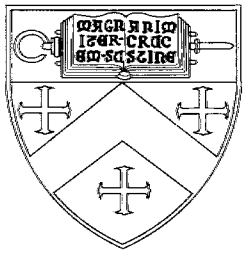
*Specialty Keywords*: Kinetics in confined media, Biophysics, Nanoparticles production by surfactant templating.

Current interests: Biophysics, kinetics in confined media, self-assembly molecules, microaggregates (structure and applications), computer simulations, solar energy conversion, dynamics in biological membranes, photodegradation of pollutants, semiconductor nanoparticles, Langmuir-Blodgett films, surfactant templating.J. A. B. Ferreira, P. J. G. Coutinho, S. M. B. Costa, J. M. G. Martinho (2000), Dissociation Kinetics of Excited Rhodamine $^3B^+ClO_4^-$ in Water/toluene Mixtures: Dynamic Aspects, *Chem. Phys.* 262, 453.

A.L.F. Baptista, P.J.G. Coutinho, M.E.C.D. Real Oliveira, J.I.N. Rocha Gomes (2000), Effect of Surfactants in Soybean Lecithin Liposomes Studied by Energy Transfer between NBD-PE and N-Rh-PE, *J. Liposome Research*, 10, 419.

Date submitted: 28th August 2002

**Scott D. Cummings, Ph.D.**



Department of Chemistry,
Kenyon College, Gambier,
OH 43022,
USA.
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*Specialty Keywords*: Photoluminescent metal complexes.

Research with undergraduates at Kenyon College centers on the synthesis and spectroscopy of transition metal complexes having long-lived excited states. Special attention has focused on photoluminescent platinum (II) complexes capable of photo-induced electron transfer and energy transfer.

M. Cortes, J. D. Oppenheimer, K. E. Downey and S. D. Cummings (2002) "Photoinduced Electron Transfer and Energy Transfer Reactions of Hydroxo-(2,2':6',2"-terpyridine) Platinum (II)" *Inorganica Chimica Acta* **333**, 147-150.

S. E. Hobert, J. T. Carney, S. D. Cummings (2001) "Synthesis and Luminescence Properties of Platinum(II) Complexes of 4'-Chloro-2,2':6',2"-terpyridine and 4,4',4"-Trichloro-2,2':6',2"-terpyridine" *Inorganica Chimica Acta*, **318**, 89-96.

Date submitted: 22nd July 2004

**Robert E. Dale, Ph.D.**

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**University of London**

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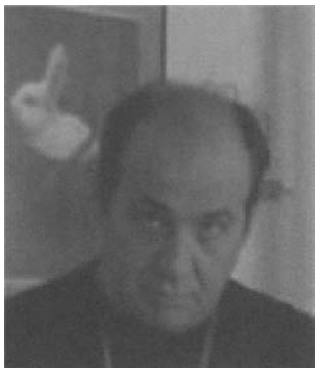
*Specialty Keywords*: Orientation, Depolarization, FRET.

Theory and practice of steady-state and time-resolved fluorescence and fluorescence polarization spectroscopy and Förster long-range resonance excitation energy transfer (FRET) as probes of molecular, macro-molecular and supra-molecular structure and dynamics in their relation to biochemical and biological function and mechanism. Recent and current efforts centre on muscle cross-bridge orientation and dynamics by fluorescence depolarization, and location of Taxol™ binding site in microtubules by homogeneous FRET depolarization.

Date submitted: 5th July 2004

## Sabato (Tino) D'Auria, Ph.D.



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*Specialty Keywords*: Protein Fluorescence, Enzyme Fluorescence, Biosensors.

The research activity of Dr. Sabato (Tino) D'Auria's lab is focused on the development of advanced fluorescence protein-based biosensors for analytes of high social interests. The Dr. D'Auria's lab is well equipped for the study of protein structure and the development of protein sensors. In fact, the dr. D'Auria's lab has modern steady-state and time-resolved fluorometers, circular dichroism spectropolarimeter, Biacore and FCS instrumentation.

S. D'Auria (2004) Development of advanced protein-based biosensors for analyses of social interests, *Biochemical Journal Review* (In press).
S. D'Auria, JR. Lakowicz (2001) Enzyme-fluorescence as sensing tool: new perspectives in biotechnology *Curr Opinions in Biotechnol.*, 12,1, 99-104.

Date submitted: 13th September 2002

## Lesley Davenport, Ph.D.

Department of Chemistry, Brooklyn College of CUNY,
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*Specialty Keywords*: Time-resolved fluorescence, Lipid packing and dynamics, Fluorescent probes.

Research in our laboratory is currently focused on employing fluorescence methods for studying molecular interactions. We are particularly interested in employing long-lived fluorescence probes for investigating submicrosecond dynamics.

L. Davenport, B. Shen, T.W. Joseph and M.P. Straher (2001) A Novel Fluorescent Coronenyl-Phospholipid Analogue for Investigations of Submicrosecond Lipid Fluctuations. *Chem. Phys. Lipids*. **109**, 145-156.
P. Targowski and L.. Davenport (1998) Pressure Effects of Submicrosecond Phospholipid Dynamics Using a Long-Lived Fluorescence Probe, *J. Fluorescence*, **8**, 121-128.

Date submitted: 12th September 2002 **Rodrigo F. M. de Almeida, (Ph.D. student)**

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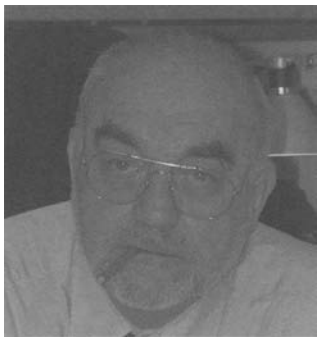
*Specialty Keywords*: Membrane domains, Lipid bilayers, Lipid-protein interactions.

Phase separation in multicomponent lipid bilayers (domain formation and topology in binary and ternary membranes). Model systems for raft/non-raft coexistence Interaction of peptides with membranes and its relation with the phase behaviour/domain structure (mutual influence concerning extent of interaction, structure and dynamics).

R. F. M. de Almeida, L. M. S. Loura, A. Fedorov, and M. Prieto (2002) *Biophys. J.* **82**, 823-834.
L. M. Contreras, R. F. M. de Almeida, A. Fedorov, J. Villalaín, and M. Prieto (2001) *Biophys. J.* **80**, 2273-2283.

Date submitted: 3rd September 2002 **Frans C. De Schryver, Ph.D.**



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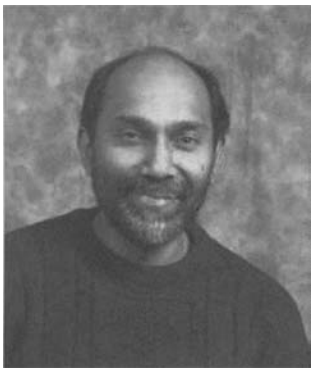
Frans.deschryver@chem.kuleuven.ac.be
www.chem.kuleuven.ac.be/research/mds/members.htm

*Specialty Keywords*: Time resolved fluorescence, Confocal microscopy, Single molecule spectroscopy.

The research group has over the years established an ensemble of techniques with special emphasis on pico second fluorescence decay acquisition and analysis by self developed algorithms (global and compartmental analysis), up-conversion and single molecule spectroscopy. The group has set up tools to down scale in size and in time the object of the photochemical and photophysical study.

M. Lor, R. De, S. Jordens, G. De Belder, G. Schweitzer, M. Cotlet, J. Hofkens, T. Weil, A. Herrmann, K. Müllen, M. Van der Auweraer, F.C. De Schryver J. Phys. Chem.,106, 10, 2083-2090 (2002) T. Vosch, J. Hofkens, M. Cotlet, F. Köhn, H. Fujiwara, R. Gronheid, K. Van Der Biest, T. Weil, A. Herrmann, K. Müllen, S. Mukamel, M. Van der Auweraer, F.C. De Schryver Angew. Chem., 40, 4643-4648 (2001).

Date submitted: 3rd May 2004



**Amilra P. de Silva, Ph.D.**

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*Specialty Keywords*: Sensors, Molecular logic, Switches.
AIM 2002 = 8.3

We established the generality of the luminescent PET (photoinduced electron transfer) sensor/switch principle - one of the most popular sensor/switch designs and now used by many laboratories around the world. The first example of intrinsically molecular logic in the primary research literature came from our laboratories. We continue to develop these two lines.

A.P. de Silva, B. McCaughan, B.O.F. McKinney and M. Querol (2003) Newer Molecular Devices from Older Coordination Chemistry *J. Chem. Soc. Dalton Trans.* 1902-1913.

S. Uchiyama, Y. Matsumura, A.P. de Silva and K. Iwai (2003) Sensitive Molecular Thermometers Based on Polymers... *Anal. Chem.* 75, 5926-5935.

Date submitted: 15th June 2004

**Soma De, Ph.D.**

Center for Neuropharmacology and Neuroscience,
Albany Medical Center,
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des@mail.amc.edu & des@mail.rockefeller.edu

*Specialty Keywords*: Age-related Macular Degeneration (AMD), Drusen, Membrane Mimics.

The formation of drusen and other deposits below the retinal pigment epithelial (RPE) cells on Bruch's membrane and accumulation of lipofuscin in RPE cells are initial steps in the pathogenesis of AMD. My research focuses on to understand the origin of drusen and how A2E, a component of lipofuscin, induces apoptosis of RPE cells. I have also applied fluorescence spectroscopy extensively to study the membrane properties of synthetic dimeric lipid vesicles.

S. De and T. P. Sakmar, (2002), Interaction of A2E with model membranes. Implications to the pathogenesis of age-related macular degeneration, *J. Gen. Physiol.* **120**, 147-157.
S. Bhattacharya and S. De, (1999), Synthesis and vesicle formation from dimeric pseudoglyceryl lipids with $(CH2)_m$ spacers: Pronounced *m*-Value dependence of thermal properties, vesicle fusion, and cholesterol complexation, *Chem. - A Eur. J.* **5**, 2335-47.

Date submitted: 28th July 2004

## Todor G. Deligeorgiev, Ph.D.

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Faculty of Chemistry,
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1126 Sofia, Bulgaria.
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toddel@chem.uni-sofia.bg
www.chem.uni-sofia.bg/unidyes/

*Specialty Keywords*: Dye synthesis, Fluorescence, Bioapplications of fluorescent probes.

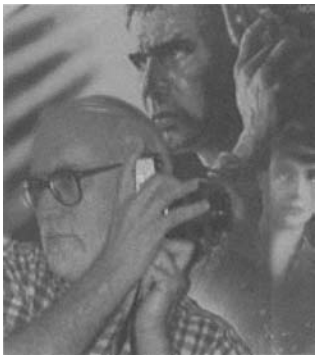
In the last years our research continue to be directed to the synthesis of novel nucleic acid dyes based mainly on Thiazole Orange and Oxazole Yellow chromophores as non-covalent fluorescent probes. We are also interested in development of novel luminescent europium, aluminium and zinc complexes based on different ligands.

T. Deligeorgiev, I. Timtcheva, V. Maximova, N. Gadjev, J-P. Jacobsen, K-H. Drexhage, "Homodimeric Monomethine Cyanine Dyes SOSO-1 and TOTO-1-6C – synthesis and fluorescence properties in the Presence of Nucleic Acids" *Dyes and Pigments,* **61,** 79-84 (2004).

Aleksey Vassilev, Ivanka Dikova, Todor Deligeorgiev, Karl-Heinz Drexhage, Quaternization of N-Heterocyclic Salts with Propylene Oxide and Epichlorochidrin, *Synth. Communications,* **34,** 2539 (2004).

Date submitted: 15th June 2004

## James N. Demas, Ph.D.



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USA.
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demas@virginia.edu
www.people.virginia.edu/~jnd/

*Specialty Keywords*: Coordination compounds, Luminescence, Sensors.

We are designing, synthesizing, and applying highly luminescent Ru, Os, Ir, and Re complexes with α-diimine ligands. Applications are as molecular reporters and analytical sensors (e.g., $O_2$ and pH) with special focus on the role of the support in modulating and controlling sensing properties. We are also developing instrumentation and data analysis methods.

Z. J. Fuller, W. D. Bare, K. A. Kneas, J. N. Demas, B. A. DeGraff (2003). Photostability of Luminescent Ruthenium(II) Complexes in Polymers and in Solution, *Anal. Chem.*, **75**, 2670-2677.

**Demchenko, A. P.**
**Dennis, R. B.**

Date submitted: 1st August 2003

**Alexander P. Demchenko, Ph.D., D.Sc.**

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*Specialty Keywords*: Protein and membrane fluorescence, Red-Edge effects, New fluorescence probes.

Based on Red-Edge effects together with other site-selectivity and inhomogeneous broading effects in fluorescence a new methodology was developed for the studies of protein and biomembrane dynamics. These effects and their coupling with the dynamics of molecular relaxations were demonstrated for excited-state reactions of intramolecular electron and proton transfer. A new generation of two-color ratiometric fluorescence probes and sensors was developed based on 3-hydroxychromones and applied in protein and biomembrane research. Other research interests include protein folding, mechanisms of protein-ligand interactions and of the functioning of molecular chaperones.

Date submitted: 28th July 2004

**Richard B. Dennis, Ph.D.**

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*Specialty Keywords*: Fluorescence spectrometers, Single photon counting, Time correlated single photon counting.

Active in the field of fluorescence since 1978 with the launch of the first commercial spectrometer to measure fluorescence lifetimes based on the technique of time correlated single photon counting (TCSPC).
Involved in many of the company's including an ultra-sensitive steady state fluorimeter based on single photon counting and systems for measuring fluorescence and phosphorescence kinetics from picoseconds to seconds. Also involved in laser flash photolysis spectrometers for studying the time resolved spectra and kinetics of transient species from nanoseconds to seconds.

Date submitted: 30th June 2004

## John J. Devaney.

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*Specialty Keywords*: TCSPC, Spectroscopy, Photodetection.

Instrumentation Engineer at Boston Electronics Corporation, North American agents for Becker & Hickl GmbH of Berlin, Germany and for Edinburgh Instruments Ltd of Edinburgh, Scotland. Specialist in monochromators and spectrometers.

Date submitted: 13th August 2004

## Alberto Diaspro, Ph.D.

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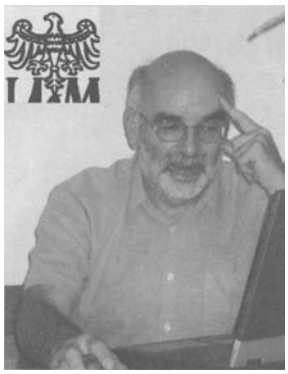
*Specialty Keywords*: Confocal Microscopy, Multiphoton microscopy, Bioimaging.

AD (Genoa, Italy, April 7, 1959) is Professor at the University of Genoa in the Applied Physics area. His research activity aims at the study of biological molecules to address cell functioning using conventional, confocal and multiphoton fluorescence microscopy, FRET, FRAP, FLIM, single molecule imaging, scanning probe microscopy, polarized light scattering, nanostructured model systems, bioimaging. He joins IFOM (Institute for Cancer Research, Milan) and MicroScoBio (Reserach Center for Correlative Microscopy in Biomedicine and Oncology).

A.Diaspro et al. Langmuir, 18, 5047-50, (2002). Diaspro A et al., J Phys Chem B 107: 11008-12 (2003). A.Diaspro (ed.),"Confocal and Two-photon Microscopy", Wiley-Liss, Inc, 1-567 (2002).

Date submitted: 7th June 2004

## Andrzej T. Dobek, Ph.D.



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*Specialty Keywords*: Molecular biophysics, Photobiology, Ultra-fast laser spectroscopy.

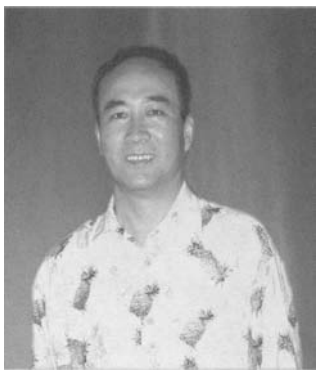
Current Research Interests: Transient absorption, fluorescence and photovoltage studies of primary events in photosynthesis, static and dynamic light scattering in biomacromolecular solutions, nonlinear light scattering in solution of macromolecules oriented by DC magnetic field and optical field.

H. Jurga-Nowak, E. Banachowicz, A. Dobek, A. Patkowski (2004). Supramolecular Guanosine 5c-Monophosphate Structures in Solution. Light Scattering Study, *J. Phys.Chem. B*, **108**, 2744-2750.

A.Dobek, M.Pankowska, J.Gapiński (2002). Magneto-optics of Ferritin, *J. Colloid & Int. Sci.*. **253**, 265-272.

Date submitted: 26th July 2004

## Wen-Ji Dong, Ph.D.



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*Specialty Keywords*: Fluorescence, Lanthanide luminescence, FRET, Kinetics, Cardiac thin filament proteins, Bioassay.

The primary focus of my current research involves the application of fluorescence spectroscopy combining with molecular biology approaches in study of cardiac thin filament proteins and bioassay development, including study of calcium activation mechanism of cardiac muscle; elucidation of structure-function relationship within thin filament; and development and application of novel fluorescence and luminescence assay for biological studies and high throughput drug screening.

**Dong W.-J.;** Robinson, J. M.; *et. al.* Kinetics of conformational transitions in cardiac troponin induced by $Ca^{2+}$ dissociation determined by Forster resonance energy transfer. *J. Biol. Chem.* **278** 42394-402, 2003.

**Dong, W.-J.;** Robinson, J. M.; *et. al.* $Ca^{2+}$-induced conformational transition in the inhibitory and regulatory regions of cardiac troponin I. *J. Biol. Chem.* **278** 8686-8692, 2003.

Date submitted: 30th June 2004

**Andrey O. Doroshenko, Ph.D, D.Sc.**

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*Specialty Keywords*: High Stokes shift organic luminophores.

Design and investigation of abnormally high Stokes shift organic fluorescent species: sterically hindered aromatic heterocyclic molecules, excited state intramolecular proton transfer (ESIPT) compounds, cation-sensitive fluorescent probes, fluorescent probes for biomembrane studies. Elucidation of interrelations between the molecular structure, photophysical and photochemical properties of organic compounds. Photochemical transformations of organic molecules. Quantum chemical modeling of fluorescent and photochemical ability of organic luminophores.

*Pivovarenko V.G., Grygorovych A.V., Valuk V.F., Doroshenko A.O.* 2003, J. Fluor., **13**, 479-486.
*Doroshenko A.O., Bilokin M.D., Pivovarenko V.G.* 2004, J. Photochem. Photobiol., A: Chem., **163**, 95-102.

Date submitted: 9th August 2002

**Peter Douglas, Ph.D.**

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*Specialty Keywords*: Porphyrins, Optical sensors, Photographic dyes.

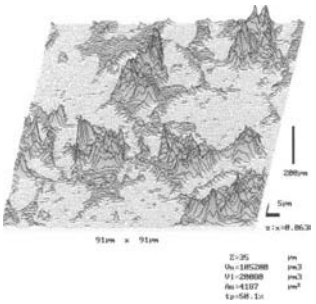
Photochemical research interests: Photodegradation mechanisms of photographic and textile dyes, photochemistry on thin film $TiO_2$, luminescent oxygen sensors, thin film optical sensors for medical industrial and environmental applications, photochemistry of porphyrins and metalloporphyrins, colloidal photochemistry electrochemistry and reaction kinetics.

C.D.Geddes and P.Douglas, Fluorescent dyes bound to hydrophilic copolymers - applications for aqueous halide sensing, (2000), *App. Poly. Sci.*, **76**, 603-615.
P.Douglas and K.Eaton, Response characteristics of thin film oxygen sensors, Pt and Pd Octaethylporphyrins in polymer films, (2002) Sens. Actuators B, 200-208.

**Dressler, C.**
**Drexhage, K. H.**

Date submitted: 29th August 2003

## Cathrin Dressler, Ph.D.



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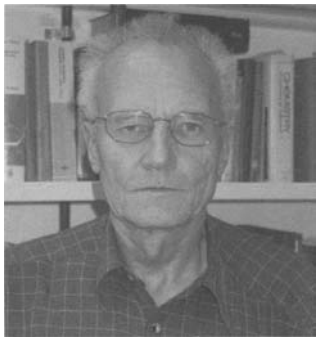
*Specialty Keywords*: Cell stressing, Nanocrystals, Subcellular Structures.

My research is focused on analysing cellular stress responses by means of fluorescence microscopy and scanning probe microscopy. Especially we are interested in new organic fluorescent labels as well as luminescent nanocrytals (Qdots). The development of nanostructered substrates in fluorescence-based bioanalytical devices also is a main working area of our group.

Dressler C, Eberle H-G, Beuthan J, Müller G. 2002. Microscopic techniques in bioanalytics and micropeparation of cellular systems. In: *Optoelectronics applications in medicine, food technology and environmental protection*; pp. 95-103;Ecomed Verlagsges., Landsberg
Eberle H-G, Dressler C, Oertel H, Beuthan J, Müller G (2002). On the use of Si-based nanohole arrays as near-field biochips. Quantum Electronics **32**: 999-1002.

Date submitted: 10th July 2002

## Karl H. Drexhage, Ph.D.



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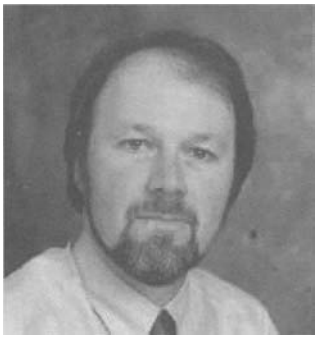
*Specialty Keywords*: Fluorescence, Organic Dyes, Fluorescent Labels.

Research Interests: My research is centered around the process of light emission by molecules and the influence of molecular structure on fluorescence. Research topics are: Inter- and intramolecular energy transfer, influence of a mirror on decay time and directional characteristics of fluorescence, cooling by anti-Stokes fluorescence, laser dyes, development of fluorescent labels for biochemistry and medicine.

J. Arden-Jacob, J. Frantzeskos, N.U. Kemnitzer, A. Zilles, and K.H. Drexhage (2001). New fluorescent markers for the red region, Spectrochim. Acta A, **57**(11), 2271-2283.

Date submitted: 30th August 2002

## David T. F. Dryden, Ph.D.



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*Specialty Keywords*: Protein-DNA interactions, Fluorescence spectroscopy, Single-molecule imaging.

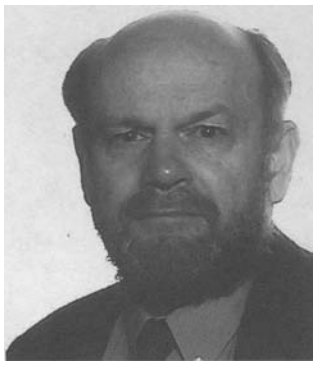
I am interested in all aspects of protein and DNA structure and dynamics with particular emphasis on combining physical and biological techniques at the "interface" between the physical and life sciences.

M.D. Walkinshaw, P. Taylor, S.S. Sturrock, C. Atanasiu, T. Berge, R.M. Henderson, J.M. Edwardson, and D.T.F. Dryden. Structure of Ocr from Bacteriophage T7, a Protein that Mimics B-Form DNA. *Molecular Cell* [2002] **9**, 187–194.

The DNA binding characteristics of the trimeric *Eco*KI methyltransferase and its partially assembled dimeric form determined by fluorescence polarisation and DNA footprinting. L.M. Powell, B.A. Connolly & D.T.F. Dryden. [1998] *J. Mol. Biol.* **283**, 947-961.

Date submitted: 28th May 2004

## Guy Duportail, Ph.D.



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*Specialty Keywords*: Biophysics, Liposomes, Fluorescent Probes.

Field of research is membrane biophysics by using fluorescence spectroscopy methods. The different topics of interest so far considered are: membrane photophysics, development of liposomes as mimicking membrane systems, conception and study of novel fluorescent probes for biomembranes (DPH, Pyrene and 3-Hydroxyflavone derivatives), physicochemistry of the processes of non-viral transfection by cationic lipids, lipid microdomains (rafts).

G. Duportail, and P. Lianos (1996) in *Vesicles,* Surfactant Science Series, Vol. 62 (M. Rosoff Ed.), Marcel Dekker, New York, pp. 295-372.

A.S. Klymchenko, G. Duportail, A.P. Demchenko, and Y. Mély (2004) Bimodal distribution and fluorescence response of environment-sensitive probes in lipid bilayers. *Biophys. J.* **86**:2929-2941.

**Dürkop, A.**
**Dyubko, T. S.**

Date submitted: 26th August 2004


## Axel Dürkop, Ph.D.

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*Specialty Keywords*: Ruthenium Complexes, DNA-Intercalators, Europium Complexes, Terbium Complexes, Lanthanides, Labels, Hydrogen Peroxide, Citrate.


Our research includes the synthesis of new luminescent ruthenium metal ligand complexes. They can be conjugated to functional groups in biomolecules for bioassays (e.g. FRET-Immuno-assays, FRET-assays of DNA-Oligonucleotides) or can be used as DNA-Intercalators. Further research is done about the use of luminescent europium complexes for the analysis of hydrogen peroxide and citrate or catalase and oxdase activity. Finally, we use new Terbium complexes with long luminescence decay time as DNA intercalators. All assays (for analytes, enzymes and DNA) are developed in microtiterplate format.

Date submitted: 29th August 2003


## Tatyana S. Dyubko, Ph.D.

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www.geocities.com/tdyubko2003/index.htm



*Specialty Keywords*: Fluorescence, Biophysics, Cryobiology.


The main research ones is including: (1) development of fluorescent probe methods and its application to determination of human serum proteins and biological membranes structural rearrangements after non-physiological conditions action (low temperatures, laser and ionizing radiation etc.) and under some human diseases; (2) testing of new fluorescent dyes with aim of its application in biology and medical diagnostics; (3) investigation of molecular mechanisms of cell membranes cryodamages and cryoprotection. Author of more 135 scientific works.


Dyubko T.S. Cell membrane cryodamages according to spectroscopy of fluorescent probes data. Journal of Biosciences, 1999, v. 24, suppl. 1, p. 248.

Romodanova E.A., Dyubko T.S. et al. MNBIS as marker of protein macrostructure changes. Bulletin of KhNU, No 570. Ser. Radiophysics and Electronics, 2002.Is. 2, p. 302.

Date submitted: 9th August 2002

**Kay Eaton, Ph.D.**

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*Specialty Keywords*: Optical oxygen sensors, Redox chemistry, Luminescence quenching.

Research interests: The development of novel luminescence and redox based optical oxygen sensors. Dye redox chemistry. Steady-state and time-resolved studies of metalloporphyrin luminescence quenching by oxygen. Kinetic modelling of oxygen quenching of luminescence in heterogeneous thin polymer films.

K. Eaton, A novel colorimetric oxygen sensor: dye redox chemistry in a thin polymer film, (2002), Sens. and Actuators B, **85**, 42-51.
P.Douglas and K.Eaton, Response characteristics of thin film oxygen sensors, Pt and Pd Octaethylporphyrins in polymer films, (2002) Sens. Actuators B, **82**, 200-208.

Date submitted: 6th June 2004

**Richard H. Ebright, Ph.D.**

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waksman.rutgers.edu/Waks/Ebright/ebright2.html

*Specialty Keywords*: Fluorescence spectroscopy, Single-molecule spectroscopy, Single-molecule nanomanipulation.

Transcription is the first step in gene expression and is the step at which most regulation of gene expression occurs. Our laboratory seeks to understand the structure, function, and regulation of transcription initiation complexes, and to develop inhibitors of bacterial transcription as potential antibacterial agents.

Revyakin, A., Ebright, R., and Strick, T. (2004) Promoter unwinding and promoter clearance by RNA polymerase: Detection by single-molecule DNA nanomanipulation. Proc. Natl. Acad. Sci. USA **101**, 4776-4780.

**Egelhaaf, H.**
**Egorova, A. V.**

Date submitted: 1st September 2002

## Hans-Joachim Egelhaaf, Ph.D.

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*Specialty Keywords*: Thin organic films, Molecular mobility, Fluorescence anisotropy.

Translational and rotational molecular mobilities in liquid-swollen polymers are investigated by steady-state and time-resolved fluorescence techniques (mainly quenching and anisotropy) in order to understand and control the accessibilities of polymer-bound active centers.

Photoinduced processes (e.g., charge carrier generation and recombination) in thin organic films of Pi-conjugated polymers are studied by steady-state and time-resolved absorption, fluorescence, and photoconductivity in order to elucidate the kinetics and mechanisms of these processes.

H.-J. Egelhaaf, D. Oelkrug, P. Herman, E. Holder, H.A. Mayer, E. Lindner (2001) *J. Mater. Chem.* **11**, 2445 – 2552.

G. Cerullo, G. Lanzani, S. deSilvestri, H.-J. Egelhaaf, L. Lüer, D. Oelkrug (2000) *Phys. Rev. B* **62,** 2429.

Date submitted: 12th August 2002

## Alla V. Egorova, Ph.D.

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*Specialty Keywords*: Energy Transfer, Lanthanides, Fluorescent probes.

Investigation of intramolecular energy transfer from organic compounds to lanthanide ions. Optimization of conditions for the formation fluorescent complexes of organic compounds with lanthanide ions in solutions and on solid surfaces. Elucidation of interaction between molecular structure of organic ligands and fluorescent properties of investigated complexes. Design of fluorescent system for determination of drugs and fluorescent probes for fluoroimmunoassay.

A.Egorova, S.Beltyukova, O.Teslyuk, V.Karpinchik. J.Pharm. Biomed. Anal.,24 (2001) 1081-1085.

S.Beltyukova, O.Teslyuk, A.Egorova, E.Tselik. J. of Fluorescence, Vol.12, №2 (2002), 269-272.

Date submitted: 7th July 2004

## Benjamin Ehrenberg, Ph.D.

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*Specialty Keywords*: Fluorescent probes, Photosensitizers, Porphyrins, Membrane biophysics.

We study the interactions of porphyrins and porphyrin-like molecules with artificial and natural membranes. The porphyrins are considered for use as photosensitizers for photodynamic therapy of malignancies and bacterial eradication. The aim of these studies is to understand the binding efficiency and topography of porphyrin sensitizers in membranes and to correlate these attributes with molecular structure. The extent of interaction, the depth of membrane-penetration and the efficiency of sensitized generation of singlet oxygen are monitored by fluorescence techniques.

Bronshtein I, Afri M, Weitman H, Frimer AA, Smith KM Ehrenberg B. Porphyrin Depth in Lipid Bilayers as Determined by Iodide and Parallax Fluorescence Quenching Methods and Its Effect on Photosensitizing Efficiency. Biophys. J., in print.

Date submitted: 31st July 2004

## Jörg Enderlein, Ph.D.

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*Specialty Keywords*: Single-molecule fluorescence, Nano-optics.

Jörg Enderlein is an expert on ultrasensitive and single-molecule fluorescence spectroscopy. While working with PicoQuant GmbH in Berlin, he was involved in the development of pulsed laser systems and high-speed electronics applicable to single-molecule fluorescence spectroscopy. Since 2001, he is a Heisenberg Fellow of the Deutsche Forschungsgemeinschaft and head of the Single-Molecule Biophysics group at the Forschungszentrum Jülich.

C. Zander, J. Enderlein, R. A. Keller (Eds.) *Single-Molecule Detection in Solution - Methods and Applications* (VCH-Wiley, Berlin/New York, 2002).

**Engelborghs, Y.**
**Epand, R. M.**

Date submitted: 29th June 2004

## Yves Engelborghs, Ph.D.

Biomolecular Dynamics, Katholieke Universiteit Leuven,
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www.chem.kuleuven.ac.be/research/bio/webye_en.html

*Specialty Keywords*: Protein, Tryptophan, Microscopy, FCS.
AIM 2003 = 45.5

Our main interest is the understanding of protein fluorescence and its linkage to structure and dynamics. We have contributed to the unraveling of the fluorescence of multiple Trp-proteins, the interactions among the Trp's, and the linkage between multiple lifetimes of single Trp-residues and their rotamers. In the context of Fluorescence Correlation Microscopy/Spectroscpy (FCS) we are interested in the application of the technique to molecular interactions in vitro and in the living cell with a special interest in the proteins from HIV.

Hellings M, et al., The dead-end elimination method, tryptophan rotamers, and fluorescence Lifetimes. Biophys J. (2003)85, 1894-902.
Maertens G, et al., LEDGF/p75 is essential for nuclear and chromosomal targeting of HIV-1 integrase in human cells. JBC (2003) 278, 33528-39.

Date submitted: 14th August 2002

## Richard M. Epand, Ph.D.

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*Specialty Keywords*: Membrane, Hydrophobic, Liposomes.

We are interested in the use of fluorescence to determine membrane properties. We have studied the application of fluorescent probes for monitoring the nature of the membrane interface (1) and have also used fluorescence to identify protein sites that would facilitate membrane binding (2).

R.F. Epand, R. Kraayenhof, G.J. Sterk, H.W. Wong Fong Sang, and R.M. Epand (2002). Flourescent probes of membrane surface properties. *Biochem.Biophys.Acta* **1284,** 191-195.
D.L. LeDuc, Y.K. Shin, R.F. Epand, and R.M. Epand (2000). Factors determining vesicular lipid mixing induced by shortened constructs of influenza hemagglutinin. *Biochemistry* **39,** 2733-2739.

Date submitted: 30th August 2003

## Rainer Erdmann, Dipl.-Phys.

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*Specialty Keywords*: TCSPC, Single Molecule Detection, FCS, Confocal microscopy, FLIM; μ-plate reader.

Current Status: Managing Director at PicoQuant GmbH.
We focus our R/D on ultra sensitive fluorescence detection methods. Beside the development of components (like compact picosecond diode lasers, PC boards for TCSPC, detector modules) we design complete fluorescence spectrometers for various applications including comprehensive data analysis tools. Furthermore we develop microscope based systems for fluorescence lifetime imaging (FLIM) applications. These systems offer ultimate sensitivity as well as highest spatial resolution as needed for single molecule detection. Beside traditional fluorescence correlation and fluorescence lifetime analysis we work on the combination of both techniques.

Date submitted: 2nd September 2002

## Anna M. Eremenko, Ph.D.

National Ukrainian Academy of Sciences,
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annerem@mail.kar.net

*Specialty Keywords*: Charge transfer, Silica, Photocatalysis.

The scope of scientific interests concerns the problems of surface photochemistry. Fluorescent properties of adsorbed polyacenes on silica, silica-alumina and silica-titania surfaces: Processes of intermolecular charge transfer, decay of fluorescence, formation of excimer, exciplex and CTC on the surfaces. Effect of surface active centers on the intramolecular charge transfer and conformational mobility of adsorbed TICT molecules. Luminescent diagnostic of active centers of silica, and mixed oxides. Sensibilization of titania photocatalysts to the visible with adsorbed excited organic dyes.

A. Eremenko, N.Smirnova, O.Rusina, O.Linnik, L.Spanhel, K.Rechthaler, Photophysical properties of organic fluorescent probes on nanosized $TiO_2/SiO_2$ systems J.Mol. Struct. 2000, 553/1-3, 1.

**Eremin, S. A.**
**Erker, W.**

Date submitted: 30th July 2003

## Sergei A. Eremin, Ph.D.

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*Specialty Keywords*: Fluorescence Polarization immunoassay, Pesticides, Drugs.

- Development of fluorescence polarization and enzyme immunoassays.
- Development immunoassays in flow system.
- Investigation of influence of chemical structure of tracer on the sensitivity and specificity of immunoassay.

Eremin, S.A.; Smith, D.S. Fluorescence Polarization Immunoassays for Pesticides. *Comb. Chem. High T. SCR.* **2003**, 6(3), 257-266.
A.Yu. Kolosova, J.-H. Park, S.A. Eremin, S.-J. Kang, D.-H. Chung. Fluorescent Polarization Immunoassay Based on a Monoclonal Antibody for the Detection of Organophosphorus Pesticide Parathion Methyl. *J. Agric. Food Chem.* **2003**, 51(5), pp 1107 – 1114.

Date submitted: 31st July 2002

## Wolfgang Erker, Ph.D.

Institute for Molecular Biophysics,
University of Mainz,
Welderweg 26, 55128 Mainz,
Germany.
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*Specialty Keywords*: Proteins, Hemocyanin, Tryptophans.

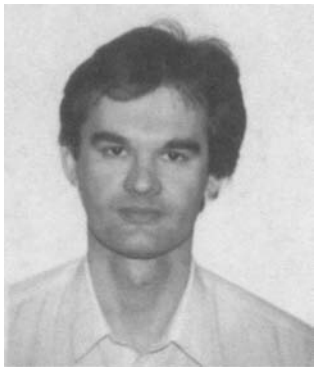
My research is focused on the structure-function-relationship of proteins particularly hemocyanins. I am looking for conformational changes, investigating the flexibility and stability of the proteins. This involves energy transfer calculations, ensemble and single-molecule measurements especially with the intrinsic fluorophor tryptophan.

Lippitz M, Erker W, Decker H, van Holde KE, Basché T: Two-photon excitation microscopy of tryptophan containing proteins; Proc. Nat. Acad. Sci. 2002, 99 (5), 2772-2777.

Erker W, Hübler R, Decker H: Multi-donor- and multi-acceptor-quenching of oxy-hemocyanins by Förster transfer; Protein Science 2001, 10 (Suppl. 1), 144.

Date submitted: 4th June 2004

## János Erostyák, Ph.D.



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physics.ttk.pte.hu/erostyak/

*Specialty Keywords*: Integrating sphere, Dielectric relaxation, Energy transfer.

Present research interests are: Dielectric relaxation of dyes and proteins; Intra- and intermolecular energy transfer; Computer modelling of excited state processes; Analytical applications of dye-trace detection; Development of integrating spheres.
Experimental practice: phase fluorometry, femtospectrometry, laser fluorometry.

A. Buzády, J. Savolainen, J. Erostyák, P. Myllyperkiö, B. Somogyi, J. Korppi-Tommola: Femtosecond transient absorption study of excitation relaxation of an acrylodan dye in solution and attached to human serum albumin. J. Phys. Chem. B, (2003), 107, 1208-1214.

Date submitted: 17th June 2004

## Kadriye Ertekin, Ph.D.

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Turkey.
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kisi.deu.edu.tr/kadriye.ertekin/yayin.html

*Specialty Keywords*: Optic sensor, Fluorescence, Sol-gel and Polymer matrices.
AIM 2003 = 7.8

My research area covers investigation of proton (carbon dioxide) and oxygen sensitive fluorophores (fluoroionophores) in solution phase (in terms of molar absorbtion, quantum yield, photostability..) and, immobilization into/onto proper matrices, to evaluate the response of these materials to analyte by means of fluorescence spectroscopy.

Serap Alp, Kadrive Ertekin, Matthias horn, Sıddık Icli, "Photostability Studies of Thermomensomorphic Derivatives of 2,5-dihydropyrrolo [3,4-c]pyrrole=1,4-dione", Dyes and Pigments' 60103-110 (2004).
Cemal Hazneci, Kadriye Ertekin, Berrin Yenigul, Engin Cetinkaya "Optical pH Sensor Based on Spectral Response of the Newly Synthesized Schiff Bases" Dyes and Pigments, Dyes and Pigments, Volume 62, Issue 1, July 2004, Pages 35-41.

**Farinha, J. P. S.**
**Felekyan, S. S.**

Date submitted: 29th August 2004


## Jose Paulo S. Farinha, Ph.D.

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Portugal.
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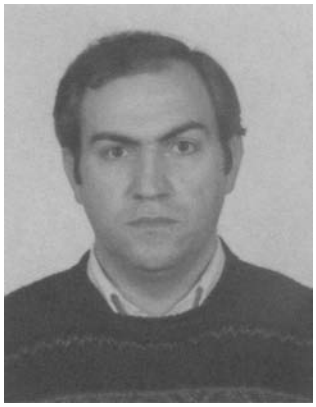
farinha@ist.utl.pt
dequim.ist.utl.pt/docentes/3296


*Specialty Keywords*: Energy Transfer, Polymers, Colloids.
AIM 2003 = 12.0

Study of polymer and colloidal systems using fluorescence techniques. Use of excimer formation to study the dynamics of polymer chains in solution. Study of the interface structure, colloidal particles (latex, micelles, etc) and in polymer films using non-radiative energy transfer. Synthesis and dye-labeling of polymers. Modeling of the energy transfer kinetics in dispersed colloidal particles, polymer blend films, and other structured materials. Modeling of the diffusion in dye-labeled latex films. Static and dynamic fluorescence measurements.


Farinha, J. P. S. et al *J. Phys. Chem. B* 1999, *103*, 2487.
Farinha, J. P. S. et al *J. Phys. Chem.* 1996, *100*, 12552.


Date submitted: 4th July 2002




## Suren S. Felekyan, Ph.D.

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Fur Biophysikalische Chemie,
Karl-Friedrich-Bonhoeffer-Institut,
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www.mpibpc.gwdg.de/abteilungen/010/seidel/


*Specialty Keywords*: FCS, BIFL, FRET.

"Multidimensional single molecule fluorescence spectroscopy of biomolecules: Screening applications and time-resolved investigation on biological processes".

Date submitted: 3rd July 2004

## Karl-Heinz Feller, Ph.D.

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*Specialty Keywords*: J Aggregates, Exciton-exciton aanihilation, Disorder processes, Nano-rods, Opto-optical switch.

Time-resolved fluorescence and pump-probe spectroscopy of polymethine J aggregates have been the main scientific area of interest during the last 15 years. The contribution of exciton-exciton annihilation as well as higher exciton manifolds to the overall-desactivation process of excited J aggregates and their perspective usage as fast opto-optical switches due to this stabilizing effects is the main result of the research done. The results have been generalized from linear aggregate structures to multidimensional structures including helix structures and nano-rods.

Glaeske, V. A. Malyshev, K.-H. Feller, Effects of higher exciton manifolds and exciton-exciton annihilation ... in...linear Frenkel chains, Phys. Rev. A 65, 33821 – 33832 (2002).

Date submitted: 1st July 2004

## Maria L. Ferrer, Ph.D.

Instituto de Ciencia de Materiales,
Consejo Superior de Investigaciones Científicas,
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Madrid, 28049, Spain.
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*Specialty Keywords*: Fluorescence Sensing, Fluorescent Dimmers, Sol-Gel.
AIM 2003 = 17.4

My research is focused on the preparation of organically modified silicates through the sol-gel method for optical applications. I have studied the chemical properties of the porous surface of Ormosils through fluorescence spectroscopy. More recently, I am interested on the encapsulation of biomolecules in sol-gel matrices and on the study of the structural integrity, activity and fluorescence sensing applications of the encapsulated biomolecules.D. Martínez-Pérez,

M.L.Ferrer, C.R. Mateo (2003) A reagent less fluorescent sol-gel biosensor for uric acid detection in biological fluids.Anal. Biochem. 322 238-242.

Date submitted: 29th August 2002

## Vlastimil Fidler, Ph.D.

Department of Physical Electronics, Faculty of Nuclear Sciences and Physical Engineering,
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Vlastimil_Fidler@brown.edu
Affiliated: Brown University, Providence, R.I. 02912, USA.
*Specialty Keywords*: TR Fluorescence, Excitation Energy Transfer, Photo-induced Intramolecular Processes.

Graduated from Charles University in Prague, long-term stays at the Royal Institution, London, UK, at IMS Okazaki, Japan, and at University of Chicago, USA; currently with CTU in Prague, Czech Republic & affiliated with Brown University, Providence, USA.
*Current topics of primary interest:* Ultrafast TR fluorescence, kinetics and anisotropy; Intra-molecular energy &electron transfer and re-distribution; Photo-physics of molecular switching.

V. Fidler, P. Kapusta, M. Nepras, J. Schroeder, I.V. Rubtsov, and K. Yoshihara (2002). Femtosecond Fluorescence Anisotropy Kinetics as a Signature of Ultrafast Electronic Energy Transfer in Bichromophoric Molecules: *Z. Phys. Chem,.* **216**, 589-603.

Date submitted: 12th September 2002

## Judit Fidy, D.Sc., Ph.D.

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Puskin u. 9, Budapest,
H-1088, Hungary.
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*Specialty Keywords*: Protein dynamics, Aggregation, Folding.

Research interests: Prof. Fidy's interest in protein dynamics started by detailed fluorescence line narrowing studies on hemoproteins. On this basis she initialized a collaboration with Prof. J. Friedrich (Bayreuth, D.) to perform the first spectral hole burning studies under high pressure on a protein. Since 1993 she has her own research lab in Budapest equipped with FLN, various luminescence methods, cryostats, high pressure cells and computer capacity for molecular modeling. They study the connection between protein dynamics and functionality.

J. Fidy et al., invited review, BBA, (1998) **1386,** 289-303.
L. Smeller , J. Fidy, Biophys.J. (2002) **82,** 426-436.

Date submitted: 28th August 2002

**Peter Fischer.**

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info@jenlab.de
www.jenlab.de

*Specialty Keywords*: Multiphoton imaging, FRET, Fluorescence lifetime imaging, Optical biopsy, Drug screening.

R/D is focussed on femtosecond laser systems for biotechnology, cell biology and medicine. Products include the multiphoton fluorescence imaging system *DermaInspect 100* for skin diagnostics and drug screening and the scanning microscope *TauMap* for fluorescence lifetime imaging including time-resolved FRET. In addition, miniaturized low-cost sterile cell chambers for long-term fluorescence microscopy and GFP imaging (*MiniCeM*) and fluorescent markers *JenFluor* for enzyme detection (e.g. alkaline phosphatase) are produced. Current development includes systems for nanosurgery with sub-200nm-cut sizes combined with imaging.

König et al. Optics Express 10(2002)171-176.
König et al.: SPIE Proceed 4620(2002)191-201.

Date submitted: 13th September 2002

**Jacek J. Fisz, Ph.D.**

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jjfisz@phys.uni.torun.pl

*Specialty Keywords*: Molecular fluorescence, Photochemistry, Photovoltaic systems.

Research fields: One- and two-photon excitation spectroscopy of solutions and organized media, evanescent wave excitation fluorescence and second-harmonic generation on organized molecular assemblies, excited-state processes in solutions and organized media, structural and dynamic properties of ordered molecular media, time-resolved fluorescence spectroscopy with polarized light.

J.J. Fisz, M.P. Budzinski, Fluorescence depolarization in organized media. Two-excited-state reactions controlled by orientation-dependent kinetic rates. I. Theory, J. Chem. Phys. 115 (15) (2001) 7130-7143.
J.J. Fisz, A method for visual and numerical recovery of state-dependent character of fluorophore-matrix aligning interactions, Chem. Phys. Letters 355 (2002) 94-100.

Date submitted: 17th June 2002

## Danuta Frąckowiak, ( Jabłoński ) Ph.D.

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www.put.poznan.pl

*Specialty Keywords*: Polarized light spectroscopy.
Current Research: 1) Investigations of the fate of absorbed energy in photosynthetic organisms, in their parts and in their anisotropic models by the measurements of polarized light fluorescence, delayed fluorescence and steady state photoacoustic spectra. The evaluation of the yield of triplet states generation using laser induced optoacoustic spectroscopy. 2)The measurements of the fluorescence of various dye-photosensitizers in healthy and cancerous cells as well as of the endogenous emission of stained cell material are due in order to select dyes suitable for photodynamic therapy and photodynamic diagnosis of cancer. From emission of irradiated stained cells the courses of photoreactions are established.

D.J. Qian, A. Planner, J. Miyake, D. Frąckowiak (2001). Photothermal effects and fluorescence spectra of tetrapyridylporphyrins, *J. Photochem. Photobiol. A: Chemistry*, **144**, 93-99.

Date submitted: 30th August 2002

## Gerasim Stoychev Galitonov, Ph.D.

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*Specialty Keywords*: Fluorescence, Enzyme-ligand interactions, State-of-the-art equipment.
Some of my interests are: Ligand tautomeric form identification and charge distribution in enzyme complexes by steady-state quenching. Rotamer identification in enzyme complexes by FRET, time-resolved and anisotropy measurements. Fluorescence and phosphorescence art-of-the-state equipment. Analysis of human genome sequences.

Stoychev G., Kiedaszuk B. & Shugar D. (2001) Interaction of *E. coli* PNP with the cationic and zwitterionic forms of the fluorescent substrate $m^7$Guo, *BBA*, **1544** (1-2) 74-88.
Stoychev G., Kiedaszuk B. & Shugar D. (2002) Xanthosine and xanthine: Substrate properties with PNP, and relevance to other enzyme systems, *Eur J Biochem*, **269** (16) 4048-4057.

Date submitted: 29th April 2002

## Ashok Ganesan, M.Sc.

Department of Physics and Applied Physics,
University of Strathclyde,
107 Rottenrow,
Glasgow, G4 0NG,
Scotland, UK.
Tel: +44 (0)141 548 3059 Fax: +44 (0)141 552 2891
ashok.ganesan@strath.ac.uk

*Specialty Keywords*: Multiphoton, Melanin, Urocanic acid.

My research interest includes multiphoton induced fluorescence studies of skin chromophores. Areas of study encompasses: one- and multiphoton excited, time resolved fluorescence spectroscopy of melanin and urocanic acid isomers.

Date submitted: 29th August 2002

## Fang Gao, Ph.D.

University of Tennessee,
Department of Chemistry,
Buehler Hall 608,
Knoxville, TN 39776-1600, USA.
Tel: 865 974 3473 Fax: 865 974 3454
fgao1@utk.edu

*Specialty Keywords*: Dye synthesis, Photochemistry & Photopysics, Polymer.

Dr. Fang Gao is a research scientist at the University of Tennessee, Knoxville. His research mainly focuses on the synthesis of dyes and polymer resin, photopolymer and photochemistry. Now, he is doing the asymmetrical photochemistry. He has authored 26 journal papers. He has established his international position in these fields.

Fang Gao, Robert N. Compton, Richard M. Pagni, The mutilphoto photochemistry of 2-iodooctane in methanol, Chemical Communications, 2003,1584-1585.
Fang Gao, David Boyles, Rodney Sullivan, Robert N. Compton, Richard M. Pagni, The Photochemistry of racemic and resolved 2-iodooctane. The effect of solvent polarity and viscosity on the chemistry, Journal of Organic Chemistry, 2002, 67 (26), 9361-9367.

**Garley, M. S.**
**Gatash, S. V.**

Date submitted: 9th August 2002

**Michael S. Garley, Ph.D.**

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University of Wales Swansea,
Singlton Park, Swansea,
SA2 8PP, UK.
Tel: +44 (0)179 229 5796 Fax: +44 (0)179 229 5747
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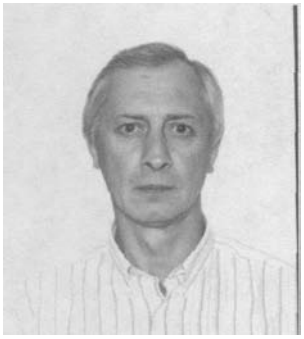
*Specialty Keywords*: Computer modelling, Chemical kinetics.

Research interests: Chemical kinetics, computer modelling, time resolved fluorescence and phosphorescence.

R.J.Berry, P.Douglas, M.S.Garley, D.Clarke, C.Winscom, Triplet energies, singlet-state properties and singlet oxygen quenching rate constants and quantum yields for two cyan azamethine dyes (1999), *J.Photochem.Photobiol.A.*,**120**, 29-36.
H.N.McMurray, P.Douglas, C.Busa and M.S.Garley, Oxygen quenching of tris(2,2'-bipyridine) ruthenium (II) in thin organic films, (1994) *J.Photochem.Photobiol.A.*,**80**, 283-288.

Date submitted: 13th September 2002

**Sergiy V. Gatash, Ph.D.**



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*Specialty Keywords*: Fluorescence spectroscopy, Hydrophobic and hydrophilic fluorescence probes.

Current Research Interests: My research is focused on investigation by means of fluorescence probes the conformation transitions of protein macromolecules especially fibrinogen and serum albumin. I also study the influence of physical factors such as temperature and irradiation on conformation and function macromolecules and biological membranes.

Gatash et al., Influence of irradiation and low temperatures on structure-dynamical state of blood proteins. // Biophysical Bulletin, Issue 2 (11), (Visn. Khark. univ.)-2002.- p.46-49.
Andreeva et al., Influence of freezing on spectral properties of fibrinogen solutions. //Problems of Cryobiology, 1998, No 3, pp. 18-21.

Date submitted: 19th July 2004

## Ehud Gazit, Ph.D.

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www.tau.ac.il/lifesci/departments/biotech/

*Specialty Keywords*: Prot Folding, Self-Assembly, Mol. Recog.

In our lab we study protein folding, unfolding and misfolding using a variety of biochemical and biophysical techniques. A partial list of the experimental systems includes several bacterial toxin-antidote systems, type II diabetes-related and other amyloidogenic peptides, and the VHL tumor suppressor protein. Another line of research is directed toward the study of bio-inspired nano-scale assemblies.

Reches, M., and Gazit, E. (2003) Casting Metal Nanowires within Discrete Self-Assembled Peptide Nanotubes. *Science* **300**, 2003:625-627.
Gazit, E. (2002) A Possible Role for π-Stacking in the Self-Assembly of Amyloid Fibrils. *FASEB J.* **16**, 77-83.

Date submitted: 16th August 2004

## Chris D. Geddes, Ph.D.

Institute of Fluorescence, Center for Fluorescence Spectroscopy, Medical Biotechnology Center,
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725 West Lombard St, Baltimore, Maryland, 21201, USA.
Tel: 410 706 3149 Fax: 410 706 8408
Chris@cfs.umbi.umd.edu
Geddes@umbi.umd.edu

*Specialty Keywords*: Fluorescence / Glucose Sensing, Metal-Enhanced Fluorescence, Radiative Decay Engineering.
AIM 2003 = 38.5

Current Research Interests: The interactions of metallic surfaces with fluorophores, recently termed Radiative Decay Engineering and also Metal-enhanced Fluorescence. The development of a range of contact lenses for clinical assessment, including glucose, calcium, sodium and core temperature.

R. Badugu, J. R. Lakowicz and C. D. Geddes, (2004), Towards the non-invasive continuous monitoring of physiological glucose using a novel monosaccharide-sensing contact lens, *Anal. Chem.*, 76(3), 610-618.
K. Aslan, J. R. Lakowicz and C. D. Geddes, (2004), Nanogold-plasmon-resonance-based glucose sensing, *Anal. Biochem.*, 330(1), 145-155.

**Gerritsen, H. C.**
**Ghiggino, K. P.**

Date submitted: 19th August 2003

## Hans C. Gerritsen, Ph.D.

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*Specialty Keywords*: FLIM, SPIM, CLSM, TPE.

Main areas of research are the development and application of new methodologies in fluorescence microscopy. This includes Fluorescence Lifetime Imaging, Spectral Imaging, FRET imaging, Single Molecule Imaging and Multi-Photon Excitation imaging. In addition work is carried out on the characterization of fluorescent probes and novel fluorescent markers such as quantum dots and fluorescent colloids. Applications include live cell imaging, ion concentration imaging and FRET based co-localization studies.

Quantitative pH imaging in cells using confocal fluorescence lifetime imaging microscopy. R. Sanders et al. (1995) Anal. Biochem., 227, 302-308.

Photooxidation and photobleaching of single CdSe/ZnS quantum dots probed by room-temperature time-resolved spectroscopy. van Sark et al. (2001) J.Phys.Chem. B 105, 8281-8284.

Date submitted: 13th May 2002

## Ken P. Ghiggino, Ph.D.

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*Specialty Keywords*: Ultrafast spectroscopy, Fluorescence imaging, Polymer photophysics.

Current interests: Studies of energy and electron transfer in multichromophoric assemblies using ultrafast spectroscopy techniques. Relaxation dynamics and energy migration in macromolecules studied by time-resolved fluorescence anisotropy measurements. Photophysics and time-resolved fluorescence imaging of photosensitizers for phototherapy.

T.A. Smith, D.J.Haines and K.P. Ghiggino (2000) Steady-state and time-resolved fluorescence polarization behaviour of acenaphthene, *J. Fluorescence* **10**, 365-373.

E.K.L. Yeow, K.P. Ghiggino, J.N.H. Reek, M.J. Crossley, A.W. Bosman, P.H. Schenning and E.W. Meier (2000) The dynamics of electronic energy transfer in novel multiporphyrin functionalized dendrimers: A time-resolved fluorescence anisotropy study, *J. Phys. Chem. B* **104**, 2596–2606.

Date submitted: 29th July 2003

## Agustina Gómez-Hens, Ph.D.

Analytical Chemistry Department, University of Córdoba,
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Córdoba, E-14071,
Spain.
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qa1gohea@uco.es

*Specialty Keywords*: Lanthanides, Kinetic methodology, Fluoroimmunoassays.

The research interest involves the development of fluorimetric analytical methods using lanthanide ions, long wavelength fluorophores, immunoassay techniques such as fluorescence polarization immunoassay, kinetic methodology with stopped-flow mixing technique and dry reagent technology. The usefulness of the proposed methods is shown by their application in clinical, pharmaceutical, food and environmental analysis.

A. Gómez-Hens, M.P. Aguilar-Caballos (2002) Terbium-sensitized luminescence: a selective and versatile analytical approach *Trends Anal. Chem* **21** (2), 131-141.
A. Gómez-Hens, M.P. Aguilar-Caballos (2003) Stopped-flow fluorescence polarization immunoassay *Comb. Chem. High T. Scr.* **6**, 177-182.

Date submitted: 25th August 2004

## Cees Gooijer, Ph.D.

Analytical Chemistry & Applied Spectroscopy,
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www.chem.vu.nl/acas/

*Specialty Keywords*: High-resolution molecular fluorescence, Phosphorescence detection in LC and CE.

Applied spectroscopy research is conducted in the Laser Centre Vrije Universiteit along an analytical chemistry line – in close cooperation with chromatographers with emphasis on hyphenated techniques – and a physical chemistry line focusing on the dynamics of the interaction between small molecules and (bio)macromolecules. Research topics are hyphenation of Raman spectroscopy and LC/CE; phosphorescence detection in CE; laser fluorescence detection including FRET; temperature jump/time-resolved fluorescence and cryogenic high-resolution molecular fluorescence.

Kuijt, J., Arraez Roman, D., Ariese, F., Brinkman, U.A.Th., Gooijer, C. (2002). Quenched phosphorescence detection in cyclodextrin-based electrokinetic chromatography. Analytical Chemistry, 74, 5139-5145.

**Greulich, K. O.**
**Grummt, U.**

Date submitted: 7th July 2002

**Karl O. Greulich, Ph.D.**

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www.imb-jena.de/greulich

*Specialty Keywords*: Optical tweezers, Single molecules, Comet assay.
Current Interests: Reactions of single enzyme molecules are studied, for example the conversion of fluorescing. NADH into dark NAD+ by lactate dehydrogenase and the sequence specific cutting of fluorescently labeled individual DNA molecules, held by optical tweezers, with restriction endonucleases. Also, the fragility of genomes and genome regions of individual cells is visualized with the fluorescent COMET assay and COMET FISH.

K.O.Greulich 1999 Birkhäuser Basel Wien Boston (Monography) Micromanipulation by light in biology and medicine: The laser microbeam and optical tweezers.
B.Schäfer, H. Gemeinhardt and K.O. Greulich 2001 Angew.Chem.Int.Ed.4663-4666 Direct microscopic observation of the time course of single molecule DNA restriction reactions.

Date submitted: 12th September 2002

**Ulrich-W. Grummt, Ph.D.**

Friedrich-Schiller-Universitaet Jena,
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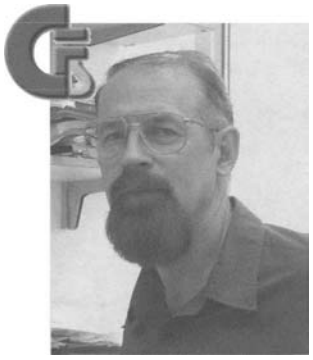
*Specialty Keywords*: Time correlated single photon counting with ps and ns time resolution, Polymer Photophysics.
Main research topic is photophysical chemistry of conjugated, luminescent polymers and functionalized dyes with potential application in solar energy conversion, molecular electronics, non-linear optics, optical information recording, and chemical sensing. Energy migration and electron transport are of particular interest.
*Ab-initio* and DFT quantum chemical calculations are used to support and interpret experimental results.

E. Birckner, U.-W. Grummt, A. H. Göller, T. Pautzsch, D. A. M. Egbe, M. Al-Higari, and E. Klemm, J. Phys. Chem. A 105 (2001) 10307 – 10315.
U.-W. Grummt, E. Birckner, M. Al-Higari, D. A. M. Egbe, and E. Klemm, J. Fluoresc. 11 (2001) 41 – 51.

Date submitted: 28th June 2004

## Ignacy Gryczynski, Ph.D.



**C**enter for **F**luorescence **S**pectroscopy,
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*Specialty Keywords*: Fluorescence, Spectroscopy, Polarization, Multi-Photon Excitation, Light-Quenching.

Current Interest: Spectroscopy, fluorescence and ultrafast time-resolved fluorescence, fluorescence based biomedical sensing, spectroscopy in oriented systems, protein fluorescence and phosphorescence. In particular: FRET, Multi-Photon Excitation, Light Stimulated Emission – Light Quenching, Multi-Pulse Fluorescence.

Effects of metallic silver particles on the emission properties of $[Ru(bpy)_3]^{2+}$. I. Gryczynski, J, Malicka, E. Holder, N. Dicesare, Andy R. Lakovia (2003). Chem. Phys. Lett. 372, 409-414.

Fluorescence sensing methods, Z. Gryczynski, I. Gryczynski and J. R. Lakovia (2003). Methods in Enzymology. Biophotonics. 360, 44-75.

Date submitted: 29th July 2002

## Zygmunt Gryczynski, Ph.D.

**C**enter for **F**luorescence **S**pectroscopy,
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*Specialty Keywords*: Spectroscopy, Fluorescence, Linear Dichroism, Polarization, Sensing, Protein Ligand Interaction.

Current Interest: Spectroscopy, fluorescence and ultrafast time-resolved fluorescence; application of spectroscopic methods to study biological systems; application of fluorescence to biomedical sensing. In particular FRET, Multi-Photon Excitation, Multi-Pulse Fluorescence, spectroscopy in oriented systems, protein fluorescence and phosphorescence, thermodynamics of protein ligand interaction, fluorescence application to biohazard/bioterrorism and recently metal enhanced fluorescence.

Four-Photon Excitation of 2,2'-Dimethyl-p-terphenyl, I. Gryczynksi, G. Piszczek, Z. Gryczynski, and J. R. Lakowicz (2002). *J. Phys. Chem. A.,* 106:754-759.

Multiphoton Excitation of Fluorescence near Metallic Particles: Enhanced and Localized Excitation, I.

Date submitted: 14th July 2004

## Christine A. Grygon, Ph.D.

Boehringer Ingelheim Pharmaceuticals Inc.,
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Tel: 203 798 5651 Fax: 203 837 5651
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*Specialty Keywords*: Biophysics, Ligand binding and kinetics, Fluorescence, Anisotropy, Imaging.

Research incorporates the use of multiple biophysics technologies in the validation of molecular and cellular mechanism of action of potential pharmaceutical agents. Fluorescence methods have been employed in the development of high throughput screening assays, gene family screening, to validate mechanism of action for screening hits, to understand trends in structure-activity relationships, and to study interactions between biological macromolecules.

J.J. Crute, **C.A. Grygon**, K.D. Hargrave, B. Simoneau, A.-M. Faucher, G. Bolger, P. Kibler, M. Liuzzi, and M.G. Cordingley (2002). Herpes Simplex Virus Helicase-Primase Inhibitors are Active in Animal Models of Human Disease, *Nature Medicine*, **8**, 386-391.

Date submitted: 12th August 2002

## Oleksiy V. Grygorovych, Ph.D.

Department of Physical Organic Chemistry,
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www-chemistry.univer.kharkov.ua/dx/nii

*Specialty Keywords*: Complex formation of organic luminophores, Fluorescent probes.

Current Research Interests: Absorption and fluorescence spectroscopy of conjugated aromatic and heterocyclic organic compounds. Protolytic interactions and complexation with metal ions of conjugated aromatic and heterocyclic organic compounds in their ground and excited states. Photochemical activity of unsaturated organic compounds. Design and application of organic luminophores as new fluorescent probes and sensors for biological systems.

*Doroshenko A. O., Grigorovich A. V., Posokhov E. A., Pivovarenko V. G., Demchenko A. P., Sheiko A. D.*, 2001, Russ. Chem. Bul., **50**, 404-412.
*Doroshenko A. O., Sichevska L. V., Grygorovych O. V., Pivovarenko V. G.*, 2002, Journal of Flourescence, accepted for publication.

Date submitted: 31st July 2004

## Yuriy A. Gryzunov, Ph.D.

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Russia.
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gryzunov@hotbox.ru

*Specialty Keywords*: Proteins, Spectroscopy, Molecular pathology.

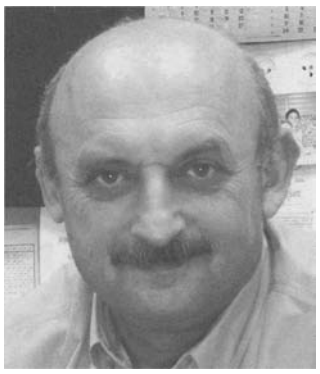
Steady-state and time-resolved spectroscopy, new fluorescent probes are used to study proteins and lipid-protein complexes both under physiological as well as pathological conditions. The analysis of early changes of conformation and physical-chemical properties of biomacromolecules make it possible to evaluate the state of human body in diseases and to evaluate new diagnostic and prognostic tests.

Gryzunov YA, Arroyo A, Vigne JL, Zhao Q, Tyurin VA, Hubel CA, R E Gandley, Vladimirov YuA, Taylor RN, Kagan VE. (2003) Binding of fatty acids facilitates oxidation of cysteine-34 and converts copper-albumin complexes from antioxidants to prooxidants. *Arch Biochem Biophys* 413(1), 53-66.

Koplik, EV, Gryzunov YA, Dobretsov GE (2003) Blood albumin in the mechanisms of individual resistance of rats to emotional stress *Neurosci Behav Physiol* 33(8), 827-832.

Date submitted: 19th August 2003

## Eugene E. Gussakovsky, Ph.D., D.Sc.



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*Specialty Keywords*: Biophysics, Protein structure, Photosynthesis.

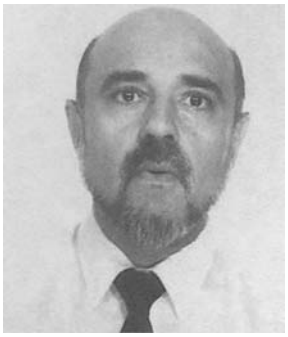
Current research interests: circularly polarized luminescence of biological molecules, their structures and probes; steady state and modulated fluorescence, resonance excitation energy transfer, single molecule FRET, light absorbance, circular dichroism in protein folding/unfolding and plant photosynthesis research; environmental photobiology.

Prof. Elisha Haas, Faculty of Life Sciences, Bar Ilan University, Ramat Gan 52900 Israel; Haas@mail.biu.ac.il.
Prof. Herbert van Amerongen, Laboratory of Biophysics, Wageningen University, Wageningen, the Netherlands; Herbert.vanAmerongen@wur.nl.

**Gutiérrez-Merino, C.**
**Hakala, H. H. O.**

Date submitted: 31st July 2004

## Carlos Gutiérrez-Merino, Ph.D.



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*Specialty Keywords*: FRET, Biomembranes, Oxidative stress.
AIM 2004 = 14.7

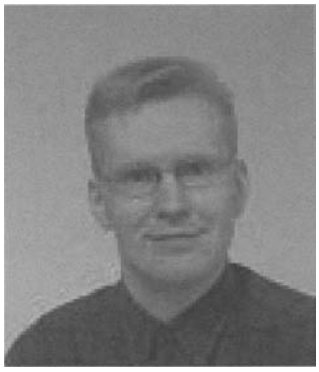
My research is focused on oxidative stress impairment of cellular bioenergetics and antioxidants in cell defense protection against oxidative damage. Fluorescence methodologies are currently used in my laboratory both with purified subcellular components (proteins and membranes) and with cells in culture (using digital imaging fluorescence microscopy) to measure (1) reactive oxygen species production, (2) intracellular free $Ca^{2+}$ concentration and pH, (3) membrane potential, (4) protein-ligand interactions, and (5) FRET.

Samhan-Arias, A.K., Martín-Romero, F.J. and Gutiérrez-Merino, C. (2004). *Free Radical Biology & Medicine* **37**(1), 48-61.

Martín-Romero, F.J., Gutiérrez-Martín, Y., Henao, F. and Gutiérrez-Merino, C. (2004). *J. Fluorescence* **14**(1), 17-23.

Date submitted: 17th June 2004

## Harri H. O. Hakala, Ph.D.



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Finland.
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harri.hakala@perkinelmer.com

*Specialty Keywords*: Lanthanide (III) Chelates, Luminescence.

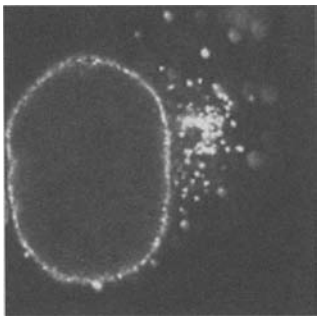
The main interest is to develop new, stable, luminescent lanthanide(III) chelates suitable for biochemical assays. This includes the synthesis of Eu(III), Tb(III), Sm(III) and Dy(III) chelates, study of their photophysical properties and their coupling to biomolecules either in solution or on solid-phase, as well as their use in biochemical assays.

H. Hakala, P. Liitti, K. Puukka, J. Peuralahti, K. Loman, J. Karvinen, P. Ollikka, A. Ylikoski, V.-M. Mukkala, and J. Hovinen (2003) *Inorg. Chem. Comm.* **5**, 1059-1062.

H. Hakala, P. Ollikka, J. Degerholm, and J. Hovinen (2002) *Tetrahedron* **58**, 8771-8777.

Date submitted: 9th September 2002

## Einar L. P. Hallberg, Ph.D.



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*Specialty Keywords*: Nuclear membrane, Nuclear pores, GFP.

Trafficking of proteins and RNA molecules in and out of the cell nucleus takes place via the nuclear pore complexes situated in the thousands of pores covering the nuclear surface. We investigate structural and functional aspects of how the nuclear pore complex and the nuclear membranes are organized. We use fluorescence microscopy and confocal laser scanning microscopy on cells expressing proteins tagged with GFP (Green Fluorescent Protein). We also perform Live Cell Imaging including studies of intracellular dynamics using photobleaching.

Kihlmark, M., Imreh, G. and Hallberg, E. (2001) J. Cell Sci., 114, 3643-3653.

Imreh, G. and Hallberg, E. (2000) Exptl. Cell Res., 259, 180-190.

Date submitted: 29th July 2004

## Monika Hamers-Schneider, Ph.D.

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Tel: +49 (0) 271 740 4735
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*Specialty Keywords*: Fluorescent Dyes, Fluorescent Labels, Fluorescent Sensors.

My research interest is focused on the synthesis of fluorescent labels for bioanalytical applications. Furthermore I am interested in fluorescent dyes which are specially functionalized to meet the requirements of optical sensors.

J. Arden-Jacob, J. Frantzeskos, N.U. Kemnitzer, A. Zilles, and K.H. Drexhage (2001). New fluorescent markers for the red region *Spectrochim. Acta A* **57**(11), 2271-2283.
M. Hamers-Schneider (1997). Ph.D. Thesis. Funktionelle Rhodamin-Derivate zur Fluoreszenz-Detektion in Analytik und Sensorik. Shaker Verlag, Aachen.

**Härtel, Steffen.**
**Haugland, R. P.**

Date submitted: 8th March 2004

## Steffen Härtel, Ph.D.

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X. Región,
Chile.
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www.cecs.cl

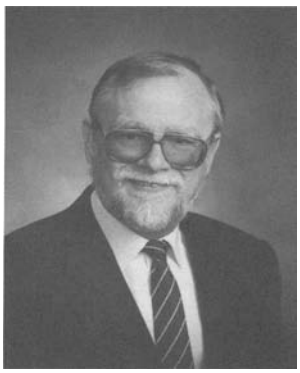
*Specialty Keywords*: Lipid Membrane Organisation, Image Processing, Fluorescence Microscopy.

My current research interest is focused on the development of image processing routines which improve the interpretation of structural and dynamical information, originated in diverse lipid membrane, cellular, and biological systems. Techniques include fluorescence microscopy of membrane sensitive fluorescent dyes in lipid monolayers, liposomes, and in plasma membranes of living cell cultures.

Härtel, S., Zorn-Kruppa, M., Tikhonova, S., Heino, P., Engelke, M., Diehl, H. (2003) Staurosporine-induced apoptosis in human cornea epithelial cells in vitro. *Cytometry*, 08, 15-23.
Alvarez, M., Godoy, R., Heyser, W., & Härtel, S. (2004) Surface bound phosphatase activity in living hyphae of ectomycorrhizal fungi of *Nothofagus obliqua*. *Mycologia* 96(3), 479 - 487.

Date submitted: 30th May 2002

## Richard P. Haugland, Ph.D.



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Oregon, 97402,
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Tel: 541 465 8300 Fax: 541 242 0421
richard.haugland@probes.com
www.probes.com

*Specialty Keywords*: Fluorescence.

Earned Ph.D. in Organic Chemistry from Stanford University (1970). Founder and President of Molecular Probes, Inc. (1975). Author and publisher of the *Handbook of Fluorescent Probes and Research Products*, 9th edition scheduled for release in September 2002. Recent winner (awarded jointly to Dr. Haugland and Dr. Lubert Stryer) of the Molecular Bioanalytics Award 2002 for outstanding achievements in the field of fluorescence resonance energy transfer (FRET).

Date submitted: 15th June 2004

**Mary E. Hawkins, M.Sc.**

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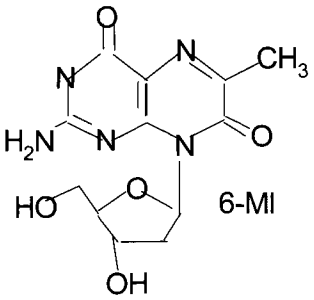


*Specialty Keywords*: Pteridine, Nucleoside analog.

We have developed highly fluorescent pteridine nucleoside analog probes synthesized as deoxyribose phosphoramidites ready for site-specific incorporation into oligonucleotides using automated DNA synthesis (Fidelity Systems, Gaithersburg, MD). Native-like linkage positions the probes in base-stacked orientation making fluorescence properties exquisitely sensitive to structural changes nearby. Quantum yields for G analogs 3MI & 6MI are 0.9 & 0.7: for A analog, 6MAP, 0.4. These probes are very useful for examination of protein/DNA interactions or hybridization probes to identify specific sequences in solution.

MEHawkins (2003) Fluorescent Nucleoside Analogues as DNA Probes in *Topics in Fluorescence Spectroscopy* Vol 7, Ed. J.R.Lakowicz, Kluwer Academic /Plenum Publishers, NY
MEHawkins & FM Balis (2004) Use of pteridine nucleoside analogs as hybridization probes *Nucleic Acids Research*, vol. 32, No.7, e62.

Date submitted: 24th June 2004

**Michael D. Heagy, Ph.D.**


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*Specialty Keywords*: Saccharide probes, Dual fluorescence.

Our current research interests involve the synthesis and development of new boronic acid probes for saccharide detection using arendicarboximide fluorescent platforms. In addition we have investigated dual fluorescent versions of these compounds in order to promote ratiometric detection as well as atom economy in fluorescent labels.

Cao, H.; McGill, T.; Heagy, M.D. *J. Org. Chem.* **2004**, *69*, 2959-2966.

Cao, H.; Diaz, D.I.; DiCesare, N.; Lakowicz, J.R.; Heagy, M.D. *Organic Letters,* **2002,** *4,* 1503-1505.

Date submitted: 5th June 2004

## Ahmed A. Heikal, Ph.D.

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*Specialty Keywords*: Energy metabolism, proteins, biomembranes.

My laboratory focuses on understanding complex biological processes on a molecular-level. Our approach is integrated, noninvasive, multimodal fluorescence micro-spectroscopy techniques with high spatial and temporal resolutions. My research program can be described by the following general themes: energy metabolism, cancer, protein-protein interaction, biomembranes, and single molecule. Fluorescence dynamics provide a superior probe to molecular structure, surrounding environment, and the biological state of cells/tissues.

S.T. Hess, E.D. Sheets, A. Wagenknecht-Wiesner, and A.A. Heikal (2003). *Biophys. J.* 85(4), 2566-2580.
S. Huang, A.A. Heikal, and W.W. Webb (2002). *Biophys. J.* 82(5), 2811-2825.

Date submitted: 15th June 2004

## Ralf Heilker, Ph.D.

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Germany.
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Ralf.Heilker@bc.boehringer-ingelheim.com

*Specialty Keywords*: Confocal fluorescence, High content screening, G-protein coupled receptors.

Ralf Heilker joined Boehringer Ingelheim in 1999. He was previously employed by Novartis Pharma in Basel (1997-1999). In his current position as a Senior Scientist in assay development, primary and secondary screening he is heading a research group, which focusses on G-protein coupled receptors. In this position, he is also responsible for academic co-operations with the University of Ulm to investigate the use of confocal fluorescence microscopy and novel fluorescent proteins for both biochemical and cellular drug screening.

L. Zemanova, A. Schenk, G.U. Nienhaus and R. Heilker, (2004), Endothelin receptor in virus-like particles: ligand binding observed by fluorescence fluctuation spectroscopy, *Biochemistry, in press.*

Date submitted: 23rd July 2003

## Stefan W. Hell, Ph.D.

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Max-Planck-Institute for Biophysical Chemistry,
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*Specialty Keywords*: Sub-Abbe resolution, PSF- Engineering, STED, 4Pi, Saturation.

We have introduced and developed concepts that have broken the diffraction barrier in focusing fluorescence microscopy and have attained spatial resolution at the nanometer scale. We apply these concepts, such as 4Pi and STED-microscopy, to the fluorescence imaging of live cells.

A. Egner, S. Jakobs, and S. W. Hell (2002) *Proc. Natl. Acad. Sci. USA* **99**, 3370-3375.

M. Dyba and S. W. Hell (2002) *Phys. Rev. Lett.* **88**, 163901-163904.

Date submitted: 16th September 2002

## Sherry L. Hemmingsen, Ph.D.

VARIAN

Varian Inc.,
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*Specialty Keywords*: Total luminescence spectroscopy, Fluorescence lifetime analysis, Instrumentation.

I support a diverse range of customer applications / needs in the life sciences, pharma, photonics, etc., develop/present fluorescence training, and contribute to marketing and sales efforts along with the development of new instrumentation and software.
Former research included fluorescence spectral and lifetime characterization of complex systems such as humic substances, chemometric methods of data analysis, Globals, MEM and total lifetime distribution analysis.

S. L. Hemmingsen and L. B. McGown (1997). Phase-Resolved Fluorescence Spectral and Lifetime Characterization of Commercial Humic Substances: *Appl. Spectrosc.*, **57**, 921.
L. B. McGown, S. L. Hemmingsen, J. M. Shaver, L. Geng (1995). Total Lifetime Distribution Analysis for Fluorescence Fingerprinting and Characterization: *Appl. Spectrosc.*, **49**, 60.

**Hennecke, M. H.**
**Hermetter, A.**

Date submitted: 27th July 2004

## Manfred H. Hennecke, Ph.D.

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*Specialty Keywords*: Chemiluminescence, Fluorescence polarization.

Physical chemistry of polymers, in particular optical spectroscopy of dimers, oligomers and polymers (especially with polarized light, including time-resolved spectroscopy). Photochemical reactions and aging of polymers (by means of chemiluminescence).

B. Schartel, M. Hennecke, "Thermo-oxidative stability of a conjugated polymer by chemiluminescence", Polym. Degr. Stab. **67**, 249-253, 2000.
B. Schartel, S. Krüger, V. Wachtendorf, M. Hennecke, "Excitation energy transfer of a bichromophoric cross-shaped molecule investigated by polarized fluorescence spectroscopy" J. Chem. Phys. **112**, 9822-9827, 2000.

Date submitted: 29th July 2004

## Albin Hermetter, Ph.D.

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*Specialty Keywords*: Lipids, Lipases, Functional proteomics.
AIM 2003 = 13.8

Our research deals with the role of glycero(phospho)lipids as components of membranes and lipoproteins, as mediators in cellular (patho)biochemistry, and their application as analytical tools in enzyme technology. In this context, we develop and apply fluorescence techniques to study lipid oxidation, the effects of oxidized lipids on intracellular signalling, and function of lipolytic enzymes in biocatalysis and medicine on the proteome level.

Birner-Grünberger, R., Scholze, H., Faber, K. & Hermetter, A. Identification of various lipolytic enzymes in crude porcine pancreas lipase preparations using covalent fluorescent inhibitors.. Biotech.Bioeng. 85, 147-154. 2004.
Oskolkova, O. V., Saf, R., Zenzmaier, E. & Hermetter, A. Fluorescent organophosphonates as inhibitors of microbial lipases. Chemistry and Physics of Lipids 125, 103-114. 2003.

Date submitted: 10th September 2002

**Andreas Herrmann, Ph.D.**

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Germany.
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andreas.herrmann@rz.hu-berlin.de
www.biologie.hu-berlin.de/~molbp/new/

*Specialty Keywords*: Membrane, Fusion, Flip-flop.

The research focuses on the following topics: (i) transport of lipids across biological membranes, (ii) the trafficking of lipids in eukaryotic cells, (iii) protein-mediated fusion of biological membranes, and (iv) protein-lipid interaction. Various spectroscopical methods including fluorescence spectrosocopy and quantitative fluorescence microscopy are employed. (Fluorescent) labeling of biological molecules is achieved by molecular biology approaches (proteins) or by chemical synthesis (lipid analogues).

Kubelt, J., AK. Menon, P. Müller, A. Herrmann (2002) *Biochemistry.* **41**, 5605-5612.

John, K., J. Kubelt, P. Müller, D.Wüstner, A. Herrmann (2002) *Biophys. J.* **83**, 1525-1534.

Date submitted: 11th September 2002

**Joseph D. Hewitt, Ph.D.**

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CA, 94598,
USA.
Tel: 1 800 926 3000 ext 3064 Fax: 925 945 2360
Joe.Hewitt@varianinc.com
www.varianinc.com

*Specialty Keywords*: Fluorescence Instrumentation.

Current Research Interests: As a fluorescence product specialist for Varian in the Midwest US, I work on application questions, Eclipse spectrofluorometer demonstrations and sales support. My individual research interests include humic substance lifetime spectroscopy, coupled detection schemes and fluorescence sensing technology.

**Hind, A. R.**
**Hirsch, R. E.**

Date submitted: 11th September 2002

## Andrew R. Hind, Ph.D.

UV-Vis-NIR Sales Support Manager Europe,
Varian Ltd., 28 Manor Road, Walton-on-Thames,
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England.
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www.varianinc.com

*Specialty Keywords*: Materials science, Industrial chemistry, Optics / photonics, Molecular spectroscopy.

Background in 'applied' molecular spectroscopy research, with focus on applications in the materials science, industrial chemistry and optics/photonics areas. Experienced in the use of fluorescence, UV-Vis (including far-UV), infrared (near-, mid-, and far-) and Raman spectroscopies, with particular areas of interest including semiconductor, telecommunications, mineralogical and coating/surface characterization applications. Very interested in new spectroscopic instrumentation, techniques and applications.

A.R. Hind, S.K. Bhargava, and S.C. Grocott (1999) Colloids Surf. A. 146, 359-374.
A.R. Hind, S.K. Bhargava, and A. McKinnon (2001) Adv. Colloid Interfac. Sci. 93, 91-114.

Date submitted: 27th June 2004

## Rhoda Elison Hirsch, Ph.D.

Department of Medicine (Hematology),
& Department of Anatomy & Structural Biology,
Albert Einstein College of Medicine,
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rhirsch@aecom.yu.edu

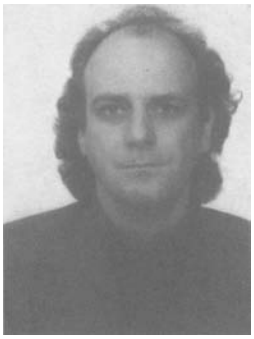
*Specialty Keywords*: Hemoglobin, Front-face fluorometry, Hemoglobin C crystal growth, Sickle cell Hb, HbE.

Our focus is Hb mutants that give rise to disease: the ß6 hemoglobin mutants form aggregates in the red blood cell and unstable Hemoglobin E (ß26Glu→Lys). We pursue questions such as: Why does oxy HbC (ß6 Glu→Lys) form crystals in the red blood cell in contrast to deoxy sickle cell hemoglobin [HbS, ß6 Glu → Val]that forms polymers? Does HbE instability lead to disease? Additonali nterests include hemoglobin based blood substitutes and Hb stabilization mechanisms. Front-face fluorescence to study hemoglobin and heme proteins is ongoing.

RE Hirsch, "Heme Protein Fluorescence". Chapter 10 (pp. 221-255) Topics in Fluorescence Spectroscopy, Volume 6, Protein Fluorescence (ed. JR Lakowicz), New York (2000); QY Chen, PG Vekilov, RL Nagel, and RE Hirsch. "Liquid-Liquid Phase Separation in Hemoglobins: Distinct Aggregation Mechanisms of the β6 Mutants." Biophysical Journal 86:1702-1712 (2004)

Date submitted: 12th August 2002

## Martin Hof, Ph.D.



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*Specialty Keywords*: Solvent Relaxation, Tryptophan Fluorescence, Fluorescence Correlation Spectroscopy (FCS).

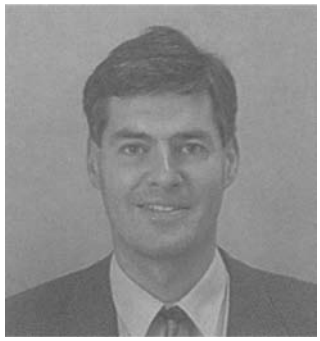
Following main topics are presently pursued in M. Hof's laboratory:

1) Solvent relaxation in phospholipid bilayers [1]: Basic principles, applications, and new membrane labels.
2) FCS as a tool for the characterization of DNA condensation [2].
3) Formation of phospholipid mono- and bilayers controlled by FCS.
4) Picosecond tryptophan fluorescence of blood coagulation proteins.

[1] J. Sýkora, P. Kapusta, V. Fidler, M. Hof On What Time-Scale Does Solvent Relaxation in Phospholipid Bilayers Happen? (2002), Langmuir, 18(3), 571-574.
[2] T. Kral, M. Hof, M. Langner Effect of Spermine on the Plasmide Condensation and Dye Release Observed by FCS (2002), Biol. Chem. 383 (2), 331-335.

Date submitted: 13th September 2002

## Johannes W. Hofstraat, Ph.D.



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hans.hofstraat@philips.com

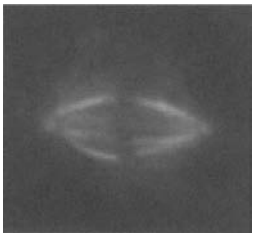
*Specialty Keywords*: Materials, Displays, Diagnostics, Photonics.

Research topics: (Electro) luminescent polymers, dyes, in particular luminescent metal complexes, and self-organizing materials, for application in displays (emissive, liquid crystalline, reflective), storage (optical, solid-state), electronics (mainly polymer-based) and sensors, e.g. for medical applications (diagnostics, imaging). Research on (opto-)electronic devices: preparation and characterization. Advanced instrumentation for ultra fast time-resolved measurements, for microscopy and for imaging, also for near-infrared luminescence.

K. Brunner, J.A.E.H. van Haare, B.M.W. Langeveld-Voss, H.F.M. Schoo, J.W. Hofstraat, A. van Dijken, J. Phys. Chem. B, 106, 6834-6841 (2002).
L.H. Slooff, A. van Blaaderen, A. Polman, G.A. Hebbink, S.I. Klink, F.C.J.M. van Veggel, D.N. Reinhoudt, J.W. Hofstraat, J. Appl. Phys., 91, 3955-3980 (2002).

**Howell, B. J.**
**Hungerford, G.**

Date submitted: 18th August 2002




## Bonnie J. Howell, Ph.D.

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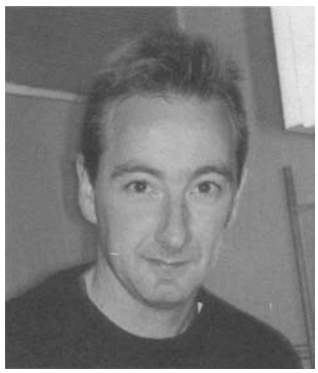
*Specialty Keywords*: Fluorescence, FRAP, Spindle checkpoint.


The spindle checkpoint prevents aneuploidy by inhibiting anaphase onset until all chromosomes have achieved proper spindle attachment and alignment. To elucidate a mechanism for spindle checkpoint activity, I've used quantitative fluorescence, phase-contrast, and confocal microscopy to examine the localization pattern and dynamic behavior of spindle checkpoint proteins in living mammalian tissue culture cells. Fluorescence recovery after photobleaching (FRAP) techniques have also been used to determine the transitory nature of these components at kinetochores and spindle poles.


Howell, B.J. et al. 2000. J. Cell Biol. *150*: 1233-1249.
Howell, B.J. et al. 2001. J. Cell Biol. *155*: 1159-1172.


Date submitted: 16th June 2004




## Graham Hungerford, Ph.D.

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graham@fisica.uminho.pt



*Specialty Keywords*: Sol-gel and microheterogeneous systems.
AIM 2002 = 7.9


My present research interests involve the manufacture and study (using fluorescence techniques) of sol-gel-derived matrices to elucidate dye-dye and dye-host interactions. The matrices are made using either Si or Ti precursors to form "passive" or "active" hosts, in which we can incorporate solvatocromic probes, porphyrins, phthalocyanines and biological molecules. Similar fluorescent probes have also been employed to study surfactant systems.


G. Hungerford et al. (2002). Probing Si and Ti sol-gel matrices by fluorescence techniques. *J. Fluorescence*. **3/4**, 397-417.
G. Hungerford et al. (2002). Monitoring ternary systems of $C_{12}E_5$/water/tetradecane via the fluorescence of solvatochromic probes. *J. Phys. Chem. B*. **106**, 4061-4069.

Date submitted: 3rd September 2003

## Takamitsu Ikkai, Ph.D.

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*Specialty Keywords*: Excimer fluorescence, Crystal, Actin.

If we want to know the dynamic mechanism of protein function, its structural change in solution based on the knowledge of crystal has to be studied. As a clue to this problem, we employed the excimer fluorescence which can be measured both in solution and crystal, and used pyrene-labeled actin as a sample. The structural dynamics monitored will bring a new information concerned with intramolecular rearrangement, not observed with other methods.

T. Ikkai, K. Shimada (2002) Introduction of fluorometry to the screening of protein crystallization buffers. *J. Fluoresc* **12**, 167-171.

Date submitted: 30th August 2002

## Amando S. Ito, Ph.D.

Departamento de Física e Matemática,
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*Specialty Keywords*: FRET, Peptide conformational dynamics, Peptide / lipid interaction.

Research interests: Physico-chemical properties of extrinsic and intrinsic fluorescent probes for peptides and proteins. Donor-acceptor distance distribution and conformational dynamics in peptides. Labeled macromolecules in interaction with supramolecular assemblies. Fluorescence studies on membrane models.

A.S. Ito, E.S. Souza, S.R. Barbosa and C.R. Nakaie. (2001) Fluorescence Study of Melanotropins Labeled with Aminobenzoic Acid. *Biophysical Journal*, 81, 1180-1189.
D.C.Pimenta, I.L.Nantes, E.S.Souza, B. le Boniec, A.S.Ito, I.L.S.Tersariol, V.Oliveira, M.A.Juliano and L.Juliano. (2002) Interaction of heparin with internally quenched fluorogeic peptides. *Biochem. J.*, 366, 435-446.

**Jankowski, A.**
**Johansson, L. B.-Å.**

Date submitted: 4th July 2004

**Andrzej Jankowski, Ph.D.**

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*Specialty Keywords*: Fluorescence Spectroscopy, Photobiology, Environment Chemistry.

The main topics of scientific activity: 1)Structure of peptides and proteins 2)Excited state proton transfer in proteins and in Langmuir - Blodgett films 3)Photosensitization of bacteria.

A. Mirończyk, A. Jankowski, A. Chyla, A. Ożyhar, P. Dobryszycki: Investigation of Excited State Proton Transfer Included in Langmuir-Blodgett Films. J. Phys. Chem. A 2004, 108, 5308-5314.

A. Jankowski, S. Jankowski, A. Mirończyk: Synergistic Action of Photosensitizers and Normal Human Serum in a Bactericidal Process. Acta Microbiologica Polonica 2003, 52, 373-78.

Date submitted: 2nd September 2003

**Lennart B.-Å. Johansson, Ph.D.**

Department of Chemistry,
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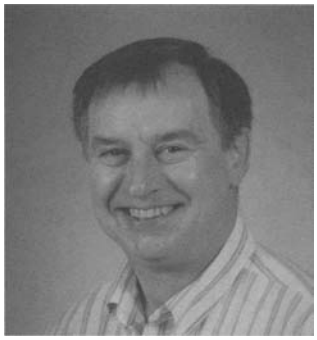
*Specialty Keywords*: Energy transfer / migration, Polarised emission, Structure of biomacromolecules.

In our research new versatile tools based on fluorescence are developed and applied for examining structure-dynamics-function of biomacromolecules, especially proteins. For an understanding at a molecular level, we use and extend the weak and strong coupling mechanisms of Förster. Derivatives of BODIPY are both spectroscopically characterised and used for labelling proteins. In addition to common one-photon excitation of fluorescence, we also study time-resolved two-photon excitation. The methods developed are applied for exploring molecular mechanisms in the fibrinolytic system and protein aggregation related to the Alzheimer´s and Creutzfeldt-Jakob´s diseases.

S. Kalinin, J. G. Molotkovsky and L. B.-Å. Johansson: Distance Measurements Using Partial Donor-Donor Energy Migration (PDDEM) within Pairs of Fluorescent Groups in Lipid Bilayerss. *J. Phys. Chem B.*, 107, 3318 (2003).

Date submitted: 25th July 2003

## Arthur E. Johnson, Ph.D.



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*Specialty Keywords*: Protein-Membrane Interactions, Protein Trafficking, FRET.

We are investigating the movement of proteins through or into a membrane (protein trafficking), the creation of holes in mammalian cell membranes by bacterial toxins, protein folding, and protein biosynthesis. Various fluorescence techniques are used to characterize the molecular interactions and conformational changes involved in the assembly, function, and regulation of membrane-bound protein complexes. FRET is used to determine their structure and topography, to detect and quantify conformational changes, and to monitor intermolecular association.

N. G. Haigh, and A. E. Johnson (2002) A New Role for BiP: Closing the Aqueous Translocon Pore during Protein Integration into the ER Membrane, *Journal of Cell Biology* **156**, 261-270.
Ramachandran, R., Heuck, A. P., Tweten, R. K., and Johnson, A. E. (2002) Structural Insights into the Membrane-Anchoring Mechanism of a Cholesterol-Dependent Cytolysin, *Nature Structural Biology* **9**, 823-827.

Date submitted: 17th October 2003

## Carey K. Johnson, Ph.D.

Department of Chemistry, University of Kansas,
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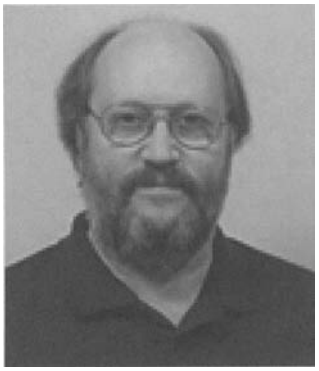
*Specialty Keywords*: Time-resolved fluorescence, Single-molecule fluorescence.

The research in my laboratory focuses on the dynamic properties peptides and proteins by time-resolved and single-molecule spectroscopy. We are using single-molecule fluorescence spectroscopy to investigate calcium signaling and enzyme activation by single calmodulin molecules. In other projects, time-resolved fluorescence anisotropy and resonance energy transfer experiments are being used to probe the dynamics of short peptides or DNA aptamers in solution.

K.D. Osborn, M.K. Singh, R.J.B. Urbauer, and C.K. Johnson, Maximum Likelihood Approach to Single-Molecule Polarization Modulation Analysis, *ChemPhysChem*, in press; M.W. Allen, J.R. Unruh, B.D. Slaughter, S.J. Pyszczynski, T.R. Hellwig, T.J. Kamerzell and C.K. Johnson, The Spectroscopy and Photophysics of Indoline and Indoline-2-Carboxylic Acid, *J. Phys. Chem. A*, **107**, 5660-5669 (2003).

Date submitted: 28th June 2004



**Michael L. Johnson, Ph.D.**

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mlj8e@virginia.edu
mljohnson.pharm.virginia.edu

*Specialty Keywords*: Mathematical Modeling, Biophysics.

My research interests center on understanding the biochemical, physical chemical, thermodynamic, and physiological pathways by which one portion of a biological organism, or molecule, transfers information to other portions of the same organism, or molecule. My primary research tool is mathematical modeling.

Deconvolution Analysis as a Hormone Pulse-Detection Algorithm (2004) **Johnson, M.L.**, Virostko, A., Veldhuis, J.D., and Evans, W.S., Methods in Enzymology 384, 40-53.

Modulating the Homeostatic Process to Predict Performance During Chronic Sleep Restriction., (2004),. **Johnson, M.L.,** Belenky, G., Redmond, D.P., Thorne, D.R., Williams, J.D., Hursch, S.R., Balkin, T.J., Aviation Space and Environmental Medicine 75, A141-A146.

Date submitted: 30th August 2002

**Anita C. Jones, Ph.D.**

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*Specialty Keywords*: Spectroscopy, Photophysics, Time-resolved fluorescence, FLIM.

Research interests: Steady state and time-resolved fluorescence spectroscopy; fluorescence lifetime imaging; molecular photophysics and photochemistry; use of fluorescence to probe biomolecular systems; photophysics of luminescent polymers; industrial and biomedical applications of fluorescence.

N.M. Speirs , W.J. Ebenezer and A.C. Jones (2002). Observation of a fluorescent dimer of a sulfonated phthalocyanine, *Photochem.Photobiol* **76**, 247-251.
A C Jones, M. Millington, J Muhl, J M De Freitas, J S Barton and G Gregory (2001). Calibration of an optical fluorescence method for film thickness measurement, *Measurement Science & Technology*, **12**, N23-N27.

Date submitted: 22nd August 2002

**Hans-Peter Josel, Ph.D.**

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*Specialty Keywords*: Fluorescence Label, Time Resolved Fluorescence Label, FRET.

Development of tailor made luminescence label, esp. fluorescence label, time resolved fluorescence label, specially designed FRET systems for use in detection in diagnostics (DNA and others) and pharma screening.

Josel, Hans-Peter; Herrmann, Rupert; Heindl, Dieter; Muehlegger, Klaus; Sagner, Gregor; Drexhage, Karl Heinz; Frantzeskos, Jorg; Arden-Jacob, Jutta. Fluorescent rhodamine dye derivatives and their use in diagnostic systems. Eur. Pat. Appl. (1999) EP 962497.
Herrmann, Rupert; Josel, Hans Peter; Drexhage, Karl Heinz; Arden, Jutta. Pentacyclic compounds, their use as dyes and fluorescent dyes, and immunoassay therewith. Ger. Offen. (1993), DE 4137934.

Date submitted: 18th August 2003

**Inta Kalnina, M.D.**

Department of Organic Chemistry,
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Latvia, LV 1048,
Russia.
Fax: 371 722 5039
lulc@lanet.lv

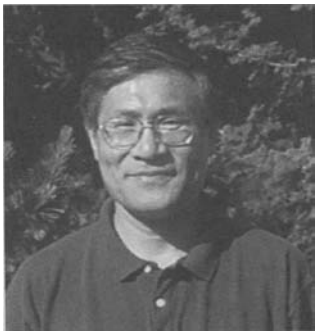
*Specialty Keywords*: Fluorescent probes, Lymphocytes, Diagnostics.
Newly synthesized fluorescent probes, derivatives of naphtalic acid and 3 – aminobenzanthrone (ABM) is used to characterize the structural and functional alternations in lymphocytes membrane and ß–adrenoreactivity of organism during pathological phenomena (tuberculosis, multiple sclerosis, rheumatoid, arthritis, cardiac diseases, gastrointestinal cancer, leukemia etc.). Spectral characteristics of probes correlate with the clinical view of diseases. Probes offer perspective as screening method for diagnostics and effectiveness of therapy.

Kalnina I, Meirovics I. (1999) J.Fluoresc., 9 (1), 27-32.

Bruvere R., Gabruseva N., Kalnina I., etc. (2003) J. Fluoresc. 13(2), 149-156.

Date submitted: 31st May 2002

## Hee Chol Kang, Ph.D.



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Oregon, 97402,
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www.probes.com

*Specialty Keywords*: Fluorescence, Time-resolved probes, Nucleotides.

My research focuses on the design and development of novel fluorescent molecules with improved spectral properties. Recent projects include: Design and synthesis of novel fluorescent organometallic complexes with long fluorescence lifetimes and high Stokes shift for time-resolved applications, design and synthesis of fluorescent probes for direct chemical labeling of nucleic acids, and, synthesis of a wide variety of fluorescent nucleotides for the study of nucleotide-binding proteins.

Date submitted: 9th July 2002

## Jung Sook Kang, Ph.D.

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jsokang@pusan.ac.kr

*Specialty Keywords*: Macromolecular dynamics, Frequency-domain fluorometry, Long-lifetime metal-ligand complex.

I have been studying the dynamics of proteins, nucleic acids, and membrane lipids using a variety of fluorescence techniques. Recently my research was focused on investigating macromolecular dynamics using long-lifetime metal-ligand complexes.

Kang J. S., Piszczek G. and Lakowicz J. R. (2002) High-molecular-weight protein hydrodynamics studied with a long-lifetime metal-ligand complex. *Biochim. Biophys. Acta* 1597, 221-228.
Kang J. S., Abugo O. O. and Lakowicz J. R. (2002) Dynamics of supercoiled and liner pTZ18U plasmids observed with a long-lifetime metal-ligand complex. *Biopolymers* 67, 121-128.

Date submitted: 6th September 2002

## András D. Kaposi, Ph.D.

Dept. of Biophysics and Radiation Biology,
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*Specialty Keywords*: Fluorescence line narrowing, Spectroscopy inhomogeneous broadening.

Research interests: Laser excited high-resolution luminescence spectroscopy of inhomogeneously broadaned samples, energy selective optical spectroscopy of heme proteins, understanding of factors that influence the fluorescence line narrowing spectra, substrate binding to heme proteins (fluorescence, FTIR and visible absorption spectroscopy), natural chromophores, plant and bacterial fluorescence.

Fidy J., M. Laberge, A.D. Kaposi and J.M. Vanderkooi, (1998). Fluorescence line narrowing applied to the study of proteins *Biochim. Biophys. Acta* **1386**, 331-351.

Kaposi A.D., W.W. Wright and J.M. Vanderkooi, (2002). Consequences of inhomogeneous broadening on fluorescence line narrowing spectra *J. Fluorescence* (accepted).

Date submitted: 29th June 2004

## Peter Kapusta, Ph.D.

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12489 Berlin,
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PICOQUANT

*Specialty Keywords*: Pulsed Diode Lasers, LED, Time-resolved Spectroscopy, Single Molecule, Detection,TCSPC, Anisotropy.

Main interests: development of laser diode and LED based time-resolved fluorescence instrumentation, promotion of the TCSPC method in various research areas, ultrasensitive detection including SMD, photophysics of novel fluorophores, energy and charge transfer in molecules, solvation dynamics.

Kapusta P., Erdmann R., Ortmann U., Wahl M. (2003), *J. of Fluorescence* **13**, 179-183.

Kapusta P., Machalicky O., Hrdina R., Nepras M., Zimmt M. B., Fidler F. (2003), *J. Phys. Chem. A,* **107**, 9740-9746.

**Karolin, J.**
**Karuso, P.**

Date submitted: 25th September 2004


## Jan Karolin, Ph.D.

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*Specialty Keywords*: Time-resolved fluorescence, Multiphoton induced fluorescence, Resonance energy transfer.

Current research is focused on the development of fluorescence spectroscopic techniques to characterize morphological properties of silica materials synthesized through sol-gel routes, i.e. through room temperature wet chemical approaches. With structural features on a nanometer length scale we are looking to correlate observations from fluorescence depolarization, energy transfer and solvent relaxation to parameters such as pore volume and surface area.


C.D. Geddes, J. Karolin and D. J. S. Birch (2002). 1 and 2-photon fluorescence anisotropy decay in silicon alkoxide sol-gels: *J. Phys. Chem. B*, 106(15), 3835-3841.
J. Karolin, C.D. Geddes, K. Wynne and D. J. S. Birch (2002) Nanoparticle metrology in sol-gels using multiphoton excited fluorescence: *Meas. Sci. Technol.* 13(1), 21-27.


Date submitted: 13th August 2003


## Peter Karuso, Ph.D.

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*Specialty Keywords*: Proteomics, Natural products, Bioassay.

The Karuso group specialize in natural products chemistry and the discovery/application of new fluorescent technologies. Past achievements include a fluorescence based antimicrobial assay[1] and the isolation of a fluorescent natural product from a fungus[2] that is being developed as a powerful 2D gel electrophoresis stain. Current interests include the isolation of new fluorescent stains and the synthesis of fluorescence based molecular rulers.


S. Chand, I. Lusunzi, L. R. Williams, D. A. Veal and P. Karuso (1994) Rapid screening of the antimicrobial activity of extracts and natural products. *J. Antibiotics* **47**, 1295–1304.
P. J, L. Bell and P. Karuso (2003) Epicocconone, a novel fluorescent compound from the fungus *Epicoccum nigrum*. *J. Amer. Chem. Soc.* **125**, 9304–9305.

Date submitted: 3rd September 2002

## Peet Kask, Ph.D.

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peet@ebi.ee

*Specialty Keywords*: FCS, FIDA, Photon Statistics.

Development of new fluorescence methods of a single molecule sensitivity for applications in e.g. high throughput drug screening. Molecular species are recognized on basis of fluorescence lifetime, specific brightness, fluorescence anisotropy, diffusion time and other specific molecular properties. The so-called FIDA-family of histogram methods has been developed: FIDA, 2D-FIDA, FIMDA and FILDA.

K.Palo, L.Brand, C.Eggeling, S.Jäger, P.Kask and K.Gall. Fluorescence intensity and lifetime distribution analysis: Toward higher accuracy *Biophys.J.* (2002) 83(2), 605-618.

P.Kask, K.Palo, N.Fay, L.Brand, Ü.Mets, D.Ullmann, J.Jungmann, J.Pschorr, and K.Gall. Two-dimensional fluorescence intensity distribution analysis *Biophys.J.* (2000) 78(4), 1703-1713..

Date submitted: 9th September 2003

## Demet Kaya, M.Sc.

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*Specialty Keywords*: Polymeric gels, Critical phenomena, Universality.

I have been studying on critical phenomena in different polymeric gels by using steady-state and/or time-resolved fluorescence techniques. These techniques made it possible to study the glass transition in the bulk polymers and showed that this transition is in the same universality class as percolation.

D. Kaya and Ö. Pekcan *J.Phys.Chem.B*, 106, 6961-6965, (2002).

D. Kaya, Ö. Pekcan and Y.Yilmaz *Phase Transition*, 76, 6, 543-556, (2003).

**Kemnitzer, N. U.**
**Kierdaszuk, B.**

Date submitted: 16th July 2004

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www.atto-tec.com

*Specialty Keywords*: Organic Dyes, Fluorescent Labels.

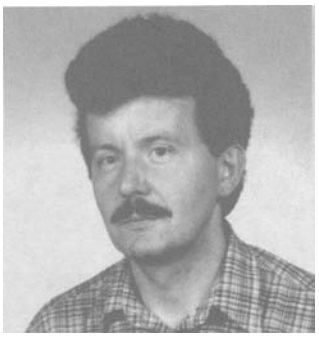
My research interest is the development and synthesis of fluorescent dyes suitable as labels for applications in biochemistry and medicine. Therefore I am particularly interested in the design and chemical modification of chromophoric systems for the red region of the visible spectrum.

J. Arden-Jacob, J. Frantzeskos, N.U. Kemnitzer, A. Zilles, and K.H. Drexhage (2001). New fluorescent markers for the red region *Spectrochim. Acta A* **57**(11), 2271-2283.

N.U. Kemnitzer (2001). Ph.D. Thesis. Amidopyrylium-Fluoreszenz-Farbstoffe. Der Andere Verlag, Osnabrück.

Date submitted: 30th August 2002

## Borys Kierdaszuk, Ph.D., D.Sc.



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*Specialty Keywords*: Emission spectroscopy of biological molecules, Protein-ligand interactions, Fluorescence probes.

Emission (fluorescence, phosphorescence) spectroscopy applicable to biophysical studies of bio-macromolecular systems and their constituents, e.g. mechanism of recognition and kinetics of protein-ligand binding, identification and characterization of reaction transition states, confrontation of crystallographic data with solution studies; to better understand the mechanisms of catalysis, towards development of sensitive and selective methods of detection.

Kierdaszuk B., Modrak-Wójcik A., Wierzchowski J., Shugar D. (2000) Induced tautomeric shifts on binding to enzyme, and enzyme-ligand FRET. *Biochim. Biophys. Acta* **1476**, 109-128.
Stepanenko T., Lapinski L., Sobolewski A.L., Nowak M.J., Kierdaszuk B. (2000) Photochemical syn-anti isomerisation reaction. *J. Phys. Chem.* **104**, 9459-9466.

Date submitted: 30th August 2002

**Paavo K. J. Kinnunen, Ph.D.**

Memphys – Center for Biomembrane Physics,
Helsinki Biophysics & Biomembrane Group,
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*Specialty Keywords*: Lipids, Biomembranes, Lipid-protein interactions.

The major line of research of HBBG pursues the molecular level mechanisms underlying both 2-D and 3-D ordering of supramolecular assemblies constituted by lipids, aiming to compile an integrated view on the coupling between the physical properties of lipids to the physiological functions of biomembranes. More specifically, we are elucidating the mechanisms which convey changes in the physicochemical characteristics of bilayer lipids to the conformation and activity of membrane proteins.

Date submitted: 18th August 2003

**Andrée Kirsch-DeMesmaeker, Ph.D.**

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*Specialty Keywords*: Ru(II) complexes, DNA, Dendrimer.

Interaction and photoreaction of Ru(II) and Rh(III) complexes with DNA, examined by spectroscopic methods and gel electrophoresis analyses. Study of Ru(II) derivatized oligonucleotides in the frame of the antisense and antigene strategy or as molecular tools in genes analysis. Ru-induced photocrosslinking of oligonucleotides. Preparation and study of polynuclear Ru(II) complexes and dendrimers for applications with biomolecules or as antenna systems for the collection of light.

O. Lentzen, .F. Constant, E. Defrancq, M. Prevost, S. Schumm, C. Moucheron,
P. Dumy, A. Kirsch-DeMesmaeker, ChemBioChem, 4 (2003), 195-202.
C. Moucheron, A. Kirsch-DeMesmaeker, A. Dupont, E. Leize, A. Van Dorsselaer,
J. Am. Chem. Soc., 118 (1996), 12834-12835.

Date submitted: 17th June 2004

## Halina Kleszczyńska, Ph.D.

Department of Physics and Biophysics,
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www.ar.wroc.pl

*Specialty Keywords*: Erythrocyte, Membrane Organization, Fluidity.

Our research interest concerns mainly new synthesized compounds that may have agrochemical or biological application, like pesticides and antioxidants. We are studying their interaction with biological and model membranes and one of the techniques used is fluorescence. Investigations permit to determine the mechanism of the interaction and the role particular structural features of the compounds play in this interaction.

Kleszczyńska H., Bonarska D., Sarapuk J. and Przestalski S. (2004) Protection of erythrocytes against organometals-induced hemolysis. J. Fluorescence, 14 (1), 5-10.
Kleszczyńska H., Bonarska D., Oświęcimska M. and Sarapuk J. (2003) Hemolysis and antioxidative protection of erythrocytes by functionalized quaternary ammonium salts. Polish J enviroment. Stud., 12 (1), 63-66.

Date submitted: 28th August 2002

## Karsten König, Ph.D.

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kkoe@mti-n.uni-jena.de
www.uni-jena.de/clm

*Specialty Keywords*: Multiphoton microscopy, Time-resolved single photon counting, Tissue imaging, Autofluorescence.

Research is focussed on multiphoton fluorescence microscopy and imaging of tissue autofluorescence with high submicron spatial resolution, 250ps temporal resolution and 5nm spectral resolution. Our studies include the single/few molecule level (e.g. Multiphoton Multicolor FISH, time-resolved FRET), the single cell level (e.g. GFP expression after optical gene transfer, imaging of optically trapped gametes and microorganisms) and *in vivo* studies on tissues (optical multiphoton tomography of skin and eyes). The equipment includes femtosecond laser scanning microsopes, a TauMap microscope for fluorescence lifetime imaging, systems for nanosurgery and imaging, laser tweezers and the multiphoton skin imaging system DermaInspect 100.

König: Review. Multiphoton microscopy in life sciences. J. Microsc. 200(2000)83-104.
Tirlapur, König: Targeted transfection by femtosecond laser. Nature. 418(2002)290-291.

Date submitted: 10th September 2002

## Vishwanath Koppaka, Ph.D.

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*Specialty Keywords*: Fluorescent probes, Lipoprotein A-I, Lipid oxidation.

Research involves investigating protein-lipid interactions and their effect on structure/function using biophysical techniques such as polarized attenuated total internal reflectance Fourier transform infrared (PATIR-FTIR) and fluorescence spectroscopies. Current focus is on investigation of structure, orientation, and interaction of the protein and lipid components in high-density lipoprotein particles and the effect of oxidatively damaged lipids and acute phase response proteins (injury specific apolipoproteins) on reverse cholesterol transport.

Koppaka, V. Structural Studies of Discoidal Lipoprotein A-I. Cellular and Molecular Life Sciences. 58: 885-893, 2001.

Date submitted: 10th September 2002

## Valentin I. Korotkov, Ph.D.

General Physics 2, Department of Physics,
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korotkov@paloma.spbu.ru

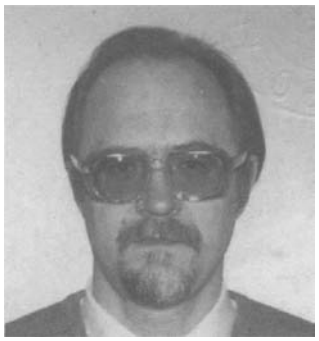
*Specialty Keywords*: Adsorption, Sensitization, Energy transfer.

Two quantum processes in photosensitized decomposition of water: 1/ as a result of energy transfer from high triplet levels of organic molecules (naphthalene, biphenyl, benzene) adsorbed on silica to dissociative triplet levels of water; 2/ promoted with the absorbed molecules of phthalocyanine and p-benzoquinone via formation of dark charge transfer complexes[1]. Studying of luminescence of surface molecules of various organic molecular crystals in comparison with the luminescence of bulk molecules of the same crystals [2].

A.V. Barmasov, V.I. Korotkov, V.Y. Kholmogorov (1994). Model photosynthetic system with charge transfer for transforming solar energy. *Biophysics.* **39**(2), 227-231.
E.P. Zarochentseva, V.I. Korotkov, Ya. P. Oleinik, V.Y. Kholmogorov (1996). Luminescence of benzoik acid polycrystals doped with bromated diphenils. *Optics and Spectros.***81**(4), 570-573.

Date submitted: 29th August 2002

## Yurii V. Korovin, Ph.D.



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physchem@paco.net

*Specialty Keywords*: Lanthanides, IR-luminescence, Macrocyclic ligands.

Current Research Interests: Design and investigation of lanthanide complexes with macrocyclic ligands of different types (e.g. porphyrines, calixarenes, ligands bearing aromatic antennae). New types of lanthanide complexes for use in biomedicine, in particular, as IR-luminescent markers.

Yu.Korovin and N.Rusakova (2002). Near Infrared Luminescence of Lanthanides in Complexes with Organic Dyes. *J. Fluorescence.* **12**, 159-161.
Yu.Korovin and N.Rusakova (2001). Infrared 4f-Luminescence of Lanthanides in the Complexes with Macrocyclic Ligands. *Rev. Inorg. Chem.* **21**, 299-329.

Date submitted: 12th July 2004

## Vladyslava B. Kovalska, Ph.D.

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*Specialty Keywords*: Fluorescent probes, Cyanine dyes, Nucleic acids.

The research activities of Dr. V.Kovalska are aimed on the designing of fluorescent probes for nucleic acid and protein detection [1]. Now she is working at the Department of Combinatorial Chemistry of Biological Active Compounds under the guiding of Dr. S.Yarmoluk. Her present researches are devoted to the characterization and studies of mechanism of fluorescent cyanine dyes – biopolymers interaction with the use of spectral-luminescent methods [2].

B.P.Matscelyukh, S.M.Yarmoluk, A.B.Matscelyukh, V.B. Kovalska, I.O.Kocheshev, D.V.Kryvorotenko, S.S. Lukashov (2003) J. Biochem. Biophys. Methods *57*, 35-43.
V.B. Kovalska, M.Yu. Losytskyy and S.M. Yarmoluk (2004) Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, *60*, 129-136.

Date submitted: 19th July 2004

**Arjen A. M. Krikken, Ing.**

Eukaryotic Microbiology, University of Groningen,
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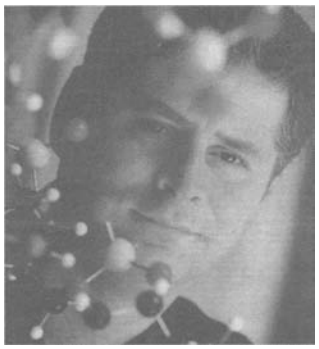
www.rug.nl/gbb/research/researchGroups/
eukaryoticMicrobiology/

*Specialty Keywords*: Peroxisome, Yeast.

Central theme of the research in the group Eukaryotic Microbiology is to study the relationships that exist between the structure and function of eukaryotic cells/cellorganelles. During the past fifteen years the work has been focussed on the principles of the homeostasis (biogenesis and selective turnover) and metabolic functioning of microbodies (peroxisomes, glyoxysomes) in yeast and in filamentous fungi.

Date submitted: 27th June 2004



**Mikael Kubista, Ph.D.**

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*Specialty Keywords*: Multidimensional spectroscopy, Fluorescent probes, Realtime PCR.

Our research interest spans from characterization of molecular interactions by multidimensional spectroscopy to the development of dye and fluorescent probes for nucleic acid detection. Our most important contribution to the area of life sciences is the LightUp probe for sequence specific detection of nucleic acids in homogeneous solution. Presently, we are developing technology to measure gene expression in individual cells using a real-time PCR microchip.

Date submitted: 29th July 2004

## Alexander V. Kukhta, Ph.D.

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Kukhta@imaph.bas-net.by

*Specialty Keywords*: Electron-molecular interaction, Organic electroluminescence, Charge transport.
AIM 2003 = 5.6

Luminescent properties of biological and electroactive organic molecules under irradiation by low-energy monokinetic electrons with variable energies from 0 to 100 eV. Physics of electron-molecular interactions and transport of electrons through different ordered and disordered organic media. Electroluminescence properties of low-molecular weigth and polymer materials, new electroluminescent materials and structures.

Ref 1: A.V. Kukhta (2003). Electroluminescence of thin films of organic compounds *J.Appl.Spectrosc.* **70** (2), 165-194.
Ref 2: A.V. Kukhta, A.I. Mitkovets, D.V. Ritchik (2004). Polarized fluorescence of complex molecules under the excitation by low-energy electrons *J.Appl.Spectrosc.* **71** (4), 472-475.

Date submitted: 19th March 2003

## Jens M. Kürner, Ph.D.

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jens.kuerner@exfor.uni-regensburg.de
www.kfb-regensburg.de

*Specialty Keywords*: Array-technology, Biotechnology, Microscopy/Flow-Cytometry, Synthesis/Spectroscopy.

The Competence Center for Fluorescent Bioanalysis, which is affiliated to the University of Regensburg and is located in the BioPark Regensburg building, is a competent service provider of customer-oriented research and development. In addition to providing the diagnostic tools for research and development in pharmaceutical companies, the competence center focuses on customers in national and international biotechnology companies as well as private and public research institutes. The objective is to offer interdisciplinary research and development services in fluorescent bioanalysis in a unique network. This concept is based on the integration of components in chemistry, biology, medicine and engineering sciences through the utilization of the facilities for research and developement at the University of Regensburg, the University of Applied Sciences of Regensburg and the University Hospital of Regensburg.

Date submitted: 31st August 2002

**Akihiro Kusumi, D.Sc.**

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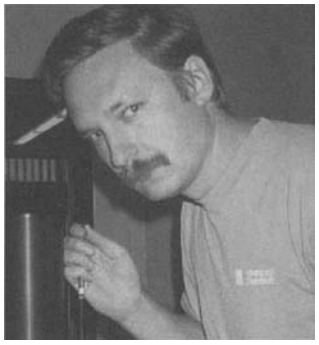
*Specialty Keywords*: Single molecules, Cell membrane, Signal transduction.

We develop single molecule techniques to be used for the study of live cells, such as single particle tracking and single fluorophore video imaging of membrane proteins, and single molecule dragging of membrane molecules using optical traps. Using these technologies, we study the mechanisms of signal transduction in the cell membrane, development of neuronal network, interaction of the membrane skeleton with membrane molecules, and formation and the functional mechanism of rafts, caveolae, and coated pits.

T. Fujiwara, K. Ritchie, K. Metz-Honda, K. Jacobson, and A. Kusumi. Phospholipids undergo hop diffusion in compartmentalised cell membrane. J. Cell Biol. 157, 1071-1081 (2002).
R. Iino, I. Koyama, and A. Kusumi. Single molecule imaging of GFP in living cells: E-cadherin forms oligomers on the free cell surface. Biophys. J. 80, 2667-2677 (2001).

Date submitted: 1st August 2004

**Alexey S. Ladokhin, Ph.D.**



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www.kumc.edu/biochemistry/Ladokhin.html

*Specialty Keywords*: Membrane protein insertion / folding, Depth-dependent quenching, Red-edge effects.

My research focuses on understanding the structural and thermodynamic principles of insertion and assembly of membrane proteins and uses fluorescence spectroscopy as a principal tool. Over the years we have developed and applied fluorescence methods enabling us to characterize the depth of membrane penetration into the bilayer, the lipid exposure and cis/trans topology of particular sites as well as the conformational heterogeneity of membrane-inserted proteins and peptides.

A. S. Ladokhin (1999). Analysis of protein and peptide penetration into membranes by depth-dependent fluorescence quenching: Theoretical considerations. *Biophys. J.* 76:946-955.
A. S. Ladokhin, S. Jayasinghe and S. H. White (2000). How to measure and analyze tryptophan fluorescence in membranes properly, and why bother? *Anal. Biochem.* 285:235-245.

**Lakowicz, J. R.**
**Langner, M. J.**

Date submitted: 20th August 2003

## Joseph R. Lakowicz, Ph.D.

**C**enter for **F**luorescence **S**pectroscopy,
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Lakowicz@cfs.umbi.umd.edu
cfs.umbi.umd.edu

*Specialty Keywords*: Fluorescence.
AIM 2003 = 87.3

Current Research Interests: My research is focused on advancing the field of fluorescence spectroscopy. This involves chemical synthesis of new fluorophores, development of novel fluorescence measurements, development of instrumentation for time-resolved fluorescence, and the chemical applications of fluorescence sensing.

Gryczynski I, Malicka J, Gryczynski Z, *et al.*, (2004). Ultraviolet surface plasmon-coupled emission using thin aluminum films, *Anal. Chem.*, (14), 4076-4081.

Lakowicz JR, Geddes CD, Gryczynski I, et al. (2004), Advances in surface-enhanced fluorescence, *J. Fluorescence*, 14 (4): 425-441.

Date submitted: 24th August 2002

## Marek J. Langner, Ph.D.

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langner@rainbow.if.pwr.wroc.pl

*Specialty Keywords*: Supramolecular aggregates, Biosensors, Liposomes.

Applying fluorescence techniques to constructing, validating and determining properties of supramolecular aggregates including liposome based biosensors, lipoplexes and particulate drug carriers. Current research includes DNA condensation, surface electrostatics, aggregate topology, lipoplex association with cells and intracellular distribution. Fluorescence techniques used: Fuorescence spectroscopy, FCS, fluorescence microscopy, FACS.

S. W Hui, M. Langner, Y. L. Zhao, P. Ross, E. Hurley and K. Chan (1996) Biophys. J. 71, 590-599.
T. Kral, M. Langner, M. Benes, D. Baczynska and M. Hof (2002) Bioph. Chem. 95, 135-144.

Date submitted: 30th August 2002

## Thomas M. Laue, Ph.D.

Biochemistry and Molecular Biology,
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(Center to Advance Molecular Interaction Science (CAMIS))
(Biomolecular Interaction Technologies Center (BITC))
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*Specialty Keywords*: Fluorescence optics, Analytical ultracentrifuge, Binding strength and Characterization.

CAMIS develops unique instruments to characterize molecular interactions such as a fluorescence detector for the AUF. BITC is an NSF Industry/University Cooperative Research Center composed of global pharmaceutical firms and instrument manufacturers.

Laue, T.M. and Stafford, W.F. III (1999) "Modern Applications of Analytical Ultracentrifugation," Annual Review of Biophysics and Biomolecular Structure V. 28, 75-100.
Laue, T.M., Anderson, A.L. and Weber, B.W. (1997) "Prototype Fluorescence Detector for the XLA Analytical Ultracentrifuge" in Ultrasensitive Clinical Laboratory Diagnostics, SPIE Proceedings, V. 2985, pp. 196-204, G. Cohn and S. Soper eds., SPIE, Bellingham, WA.

Date submitted: 13th September 2002

## Robert P. Learmonth, Ph.D.

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www.usq.edu.au/biophysci
*Specialty Keywords*: Multi-photon microscopy, Yeast, Membrane fluidity.

Research areas: yeast biotechnology, cell membrane biochemistry/biophysics, fluorescence spectroscopy and microscopy. Using yeast as a model system to investigate how cells react to changes in environment, focusing on cell membranes as the critically important structures in adaptation. Development of methods using novel fluorescent probes and multi-photon microscopy to study membrane status in single cells of yeasts, bacteria and other microbes.

Learmonth, R.P. and Gratton, E. Assessment of Membrane Fluidity in Individual Yeast Cells by Laurdan Generalized Polarization and Multi-Photon Scanning Fluorescence Microscopy. In *Fluorescence Spectroscopy, Imaging and Probes - New Tools in Chemical, Physical and Life Sciences* (R Kraayenhof, AJWG Visser and HC Gerritsen, Eds.), *Springer Series on Fluorescence: Methods and Applications*, Vol. 2, Springer, Heidelberg, 2002, Chapter 14, pp 241-252.

**Lederer, W. J.**
**Lee, T. S.**

Date submitted: 8th July 2002


## W. Jonathan Lederer, M.D., Ph.D.

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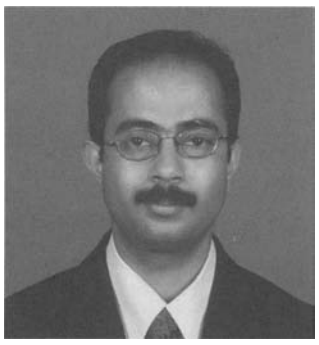
*Specialty Keywords*: Heart, Confocal microscopy, Patch clamp, Calcium.

Work in the lab focuses on $Ca^{2+}$ signaling in cardiac and other living cells. By combining confocal, multiphoton or wide-field microscopy with whole cell patch clamp techniques, we have been able to investigate the effects of subcellular and intracellular $Ca^{2+}$ concentration ($[Ca^{2+}]i$ on cellular function. Diverse additional tools are used as needed including flash photolysis of caged chemicals, multi-photon uncaging, single channel examination in planar lipid bilayers and by patch clamp, immuno-fluorescence imaging, use of cells from transgenic and gene knockout animals, and use of primary cultures and co-cultures. Much of the recent work focuses on "calcium sparks" and how the heart works in health and disease.


Nelson, M.T., Cheng, H., Rubart, M., Santana, L.F., Bonev, A., Knot, H. & Lederer, W.J. (1995). Relaxation of arterial smooth muscle by calcium sparks. Science 270:633-637.


Date submitted: 3rd September 2002




## Thomas S. Lee, M.Sc.

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www.photonics.cusat.edu


*Specialty Keywords*: Sol-gel, pH sensors, Fiber optic sensors.

I have carried out extensive research in the development of fiber optic sensors for chemical and physical applications. Chemical sensors include pH sensors based on dye impregnated sol-gel coatings. Also I have prepared bulk dye doped xerogels for quantum yield measurements, thermal lens spectroscopy and nonlinear applications in collaboration with other scientists.


**Thomas Lee S**, B Aneeshkumar, P Radhakrishnan, C P G Vallabhan and V P N Nampoori, *A microbent fiber optic pH sensor,* Opt. Comm **205**, 253 – 256 (2002).
**Thomas Lee S**, Nibu A George, P Sureshkumar, P Radhakrishnan, C P G Vallabhan and V P N Nampoori, *Chemical sensing with microbent optical fiber*, Opt. Lett., **20**, 1541-1543 (2001).

Date submitted: 30th August 2003

## Frank Lehmann, Ph.D.

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*Specialty Keywords*: Biolabels, Probes, Multicolour assays, FRET, HTS.

My current research interest is focussed on fluorescent labels for biological targets. I am involved in the design and customizing of reactive fluorophores with respect to their (photo)physical properties. The chromophores are mostly based on polymethines with cumarin or benzopyrylium heterocycles allowing easily to generate emission in the red and NIR region.

P. Czerney, F. Lehmann, M. Wenzel, V. Buschmann, A. Dietrich and G.J. Mohr (2001). Tailor-Made Dyes for Fluorescence Correlation Spectroscopy *Biol. Chem.* 382(3) 495-498.

P. Czerney, M. Wenzel, F. Lehmann and B. Schweder (2003). Compound, in particular marker-dye, based on polymethines *EP1318177A2.*

Date submitted: 21st August 2002

## Barry R. Lentz, Ph.D.

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uncbrl@med.unc.edu
hekto.med.unc.edu:8080/FACULTY/LENTZ/lab.html

*Specialty Keywords*: Membrane Probes, Phase Fluorescence, Fusion Assays.

Dr. Lentz's lab uses fluorescence spectroscopy to examine protein-lipid interaction involved in prothrombin activation during blood coagulation. The lab has shown that specific sites on blood coagulation proteins recognize phosphatidylserine, and that this lipid, which is exposed during platelet activation, regulates these proteins. Lentz's lab is also a leader in the application of fluorescence methods to studying the kinetics of lipid rearrangements during membrane fusion. Using these methods, the Lentz lab has developed a model for the mechaism of fusion as it occurs in model membranes and may well occur in biological membranes during such processes as viral infection and neurotransmitter release.

**Lianos, P.**
**Lilley, D. M. J.**

Date submitted: 22nd August 2002


## Panagiotis Lianos, Ph.D.

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www.des.upatras.gr


*Specialty Keywords*: Applied Photophysics and Photochemistry.

Recent research focuses on the study of photophysical and photochemical applications of nanocomposite organic/inorganic materials made by soft chemistry procedures (sol-gel method). Applications include dye-sensitized photoelectrochemical cells, photocatalytic metal oxide surfaces and new photoluminescence and electroluminescence light sources based on ligand-lanthanide ion complexes.


E. Stathatos, P.Lianos and Ch.Krontiras (2001) J.Phys.Chem. B. 105, 3486-3492.
V.Bekiari and P.Lianos (2000) Adv.Mater. 12, 1603-1605.


Date submitted: 28th June 2004


## David M. J. Lilley, FRS.

University of Dundee,
MSI/WTB Complex,
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UK.
Tel: +44 138 234 4243
d.m.j.lilley@dundee.ac.uk


*Specialty Keywords*: Nucleic acids, Ribozymes, Single-molecule FRET.

Our interests are directed at the structure and folding of branched nucleic acids; the four-way junction in DNA, and a variety of structures (especially ribozymes) in RNA. Our main biophysical approach is fluorescence resonance energy transfer (FRET), in steady state, time-resolved and single-molecule modes.


S.A. McKinney, A.-C. Déclais, D.M.J. Lilley and T. Ha Structural dynamics of individual Holliday junctions *Nature Struct. Biol.* **10**, 93-97 (2003).
D.A. Lafontaine, D.G. Norman and D. M.J. Lilley The global structure of the VS ribozyme. *EMBO J.* **21**, 2461-2471 (2002).

Date submitted: 16th July 2004

## M. Pilar Lillo, Ph.D.

Instituto Química Física "Rocasolano",
C.S.I.C., Dep. Biofísica,
Serrano 119, 28006 Madrid,
Spain.
Tel: 34 91 561 9400 Fax: 34 91 564 2431
pilar.lillo@iqfr.csic.es

*Specialty Keywords*: Time-resolved fluorescence, FRET, Biomolecular interactions.
AIM 2003 = 14.4

Current interest: i) Design of fluorescence anisotropy and FRET methodologies for ligand binding (αIIbβIII-Fab/Fibrinogen), and protein-DNA (RepA) interaction studies. Application to crowded media. ii) Structural and dynamical characterization of symmetrical homopolymers by Förster resonance energy homo transfer (FREHT).

S.Zorrilla, G. Rivas, M.P. Lillo (2004). Fluorescence anisotropy as a probe to study tracer proteins in crowded solutions. *J. Molecular Recognition* (special issue on crowding)
M.P.Lillo, O.Cañadas, R.E.Dale, A.U.Acuña (2002). The location and properties of the taxol binding center in microtubules: a ps laser study with fluorescent taxoids. *Biochemistry 41, 12436-12449.*

Date submitted: 31st August 2002

## Marcin Lipski, Ph.D.

Poznan University of Technology,
Institute of Chemistry & Technical Electrochemistry,
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Poland.
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www.put.poznan.pl

*Specialty Keywords*: Photochemistry & Molecular Spectroscopy of Humic Acids & Precursors-Hydroxybenzotropolones.

Current Research Interests: Fluorescence of humic acids and unusual precursors - purpurogallin (2,3,4,6–tetrahydroxy–5H-benzocyclohepten–5–one, hydroxybenzotropolone) and its analogues formed from the polyphenols.

M. Lipski (2002). Fluorescence emitted during the autooxidation of 2,3,4,6-tetrahydroxy-5H-benzocyclohepten-5-one, *Journal of Fluorescence,* **12**(1), 83-86.
M. Lipski, K. Gwozdzinski, J. Slawinski (2000). Free radical of the semiquinone type generated in the redox reaction of hydroxybenzotropolone, *Current Topics in Biophysics,* **24**(2), 115-120.
M. Lipski, J. Slawinski, D. Zych (1999). Changes in the luminescent properties of humic acids induced by UV-radiation, *Journal of Fluorescence,* **9**(2), 133-138.

**Litman, B. J.**
**Little, G. M.**

Date submitted: 30th August 2002

## Burton J. Litman, Ph.D.

Section of Fluorescence Studies,
Laboratory of Membrane Biochemistry and Biophysics,
National Institute on Alcohol and Alcoholism,
National Institutes of Health, 12420 Parklawn Drive, Rm 114,
Rockville, Maryland, 20852 USA.
Tel: 301 594 3608 Fax: 301 594 0035
litman@helix.nih.gov

*Specialty Keywords*: Membrane structure, Fluorescent probes, GPCR signaling systems.

Research interests focus on the effect of lipid composition on GPCR signaling, using the visual transduction system as a model. The role of polyunsatrurated phospholipids and cholesterol in modulating signaling and domain formation is investigated. Membrane phospholipid acyl chain packing and domain formation are monitored using various fluorescence techniques.

S-L Niu, D. C. Mitchell, and B. J. Litman (2002) Manipulation of Cholesterol Levels in Rod Disk Membranes by Methyl-β-cyclodextrin. Effects On Receptor Activation, J. Biol. Chem. **277**: 20139-20145.

A. Polozova and B. J. Litman (2000) Cholesterol Dependent Recruitment of di22:6-PC by a G Protein-Coupled Receptor into Lateral Domains, Biophys. J. **79**, 2632–2643.

Date submitted: 3rd September 2002

## Garrick M. Little, Ph.D.

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Nebraska, 68504,
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*Specialty Keywords*: Protein labeling, Western blot assay, DNA labeling.

My research interests include the synthesis of Infra-red fluorescent dyes functionalized as the amidite, NHS ester etc. Labeling of biological molecules with fluorescent dyes. More generally Organic chemistry synthesis, synthesis of DNA.

Date submitted: 22nd July 2004

## David Lloyd, Ph.D., D.Sc.

Microbiology (BIOSI1), Cardiff University,
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www.cf.ac.uk/biosi/research/micro/staff/dl.html

*Specialty Keywords*: Mitochondria, 2-photon, Flow cytometry.

Bioenergetics of lower eukaryotes especially yeasts and protists. Mitochondria and hydrogenosomes.Biological oscillations and clocks, especially ultradian timekeepers.Non-invasive monitoring of cell structure and function. Low oxygen measurements.

Cycles of mitochondrial energisation driven by the ultradian clock in a culture of Saccharomyces cerevisiae .Microbiology 148,3715- 3724 (2002).

The plasma membrane of microaerophilic proists;oxidative and nitrosative stress . Microbiology 150,1231-1236(2004).

Date submitted: 26th August 2002

## Leslie M. Loew, Ph.D.

Center for Biomedical Imaging Technology,
University of Connecticut Health Center,
Farmington, CT 06030 1507,
USA.
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www.cbit.uchc.edu/

*Specialty Keywords*: Non-linear optical microscopy, Dye synthesis, Cell physiology.

We have a long-standing effort on the synthesis of voltage-sensitive dyes which has recently led us to develop dyes and optical systems for second harmonic imaging microscopy. We have also been developing a computational system called "Virtual Cell" for modeling and simulating cellular events based on microscope images. Our biological research focuses on mapping the electrical profiles along cell surfaces and exploring their cell physiological implications.

Slepchenko B, Schaff JC, Carson JH, Loew LM. 2002. Computational cell biology: spatiotemporal simulation of cellular events. Annual Review of Biophysics & Biomolecular Structure 31:423-441.

Campagnola, P. J., H. A. Clark, W. A. Mohler, A. Lewis, and L. M. Loew. 2001. Second Harmonic Imaging Microscopy of Living Cells, J. Biomedical Optics, 6:277-286.

**Lommerse, P. H. M.**
**Lopez, A.**

Date submitted: 6th July 2004



## Piet H. M. Lommerse, Ph.D.

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www.biophys.leidenuniv.nl/Research/FvL



*Specialty Keywords*: Single-molecule fluorescence microscopy.


In the last decade evidence has accumulated that small domains (50-700 nm diameter) are located in the plasma membrane. Using wide-field fluorescence microscopy with single-molecule sensitivity, the diffusion of individual membrane-anchored eYFP molecules is studied in live cells at the millisecond timescale [1], to reveal the intricate details of membrane organization and its role in signal transduction.


P. H. .M. Lommerse, G. A. Blab, L. Cognet, G. S. Harms, B. E. Snaar-Jagalska, H. P. Spaink and T. Schmidt (2004). Single-molecule imaging of the H-Ras membrane-anchor reveals domains in the cytoplasmic leaflet of the cell membrane *Biophysical Journal* **86**, 609-616.


Date submitted: 28th August 2002


## André Lopez, Ph.D.

Institut de Pharmacologie et de Biologie Structurale du CNRS,
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*Specialty Keywords*: Membrane probes, Multichromophoric systems, Biomembranes.


Functional consequences of membrane composition and microcompartmentation in connection with the translational dynamics of lipids and proteins on the chain of signal transduction by G protein-coupled receptors. These studies are carried out on human receptors μ, CCR5, CXCR4 expressed in various cell types. Are investigated: (i) the influence of lipid environmental factors on receptor activity, (ii) the lateral dynamics and compartimentations of these membrane compounds using fluorescence techniques (FRAP, SPT), (iii) the structure *in situ* of these pluri-molecular systems by means of spectromicrofluorescence approaches (FRET, polarity probes).

Date submitted: 12th July 2004

## Mykhaylo Yu. Losytskyy, M.Sc.

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Physics Dept., Acad. Glushkova Ave. 6, 03022 Kyiv, Ukraine.
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www.yarmoluk.org.ua

*Specialty Keywords*: Energy transfer, J-aggregate, Cyanine dye.

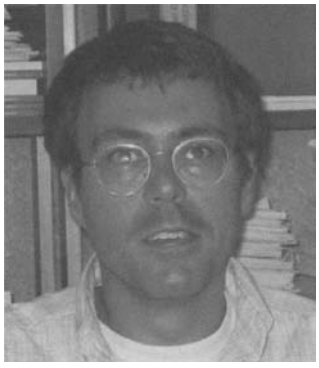
The studies of M. Losytskyy are aimed on the designing of fluorescent probes for nucleic acid and protein detection. Now he is working at the Department of Combinatorial Chemistry of Biological Active Compounds under the guiding of Dr. S.Yarmoluk. His present studies are devoted to electronic excitation transfer in DNA-cyanine dye system; cyanine dyes aggregation in presence of biomolecules [1]; photophysics of the excited cyanine dye molecules [2].

V.B. Kovalska, M.Yu. Losytskyy, S.M. Yarmoluk (2004) Spectrochim. Acta A, *60*, 129-136.

S.M. Yarmoluk, M.Yu. Losytskyy, V.M. Yashchuk (2002) *J. Photochem. Photobiol. B.* 67, 57-63.

Date submitted: 29th July 2004

## Luís M. S. Loura, Ph.D.



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pclloura@alfa.ist.utl.pt

*Specialty Keywords*: FRET, Lipid domains, Lipid-protein interaction.
AIM 2003 = 12.2

Study of membrane heterogeneities (domains/rafts) using photophysical methodologies. Derivation of kinetic models for FRET in restricted geometries. Development of software for global analysis of fluorescence decays. Topology and dynamics of protein/peptide interaction with model systems of membranes. Characterization of DNA/cationic lipid complexes.

F. Fernandes, L. M. S. Loura, M. Prieto, R. Koehorst, R. Spruijt, and M. A. Hemminga. (2003) Dependence of M13 major coat protein oligomerization and lateral segregation on bilayer composition. *Biophys. J.* **85** (4), 2430-2441.

C. Madeira, L. M. S. Loura, M. R. Aires-Barros, A. Fedorov, M. Prieto. (2003) Characterization of DNA/lipid complexes by fluorescence resonance energy transfer. *Biophys. J.* **85** (5), 3106-3119.

**Lukomska, J.**
**Malicka, J.**

Date submitted: 16th October 2003


## Joanna Lukomska, Ph.D.

**C**enter for **F**luorescence **S**pectroscopy,
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University of Maryland School of Medicine,
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*Specialty Keywords*: Asymmetric synthesis, Steady-state fluorescence, Metal-enhanced fluorescence.

My expertise includes synthesis of tyrosine derivatives, photophysical properties of phenylalanine and tyrosine derivatives and their analogues, synthesis of unnatural amino acids using asymmetric synthesis, design and multi-step synthesis of cyclic peptides in solution, analysis and characterization of synthetic peptides. I have significant experience in clinical assays preparation. My current interest is focused on metal-enhanced fluorescence to develop ultrabright particles for biomedical imaging.

Influence of a substituent on amide nitrogen atom on fluorescence efficiency quenching of Tyr(Me) by amide group.
Lukomska J., Rzeska A., Malicka J., Wiczk W., Journal of Photochemistry and Photobiology A: Chemistry 143, 2001.

Date submitted: 21st July 2004


## Joanna Malicka, Ph.D.

**C**enter for **F**luorescence **S**pectroscopy,
Dept. of Biochemistry and Molecular Biology,
University of Maryland School of Medicine,
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aska@cfs.umbi.umd.edu E-mail Address
cfs.umbi.umd.edu


*Specialty Keywords*: Metal-enhanced fluorescence, Surface plasmon-coupled directional emission, FRET.

My expertise includes multi-step synthesis and conformational analysis of bioactive peptides by using NMR spectroscopy and FRET. I have experience in steady-state and time-resolved fluorescence measurements and in metallic colloids and surface preparation. My current interests are focused on metal-fluorophore interactions in solution and on surfaces, their application to a new generation of highly efficient biological assays based on enhanced-fluorescence near silver particles, as well as directional emission from nearby thin metallic films.


Malicka J., Gryczynski I., Lakowicz J.R., Biochem. Biophys. Res. Commun. 306 (2003) 213-218.
Gryczynski I., Malicka J., Gryczynski Z., Lakowicz J.R., Anal. Biochem., 324 (2004) 170-182.

Date submitted: 1st September 2002

## Emmanuel Margeat, Ph.D.

Single Molecule Biophysics Group,
UCLA Departement of Chemistry and Biochemistry,
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CA 90095, USA.
Tel: (1) 310 794 6693
margeat@chem.ucla.edu
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*Specialty Keywords*: FRET, Polarization, Single molecule.

My objective is to elucidate the structure and dynamics of protein / protein and protein / nucleic acids complexes using a combination of novel single-molecule fluorescence microscopy methods (such as spFRET, fluorescence anisotropy) and traditional biochemistry. My research focuses on macromolecular complexes involved in transcription, including nuclear receptors, coactivators, and RNA polymerase.

Margeat E., Poujol N., Boulahtouf A., Chen Y., Gratton E., Cavaillès V. and Royer C. "The Estrogen Receptor □binds a single SRC-1 coactivator molecule with an affinity dictated by the agonist structure." *Journal of Molecular Biology,* 306 (3):433-442 (2001).

Date submitted: 5th September 2002

## Mark Maroncelli, Ph.D.

Department of Chemistry, Penn State University,
152 Davey Laboratory, University Park,
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USA.
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*Specialty Keywords*: Time-resolved fluorescence, Ultrafast spectroscopy, Solution dynamics.

We use steady-state and ultrafast fluorescence spectroscopy and computer simulations to explore solvation and its influence over chemical processes in liquid solvents and supercritical fluids.

J. Lewis, R. Biswas, A. Robinson, and M. Maroncelli (2001)., Local Density Augmentation in Supercritical Fluids: Electronic Shifts of Anthracene Derivatives *J. Phys. Chem. B* **105**, 3306.

M. L. Horng, J. A. Gardecki, A. Papazyan, and M. Maroncelli (1995)., Sub-Picosecond Measurements of Polar Solvation Dynamics: Coumarin 153 Revisited *J. Phys. Chem.* **99**, 17311.

Date submitted: 17th September 2004

## José M. G. Martinho, Ph.D.

Centro de Química-Física Molecular,
Instituto Superior Técnico,
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Portugal.
Tel: +351 21 841 9250 Fax +351 21 846 4455
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*Specialty Keywords*: Photophysical kinetics, Resonance energy transfer, Polymers, Colloids.

Current interests: Conformation and dynamics of proteins and oligonucleotides adsorbed onto latex particles. Photophysical kinetics (early work included the study of transient effects in pyrene monomer-excimer kinetics). Radiative transport of electronic energy. Conformation and aggregation of polymers in solution. Polymer interfaces.

T. J. V. Prazeres, A. Fedorov, J. M. G. Martinho (2004). Dynamics of Oligonucleotides Adsorbed on Thermosensitive Core-Shell Latex Particles, *J. Phys. Chem. B* **108** 9032-9041.
S. Piçarra, J. Duhamel, A. Fedorov, J. M. G. Martinho (2004). Coil-Globule Transition of Pyrene-Labeled Polystyrene in Cyclohexane: Determination of Polymer Chain Radii by Fluorescence, *J. Phys. Chem. B* **108** 12009-12015.

Date submitted: 3rd September 2002

## Masayuki Masuko, Ph.D.

Hamamatsu Photonics K. K., Tsukuba Research Laboratory,
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300-2635,
Japan.
Tel: +81 29 847 5161 Fax: +81 29 847 5266
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www.hpk.co.jp/

*Specialty Keywords*: Nucleic acids, Excimer fluorescence, Photon counting.

I am interested in the application of aromatic hydrocarbon dyes to the detection of biological substances such as nucleic acids, and the development of instruments useful to their measurements.

M. Masuko, H. Ohtani, K. Ebata and A. Shimadzu (1998) Optimization of excimer-forming two-probe nucleic acid hybridization method with pyrene as a fluorophore *Nucleic Acids Res.* **26** (23), 5409-5416.
M. Masuko, S. Ohuchi, K. Sode, H. Ohtani and A. Shimadzu (2000) Fluorescence resonance energy transfer from pyrene to perylene labels for nucleic acid hybridization assays under homogeneous solution conditions *Nucleic Acids Res.* **28** (8), e34.

Date submitted: 29th August 2003

## C. Reyes Mateo, Ph.D.

Instituto de Biología Molecular y Celular,
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rmateo@umh.es

*Specialty Keywords*: Lipid membranes, Biosensors, Time-resolved fluorescence depolarization.

- Structure and dynamics of lipid membranes from time-resolved fluorescence depolarisation.
- Interaction, location and dynamics of proteins, peptides and small bioactive molecules in phospholipid model membranes.
- Encapsulation of macromolecules in sol-gel matrices.
- Design and characterization of fluorescent biosensors with application in clinical diagnosis.

J.A. Poveda, M. Prieto, J.A. Encinar, J.M. González-Ros and C. R. Mateo (2003). Intrinsic tyrosine fluorescence as a tool to study the interaction of the shaker B "ball" peptide with anionic membranes. Biochemistry **42**, 7124-7132.

Date submitted: 17th September 2002

## Gerard Mathis, D.Sc.

CIS Biointernational,
BP84175 Bagnols sur Ceze,
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France.
Tel: 33 (0) 46 679 6771 Fax: 33 (0) 46 679 1920
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*Specialty Keywords*: Rare earth cryptates synthesis and fluorescence, FRET, Biomolecular interactions.

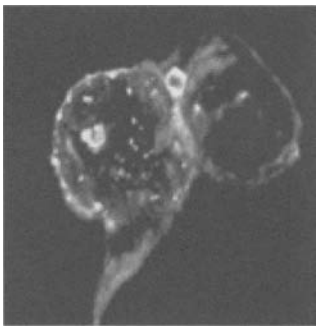
Current interests: Design of luminescent rare earth cryptates and photophysical studies. Research of fluorescence based techniques for probing interactions between biomolecules. Research and development of methods based on the use of long lived fluorophores and Fluorescence resonance energy transfer. Applications in cellular and molecular biology.

H.Bazin,E.Trinquet,G.Mathis (2002). Time Resolved Amplification of Cryptate Emission: a Versatile Technology to Trace Biomolecular Interactions. Reviews in Molecular Biotechnology 82, 233-250.

**Matkó, J.**
**Mattheis, J. R.**

Date submitted: 30th June 2004

## János Matkó, Ph.D.



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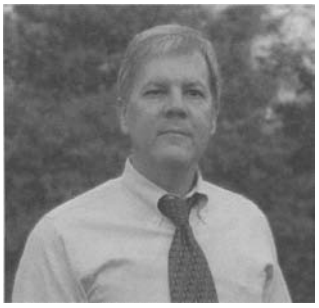
*Specialty Keywords*: Flow cytometry, Fluorescence cell imaging, Cell FRET.
AIM 2003 = 47.8

Research is conducted on cells of the immune system using (and developing) fluorescence cell analytical technologies in the following fields: characterization/functional role of plasma membrane lipid microdomains (rafts) and protein clustering; receptor-mediated signal transduction in lymphocyte activation and apoptosis; structure and function of immunological synapses.

J. Matkó, A. Bodnár, G. Vereb, L. Bene, G. Vámosi, G. Szentesi, J. Szöllősi, V. Horejsi,, TA Waldmann, S. Damjanovich, (2002) GPI-microdomains (membrane rafts) and signaling of the multichain interleukin-2 receptor in human lymphoma/leukemia T cell lines. *Eur. J. Biochem.*, **269**, 1199-1208.

Date submitted: 9th September 2002

## James R. Mattheis, Ph.D.



SPEX Fluorescence, Jobin Yvon Inc.,
3880 Park Ave, Edison,
NJ, 08820-3012,
USA.
Tel: 732 494 8660 ext: 122
Jim_mattheis@jyhoriba.com

*Specialty Keywords*: Photon-counting, Frequency-domain.

Managing a team of scientists providing fluorescence applications support, training and new methods development for users of SPEX spectrofluorometers. Support is provided for all users interested in applying high sensitivity photon-counting, steady-state fluorescence spectroscopy, fluorescence microscopy and picosecond time-resolved, frequency-domain methods to their own research projects.

Date submitted: 28th June 2004

## Evgenia G. Matveeva, Ph.D.

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eva@cfs.umbi.umd.edu
cfs.umbi.umd.edu

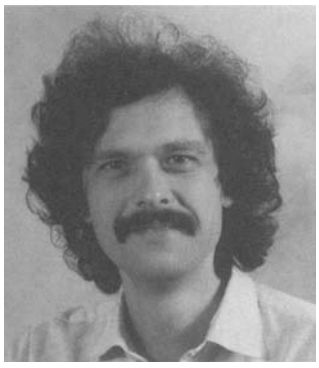
*Specialty Keywords*: Immunoassays, Fluorescence.
AIM 2004 = 15.0

Research is focused on immunoassay development using surface plasmon coupled emission (SPCE) and enhanced total internal reflection fluorescence (TIRF) in the proximity of a surface coated with metal or metal particles. Experience with lateral-flow membrane immunoassays, bead-based immunoassays, agglutination immunoassays using fluorescent labels and latex beads, or enzymes as labels. Antigens of interest are small molecules (such as pesticides) and protein biomarkers (such as cardiac markers).

Matveeva, E., Gryczynski, Z., Gryczynski, I., and Lakowicz, J. R. (2004) *J. Immunol. Methods,* 286(1-2), 133-140.
Matveeva, E., Malicka, J., Gryczynski, I., Gryczynski, Z., and Lakowicz, J. R. (2004) *Biochem. Biophys. Res. Commun.* 313(3): 721-726.

Date submitted: 7th July 2002

## László Mátyus, M.D., Ph.D.



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lmatyus@jaguar.dote.hu

*Specialty Keywords*: Fluorescence resonance energy transfer.

My research interest is to study the distribution and conformation of cell surface receptors using various fluorescence techniques, such as flow cytometric energy transfer measurements or different microscopies.

L. Mátyus, L. Bene, J. Hársfalvi,, M.V. Alvarez, J. González-Rodríguez, A. Jenei, L. Muszbek, and S. Damjanovich, (2001). Organization of the glycoprotein (GP) IIb/IIIa heterodimer on resting human platelets studied by flow cytometric energy transfer *J. Photochem. Photobiol. B: Biol.* **65** 47-58.
P. Nagy, L. Mátyus, A. Jenei, G. Panyi, S. Varga, J. Matkó, J. Szöllősi, R. Gáspár, T.M. Jovin, and Damjanovich (2001). Cell fusion experiments reveal distinctly different association characteristics of cell surface receptors *J. Cell. Sci.* **114** 4063-4071.

Date submitted: 26th June 2004

## Vladimir M. Mazhul, Ph.D.

Lab. of Proteomics, Inst. of Biophysics and Cellular Engineering, National Academy of Sciences of Belarus,
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Belarus, 220072, Belarus.
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mazhul@biobel.bas-net.by

*Specialty Keywords*: Room temperature phosphorescence.

Specialist in the fields of studying proteins and lipid peroxidation (LPO) products by fluorescence and room temperature phosphorescence techniques. The systematic investigations of millisecond internal dynamics of proteins in solution and composition of cell membrane by room temperature tryptophan phosphorescence technique had been carried out. By room temperature phosphorescence method the heterogeneity of LPO products accumulation in bulk and annular lipids of the cellular membrane has been shown.

V.M. Mazhul, E.M. Zaitseva, M.M. Shavlovsky, O.V. Stepanenko, I.M. Kuznetsova, K.K. Turoverov. // Biochemistry, 2003, V. 42, P. 13551-13557.
V. Mazhul, T. Chernovets, E. Zaitseva, D. Shcharbin. // Cell Biology International, 2003, V. 27, P. 571-578.

Date submitted: 26th August 2002

## Alberto Mazzini, Ph.D.

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*Specialty Keywords*: Protein folding, Binding analysis of probes to proteins, Time Correlated Single Photon Counting.

My present research interest is to study denaturation and renaturation mechanisms of proteins. Unfolding is induced by chemical denaturants and refolding is achieved by recovery of native experimental conditions. Intrinsic and extrinsic fluorescence is studied both by stationary and time resolved techniques (TCSPC). In the case of simple monomeric or dimeric proteins such as odorant binding proteins (OBP), the thermodynamic and kinetic analysis allows to elucidate the unfolding/refolding mechanism.

A.Mazzini, A.Maia, M.Parisi, R.T.Sorbi, R.Ramoni, S.Grolli, R.Favilla (2002) *Biochim.Biophis Acta* 1599, 82-93.
R.Favilla, M.Goldoni, A.Mazzini, P. Di Muro, B.Salvato, M.Beltramini (2002) *Biochim.Biophis Acta* 1597, 42-50.

Date submitted: 30th August 2002

## Claudia Mazzuca, (Ph.D. Student)

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University of Roma Tor Vergata,
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*Specialty Keywords*: Peptide structure, Foldamers, Peptide-membrane interactions.

My research activity within the group of professor Pispisa B. is focused on the use of fluorescence spectroscopy to investigate the interaction of antibiotic peptides with membranes and their mode of action.
I am interested also in determining the structure of synthetic, unusual amino acid based oligopeptide as foldamers.

B. Pispisa et al. (2000) Structural features of linear (αMe)Val-based peptides in solution by photophysical and theoretical conformational studies. *Biopolymers* **55**, 425-435.
B. Pispisa et al. (2002) Effect of distortions on the optical properties of Amide NH Infrared Absorption in short peptide in solution. *J. Phys. Chem B* **106,** 5733-5738.

Date submitted: 22nd August 2002

## Weiping Mei, Ph.D.

Head of Biophotonics,
R&D cosmed, Beiersdorf AG,
Unnastr.48, 22457 Hamburg,
Germany.
Tel: +49 404 909 4896 Fax: +49 404 909 18 4896
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*Specialty Keywords*: Biophotonics, Ultraweak photon emission, Chemiluminescence.

Research and methods development on the basis of detecting photons from human skin directly *in vivo*. The most interests is on the application of using optical technique for understanding photophysics and photochemistry of skin and efficacy test of skin care product.

W.P. Mei (1994) About the Nature of Biophotons. *Journal of Biological Systems*, Vol. 2, 25-42.

Sauermann G., Mei W.P., Hoppe U. and Stäb F.: Ultraweak Photon Emission of Human Skin *in vivo* - Influence of topically applied antioxidants on human skins. *Oxidants & Antioxidants, Part B, Methods in Enzymology*, Volume 300 (1999), p 419-428.

**Mely, Y.**
**Mendicuti, F.**

Date submitted: 16th June 2004

## Yves Mely, Ph.D.

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France.
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*Specialty Keywords*: Time-resolved fluorescence, FCS, Protein interactions.
AIM 2003 = 60.7

The research of my team is mainly focused on the investigation by fluorescence techniques of the interaction of proteins (mainly HIV nucleocapsid protein) with ligands. We also investigate the physico-chemical properties and intracellular fate of complexes of DNA with nonviral vectors. More recently, we have developed ratiometric fluorescent dyes as well as a platform with TPE that combines FCS, time-resolved fluorescence, microspectrofluorimetry and imaging.

J.P Clamme, J. Azoulay & Y. Mély (2003). Monitoring of the formation and dissociation of polyethyleneimine/DNA complexes by two photon FCS. *Biophys J.*, 2003, **84**, 1960-1968.
H. Beltz, E. Piémont, E. Schaub, D. Ficheux, B. Roques, J. L. Darlix, & Y. Mély. Role of the Structure of the top half of HIV-1 cTAR DNA on the nucleic acid destabilizing activity of the Nucleocapsid Protein NCp7. *J. Mol. Biol.*, 2004, **338**, 711-23.

Date submitted: 16th March 2004

## Francisco Mendicuti, Ph.D.

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Ctra Madrid-Barcelona Km 33.6,
28871 Alcalá de Henares, Madrid,
Spain.
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francisco.mendicuti@uah.es

*Specialty Keywords*: Excimers, Energy transfer, Polymers, Inclusion Complexes, Molecular Mechanics / Dynamics.

We use steady state and time-resolved fluorescence techniques, as well as various theoretical methods for the study of some conformational properties in polymer systems and the inclusion processes of small molecules and polymers with cyclodextrins. Comparison of the theoretical and experimental results allow us to learn more about the conformations and dynamics of polymeric systems and the driving forces and thermodynamics accompanying complexation processes.

Gallego, J, Mendicuti, F., Mattice, W.L. *J. Polym. Sci. Polym.Phys. E.* **2003**, 41, 1615.

Dimarino, A., Mendicuti, F. *Appl. Spectrosc.*. **2004**, 58(7), 823.

Date submitted: 3rd September 2002

## Fabienne Mérola, Ph.D.

Laboratory of Chemical Physics, Bat 349,
Université Paris-Sud,
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France.
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*Specialty Keywords*: Protein dynamics, Cell signaling, Time-resolved spectroscopy.

I work to the development of new cell imaging and diagnosis methods based on time-resolved fluorescence: A thorough background in the physics and chemistry of proteins in solution is the basis for original approaches of their dynamics and interactions inside the living cell. We use single and two-photon laser excitation, combined with FRET and FLIM techniques, to investigate the regulation of ion channels involved in synaptic communication and muscle contraction, and, more recently, the structure-photophysics relationship in fluorescent proteins.

Martinez et al. (2002) "Allosteric transitions of *Torpedo* acetylcholine receptor in lipids, detergent and amphipols: molecular interactions vs. physical constraints", *FEBS Lett.* in press.
Guiot et al. (2000) "Molecular dynamics of biological probes by fluorescence correlation microscopy with two-photon excitation", *J. Fluorescence* **10**, 413-419.

Date submitted: 30th August 2002

## Svetlana B. Meshkova, D.Sc., Ph.D.

Department of Analytical Chemistry and Physico-Chemistry of Coordination Compounds, A.V. Bogatsky Physico-Chemical Institute of National Academy of Sciences of Ukraine,
National Academy of Sciences of Ukraine.
86, Lustdorfskaya doroga, 65080, Odessa, Ukraine.
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physchem@paco.net

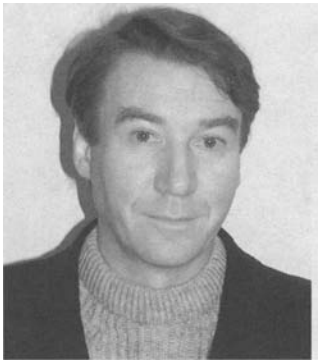
*Specialty Keywords*: Fluorescence, Energy Transfer, Lanthanide Complexesl.

Current Research Interests: Design and investigation of photochemical properties of lanthanide complexes in solution and solid matrix. Investigation of connection between the composition, stability and optical properties of complexes and characteristics of lanthanide ions and ligands. Study of new means for elimination of intra- and intermolecular energy losses and its realization in luminescent analysis.

S.B. Meshkova (2000). The Dependence of the Luminescence intensity of Lanthanide Complexes with β-Diketones on the Ligand Form: J. of Fluorescence, 10(4), 333-337.
S.B. Meshkova, Z.M. Topilova, D.V. Bolshoy, S.V. Beltyukova, M.P. Tsvirko and V.Ya. Venchikov (1999). Quantum Efficiency of the Luminescence of Ytterbium (III) β-Diketonates: Acta Phys. Polonica A, 95(6), 983-990.

Date submitted: 5th July 2004

## Olaf Minet, Ph.D.



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*Specialty Keywords*: Optical Biopsy, Optical Molecular Imaging, Quantum dots, Image processing and analysis.

Current Research Interests: My research is focused on advancing fluorescence applications in medicine. This involves native autofluorescence compounds like NADH in Optical Biopsy, synthetic markers in Optical Molecular Imaging and Quantum dots as well. Of special interest are investigations in the field of image processing, i.e. for eliminating the effects of tissue optics like absorption and scattering on the fluorescence signal by deconvolution.

Minet O., Dressler C., Beuthan J: Heat stress of cancer cells: Fluorescence imaging of structural changes with Quantum Dots™ 605 and Alexa™ 488. In: Hof M, Hutterer R, Fidler V (eds.): Fluorescence Spectroscopy, Imaging and Probes (Springer Series Methods and Applications of Fluorescence Spectroscopy, Vol. 3) Springer, Berlin, Heidelberg, New York, 2004, in press.

Date submitted: 22nd July 2004

## Anatolii G. Mirochnik, Ph.D.

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159 prosp.100-letiya Vladivostoka, Vladivostok,
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mirochnik@ich.dvo.ru

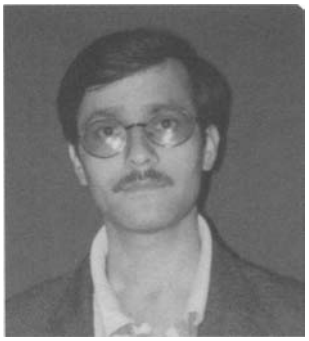
*Specialty Keywords*: Fluorescence, Photochemistry.

Design and investigation of fluorescence and photochemical properties of lanthanide and p-elements ( boron, $s^2$ – ions) complexes. Study of photochemical reaction mechanisms, ascertainment of correlations between spectroscopic parameters and molecular structure.

Mirochnik A.G., Bukvetskii B.V., Fedorenko E.V., Karasev V.E. Crystal structures and excimer fluorescence of anisoylbenzoylmethanatoboron and dianisoylmethanatoboron difluorides, Russian Chemical Bulletin, 2004, **53,** 291-296.
Storozhuk T.V., Bukvetskii B.V., Mirochnik A.G., Karasev V.E. Synthesis, Structure, and Reversible Thermochromism of Guanidinium Hexabromotellurate (IV), J.Struct.Chem., 2003,**44**, 880-884.

Date submitted: 13th September 2002

## Hirdyesh Mishra, Ph.D.



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*Specialty Keywords*: Time-domain fluorescence spectroscopy of H-bonded molecular system and its applications, Theoretical computation, Instrumentation.

Research Interest: My basic research interest is to understand various photo-induced electronically excited state relaxation processes viz. ESPT, ET, TICT, EERS etc through experimental and theoretical investigations and its applications as fluorescence sensors, lasing materials, luminescence collectors, memory devises etc. In some hydrogen bonded molecular system in polymers. Besides this I am also interested to design and fabrication of instruments and programming for computation.

An optical approach for sensing pH based on energy transfer in nafion matrix. V. Mishra, H. C. Joshi and T.C. Pant: Sens. Accut. 82 (2002) 133-141.

Date submitted: 12th August 2002

## Tom Misteli, Ph.D.

National Cancer Institute, NIH,
41 Library Drive, Bldg. 41, B610,
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USA.
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rex.nci.nih.gov/RESEARCH/basic/lrbge/cbge.html

*Specialty Keywords*: Living cells, Photobleaching, Modelling.

My laboratory uses photobleaching, in situ hybridization and FCS methods to study nuclear architecture and genome expression in vivo. We make extensive use of kinetic modeling methods to analyze in vivo microscopy data.

Phair R.B and T. Misteli, High mobility of proteins in the mammalian cell nucleus. Nature, 404, 604-609 (2000).
Phair R.B. and T. Misteli, Kinetic modeling approaches to in vivo microscopy, Nature Rev. Mol. Cell Biol., 2, 898-907 (2001).

Date submitted: 7th August 2004

**Ihab Kamal Mohamed, Ph.D.**

Zoology Dept., Faculty of Science,
Ain-Shams Universcity, Cairo, Egypt.
& Cell Biology (LS. Plattner) Biology Dept.
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www.ub.uni-konstanz.de/kops/volltexte/2002/760
*Specialty Keywords*: Calcium, Fluorochrome analysis, SOC mechanism, Exocytosis, Paramecium, Secretion.

I use microinjection of different fluorochromes into living cells to detect $Ca^{2+}$ mobilization across the cell membranes, in its stores and in mitochondria too. This is proceeded under CLSM or 2λ inverted microscope for time-resolved fluorescence imaging and by help of sophisticated computerized process. It is amazing to use the fluorochromes for localization of different cellular organelles, especially in living cells. I also use GFP application for localization and functional analysis of different proteins in living cells. I ´ll be glad for future scientific cooporation.

Mohamed et al. 2003. Refilling of cortical calcium stores in Paramecium cells: in situ analysis in correlation with store-operated calcium influx. Journal of cell calcium, 34, pp. 87-96.

Date submitted: 9th June 2004

**Gerhard J. Mohr, Ph.D.**

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Germany.
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*Specialty Keywords*: Luminescent sensors, Optodes, Reactands, Labels.

Novel indicator dyes for neutral and anionic analytes are currently being developed whose recognition process is based on the selective formation of a covalent bond between dye and analyte. The chemosensor dyes are embedded in thin polymer layers and are adapted to miniaturized optics components for the detection of dissolved and gaseous analytes relevant in environmental, medical and biotechnical areas.

G. J. Mohr (2004). Chromo- and fluororeactands: Indicators for detection of neutral analytes by using reversible covalent-bond chemistry. *Chemistry, A European Journal* **10**, 1082-1090.
G. J. Mohr (2004). Tailoring the sensitivity and spectral properties of a chromoreactand for the detection of amines and alcohols. *Analytica Chimica Acta* **508**, 233-237.

Date submitted: 5th September 2002

## María C. Moreno-Bondi, Ph.D.

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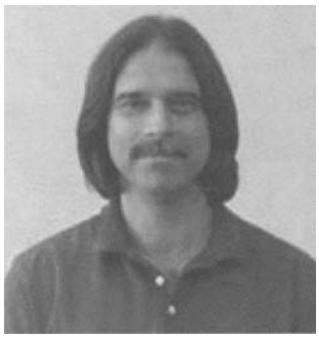
*Specialty Keywords*: Opt(r)odes, Luminescent sensors, Analysis, Validation.

Our current areas of reseach are (i) the design, fabrication and analytical characterization of *fiber optic* chemosensors *and* biosensors based on novel dyes for the analysis of environmental, industrial, food and medical parameters; (ii) the synthesis and application of Molecularly Imprinted Polymers (MIPs) for sensor development and separation purposes; (iii) sensor application and validation.

M.P. Xavier, B. Vallejo, M.D. Marazuela, M.C. Moreno-Bondi, F. Baldini, A. Falai, *Biosens. and Bioelect.* **2000**, *14*, 895.
M. Bedoya, G. Orellana, M.C. Moreno-Bondi, *Helv. Chim. Acta* **2001**, *84*, 2628.

Date submitted: 2nd August 2004

## Larry E. Morrison, Ph.D.



Research and Development, Vysis / Abbott,
3100 Woodcreek Drive, Downers Grove,
Illinois, 60515,
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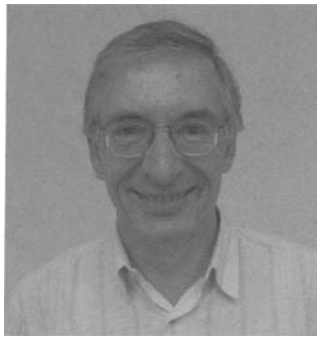
*Specialty Keywords*: Fluorescence, in situ hybridization, energy transfer assays, DNA labeling chemistry, cancer diagnostics.
AIM 2002 = 25.1

Current Research Interests: Developing diagnostic, prognostic, and predictive assays for human cancers employing both fluorescence *in situ* hybridization and PCR-based assays. This has included developing multi-target *in situ* hybridization technology using many fluorescent labels simultaneously, combinatorially, or ratiometrically. An early and continuing interest is homogeneous fluorescence detection systems, especially as applied to detecting PCR products.

Morrison (2003) Fluorescence in nucleic acid hybridization assays, in J Lakowicz (Ed.) *Topics in Fluorescence Spectroscopy*, Vol 7. Kluwer, New York pp 69-97.
Jacobson *et al.* (2004) Gene Copy Mapping of the *ERBB2/TOP2A* Region in Breast Cancer. *Genes, Chromosomes, and Cancer* **40**, 19-31.

Date submitted: 28th August 2002

**Francis Mueller, Ph.D.**



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Switzerland.
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francis.mueller@roche.com

*Specialty Keywords*: Proteins, Binding affinities, Time-resolved Fluorescence labels.

Biomolecular structure research: Protein dynamics, stopped-flow measurements, mobility of tryptophanes for structural studies. Support of fluorescent biological assays development. Intracellular calcium.

Characterisation of lead structures for protein binding. Hits validation from high throughput screening and biological assays. Support in fine tuning of potential ligands with quantitative measurement of affinities by fluorescence titration.

Date submitted: 13th September 2002

**Gerhard Müller-Newen, Ph.D.**

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*Specialty Keywords*: Fluorescent fusion proteins, Living cells, Confocal laser-scanning microscopy.

Current research: Cytokine signal transduction in live cells using confocal microscopy. To achive this, cytokines, cytokine receptors, Janus kinases and transcription factors of the STAT-family are expressed as fusion proteins linked to GFP, YFP or CFP. The proteins are studied by FLIP (fluorescence loss in photobleaching), FRAP (fluorescence recovery after photobleaching) and FRET to learn more about their subcellular distribution, their dynamics and interactions within the living cell. Since we entered the field of fluorescent proteins just two years ago, the following references refer to former work the group.

Müller-Newen, G., A. Küster, J. Wijdenes, F. Schaper, P. C. Heinrich. 2000. Studies on the IL-6-type cytokine signal transducer gp130 reveal a novel mechanism of receptor activation by monoclonal antibodies. *J. Biol. Chem.* 275: 4579-4586.

Date submitted: 30th August 2002

**Kiyofumi Murakami, Ph.D.**

Faculty of Education, Yamaguchi University,
Yashida 1677 1,
Yamaguchi 753 8513,
Japan.
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*Specialty Keywords*: Biomacromolecule-Small Molecule Interaction, Kinetics and Mechanism.

Current Research Interests: I am interested in specific and cooperative bindings of amphiphilic substances such as dyes and surfactants to biomacromolecules and their local structure models from thermodynamic and kinetic view points. I am also interested in exploring new materials for science education.

K. Murakami (2002). Thermodynamic and kinetic aspects of self-association of dyes in aqueous solution. *Dyes and Pigments*, **53**(1), 31-43. K. Murakami (1999). Cooperative ligand binding to globular protein: A statistical mechanical theory based on a simple geometrical model and its application to lysozyme sysytems. *Langmuir*, **15**(12), 4270-4275.

Date submitted: 28th July 2004

**Dirk U. Näther, Ph.D.**

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2 Bain Square, Livingston,
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UK.
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*Specialty Keywords*: Fluorescence Spectrometers, Single Photon Counting, Instrumentation.

Active in the field of fluorescence since 1989; development engineer in Edinburgh Instruments since 1991; in charge of instrumentation development for the Analytical Instruments Division of Edinburgh Instruments since 2000.

Date submitted: 12th September 2002

**Miloš Nepraš, Ph.D.**

Department of Organic Technology,
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Czech Republic.
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Milos.Nepras@upce.cz

*Specialty Keywords*: Fluorescent probes, Bifluorophoric systems, Structure and fluorescence characteristics.

Syntheses and study of relationships between electronic structure and luminescence properties of polynuclear aromatic ketones and quinones and their derivatives. Syntheses and fluorescence characteristics (spectra, quantum yield, fluorescence decay kinetics and solvent effect) of new fluorescent probes derived form acyl and triazinyl derivatives of pyrene, aminopyrenes and aminobenzanthrones. Study of the excitation energy transfer at bifluorophoric systems created form the 3-aminobenzanthrone and aromatic hydrocarbon subsystems.

V. Fidler, P. Kapusta, M. Nepraš, J. Schroeder, I. V. Rubtsov and K. Yoshihara Femtosecond Fluorescence Anisotropy Kinetics as a Signature of Ultrafast Electronic Energy Transfer in Bichromophoric Molecules Z. Phys. Chem. 216 (2002) 589 – 603.

Date submitted: 12th July 2002

**Walter D. Niles, Ph.D.**

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*Specialty Keywords*: Radiometric imaging, Energy transfer, Membrane dynamics.

Developed quantitative fluorescence resonance energy transfer imaging of membrane dynamics in model and biological systems for understanding essential biophysical mechanisms. Now applying novel fluorescence and optical micromechanics for development of assay technologies (biologies and instrumentation) for drug discovery and diagnostics.

Endothelial cell-surface gp60 activates vesicle formation and trafficking via Gi-coupled Src kinase signaling pathway. 2000. Journal of Cell Biology 150:1057-1069.
Radiometric calibration of a video fluorescence microscope for the quantitative imaging of resonance energy transfer. 1995. Review of Scientific Instruments. 66:3527-3536.

Date submitted: 10th July 2003

## Christopher G. Norey, Ph.D.

Amersham Biosciences, The Maynard Centre,
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christopher.norey@amersham.com
www.amershambiosciences.com

*Specialty Keywords*: Polarization, HTS Instrumentation, Assays.

Our interests are development of systems relevant for high throughput screening assays, employing fluorescence polarization, FRET and time resolved-FRET techniques. Primarily using CyDye™ fluors and Eu (TMT) chelates with detection via single well PMT readers or whole plate imaging platforms, such as LEADseeker™ multi-modality imaging system. We have a particular interest in receptor ligand interactions, protease cleavage and kinase assays. Recently we have been investigating the application of fluorescence lifetime to these areas.

A. Fowler, I. Davies and C. Norey, (2000), A Multi-Modality Assay Platform for Ultra-High Throughput Screening. *Current Pharmaceutical Biotechnology*, **1**, 265-281.
A. Harris, S. Cox and C. Norey, (2002), High-throughput fluorescence polarization receptor binding assays. In: *LifeScience News*, Amersham Biosciences UK Limited, issue 10, 17-19.

Date submitted: 1st July 2004

## Mercedes Novo, Ph.D.

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Facultad de Ciencias, Departamento de Química Física,
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Spain.
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*Specialty Keywords*: Fluorescence, Data analysis.

Study of the influence of confined media such on proton transfer and charge transfer processes. Design of fluorescent probes for the characterisation of supramolecular structures. Development and implementation of new data analysis methods for steady state and time resolved fluorescence data.

E. Álvarez-Parrilla, W. Al-Soufi, P. Ramos Cabrer, M. Novo y J. Vázquez Tato (2001). Resolution of the association equilibria of 2-(p-toluidinyl)-naphthalene-6-sulfonate (TNS) with β-cyclodextrin and a charged derivative. *J. Phys. Chem. B*, **105**, 5994. M. Lezcano, W. Al-Soufi, M. Novo, E. Rodríguez-Núñez and J. Vázquez Tato (2002) Complexation of several benzimidazole-type fungicides with α- and β-cyclodextrins. *J. Agric. Food Chem.*, 50, 108.

**Orellana, G.**
**Ortmann, U.**

Date submitted: 26th August 2002


## Guillermo Orellana, Ph.D.

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*Specialty Keywords*: Indicator design, Fiber-optic sensors, Environmental analysis and Process control.


Our currents areas of research are (i) design and fabrication of micro-probes based on molecularly engineered luminescent dyes, novel photochemical reactions and *fiber-optic chemosensors* for in situ analysis of environmental, industrial, and medical parameters, and (ii) synthesis and characterization of nano-probes to investigate the structure of nucleic acids and design artificial photonucleases, The realization of both goals rests on *tailored* luminescent transition metal complexes and organic heterocyclic structures.


F. Navarro-Villoslada, G. Orellana, M.C. Moreno-Bondi, T. Vick, M. Driver, G. Hildebrand and K. Liefeith, *Anal. Chem.* **2001**, *73*, 5150-5156.

M.E. Jiménez, G. Orellana, F. Montero and M.T. Portolés, *Photochem. Photobiol.* **2000**, *72*, 28-34.


Date submitted: 28th August 2003


## Uwe Ortmann, M.Sc.

PicoQuant GmbH.,
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Berlin 12489,
Germany.
Fax: +49 (0)30 6392 6567
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www.picoquant.com



*Specialty Keywords*: Pulsed Lasers, Time-resolved Spectroscopy, Single Molecule Detection.


Current Status: Head of Systems and Sales / Marketing divisions of PicoQuant GmbH.

Major activities are based on the design and further development of fluorescence lifetime systems, especially in the field of time-resolved photon counting equipment and single molecule detection.


Application of sub-ns pulsed LEDs in fluorescence lifetime spectroscopy, Proceedings of SPIE, Vol.4648, p.171-178 (2002).

Date submitted: 1st August 2004

## Martin H. Otz, (Ph.D. Student)

Syracuse University, Dept. of Earth Sciences,
313 Heroy Geology Laboratory, Syracuse,
Onondaga, 13244-1070,
USA.
Tel: 315 857 4614
mhotz@syr.edu
web.syr.edu/~mhotz/index.html

*Specialty Keywords*: Dye-tracing, Contaminant hydrology, Fluorescent dyes.

A major problem in hydrology is to determine the flow paths of water in organic-rich environments. My research focuses on the use of intrinsic fluorescence to locate organic contaminant plumes. Additionally I developed dye-tracing techniques using organic fluorescent dyes to successfully trace water flow paths in heavily contaminated aquifers.

**Otz, M.H.**, Hinchey, E., and Siegel, D.I., 2003, Using synchronous spectro-fluorometry for tracing oil-contaminated water under an inaccessible factory [abs.]: Transactions Geological Society of America, v. 35, no. 6, p. 413.

**Otz, M.H.**, Otz, H.K., Ines Otz, and Siegel, D.I., 2003, Surface water/groundwater interaction in the Piora Aquifer, Switzerland: evidence from dye tracing tests: Hydrogeology Journal, v. 11, no. 2, p. 228-239.

Date submitted: 9th August 2002

## Roger H. Pak, Ph.D.

Macromolecular Structure Dept.,
Bristol-Myers Squibb Pharmaceutical Research Institute,
5 Research Parkway, Wallingford,
CT 06492, USA.
Tel: 203 677 7225 Fax: 203 677 6984
roger.pak@bms.com

*Specialty Keywords*: Bioconjugate / Biophysical Chemistry, Biomolecular Assay Design and High-Throughput Screening.

My research focuses on developing labeled peptides and bioconjugates for use in biomolecular assays and high-throughput screening for drug discovery. These bioconjugates are used in a variety of assay formats such as time-resolved fluorescence resonance energy transfer, fluorescence polarization, fluorescence intensity and other radioisotopic or luminescent techniques such as scintillation proximity assays, bioluminescence and enzyme-coupled reactions. I am also involved in the development of novel fluorophores as biological and chemical sensors.

**Pant, T. C.**
**Pantano, P.**

Date submitted: 13th July 2004

## Tara Chandra Pant, Ph.D.

Photophysics Laboratory, Department of Physics,
Kumaon University, Naninital,
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*Specialty Keywords*: Fluorescence, Excitation Energy transfer, Optical sensors.

Electronic Excitation Energy Transfer and Migration in organic dyes and rare earths in solution, glassy and polymeric media. Application of Fluorescence Resonance Energy transfer (FRET) as optical sensors and Luminescence solar collectors. Excitation Energy transfers in micro droplets using techniques of Fluorescence Microscopy.

An optical approach for sensing pH based on energy transfer in Nafion matrix.V. Misra, H. Mishra, H. C. Joshi and T.C. Pant; Sensor and Actuators B: Chemical, 82 (2002) 133-142.
Fluorescence studies of Salicylic acid doped in polyvinal alcoho film as a water/ humidity sensor. H. Mishra, V. Misra, M. S. Mehta, T. C. Pant and H. B. Tripathi, J. Physical Chemistry: A 108 (2004) 2346-2352.

Date submitted: 14th August 2002

PantanoLABO
*est. 1996*

## Paul Pantano, Ph.D.

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The University of Texas at Dallas,
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www.utdallas.edu/dept/chemistry/faculty/pantano.html

*Specialty Keywords*: Microarrays, Sensors, Cell adhesion.

PantanoLABO is motivated to develop elegant analytical techniques and methodologies to understand complex (bio)chemical systems. Our research includes the fabrication and characterization of microwell, micropost, nanotip, and planar imaging fiber chemical and electrochemical sensors. Specific biological interests include cell adhesion and guidance, reactive oxygen species and oxidative stress, and neurochemical dynamics. New projects include immunosensor arrays, cell-based biosensors, and other high-throughput screening assays.
C. C. Meek and P. Pantano, (2001). Spatial Confinement of Avidin Domains in Microwell Arrays, *Lab on a Chip*, **1** (2), 158-163.
E. S. Jin, B. J. Norris, and P. Pantano, (2001). An Electrogenerated Chemiluminescence Imaging Fiber Electrode Chemical Sensor for NADH, *Electroanalysis*, **13** (15), 1287-1290.

Date submitted: 3rd September 2002

**George C. Papageorgiou, Ph.D.**

National Center for Scientific Research Demokritos,
Institute of Biology,
Athens,
Greece, 153 10.
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gcpap@bio.demokritos.gr & gcpap@ath.forthnet.gr

*Specialty Keywords*: Photosynthesis, Chlorophyll, Cyanobacteria.

Recently, we have explored applications of phycobilisome-sensitized chlorophyll *a* fluorescence as a quantitative reporter of osmotic volume changes of cyanobacteria, and of osmotically-driven transport of solutes and water across cyanobacterial cell envelopes.

Stamatakis K and Papageorgiou GC (2001) The osmolality of cell suspension regulates phycobilisome-to-photosystem I excitation transfer in cyanobacteria. Bioch. Biophys. Acta 1506: 172-181.
Stamatakis K, Ladas Np, Alygizaki-Zorba A and Papageorgiou GC (1999) Sodium chloride-induced volume changes of freshwater cyanobacterium Synechococcus sp PCC7942 cells can be probed by chlorophyll a fluorescence. Arch. Biochem. Biophys. 370: 240-249.

Date submitted: 29th August 2003

**Dmitri B. Papkovsky, Ph.D.**

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University College Cork,
Lee Maltings, Cork,
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www.ucc.ie/ucc/depts/biochemistry/staff/dpapkov.html

*Specialty Keywords*: Phosphorescence, Porphyrins, Probes.

Research areas: Microsecond time-resolved and phase-resolved fluorescence; room-temperature phosphorescence; development and application of phosphorescent porphyrin probes; quenched-luminescence oxygen sensing and respirometric assays; enzymatic, binding, hybridisation and cell-based assays; high throughput screening, homogeneous bioassays.

Ref 1: J. Hynes, S. Floyd, A.E. Soini, R. O'Connor, D.B. Papkovsky (2003). Fluorescence based cell viability screening assays using water-soluble oxygen probes, J. Biomol. Screening, **8**(3), 264-272.
Ref 2: P. J. O' Sullivan, M. Burke, A.E. Soini, D.B. Papkovsky (2002). Synthesis and evaluation of phosphorescent oligonucleotide probes for hybridization assays, Nucl. Acids Res., 30(21), E114-4.

**Papper, V.**
**Parfenov, A. S.**

Date submitted: 9th September 2002

## Vladislav Papper, Ph.D.

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Germany.
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www.chemie.hu-berlin.de/wr/index.html

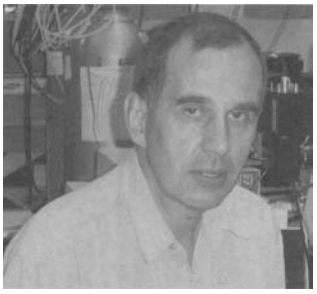
*Specialty Keywords*: Stilbene, Photoisomerisation, Dual Fluorescence.

Synthesis, photochemistry and photophysics of stilbenoid compounds, mainly *trans-cis* photo-isomerisation. Synthesis and photophysics of fluorescent and dual-fluorescent probes, derivatives of stilbene, with applications to biological membranes, proteins of biological interest, polarity probes for quarz surfaces with the following application to the optoelectronic devices. Synthesis, photophysics and photochemistry of dual-fluorescent probes, *p-(N,N-dimethylamino)benzonitrile* derivatives, for visual and proton-pumping opsin proteins.

V. Papper, G. I. Likhtenshtein, *"Substituted Stilbenes: A New View on Well-Known Systems"*, J. Photochem. Photobiol. A: Chem. 140, (2001), 39-52.
V. Papper, V. Kharlanov, W. Rettig, *"New fluorescent probes for visual proteins"*, Phys. Chem. Chem. Phys. 4, (2002), 1752 – 1759.

Date submitted: 18th August 2002

## Alexandr S. Parfenov, Ph.D.



Department of Biochemistry and Molecular Biology,
Center for Fluorescence Spectroscopy University of Maryland,
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alexandrparfenov@yahoo.com

*Specialty Keywords*: Non-invasive diagnostics, Glucose, Cholesterol.

Method of determining skin tissue cholesterol US Patent 6,365,363 Apr.2, 2002.

Fluorescence method for monitoring of glucose in interstitial fluids. SPIE 2001, 4263.

To continue working as a scientist in the field of the non-invasive diagnostics on the development of new diagnostic tests.

Date submitted: 28th August 2002

**Pavel Parkhomyuk–Ben Arye, M.Sc.**

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www.bgu.ac.il/chem/index.html

*Specialty Keywords*: Fluorescence-Based Sensors, FRET, Biophysical Chemistry.

Current Research Interests: (a) Application of FRET for quantitative analysis at nanomolar scale, (b) investigation of the surface phenomena with covalently immobilized fluorescent probes, (c) study of the double spin-fluorescent molecules and their application as redox and viscosity probes and (d) photophysical and photochemical investigation of HSA-Hemin complex.

P. Parkhomyuk-Ben Arye, N. Strashnikova, G.I. Likhtenshtein (2002). Stilbene photochrome-fluorescence-spin molecules: covalent immobilization on silica plate and applications as redox and viscosity probes, *J. Biochem. Biophys. Methods*, **51**, 1-15.

Date submitted: 6th June 2004

**Abraham H. Parola, Ph.D.**

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Beer Sheva,
Israel, 84105.
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aparola@bgumail.bgu.ac.il

*Specialty Keywords*: Membrane Dynamics, Lipid-Protein & Protein-Protein & Protein-Ligand / Drug Interactions, Time/Phase Resolved Fluorescence Spectroscopy.

Research topics: The role of hydrophobic interactions in membranal and non-membranal protein function and regulation, signal transduction, cell cycle and proliferation, cell differentiation and intercellular interactions, angiogenesis, apoptosis, magnetic field effects on biological systems.

Intrinsic Fluorescence Polarization of Amniotic Fluid and the Evaluation of Human Fetal Lung Maturity. J. Molcho, H. Avraham, R. Cohen-Luria and A.H. Parola.*Photochem. Photobiol.* 78, 105-108 (2003).
Phosphatidylethanolamine and phosphatidylglycerol are segregated into different domains in bacterial membrane. A study with pyrene-labeled phospholipids. S. Hazan, A.H. Parola and I. Fishov. *Molec. Microbiol.*, 49, 1067-1079 (2003).

**Patra, D.**
**Paul, A.**

Date submitted: 17th March 2004


## Digambara Patra, Ph.D.

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Germany.

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*Specialty Keywords*: Fluorescence, Spectroscopy, Imaging.


My primary research is on fluorescence based methods, techniques and probing to study chemical and biological problems that include (i) single molecule detection, (ii) complex mixture analysis and (iii) chemical sensor development.


D. Patra, (2003), Applications and new developments in fluorescence spectroscopic techniques for analysis of polycyclic aromatic hydrocarbons, *Appl. Spectrosc. Reviews,* 38 (2), 155 – 185.

D. Patra, A. K. Mishra, (2000), Effect of sample geometry on synchronous fluorimetric analysis of petrol, diesel, kerosene and their mixtures at higher concentration, *Analyst*, 125 (8), 1383 – 1386.


Date submitted: 30th June 2004


## Albertha (Bert) Paul, M.S.

Boston Electronics Corporation,
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www.boselec.com

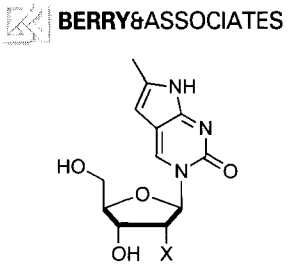


*Specialty Keywords*: TCSPC, Spectroscopy, Photochemistry.


Applications Engineer at Boston Electronics Corporation, North American agents for Edinburgh Instruments Ltd of Edinburgh, Scotland and for Becker & Hickl GmbH of Berlin, Germany. Specialist in photochemistry and medical instrumentation.

Date submitted: 21st October 2003

## William H. Pearson, Ph.D.




Pyrrolo-dC (X=H)
Pyrrolo-C (X=OH)

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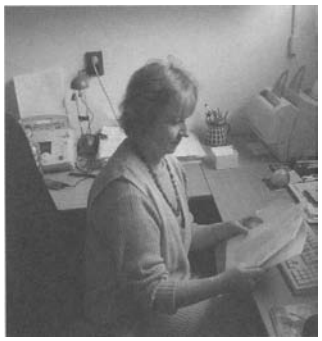
*Specialty Keywords*: Fluorophores, Dark quenchers, Fluorescent nucleosides.

We are a leading source of nucleosides and modified nucleosides as well as fluorophores and quenchers. We offer fluorescence quenchers, carboxyfluoresceins and carboxytetramethylrhodamines (isomerically pure) in forms suitable for labeling biomolecules, i.e. as active esters, CPG-supported materials, and nucleoside-linked materials. In conjunction with Glen Research, we have also developed fluorescent cytidine and 2'-deoxycytidine analogs (see pyrrolo-C and -dC above) and their phosphoramidites, which have proven to be useful probes of nucleic acid structure. Our current efforts include the development of new fluorophores and dark quenchers. Please contact us for excellent prices on fluorophores. We would also be interested in discussing your custom fluorescence needs.

Date submitted: 6th September 2002

## Jana Peknicova, Ph.D.



Dept. of Biology and Biochemistry of Fertilization,
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Czech Republic, Videnska 1083, Prague 4,
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*Specialty Keywords*: Biology of Reproduction, Fertilization, Sperm proteins.

The long-term interest of the group lies in studies of the molecular mechanism of mammalian fertilization. The role of selected sperm proteins during capacitation, acrosome reaction and sperm binding to zona pellucida of oocytes is studied. The changes in immunochemical localization of cytoskeletal proteins in boar sperm during capacitation and acrosome reaction were tested. The effect of endocrine disruptors on mammalian fertility was also tested and sperm quality was evaluated with monoclonal antibodies by immunofluorescence method.

Peknicova J., Kubatova A., Sulimenko V., Draberova E., Viklicky V., Hozak P., Draber P.: Biology of Reproduction 65:672-679, 2001 .

Peknicova J., Kyselova V., Buckiova D., Boubelik M.: American Journal of Reproductive Immunology 47: 311-318, 2002.

**Pelella, F.**
**Peltié, P.**

Date Submitted: 24th May 2002


## Fabrizio Pelella, (Ph.D. Student)

Institute of Protein Biochemistry,
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*Specialty Keywords*: Biosensors, Thermophilic Proteins and Enzymes, Fluorescence.


My scientific interests deal with the development of innovative protein biosensors based on the utilization of proteins and enzymes isolated from mesophilic and thermophilic organisms. My primary goal is to contribute to the realization of new fluorescence methods of sensing by means of fluorescence techniques. In particular my thesis is focused on the development of stable and non-consuming substrate biosensors for analytes of high environmental, clinical and social interests.

Date submitted: 4th August 2004


## Philippe Peltié, Ph.D.

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Dept.Techno.Biologie Santé, 17, rue des Martyrs,
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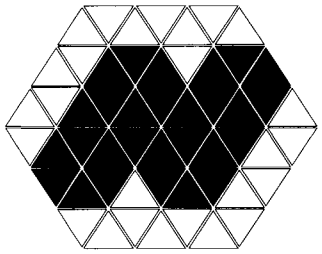
*Specialty Keywords*: Fluorescence instrumentation, In vivo fluorescence imaging.


We have developed during 6 years fluorescent DNA chips readers; my work, now, focuses on the development of instrumentation for in vivo fluorescence imaging. Fluorescent probes can be functionnalized to target specific organs, lesions, tumor. This non-invasive technique makes it possible to localize and measure tumors in small animals; this technique may be extended to human diagnosis for shallow organs or lesions.

Fluorescence detection for DNA chips and labs on chips and perspective for integrated systems. IXth international symposium on luminescence spectrometry in biomedical and environmental Analysis; may 15-17, 2002; Montpellier, France.

Date submitted: 30th May 2002



**Michael J. Pender, M.S.**

Nanochron LLC.,
4201 Wilson Blvd. #110-615,
Arlington, Virginia 22203, USA.

Michael.Pender@Nanochron.com
www.nanochron.com

*Specialty Keywords*: Photonics, Predictive modeling.

My work focuses on the development of application-specific optical devices. Specific topics include intra-molecular photonic transfer in fluorescent and quasi-fluorescent optical channels and predictive modeling of the properties of fluorophores in photonic devices for optical communications and signal processing.

M. Pender (2001). Optical matrix photonic logic device and method for producing the same, Patent Cooperation Treaty Application No. PCT/IB01/00888.

Date submitted: 7th July 2004

**Xinzhan Peng, Ph.D.**

LI-COR BioSciences,
Division of Chem. R&D,
4308 Progressive Ave, Lincoln,
Nebraska, 68504, USA.
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xpeng@licor.com
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*Specialty Keywords*: Near-infrared fluorescent dyes, Water-soluble phthalocyanine dyes.

My current research focuses on the design and synthesis of novel fluorescent near-infrared dyes for biological application. Particular interest is the development of novel near-infrared fluorescent phthalocyanine dyes with high sensitivity for protein assay applications.

X. Peng, D. R. Draney, J. Chen (2004). Phthalocyanine dyes. *WO 2004/038378*.

G. Cheng, X. Peng, G. Hao, V. O. Kennedy, I. N. Ivanov, K. Knappenberger, T. J. Hill, M. A. J. Rodgers, M. E. Kenney (2003). Synthesis, photochemistry, and electrochemistry of a series of phthalocyanines with graded steric hindrance. *J. Phys. Chem. A.* **107**, 3503-3514.

**Penzkofer, A.**
**Perez-Inestrosa, E.**

Date submitted: 16th June 2004

**Alfons Penzkofer, Ph.D.**

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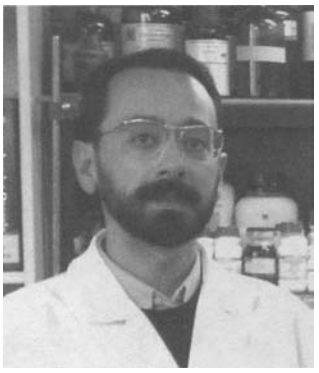
*Specialty Keywords*: Blue-Light Photoreceptors, Luminescent Polymers, Femtosecond Spectroscopy.

We determine refractive index spectra, absorption cross-section spectra, make fluorescence spectroscopic characterisations (fluorescence quantum yields, fluorescence quantum distributions, fluorescence lifetimes, degrees of fluorescence polarization), fluorescence excitation spectroscopic characterisations (comparison with absorption spectra), and photo-degradation studies mainly on organic molecules, luminescent polymers, and sensory biological photo-receptors (flavin chromophors, bacteriochlorophylls). We perfom laser studies on thin-film luminescent polymers and solid-state dye lasers.

A. Penzkofer, W. Holzer, H. Tillmann, and H.-H. Hörhold (2004). Leaky-mode emission of luminescent thin films on transparent substrates. *Opt. Commun.* **229**, 279-290.

Date submitted: 12th July 2004



**Ezequiel Perez-Inestrosa, Ph.D.**

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inestrosa@uma.es

*Specialty Keywords*: Acceptor-Donor Molecular Devices, Molecular Recognition.

Fluorescence has been applied to the study of the metal cation binding of photoresponsive complexing systems constituted of bisarylcyclophanes, able to form 1:1 and 1:2 complexes. The metal cation binding ability in the S1 is shown to diminish and it is interpreted as a transitory photodecomplexation between the metal cations and the phenolic oxygen atoms. Determination of the association constants allow a discussion of the cooperative effects found in the ground and excited state.

J.-M. Montenegro, E. Perez-Inestrosa, D. Collado, Y. Vida and R. Suau (2004). A natural-product-inspired photonic logia gate based on photoinduced electron-transfer-generated dual-channel fluorescence *Organic Letters* **6**(14), 2353-2355.

Date submitted: 30th June 2004

## Frederick S. Perry.

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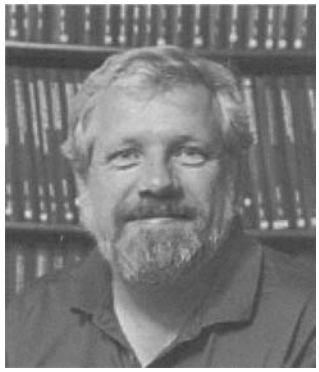
*Specialty Keywords*: TCSPC, Photodetection, Spectroscopy.

President and founder of Boston Electronics Corporation, North American agents for Becker & Hickl GmbH of Berlin, Germany and for Edinburgh Instruments Ltd of Edinburgh, Scotland. Specialist in photodetection and in signal processing electronics for photodetection.

Date submitted: 23rd April 2003

## Nils O. Petersen, Ph.D.



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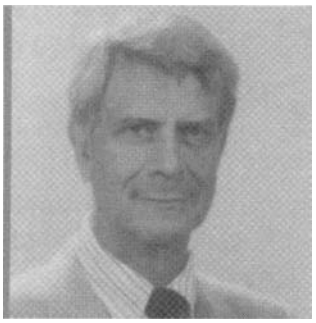
*Specialty Keywords*: Microscopy, Confocal, Correlation spectroscopy.

Image Correlation Spectroscopy: measurements of density of molecular clusters or single molecules, the degree of aggregation and the extent of association of different molecules into co-localized domains. Fluorescence photobleaching or fluorescence correlation spectroscopy. Fluorescence measurements in small volumes. Multiphoton excitation in confocal microscopy applications. Protein-protein interactions in domains in membranes of cells. Atomic force microscopy and time-of-flight secondary ion mass spectrometry of membranes and monolayers.

N.O. Petersen AFCS and Spatial Correlations on Biological Surfaces@ Ch. 8 in AFluorescence Correlation Spectroscopy@ Edited by R. Rigler and E.L. Elson, Springer Verlag (2000).
C.L. Lee and N.O. Petersen "The Lateral Diffusion of Selectively Aggregated Peptides in Giant Unilamellar Vesicles" Biophysical J. 84, 1756-64 (2003).

**Pispisa, B.**
**Plantin-Carrenard, E.**

Date Submitted: 13th May 2002




## Basilio Pispisa, Ph.D.

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pispisa@stc.uniroma2.it
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*Speciality keywords*: Biophysical chemistry, Spectroscopy, Conformational analysis.

Three major research topics are pursued in the Professor Pispisa's laboratory:

- Structure and molecular dynamics of oligopeptides and polypeptides in solution, mimicking proteins and bioactive compounds;
- Structure-reactivity relationships in model compounds of enzymic materials;
- Structural features of glycopeptides and functionalized peptides in solution and in membranes.


B. Pispisa et al. (2000) *Biopolymers*, **54**, 127-136. 2002 Peptide-Sandwiched Protoporphyrin Compounds Mimicking Hemoprotein Structures in Solution.

B. Pispisa et al. (2002) *J. Phys. Chem.* B 106, 5733-5738. Effects of Helical Distortions on the optical Properties of Amide NH Infrared Absorption in Short Peptides in Solution.


Date submitted: 11th September 2002


## Emmanuelle Plantin-Carrenard, Ph.D.

Laboratoire de Biochimie Générale et de Glycobiologie,
UFR des Sciences Pharmaceutiques et Biologiques,
Uni. René Descartes - Paris 5, 4 avenue de L'Observatoire,
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eplantin@wanadoo.fr

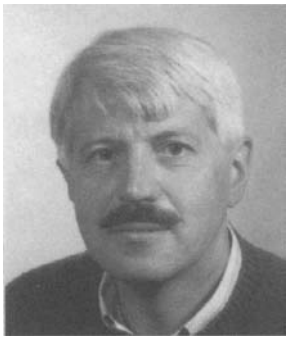

*Specialty Keywords*: Fluorescence probes, Oxidative stress, Apoptose.

Oxidative stress is defined as the pathological outcome of overproduction of oxidative species that overwhelms the cellular antioxidant capacity. The consequence of induced-oxidative stress are studied *in vitro* on adherent and non-adherent cell models. Fluorescent probes are interesting tools to measure with high sensitivity and specificity the modifications of cellular fonctions under oxidant conditions : reactive oxygen species production, modulation of intracellular thiol levels, necrosis/apoptosis balance, cellular adhesion, evaluation of the protective effects of some antioxidant compounds.


Plantin-Carrenard E. et al. Journal of Fluorescence, 2000; 10 : 167-73.
Plantin-Carrenard E. et al. Cell Biol Toxicol, 2003; 19 : 121-33.

Date submitted: 12th September 2002

## Jaromír Plášek, Ph.D.



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Czech Republic.
Tel: +420 22 191 1349
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*Specialty Keywords*: Membrane potential, Polarized fluorescence, Microfluorimetry.

Research Interests: Lipid order in cell membranes from polarized fluorescence of membrane probes. Fluorescent probing of cell membrane and mitochondrial membrane potential in living cells. ATP binging to a N-domain in the cytoplasmic loop of Na,K-ATPase from binding assays with TNP-ATP.

J. Plášek and K. Sigler (1996) Slow fluorescent indicators of membrane potential: a survey of different approaches to probe response analysis. *J. Photochem. Photobiol. B: Biology* **33**, 101-124.

D. Gášková, R. Čadek, R. Chaloupka, J. Plášek and K. Sigler (2001) Factors underlying membrane potential-dependent and -independent fluorescence responses of potentiometric dyes in stressed cells: diS-$C_3$(3) in yeast. *Biochim. Biophys. Acta* **1511**, 74-79.

Date submitted: 19th July 2004

## Manuel Prieto, Ph.D.

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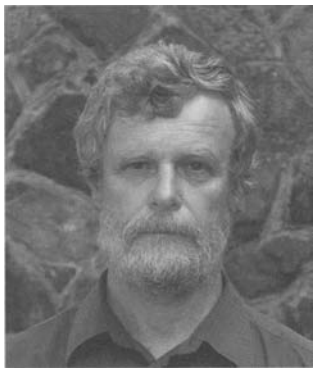
prieto@alfa.ist.utl.pt

*Specialty Keywords*: FRET, Lipid domains, Lipid protein-interaction, Lipid-DNA complexes.
AIM 2003 = 33.6

Current Research Interests: Application of steady-state and time-resolved photophysical methodologies to the detection, characterization and dynamics of membrane heterogeneities (domains/rafts). Topology and dynamics of protein/peptide and polyene antibiotics interaction with model systems of membranes. Cholesterol organization in membranes. Lipid-DNA complexes.

Quantification of protein-lipid selectivity using FRET. *Biophys. J.* **87** (1), 344-352 (2004)
Cholesterol modulates the organization of the gamma M4 transmembrane domain of the muscle nicotinic acetylcholine receptor. *Biophys. J.* **86** (4), 2261-2272 (2004).

Date submitted: 16th July 2004



**Karel Procházka, Ph.D., D.Sc.**

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natur.cuni.cz/pmc/group.php?id=5

*Specialty Keywords*: Time-resolved fluorescence, Anisotropy, FCS, AFM.

In my group, we study labeled self-assembling polymers by steady-state and time-resolved fluorescence (including anisotropy and FCS) in combination with static and dynamic light scattering, chromatography, electrophoresis, AFM, etc. Results are interpreted with help of original Monte Carlo simulations and self-consistent field calculations. Papers are published in journals oriented on physical chemistry of polymers and colloids (e.g., Macromolecules, Langmuir, J. Phys. Chem., J. Chem. Phys.).

Matějíček P., Humpolíčková J., Procházka K., et al.: J. Phys. Chem. B 2003, **107**, 8232-8240.
Matějíček P., Uhlík F., Limpouchová Z., et al (Procházka K.): Macromolecules 2002, **35**, 9487-9496.

Date submitted: 31st July 2004

**René J. Püschl, M.Sc.**

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*Specialty Keywords*: Fluorescent dyes, Absorption, Fluorescence, Capillary electrophoresis, Lab-on-Chip.

My research interest is focused on determining the optical properties of dye-solutions with absorption and fluorescence spectroscopy, e. g. highly precise determination of fluorescence quantum yields, the observation and investigation of dye-aggregation in water, as well as measurements in very dilute solutions.

My second field of interest lies in the area of capillary electrophoresis using fluorescence-based detection techniques (Lab-on-Chip).

Date submitted: 22nd July 2004

## M. Elisabete C.D. Real Oliveira, Ph.D.

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*Specialty Keywords*: Biophysics, Micelles, Vesicles, Cationic vesicles and DNA.
AIM 2003 = 7.2

In the last years my research has been focused to investigate nonionic surfactants / lipid interactions using steady state and time resolved fluorescence spectroscopy and fluorescence anisotropy using the fluorescence probes, pyrene derivatives, nile red, etc.,[1,2]. At the moment I am interested to characterize some cationic/neutral vesicles by fluorescence anisotropy and light scattering.

Fluorescence studies of the interaction of pyrenylmethyl tributylphosphonium bromide (PMTP) with double strand polynucleotides, M. *Elisabete C.D. Real Oliveira, Adelina L.F. Baptista, Paulo J.G. Coutinho, Elisabete M.S. Castanheira,* "Photochemistry Photobioloy Science" (2004), 3, 217-225.

Date submitted: 17th June 2002

## Renata Reisfeld, Ph.D., DHC.

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chem.ch.huji.ac.il/employee/reisfel/REISFELD.HTM

*Specialty Keywords*: Fluoresent dyes, Sol-gel tunable lasers, LSC, Sensors, QD.

The group of Prof. Reisfeld is studying the following topics connected with fluorescence. Fluorescence of Rare Earth ions in glasses, theoretically and experimentally, Steady State and dynamic processes of Fluorescence of dyes in glasses. Exited State Process and applications in luminescent solar concentrators (LSC), tunable lasers, planar active wave guides and sensors. Quantum dots (QD)of semiconductors and metals in glass bulks and films. Using absorption and fluorescence, quantum size effects are determined. Applications for nonlinear optics.
R. Reisfeld, "Lasers Based in Sol-Gel Technology", Optical and Electronic Phenomena in Sol-Gel Glasses and Modern Applications, Eds. R. Reisfeld, C.K. Jorgensen, *Structure and Bonding* **85**, Springer- Verlag (1996) 215-233.

**Resch-Genger, U.**
**Rettig, W.**

Date submitted: 11th July 2002

## Ute Resch-Genger, Ph.D.

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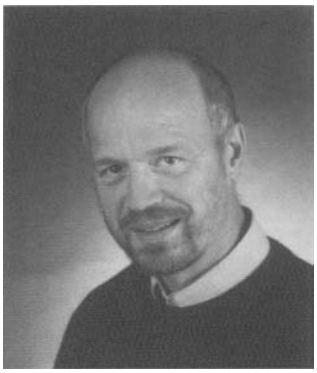
*Specialty Keywords*: Fluorescent standards, Fluorescent probes and sensors, Time resolved fluorometry, Quality assurance.

Current Research Interests: Design and spectroscopic study of functional dyes and fluorescent sensor molecules. Quality assurance and standardization including development of fluorescent standards for steady state and time resolved fluorometry.

K. Rurack, U. Resch-Genger (2002). Rigidization, preorientation and electronic decoupling – the magic triangle for the design of highly efficient sensors and switches, *Chem. Soc. Rev.* **31**, 116-127.

Date submitted: 20th August 2004

## Wolfgang Rettig, Ph.D.



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www.chemie.hu-berlin.de/wr/index.html

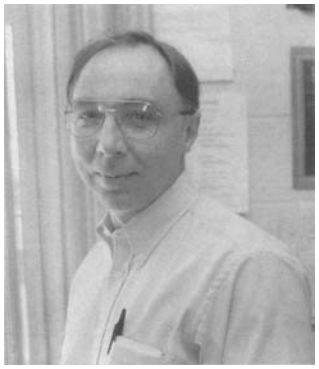
*Specialty Keywords*: Time-resolved fluorescence, Adiabatic photoreactions, TICT.

Mechanisms of photochemical primary processes (electron and proton transfer; trans-cis and valence isomerizations; visual process); ultrafast fluorescence and absorption spectroscopy; solvation of excited states; quantum-chemical modelling of photoreactions; fluorescence probes for biology, medicine and analytical chemistry; fluorescence polymer probing. Many studies enriching the field of compounds with anomalous fluorescence properties linked with intramolecular twisting (TICT).

Z.R. Grabowski, K. Rotkiewicz, W. Rettig, „Structural changes accompanying intramolecular electron transfer – focus on T.I.C.T. states and structures“, Chemical Reviews, 103 (2003) 3899-4031.

Date submitted: 20th July 2004

## David E. Roll, Ph.D.



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*Specialty Keywords*: Chlamydia infection, Topoisomerase, Gold nanoparticles.

Type I topoisomerase is an enzyme that plays a role in the regulation of DNA supercoiling in the cell. Research in this lab is directed at understanding the role of this enzyme in the initiation of Chlamydia infection in eukaryotic cells and the role that phosphorylation may play in regulating this enzyme's activity. In addition, gold nanoparticles and metal enhanced fluorescence may provide valuable tools for the rapid detection of Chlamydia infections.

D. Roll, J. Malicka, I. Gryczynski, Z. Gryczynski and J. R. Lakowicz (2003). Metallic colloid wavelength-ratiometric scattering sensors: Anal. Chem., **75**(14), 3440-3445.
C. D. Geddes, A. Parfenov, D. Roll, J. Fang and J. R. Lakowicz (2003). Electrochemical and laser deposition of silver for use in metal-enhanced fluorescence: Langmuir, **19**(15), 6236-6241.

Date submitted: 29th August 2003

## Ella A. Romodanova, Ph.D.

Department of Biological and Medical Physics,
School of Radiophysics,
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*Specialty Keywords*: Fluorescence spectroscopy, Fluorescent probes, Proteins, Cell suspensions.

Main research interests: My research interests include fluorescence analysis application to investigation of physical factors (low temperatures, laser and ionizing radiation etc.) action on the biopolymers solutions and cell suspensions. Author and co-author of more then 100 scientific and methodical works.

Romodanova E.A., Gavrik V.V., Roshal A.D. et al. Changes in HSA Conformation under the Action of Freezing and Laser Radiation as Judged by Fluorescence of Nafthalic Acid Derivative, *Problems of Cryobiology (2002)*, **3**, 28-32.
Romodanova E.A., Dyubko T.S. et al. MNBIS as marker of protein macrostructure changes, *Biophysical Bulletin (Visn. Khar. Univ.)*, (2002), Ser. Radiophysics and Electronics, Issue 2 (570), 302-307.

Date submitted: 12th July 2004

## Alexander D. Roshal, Ph.D.

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*Specialty Keywords*: Flavonoids, Flavonoid complexes, Absorption and Fluorescence Spectroscopy.
AIM 2003 = 9.1

Research interests: Structure and physico-chemical properties of flavonoids. • Proton transfer in flavonoids under excitation. • Complexation of flavonoids in the ground and excited states. • Spectral properties and analysis of flavonol complexes. • Using natural and synthetic flavonoids, coumarins and relative substances as the fluorescent probes for biochemistry and biophysics.

A.D. Roshal, J.A. Organero, A. Douhal. *Chemical Physics Letters*, **379** (2003), 53-59.
A.D. Roshal, V.I. Moroz, V.G. Pivovarenko, A. Wroblewska, J. Blazejowski. *Journal of Organic Chemistry*, **68** (2003), 5860-5869.

Date submitted: 24th July 2003

## Victoria V. Roshchina, Ph.D., D.Sc.

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*Specialty Keywords*: Plant Physiology and Biochemistry, Sensory Systems, Spectral analysis.

Autofluorescence of intact plant microspores, which serve for the vegetative or sexual breeding, has been studied. The emission is changed at the microspores germination. Reactive oxygen species (ozone, superoxide anionradical and peroxides) contribute in the autofluorescence and chemiluminescence of pollen and vegetative microspores.

V.V.Roshchina, E.V.Melnikova, V.A.Yashin and V.N. Karnaukhov (2002) Autofluorescence of
intact spores of horsetail *Equisetum arvense* L. during their development. *Biophysics (Russia)***47**(2), 318-324.
V.V.Roshchina, A.V. Miller, V.G. Safronova, and V.N. Karnaukhov (2003) Reactive oxygen species and luminescence of intact cells of microspores. *Biophysics (Russia)* **48** (2), 259-264.

Date submitted: 26th August 2003

## Anatoly N. Rubinov, Ph.D., D.Sc.

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*Specialty Keywords*: Dye Lasers, Ultrafast Spectroscopy, Fluorescent Probes.

The main results are in the field of ruby and neodymium glass lasers (early 1960s); various types of dye lasers and laser dyes (State Prize of USSR, 1972); laser spectroscopy of organic solutions (State Prize of Belarus, 1994); intracavity laser spectroscopy; distributed-feedback (DFB) lasers including holographic DFB lasers; mode locked dye lasers and time resolved laser spectroscopy of organic molecules in solutions and bio-membranes; interaction of gradient laser fields with biological objects.

Date submitted: 12th September 2002

## Angelika Rück, Ph.D.

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*Specialty Keywords*: FLIM, Microspectrofluorometry, PDT.

Development of methods for spectral fluorescence lifetime imaging, based on time correlated single photon counting in combination with laser scanning microscopes for detection and dynamic analysis of signal transduction pathways in living cells during photodynamic therapy (PDT). Cellular characterization and evaluation of new photosensitizers with one- and two-photon spectral-resolved microscopy. Definition of protein standards for FLIM/FRET measurements of protein interactions in living cells.

A. Rück et al., Light-induced apoptosis involves a defined sequence of cytoplasmic and nuclear calcium release in $AlPcS_4$-photosensitized cells. *Photochem. Photobiol.*, 2000, 72(2): 210-216.
M. Kress and A. Rück, Time-resolved microspectrofluorometry and FLIM of photosensitizers using ps pulsed diode lasers in laser scanning microscopes. *J. Biomed. Optics*, accepted.

Date submitted: 15th August 2004

## Knut Rurack, Ph.D.

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*Specialty Keywords*: Functional dyes, Time-resolved fluorescence, Host–guest chemistry.

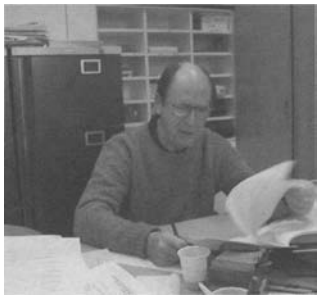
Development of functionalized dyes for various applications and the study of the underlying photophysical and –chemical processes (e.g. charge, electron, proton transfer). Investigation of fluorophores in confined media. Development of fluorescence lifetime standards.

B. García-Acosta et al. (2004). Coordinative and electrostatic forces in action: from the design of differential chromogenic anion sensors to selective acetate recognition, *Chem. Commun.* 774.

A. B. Descalzo et al. (2003). Coupling selectivity with sensitivity in an integrated chemosensor framework: Design of a $Hg^{2+}$-responsive probe, operating above 500 nm, *J. Am. Chem. Soc.* **125** 3418.

Date submitted: 6th September 2002

## Jean-Marie Ruysschaert, Ph.D.



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*Specialty Keywords*: Hydrogen / deuterium exchange, Fluorescence quenching, Long-range conformational changes.

We have developed a new method to detect changes occuring in the membrane embedded and cytosolic domains of membrane proteins by combining infrared linear dichroic spectra measurements in the course of hydrogen / deuterium exchange with Trp fluorescence quenching by water soluble attenuators. This new approach is of general interest in the study of membrane proteins to detect long-range conformational changes transmitted between the membrane embedded and cytosolic domains.

Grimard V., Vigano C., Margolles A., Wattiez R., van Veen H.W., Konings W.N., Ruysschaert J.-M. and Goormaghtigh E. (2001) Biochemistry 40, 11876-11886.

Date submitted: 7th June 2004

## Alan G. Ryder, Ph.D.

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*Specialty Keywords*: Time-resolved, Petroleum, Raman.
AIM 2002 = 6.1

Science Foundation Ireland Investigator leading the Nanoscale Biophotonics research group, which uses fluorescence and Raman spectroscopies for the development of quantitative and qualitative analysis methods. Research areas include: nanoscale fabrication, lifetime based pH sensors, quantitative Raman spectroscopy for forensics, time-resolved fluorescence instrumentation development, and the fluorescence analysis of petroleum.

A.G. Ryder (2004). A time-resolved fluorescence spectroscopic study of crude petroleum oils: influence of chemical composition. *Appl. Spectrosc.*, **58**(5), 613-623.
A.G. Ryder, S. Power, and T.J. Glynn (2003). Evaluation of acridine in Nafion as a fluorescence lifetime based pH sensor. *Appl. Spectrosc.*, **57**(1), 73-79.

Date submitted: 28th July 2004

## Carlota Saldanha, Ph.D.

Instituto de Bioquímica, Faculdade de Medicina de Lisboa,
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*Specialty Keywords*: Acetylcholinesterase, Membrane fluidity, Calcium.
AIM 2003 = 14.2

Enzyme kinetics studies, namely human erythrocyte and lymphocyte acetylcholinesterase, using fluorescent enzyme substrate and inhibitors. Studies of erythrocyte, lymphocyte and endothelial cells membrane fluidity and erythrocyte exovesiculation using the fluorescent probes diphenylhexatriene, trimethylamino-diphenylhexatriene and hydroxycoumarin. Studies of intracellular second messengers, namely calcium ion and nitrogen monoxide with fluorescent probes.

C. Saldanha, N.C. Santos, J. Martins-Silva (2002) *J. Membr. Biol.*, **190**, 75-82.

C. Saldanha, N.C. Santos, J. Martins-Silva (2004) *Biochem. Mol. Biol. Educ.* **32**, 250-253.

Date submitted: 13th September 2002

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*Specialty Keywords*: FISH, Anatomic Pathology, Automation, Fluorescence Microscopy.

FISH diagnostics and AP laboratory automation HER-2/neu, BCR/abl, PML/RARA, Ploidy Breast, Prostate, and Renal Cancer, Leukemias and Lymphomas.

Wolman SR, Sanford JS, Flom K, Feiner H, Abati A, Bedrossian C: Genetic probes in cytology: Principles and Practice, Diagnostic Cytopathology, 13;429-435, 1996.

Micale MA, Sanford JS, Powell IJ, Sakr WA, Wolman SR: Defining the Extent and Nature of Cytogenetic Events in Prostatic Adenocarcinoma: Paraffin FISH vs. Metaphase Analysis. Cancer Genetics and Cytogenetics, 69;7-12, 1993.

Date submitted: 28th July 2004

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*Specialty Keywords*: Protein intrinsic fluorescence, Biomembranes, HIV.

Use of steady-state and time resolved fluorescence spectroscopy (including fluorescence anisotropy, quenching, energy transfer, energy migration and red edge excitation shift) on the study of membrane proteins structure and location, intracellular ion concentration, membrane fluidity, partition of peptides and other fluorescent molecules to biomembranes, erythrocyte membrane vesiculation and binding of small fluorescent molecules to proteins. Characterization of supramolecular systems by light scattering spectroscopy.

C. Saldanha, N.C. Santos, J. Martins-Silva (2002) *J. Membr. Biol.*, **190**, 75-82.

N.C. Santos, M. Prieto, M.A.R.B. Castanho (2003) *Biochim. Biophys. Acta*, **1612**, 123-135.

Date submitted: 17th August 2003

## William H. Sawyer, Ph.D.

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Victoria,
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whsawyer@unimelb.edu.au

*Specialty Keywords*: Molecular interactions, Phosphorescence, Binding analysis.

Recent work has focused on the interaction of repressor proteins with DNA and amphipathic peptides with phospholipids bilayers. The interaction of the tyrR repressor protein with DNA has been followed using DNA that has been fluorescently labeled at various bases within the recognition sequence. Time-resolved fluorescence and anisotropy of tryptophan at various positions along an amphipathic peptide has revealed the dynamics and structure of the peptide-membrane. Fundamental studies of the fluorescence of fluorescein have continued.

A.H.A. Clayton and W.H. Sawyer (2000) Tryptophan rotamer distributions in amphipathic peptides at a lipid surface. *Biophys. J.76,* 3235-3242.

Date submitted: 1st July 2004

## Suzanne F. Scarlata, Ph.D.

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www.pnb.sunysb.edu/faculty/scarlatta/scarlata.html

*Specialty Keywords*: Cell signaling, Protein-protein associations, Lipids.

The main focus of our laboratory is to understand the mechanism through which signals are transduced through heterotrimeric G proteins. Presently, we are focusing on the molecular basis through which G protein subunits laterally associate and activate the signaling protein, phospholipase C-beta on membrane surfaces. In related studies, we are following the interactions and localization of these proteins in living cells using green fluorescent protein analog tags and commercial probes.

Y. Guo, F. Philip and S.Scarlata (2003) *J.Biol.Chem.* **278**, 29995-30004.
S. Scarlata, *Methods in Enzymology - G Proteins Pathways* , Academic Press @ 2002. Vol. 345C.

**Schäferling, M.**
**Schmid, J. A.**

Date submitted: 5th August 2004

## Michael Schäferling, PH.D.

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Chemo - and Biosensors,
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michael.schaeferling@chemie.uni-regensburg.de
www-analytik.chemie.uni-regensburg.de/wolfbeis/institute.html

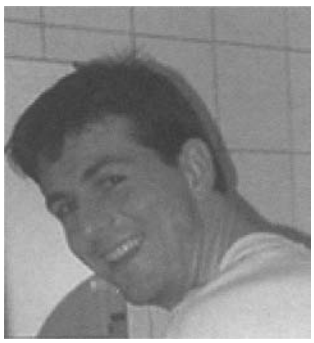
*Specialty Keywords*: Sensor Microarrays, Time-Resolved Luminescence Assays, FLIM, Surface Chemistry.

The research covers aspects of microarray technology, including surface chemistry and advanced methods for their fluorescent read out, and chemosensor arrays. Other emphases are the development of time-resolved luminescent assays and the corresponding sensor materials for biomedical or technical (oxygen or pressure sensitive paintings) applications and fluorescence lifetime imaging (FLIM).

"Time-resolved luminescent imaging of hydrogen peroxide using sensor membranes in a microwell format", M. Schäferling, M. Wu, J. Enderlein, H. Bauer, and O.S. Wolfbeis (2003) *Appl. Spec.* **57**, 1386-1392.
"Fluorescent imaging of Citrate and other intermediates in the citric acid cycle", Z. Lin, M. Wu, M. Schäferling, and O.S. Wolfbeis (2004) *Angew. Chem. Int. Ed.* **43**, 1735-1737.

Date submitted: 16th August 2002

## Johannes A. Schmid, Ph.D.



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*Specialty Keywords*: FRET, Signal transduction.

Current research interests comprise the mechanisms of endothelial cell activation, as well as de-activation, with special focus on the signal-transduction of the NF-B pathway and its interconnection with other pathways. GFP-fusion proteins are used to elucidate the dynamics of signaling molecules in vivo. CFP and YFP-fusion proteins are used to localize protein-interactions in living cells by fluorescence resonance energy transfer microscopy.

J.A. Schmid et al., A. Birbach, R. Hofer-Warbinek, M. Pengg, U. Burner, P.G. Furtmuller, B.R. Binder, R. de Martin R: J. Biol. Chem. 275(22), 17035-42 (2000).
Birbach A., Gold P., Binder B.R., Hofer E., de Martin R., Schmid J.A. J. Biol. Chem. 277(13):10842-51 (2002).

Date submitted: 14th May 2003

## Herbert Schneckenburger, Ph.D.

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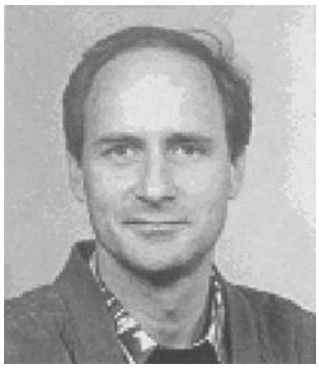
www.fh-aalen.de

*Specialty Keywords*: Biomedical Optics, Optical Microscopy, Fluorescence Lifetime Imaging (FLIM).

Research is concentrated on the development and application of new methods of *in vitro* diagnostics and biomedical screening. Present techniques include fluorescence spectroscopy and microscopy, in particular time-resolved spectroscopy, total internal reflection fluorescence microscopy (TIRFM), energy transfer spectroscopy (FRET) and laser micromanipulation. Cell metabolism and light-induced reactions are studied within whole cells, mitochondria and cell membranes using autofluorescence, various fluorescence markers and photosensitizers.

Date submitted: 30th July 2004

## Bernhard Schönenberger, Ph.D.



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*Specialty Keywords*: Amine-reactive labels, Protein stains and labels, Organic syntheses.

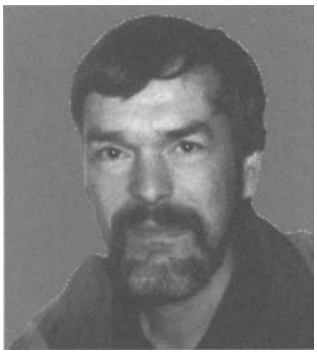
Senior scientist in R&D; in charge of the scientific and technical aspects of the development of the Fluka sales program 'fluorescent markers'. Recent R&D work, partly in cooperation with external groups:

- long wavelength amine reactive fluorescence labels
- stains for protein detection in electrophoresis
- standards for fluorescence spectroscopy
- DNA stains

U. Resch-Genger, D. Pfeifer, C. Monte, A. Hoffmann, M. Spieles, D. Taubert, J. Hollandt, B. Schönenberger, P. Nording, and A. Gugg-Helminger, Poster MAF 2003, Prague, Czech Republic.

**Schroeder, J.**
**Schulman, S. G.**

Date submitted: 29th August 2003




## Jörg Schroeder, Ph.D.

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*Specialty Keywords*: Photochemical kinetics, Energy transfer.


The main research area centers on the dynamics of elementary photoinduced reactions, in particular systematic investigations of solvation effects in supercritical fluid and liquid solution. For this purpose, time-resolved fluorescence and absorption techniques are applied to samples in environments of continuously variable density and polarity. Results are compared to classical and mixed quantum/classical non-equilibrium molecular dynamics simulations.


J. Schroeder (2001), "Chemical Kinetics in Condensed Phases" in Encyclopedia of Chemical Physics and Physical Chemistry (eds. J.H. Moore, N.D. Spencer), Vol.I, p.711-743, IoP Publishing, Bristol, 2001.


Date submitted: 10th January 2003


## Stephen G. Schulman, Ph.D.

College of Pharmacy,
University of Florida,
Box 100485, Gainesville,
Florida 32610-0485, USA.
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*Specialty Keywords*: Excited state proton transfer, pH in Aqueous-Organic solvents, Photophysics.


Current Research Interests: Acid-base properties of organic molecules in aqueous and very concentrated aqueous-electrolyte solution. Analytical applications of exciton coupling in metal complexes and organic solids. Room temperature phosphorescence in fluid solutions. Fluorescent probes.


R. Yang and S.G. Schulman (2003). An operational pH in Aqueous Dimethylsulfoxide based upon the acidity dependence of the rate of a simple ionic recombination reaction in the lowest excited singlet state. Talanta 60, 535-542.

A. Fernández Gutiérrez and S.G. Schulman, eds., (2001). Fosforescencia Molecular Analítica: Una Aproximación Práctica, Universidad de Granada Press, Granada, Spain.

Date submitted: 26th August 2002

## Petra Schwille, Ph.D.

Experimental Biophysics,
Max-Planck-Institute for Biophysical Chemistry,
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Germany.
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*Specialty Keywords*: FCS, Two-Photon, Single Molecules.

Development of ultrasensitive fluorescence-based methods for detection and dynamic analysis of single or sparse biomolecules in solution, but also in the living cell. Real-time studies of fluorescent particles in open, laser-illuminated volume elements to unravel underlying inter- and intramolecular processes on time scales from nanoseconds to seconds, but also to uncover static and dynamic heterogeneities, i.e. differences in the molecular properties within ensembles of supposedly identical particles. Design of microfluidic systems for single particle manipulation.

Heinze KG, Koltermann A, and Schwille P (2000). Simultaneous Two-Photon Excitation of Distinct Labels For Dual-Color Fluorescence Cross-Correlation Analysis. *PNAS* **97**,10377-10382
Bacia K, Majoul IV, and Schwille P (2002). Probing the Endocytic Pathway in Live Cells Using Dual-Color Fluorescence Cross-Correlation Analysis. *Biophys. J.* **83**,1184-1193.

Date submitted: 15th September 2003

## Viviana Scognamiglio, Ph.D.

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scognami@dafne.ibpe.na.cnr.it

*Specialty Keywords*: Biosensor, Fluorescence, Nanotechnologies.

My scientific interests deal with the development of a new generation of biosensor for analytes of high clinical, environment and food interests based on the utilization of enzymes and proteins isolated from mesophilic and thermophilic organisms. My primary goal is to identify, characterize and design enzymes and proteins to use as probes for implantable fluorescence nanodevices for the follow-up of diseases of high social impact.

**Segers-Nolten, I.**
**Seidel, C. A. M.**

Date submitted: 23rd August 2002


## Ine Segers-Nolten, (Ph.D. Student)

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Biophysical Engineering Group,
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*Specialty Keywords*: Single molecule fluorescence, Confocal, NER.


Scanning confocal fluorescence microscopy is used for a single molecule study of the Nucleotide Excision Repair process. NER-GFP fusion proteins are combined with fluorescently labeled DNA substrates to form complexes. Samples are prepared in agarose gel matrices, where uncomplexed DNA is rapidly diffusing and DNA-protein complexes are immobilized. Colocalization of GFP-label on the NER-protein with the DNA-label is an indication of complex formation. This method allows the study of protein-DNA binding under equilibrium conditions.


G.M.J. Segers-Nolten, C. Wyman, N. Wijgers, W. Vermeulen, A.T.M. Lenferink, J.H.J. Hoeijmakers, J. Greve, C. Otto, Scanning Confocal Fluorescence Microscopy for Single Molecule Analysis of Nucleotide Excision Repair Complexes, submitted to NAR, 2002.


Date submitted: 21st August 2002


## Claus A. M. Seidel, Ph.D.

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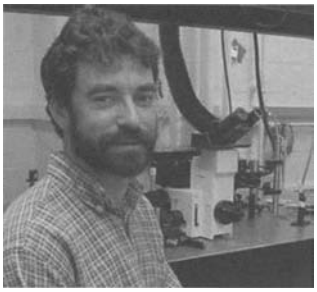
*Specialty Keywords*: Single-molecule fluorescence spectroscopy, Multiparameter fluorescence detection (MFD).


It is my goal to obtain all information in a single-molecule experiment for applications in analytics and biophysics. Thus, as many fluorescence photons as possible must be detected, and a full set of fluorescence parameters must be registered by MFD: Intensity, *F*, lifetime, *tau* and anisotropy, *r*, in several spectral windows together with its time-dependence [1].


[1] R. Kuehnemuth, C. A. M. Seidel; (2001) Principles of single molecule multiparameter fluorescence spectroscopy *Single Molecules* **2,** 251-254.

Date submitted: 26th August 2002

## Paul R. Selvin, Ph.D.



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*Specialty Keywords*: Lanthanide luminescence, FRET, Single-molecule.

We develop and use fluorescence techniques with (sub)nanometer resolution, including new forms of FRET – e.g. single-pair FRET, FRET using luminescent lanthanide chelates. A major emphasis is developing new lanthanide chelates. Applications include measuring conformational changes in myosin and ion channels.

Cha, A., G. E. Snyder, P. R. Selvin, and F. Bezanilla. 1999. Atomic scale movement of the voltage sensing region in a potassium channel measured via spectroscopy. *Nature.* 402:809-813.

Selvin, P. R. 2002. Principles and Biophysical Applications of Luminescent Lanthanide Probes. *Annual Review of Biophysics and Biomolecular Structure.* 31:275-302.

Date submitted: 11th June 2004

## Claudio H. Sibata, Ph.D.

Radiation Oncology, ECU School of Medicine,
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U.S.A.
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*Specialty Keywords*: Cancer, Photodynamic therapy, Optical biopsy.

Research interests are optical biopsy, photodynamic therapy optimization for oncology patients, refine and improve therapy both by clinical modifications and dosimetry enhancement.

Allison R, Downie G, Cuenca R, Hu XH, Childs C and Sibata C: Photosensitizers in Clinical PDT. *Photodiagnosis and Photodynamic Therapy, 2004*, (in press).

Cuenca RE, Allison R, Downie G, Sibata C. Breast cancer with chest wall progression: treatment with Photodynamic Therapy, *Ann. Surg. Onc.*, 10(1):31 Suppl. 2003.

Date submitted: 23rd August 2004

## Reiner Siebert, M.D.

Institute of Human Genetics, University Hospital Kiel,
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Schleswig-Holstein, 24105,
Germany.
Tel: +49 431 597 1779 Fax: +49 431 597 1880

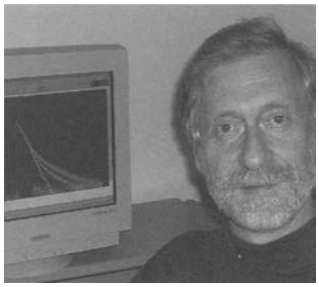
*Specialty Keywords*: Combined immunofluorescence and fluorescence in situ hybridization (FICTION).

With regard to fluorescence microscopy, my research focuses on the development of fluorescence in situ hybridization (FISH) assays for the detection of chromosomal abnormalities in tumors, as well as on the technical improvements of the fluorescence immunophenotyping and interphase cytogenetics (FICTION) technique. The next goal of my research team is to optimize an automated platform for the detection of rare tumor cells and spot counting of multicolor hybridization signals.

J.I. Martin-Subero, I. Chudoba, L. Harder, S. Gesk, W. Grote, F.J. Novo, M.J. Calasanz, R. Siebert (2002). Multicolor-FICTION: Expanding the Possibilities of Combined Morphologic, Immunophenotypic, and Genetic Single Cell Analyses, *Am. J. Pathol.*, **161**, 413-420.

Date submitted: 29th July 2004

## Aleksander Siemiarczuk, Ph.D.



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www.pti-nj.com

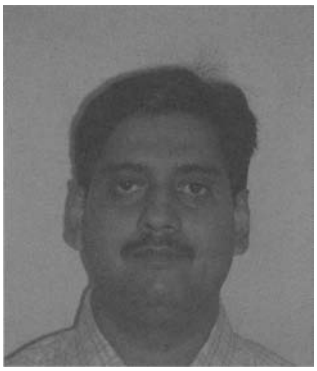
*Specialty Keywords*: Time resolved fluorescence, Protein fluorescence, Lifetime distributions.

My activities include: development of stroboscopic time-resolved instrumentation, photophysics of curcumin derivatives, time-resolved fluorescence of proteins, lifetime distributions, complexes with cyclodextrins, intramolecular and solvation dynamics, new methodology to study polydispersity of micelles, long-range electron transfer in linked porphyrin-quinone derivatives, co-discovery of Twisted Intramolecular Charge Transfer States (TICT).

Siemiarczuk A., Petersen C.E., Ha C-E, Yang J., Bhagavan N.V. (2004) Analysis of Tryptophan Fluorescence Lifetimes in a Series of Human Serum Albumin Mutants with Substitutions in Subdomain 2A, *Cell Biochem. Biophys.* ***40,*** *115-122.*

Date submitted: 28th June 2004

## Manoj K. Singh, Ph.D.



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k_singh@vsnl.net

*Specialty Keywords*: Photophysics, Photochemistry, Single Molecule Fluorescence.

The main area of my research has so far been the photophysics and photochemistry of probes used in biological research. Recently, we have focused our research on the study of biophysical processes using single molecule fluorescence spectroscopy.

M. K. Singh, H. Pal, A. S. R. Koti and A. V. Sapre (2004). Photophysical properties and rotational relaxation dynamics of neutral red bound to β–cyclodextrin *J. Phys. Chem. A* **108**, 1465-1474.

K. D. Osborn, M. K. Singh, R. J. B. Urbauer and C. K. Johnson (2003). Maximum-Likelihood approach to single molecule polarization modulation analysis *CHEMPHYSCHEM* **4**, 1005-1011.

Date submitted: 1st August 2004

## Harald H. Sitte, M.D.

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Institute of Pharmacology,
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*Specialty Keywords*: Fluorescence Microscopy, Fluorescence Resonance Energy Transfer, Membrane Proteins.
AIM 2003 = 38.8

My research focuses on the understanding of the quaternary structure of membrane proteins, i.e. transport proteins like the serotonin or the GABA transporter. We use Fluorescence Resonance Energy Transfer Microscopy to learn more about their structural constraints and the impact, oligomerization may have on the function of these proteins.

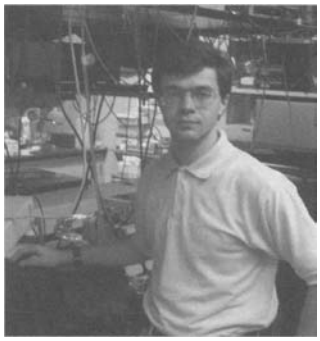
Farhan H, Korkhov VM, Paulitschke V, Dorostakar MM, Schoze P, Kudlacek O, Freissmuth M, Sitte HH. (2004) Two discontinuous segments in the carboxyl terminus are required for membrane targeting of the rat gamma-aminobutyric acid transporter-1 (GAT1) J Biol Chem. 2004; 279:28553-63.

Sitte HH, Farhan H, Javitch JA (2004) Oligomerization as a determinant of transporter function and tracking molecular Interventions 4 (1): 38-47.

**Smirnov, A. V.**
**Smith, C. B.**

Date submitted: 9th September 2002

## Aleksandr V. Smirnov, Ph.D.



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www.nhlbi.nih.gov/labs/biophysicalchem/index.htm

*Specialty Keywords*: Transient spectroscopy, Lasers, Biophysics.

My research interests focus on dynamical aspect of bimolecular function. The knowledge of structure and composition is essential but true understanding of mechanism involved is often impossible without direct observation of how it happens in real time. My methods of choice are femtosecond transient absorbance and laser induced fluorescence spectroscopy. This enables one to follow changes in state and environment of synthetic and natural optical probes, such as tryptophan. Also I develop stopped-flow techniques to study kinetics of biochemical reactions.

A. V. Smirnov *et. al.* (1997). Photophysics and Biological Applications of 7-Azaindole and its Analogs. *J. Phys. Chem. B*, **101**(15), 2758-2769.

Date submitted: 8th August 2002

## Clint B. Smith, M.S.

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Fluorescence Remote Sensing Lab,
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clint.b.smith@erdc.usace.army.mil
www.tec.army.mil

*Specialty Keywords*: Fluorescence Remote Sensing, Enzyme Substrates, Waterborne pathogens.

Research in the laboratory involves fluorescence remote sensing applications for waterborne pathogens. Novel fluorescent probes and enzyme substrates are utilized for the detection of pathogens existing in waterways using state-of-the-art fluorescent spectrometers. Applications are geared toward the imaging domain and will be developed after performing successful laboratory experiments binding molecular probes to specific targets.

Anderson, J.E., Webb, S.R., Fischer, R.L., Smith, C.B., Dennis, J.R., and Di Benedetto, J. (2002). *In Situ* Detection of the Pathogen Indicator *E.coli* Using Active Laser-Induced Fluorescence Imaging and Defined Substrate Conversion. *Journal of Fluorescence.* (12) 1 p. 51-55.

Date submitted: 23rd July 2003

## Trevor A. Smith, Ph.D.

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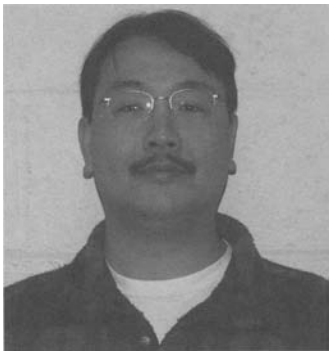
*Specialty Keywords*: Time-resolved fluorescence, Anisotropy, Microscopy.

Research Interests: ultrafast laser spectroscopic techniques applied to photophysical processes in macromolecules such as polymers, photo-induced electron and energy transfer in supramolecules. Time resolved fluorescence microscopy techniques including multi-photon and confocal fluorescence microscopy. Time-resolved fluorescence anisotropy measurements, rheo-optical studies, time-resolved evanescent wave-induced fluorescence techniques.

L. Lensun, et al. (2002). The Partial Denaturation of Silica-Adsorbed Bovine Serum Albumin Determined by Time-Resolved Evanescent Wave-Induced Fluorescence Spectroscopy *Langmuir* **18**, 9924-9931.

T. A. Smith, et al. (2002). Fluorescence Polarization Measurements of the Local Viscosity of Hydroxypropyl Guar in Solution *Macromolecules* **35**, 2736-2742.

Date submitted: 1st May 2002



## Peter T. C. So, Ph.D.

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ptso@mit.edu

*Specialty Keywords*: Multi-photon microscopy, Time-resolved spectroscopy, Correlation spectroscopy.

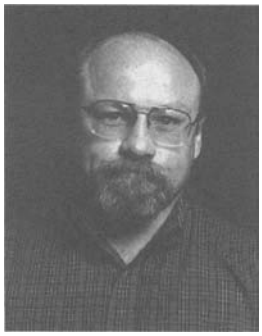
My research focuses on the development of instrumentation for biomedical studies. Recent projects in my laboratory include video rate two-photon microscopy, fluorescence correlation spectroscopy, 3-D image cytometery. These instruments are applied in studies such as: Protein dynamics, cellular mechanotransduction, tissue carcinogenesis, and non-invasive optical biopsy.

So et al., "Two-Photon Excitation Microscopy", Annu. Rev. Biomed. Eng., 2, 399-429 (2001).
Huang et al., "Three-Dimensional Cellular Deformation Analysis with a Two-Photon Magnetic Manipulator Workstation," Biophys. J., 82, 2211-2223 (2002).

**Soper, S. A.**
**Soutar, I.**

Date submitted: 27th August 2002


## Steven A. Soper, Ph.D.



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*Specialty Keywords*: Near-IR Fluorescence, Time-Resolved Fluorescence, Single Molecule Detection.

Ultrasensitive time-resolved fluorescence spectroscopy; dye photophysics and photochemistry; bioanalytical and environmental applications of near-infrared fluorescence; capillary zone and gel electrophoresis using fluorescence detection; development of novel laser-based DNA analysis schemes; bioanalytical applications of laser-induced fluorescence detection; development of microfabricated biochemical analysis systems; single molecule detection using near-IR fluorescence detection.


E. Waddell, Y. Wang, W. Stryjewski, S. McWhorter, A. Henry, D. Evans, R. L. McCarley and **S. A. Soper**, *Anal. Chem.* 72 (2000) 5907.
S. Lassiter and **S.A. Soper,** *Electrophoresis* 23 (2002) 1480.


Date submitted: 13th September 2002


## Ian Soutar, Ph.D.

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*Specialty Keywords*: Anisotropy, Energy Harvesting, Polymers.

Research Interests: Studies of polymer behavior both in solution and the solid state using time-resolved emission anisotropy, Water-soluble polymers, Smart systems, Polymers for energy harvesting and solar energy conversion.


D. Allsop, L. Swanson, I. Soutar et al. (2001) "Fluorescence Anisotropy: A Method for Early Detection of Alzheimer β-Peptide Aggregation" *Biochem. Biophys. Res. Comm.*, **285**, 58-63.
C.K. Chee, I. Soutar et al. (2001) "Time-resolved Fluorescence Studies of the Interactions Between the Thermoresponsive host, PNIPAM, and Pyrene" *Polymer,* **42**, 1067-1071.

Date submitted: 14th August 2003

## C. Michael Stanley, Ph.D.

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Tel: 802 428 2500 Fax: 802 428 2525
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www.chroma.com

*Specialty Keywords*: Confocal, Multi-Photon, Laser Based Applications.

Previous research and experience, in both confocal and widefield imaging systems, allows me to design, collaborate, and trouble-shoot fluorescent experimental designs. The emphasis is on laser based systems, in both one and multi-photon applications.

Chroma Technology's filters have been developed for a variety of applications: low-light microscopy, cytometry; spectroscopy and laser-based confocal and multi-photon instrumentation.

Date submitted: 8th July 2004

## Elias Stathatos, Ph.D.

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*Specialty Keywords*: Photophysics, Sol-gel, Solid-state electrolytes.
AIM 2003 = 10.1

Research interests include steady-state and time-resolved fluorescence characterization of nanocomposite thin films and transparent solid matrices. Applications involve dye-sensitized photoelectrochemical cells, photocatalytic metal oxide surfaces, lasing in nanocomposite and organic materials and electroluminescence of ligand lanthanide complexes.

E.Stathatos, P.Lianos, E.Evgeniou and A.Keramidas (2003) *Synthetic Metals* **139**, 433-437.

E.Stathatos, P.Lianos, S.M.Zakeeruddin, P.Liska, M.Graetzel., (2003) *Chemistry of Materials* **15**, 1825-1829.

**Stella, L.**
**Stockholm, D. W.**

Date submitted: 30th June 2004

## Lorenzo Stella, Ph.D.

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*Specialty Keywords*: Peptide and protein structure and dynamics, Peptide-membrane interactions.
AIM 2003 = 22.8

My main research focus is the application of fluorescence spectroscopy in the study of protein and peptide structure and dynamics. Some current research projects: mechanism of action of antimicrobial peptides and their interaction with membranes; design and characterization of peptide-based molecular devices utilizing photophysical processes for memories, switches and energy conversion; Comparisons between time-resolved fluorescence spectroscopy and computer simulations.

L. Stella et al. (2004) Aggregation and water-membrane partition as major determinants of the activity of the antibiotic peptide trichogin GA IV. *Biophys. J.* **86**, 936-945.

Date submitted: 11th September 2002

## Daniel W. Stockholm, Ph.D.

Laboratoire d'imagerie, Genethon,
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Evry, 91000,
France.
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stockho@genethon.fr

*Specialty Keywords*: Confocal microscopy, Muscle visualization, Real-time PCR.

We are part of a research center focussed on gene therapy and run a core service for imaging with 2 confocal microscopes including a multiphon. We use FRET for the study of calpain function and are developing techniques for the intra vital imaging. We also acquired some expertise in real-time PCR and use it extensively for gene expression studies and viral titration.

Stockholm D, et al. , *Am J Physiol Cell Physiol,* 2001, Jun;280(6):C1561-9.

Feasson L, Stockholm D, et al. *J Physiol.* 2002 Aug 15;543(Pt 1):297-306.

Date submitted: 22nd July 2004

## Karel W. J. Stoop, M.Sc.

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9313 TH Leutingewolde,
The Netherlands.
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www.lambert-instruments.com

*Specialty Keywords*: Fluorescence Lifetime Imaging Microscopy, Image Intensifiers, FRET.

My work is focused on the ongoing development of the Fluorescence Lifetime Imaging Microscopy (FLIM), on a wide field microscope. We work in the frequency domain. Our specialty is the use of LED`s as the modulated light source, rather then (expensive) lasers. The FLIM-system is mostly used for FRET of the protein pairs GFP-RFP and CFP-YFP.

L.K. van Geest, K.W.J. Stoop (2003). FLIM on a wide field fluorescence microscope *Letters in Peptide Science Volume 10, Issues 5-6 in press.*

K.W.J. Stoop, K. Jalink, S.J.G. de Jong, L.K. van Geest (2004) Measuring FRET in living cells with FLIM *Proceedings of 8th Chinese International Peptide Symposium in press.*

Date submitted: 22nd July 2004

## Robert M. Strongin, Ph.D.

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*Specialty Keywords*: Supramolecular Chemistry, Molecular Recognition, Sensors.
AIM 2003 = 22.3

Our research group investigates the design and synthesis of organic receptors and the modulation of their colorimetric and fluorimetric properties. The selective determination of saccharides, amino acids and related molecules in biological media is a major focus of our program.

O. Rusin, N. N. St Luce, R. A. Agbaria, J. O. Escobedo, S. Jiang, I. M. Warner, F. B. Dawan, K. Lian and R. M. Strongin (2004). Visual Detection of Cysteine and Homocysteine *J. Am. Chem. Soc.*, **126**(2), 438-439.

W. Wang, J. O. Escobedo, C. M. Lawrence and R. M. Strongin (2004). Direct Detection of Homocysteine *J. Am. Chem. Soc.* **126**(11), 3400-3401.

**Suhling, K.**
**Sutherland, J. C.**

Date submitted: 9th August 2004

## Klaus Suhling, Ph.D.

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www.kcl.ac.uk/kis/schools/phys_eng/physics/people/suhling.html

*Specialty Keywords*: Time-correlated single photon counting, Time-resolved fluorescence, Fluorescence lifetime imaging.

Fluorescence imaging techniques are minimally invasive and can be applied to live cells. The fluorescence emission can be characterized not only by its intensity and position, by also by its fluorescence lifetime, polarization and wavelength. Each of these parameters provides an additional dimension which contains information about the biophysical environment of specific proteins.

K. Suhling, J. Siegel, P.M.P. Lanigan, S. Lévêque-Fort, S.E.D. Webb, D. Phillips, D.M. Davis and P.M.W. French. Time-resolved fluorescence anisotropy imaging (TR-FAIM) applied to live cells, **Optics Letters**, 29 584-586, 2004.

Date submitted: 22nd August 2002

## John C. Sutherland, Ph.D.

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USA.
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bnlstb.bio.bnl.gov/biodocs/structure/J_Sutherland.htmlx

*Specialty Keywords*: Time-resolved fluorescence and circular dichroism using synchrotron radiation, DNA damage quantitation by gel electrophoresis and single molecule sizing.

Pioneered the use of synchrotron radiation for the measurement of circular dichroism and time-resolved fluorescence spectroscopy in the ultraviolet/visible spectral regions. Invented the Fluorescence Omnylizer, a single-photon counting detector that records the time-delay, wavelength and polarization of each detected photon. First to use CCD camera to record image of DNA fluorescence in electrophoretic gels. Uses gel fluorescence or single-molecule laser fluorescence sizing to quantify DNA damage by average length analysis.

Date submitted: 13th September 2002

**Linda Swanson, Ph.D.**

Chemistry Department,
University of Sheffield,
Brook Hill, Sheffield,
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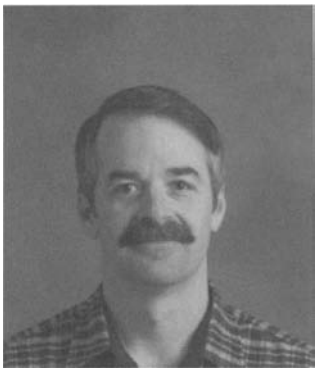
*Specialty Keywords*: Anisotropy, Smart Polymers, Polymer Dynamics.

Research Interests: Anisotropy studies of the conformational behavior of smart polymers. Polymer dynamics. Polymer interactions (synthetic and biomacromolecules). Polymer relaxation behavior in the solid state. Novel polymeric materials for enhanced solar energy conversion.

L. Swanson, et al., (2001). "Manipulating the thermoresponsive behaviorof PNIPAM "*Macromolecules* **34**, 544-754.
N. J. Flint, S. Gardebrecht and L. Swanson, (1998). "Luminescence investigations of smart microgel systems", *J. Fluorescence,* **8**, 343-353.

Date submitted: 28th June 2004

**Kerry M. Swift, M.S.**



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Department of Structural Biology R46Y / AP9LL,
Abbott Park, IL 60064-6114, USA.
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Kerry.Swift@abbott.com

*Specialty Keywords*: Drug discovery, Binding, Fluorescence lifetimes, FP, FCS, HTS.

One of the research goals of the optical spectroscopy group is to characterize or improve fluorescent probe-based assays for testing of drug-like compounds. Furthermore, we sometimes use the intrinsic fluorescence of proteins to study their structure or binding. We are also developing the use of Raman & UV fluorescence microscopy on protein crystals.

Sergey Y. Tetin, Kerry M. Swift and Edmund D. Matayoshi (2002). Measuring antibody affinity and performing immunoassay at the single molecule level *Analytical Biochemistry* **307**(1) 84-91.
A. M. Petros, A. Medek, D. G. Nettesheim, D. H. Kim, H. S. Yoon, K. Swift, E. D. Matayoshi, T. Oltersdorf and S. W. Fesik (2001). Solution structure of the anti-apoptotic protein bcl-2 *Proc. Natl. Acad. of Sci. USA* **98**(6) 3012-3017.

**Szmacinski, H.**
**Talaga, P.**

Date submitted: 13th September 2002

## Henryk Szmacinski, Ph.D.

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Columbia, MD 21046,
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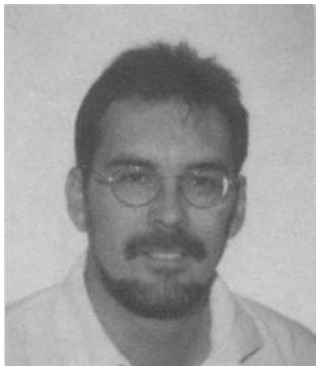
henryks@microcosm.com

*Specialty Keywords*: Spectroscopy, Fluorescence Probes, Optical Sensing.

My research interests include UV/VIS spectroscopy, optical sensors and biosensors, frequency-domain time resolved spectroscopy, and multi-photon microscopy. This involves of application of fluorescence lifetime to chemical sensing and imaging, immunoassays, DNA hybridization and cellular studies. Current interest is in development of disposable sensor arrays for biotechnology and clinical chemistry and exploring enhanced fluorescence using metallic nano-structures.
Measurement of Intensity of Long Lifetime Luminophres in the Presence of Background Signals Using Phase-Modulation Fluorometry. H. Szmacinski and J.R. Lakowicz, Appl. Specrosc. 53:1490-1495, 1999.

Date submitted: 18th June 2004



## Patrice Talaga, Ph.D.

Chemical Research, UCB S.A.,
Chemin du Foriest,
Braine-l'Alleud, 1420,
Belgium.
Tel: 322 386 2727 Fax: 322 386 2704
patrice.talaga@ucb-group.com

*Specialty Keywords*: Drug discovery, Chemical outsourcing, Medicinal chemistry.

Management of Academic & CRO collaborations in chemistry, Combichem & custom synthesis. Research interest in CNS (neurodegenerative disorders, Epilepsy...) and Immuno-Allergy related areas. Particular interest in Amyloid aggregation related research.

Discovery of 4-Substituted Pyrrolidone Butanamides as New Agents with Significant Antiepileptic Activity. Kenda B et al. J. Med. Chem. 47, 530-549, 2004.

The Plasma Membrane: A Target and Hurdle for the Development of Anti-Aβ Drugs? P. Talaga, L. Quéré. *Current Drug Targets – CNS & Neurological Disorders*, *1*, 565-572, **2002**.

Date submitted: 28th June 2004

## Fumio Tanaka, Ph.D.

Mie Prefectural College of Nursing,
Yumegaoka 1-1-1,
Tsu 514 0116,
Japan.
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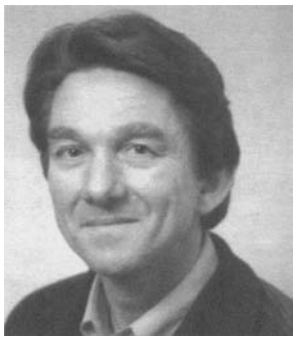
*Specialty Keywords*: Flavin, Flavoprotein, Time-resolved fluorescence, Theoretical analysis.

I am working mostly on the time-resolved fluorescence of tryptophan and flavins in proteins in sub-picosecond region. I was much inspired on theory of anisotropy by knowing Weber's the Additivity Law of Polarization. I still have interested in developing the theory of fluorescence anisotropy.

Choswojan, H., Taniguchi, S., Mataga, N., Tanaka, F., Visser, A. J. W. G.,2003, The stacked flavin adenine dinucleotide conformation in water is fluorescent on picosecond timescale, Chem. Phys. Lett., 378, 354-358.
Tanaka, F., 2004, Theoretical analyses of time-resolved fluorescence in simple and biological systems, Recent Research Developments in Physical Chemistry, Vol 7, 1-41.

Date submitted: 26th July 2002

## Hans J. Tanke, Ph.D.



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The Netherlands.
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H.J.Tanke@lumc.nl

*Specialty Keywords*: Fluorescence technology, Molecular analysis, Microscopy.

The study of the molecular composition of cells and chromosomes, using fluorescence labeling technology (FISH, immunocytochemistry, GFP) and (automated) digital microscopy, in order to unravel the molecular mechanisms that determine normal and abnormal cell function. The use of this information and methodology to develop improved diagnostic methods to be applied in the field of genetics, haematology and oncology.

Rijke F.v.d. et al. Up-converting phoshor reporters for nucleic acid microarrays. Nature Biotechnology 19:273-276, 2001. Ref. 2: Snaar SP et al. Mutational analysis of fibrillarin and its mobility in living cells. J. Cell Biol. 151:653-662, 2000.

**Tchaikovskaya, O.**
**Thompson, R. B.**

Date submitted: 13th September 2002

## Olga Tchaikovskaya, Ph.D.

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*Specialty Keywords*: Photophysics, Photochemistry.

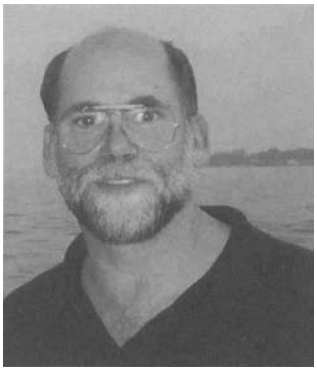
The photophysical and photochemical properties of phenols in aqueous solution with and without irradiation were investigated[1]. Also the phenols photolysis in water with humic acid, a comparative analysis of the efficiency of photochemical and microbiological phenol destruction were studied[2].

O.N.Tchaikovskaia, I.V.Sokolova, V.A.Svetlichnyi, et al. Journal of Fluorescence, Vol. 10, No. 4, 2000, P. 403-408.

O.N.Tchaikovskaia, I.Sokolova, L.Kondratieva, et al. Inter. J. of Photoenergy, 2001, Vol.3, No.4, P.177-180.

Date submitted: 29th June 2004

## Richard B. Thompson, Ph.D.



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*Specialty Keywords*: Biosensors, Fiber optic sensors, Metal ions

Our work focuses on fluorescence-based biosensors and fiber optic biosensors. Our metal ion biosensors employ carbonic anhydrase II variants as recognition molecules, which transduce the concentrations of metal ions (Cu(II), Zn(II), and others) as changes in fluorescence lifetime, polarization, or intensity ratio. Carbonic anhydrase gives the sensor unmatched sensitivity (picomolar) and selectivity (demonstrated in sea water and cerebrospinal fluid), which both can be modulated by subtle changes in the protein structure. Optical fiber sensors permit continuous monitoring *in situ*.

C. A. Fierke and R. B. Thompson (2001). Fluorescence-based biosensing of zinc using carbonic anhydrase. *BioMetals* **14 (3-4),** 205-222.
H. H. Zeng, et al. (2003). Real-time determination of picomolar free Cu(II) in seawater using a fluorescence-based fiber optic biosensor. *Anal. Chem.* **75**, 6807-6812.

Date submitted: 7th of June 2004

**Leann Tilley, Ph.D.**

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www.latrobe.edu.au/biochemistry/labs/tilley/research.html

*Specialty Keywords*: FRAP, Confocal Microscopy, GFP.
AIM 2003 = 40.6

Dr Tilley uses fluorescence techniques to study malaria parasite-infected erythrocytes. She has employed a series of optical spectroscopy techniques including UV-Vis spectroscopy, fluorescence polarisation and time-resolved phosphorescence anisotropy. She has developed protocols for incorporating exogenous fluorescent probes into parasite-infected erythrocytes and has used molecular biology protocols to produce transfectants expressing green fluorescent protein chimeras. Recently, she has set up a facility for quantitative measurements of fluorescence recovery after photobleaching using the confocal microscope.

Klonis N, Rug M, Wickham M, Harper I, Cowman A and Tilley L (2002) Fluorescence photobleaching analysis for the study of cellular dynamics. Eur J Biophys (review), 31: 36-51.

Date submitted: 13th September 2002

**Ferenc G. Tölgyesi, Ph.D.**

Dept. of Biophysics and Radiation Biology,
Semmelweis University,
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www.biofiz.sote.hu

*Specialty Keywords*: Tryptophan phosphorescence.

Research interests: Protein structure and dynamics, their relation to function; small heat shock proteins; protein aggregation; effect of high pressure on proteins; luminescence spectroscopy, tryptophan phosphorescence, absorption spectroscopy.

Tölgyesi, F., Ullrich, B., Fidy J (1999) Tryptophan phosphorescence signals characteristic changes in protein dynamics at physiological temperatures *Biochim. Biophys. Acta*, **1435**, 1-6.
Ullrich B., Laberge M., Tölgyesi F., Szeltner Z., Polgár L., Fidy J. (2000) Trp 42 rotamers report reduced flexibility when the inhibitor acetyl pepstatin is bound to HIV -1 protease *Protein Science.* **9**, 1-14.

**Toptygin, D.**
**Torkelson, J. M.**

Date submitted: 25th September 2003


## Dmitri Toptygin, Ph.D.

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Department of Biology,
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DmitriToptygin@netscape.net


*Specialty Keywords*: Quantum Radiophysics in Discontinuous Media, Time-Resolved Fluorescence, Data Analysis.

Theory: the fundamental laws that determine the rates of absorption and emission of photons by fluorescent molecules in solutions, in liquid crystals, near interfaces, near or inside microscopic particles, and near other fluorescent molecules. Experiment: elimination of systematic errors in time-resolved fluorescence instrumentation, both time-correlated photon counting and frequency domain. Data analysis: efficient $\chi^2$ minimizatoin with hundreds of fitting parameters.


D. Toptygin, R. S. Savtchenko, N. D. Meadow, S. Roseman, L. Brand (2002). Effect of the solvent refractive index on the excited-state lifetime of a single tryptophan residue in a protein. *J. Phys. Chem. B* **106**, 3724-3734.


Date  2003


## John M. Torkelson, Ph.D.

Dept. of Chemical Engineering,
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United States of America.
Tel: 847 491 7449
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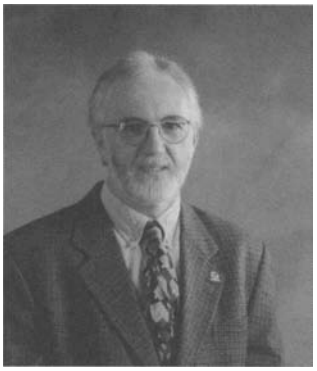
*Specialty Keywords*: Polymers, Sensors, Glass transition.

Fluorescence methods have been developed to address fundamental issues and applied problems in polymer science. These include the ability use ensemble and single-molecule fluorescence to quantify the effects of nanoscale confinement on the glass transition behavior, heterogeneous dynamics in polymers and nanocomposites, dye and polymer diffusion in polymers, conversion and block copolymer formation in reactive processing of polymers, and oxygen levels in pressure sensitive paints.


J. C. Quirin and J. M. Torkelson (2003). Self-referencing sensor for monitoring conversion of nonisothermal polymerization and nanoscale mixing of resin components *Polymer* **44**(2), 423-432.

Date submitted: 11th February 2003

## Jack T. Trevors, Ph.D.



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www.oac.uoguelph.ca/env/bio/trevors/htm

*Specialty Keywords*: Polarization, Bacteriology, Membrane fluidity.

Research is conducted on cytoplasmic membrane polarization in bacteria exposed to chemical pollutants, and often capable of metabolizing the pollutant. Fluorescent probes are also used for the detection of viable and non-viable bacterial cells in water, sediment and soil samples.

I. S. Kim, L. A. Beaudette, M.B. Cassidy, H. Lee and J. T. Trevors. (2001). Effect of 2, 2',5,5'-tetrachlorobiphenyl and biphenyl on membrane fluidity in *Ralstonia eutrophus* H850. FEMS Microbiol. Letts. **200**(1),17-24.

J. T. Trevors (2003). Fluorescent probes for bacterial cytoplasmic membrane research J. Biochem. Biohys. Meths. (in press).

Date submitted: 19th September 2002

## Eric Trinquet, M.Sc.

HTRF Research, Cis Bio International,
B.P. 84175,
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France.
Tel: 33 (0)46 679 6769 Fax: 33 (0)46 679 1920
etrinquet@cisbiointernational.fr
www.htrf-assays.com

*Specialty Keywords*: Rare Earth Cryptates, FRET, Biomolecular Interactions.

Fields of interest: Research on Fluorescence based techniques for probe molecular interactions probing. Research on new methods based on the use of FRET combined with long lived fluorophores. Applications in High Troughtput Screening, Cellular Biology and Molecular Biology.

H. Bazin, E. Trinquet, G. Mathis (2002). Time Resolved Amplification of Cryptate Emission: a Versatile Technology to trace Biomolecular Interactions. Review in Molecular Biotechnology, **82**,233-250.

E. Trinquet, F. Maurin, M. Préaudat, G. Mathis (2001) Allophycocyanin 1 as a near infrared fluorescent tracer: isolation, characterization, chemical modification and use in homogeneous fluorescence resonance energy transfer system. Analytical Biochemistry, **296**, 232-244.

**Tripathi, H. B.**
**Ulises, A. A.**

Date submitted: 13th July 2004

## Hira B.Tripathi, Ph.D.

Photophysics Laboratory, Department of Physics,
Kumaon University, Naninital,
Uttranchal, PIN 236001
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herabtripathi@yahoo.com

*Specialty Keywords*: Fluorescence, Time domain Spectroscopy, Instrumentation.

Our research interest includes; fluorescence spectroscopy of some charge transfer complexes, excited state solvation dynamics, edge excitation red shift in emission, excited state proton tranfer, energy transfer phenomena and their applications as optical sensors, lasing materials. We wish to undertake work on time domain fluorescence microscopy.

Fluorescence studies of Salicylic acid doped in polyvinal alcoho film as a water/ humidity sensor. H. Mishra, V. Misra, M. S. Mehta, T. C. Pant and H. B. Tripathi, J. Physical Chemistry: A 108 (2004) 2346-2352.

Photo-induced excited state proton transfer in 3-hydroxy-2-naphthoic acid. H.Mishra, H.C.Joshi H.B.Tripathi; S.Maheshwari, N.Sathyamurthy, M.Panda and J.Chanrdashakher J. Photochem Photobiol: A. 139 (2001) 23-16.

Date submitted: 2nd August 2004

## Acuña A. Ulises, Ph.D.

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www.iqfr.csic.es

*Specialty Keywords*: Polarised luminescence spectroscopy fluorescent bioprobes, Membrane structure and dynamics.

Research: Probing protein and lipid membrane dynamics with time-resolved fluorescence, phosphorescence and T-T dichroism. Synthesis of new fluorescent labels and probes. Theory of rotational depolarisation of luminescence. Fundamental photochemistry: triplet-triplet energy transfer end excited-state proton transfer. The history of solution fluorescence.

M.P.Lillo, O.Cañadas, R.E.Dale and A.U. Acuña (2003) The location and properties of the Taxol binding center in microtubules: a picosecond study with fluorescent taxoids. *Biochemistry* **41**, 12436-12449.

L.M.Frutos, O.Castaño, J.L Andrés, M.Merchán and A.U. Acuña (2004) A theory of *nonvertical* triplet energy trasfer in terms of accurate potential energy surfaces.*J.Chem.Phys.* **120**,1208-1216.

Date submitted: 29th August 2002

**Evgenia Vaganova, Ph.D.**

The Institute of Chemistry,
The Hebrew University of Jerusalem,
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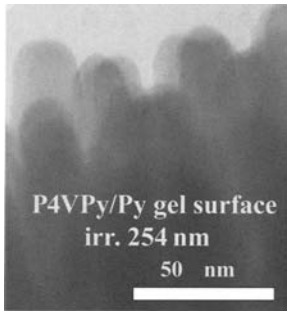


*Specialty Keywords*: Photochemistry, Gel, Pyridine.

The mixture of Poly(4-vinyl pyridine)/pyridine is a novel photosensitive matter [1]. Depending on the irradiation wavelength different gel's structures are formed. Different emitting centers are in correlation with photoinduced structures. The photosensitivity of the composition is based on the formation of the two-molecular structure resulted from the interaction of self-protonated polymeric pyridinium ion with free pyridine. Open form photoproduct (irradiation at 250 nm), proton shuttle (irradiation at 380 nm) [2] are responsible for the different photoinduced gel's formation.

E. Vaganova, G. Meshulam, et. al (2000) *J.of Fluorescence* **10**, 81--89.
E. Vaganova, V. Hodorokovsky, L.Filatov, and S. Yitzchaik (2000) *Adv. Materials* **12**, 1679--1671.

Date submitted: 30th August 2002

**Jan Valenta, Ph.D.**

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Faculty of Mathematics & Physics Charles University,
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*Specialty Keywords*: Single-nanocrystals, Luminescence.

Optical spectroscopy of individual low-dimensional semiconductor structures (nanocrystals - quantum dots) and biological complexes.
Linear and non-linear optical properties of semiconductors and insulators (pump-and-probe techniques, four-wave-mixing, transient and persistent spectral hole-burning and hole-filling).

J. Valenta, R. Juhasz, and J. Linnros: Optical spectroscopy of single silicon quantum dots (2002) *Appl. Phys. Lett.* **80** (6), 1070-1072.

J. Valenta, J. Dian, J. Hála, P. Gilliot, and R. Lévy: Persistent spectral hole-burning and hole-filling in CuBr semiconductor nanocrystals (1999) *J. Chem. Phys.* **111**, 9398-9405.

**Valeur, B.**
**van der Draai. R. K.**

Date submitted: 2nd May 2002

## Bernard Valeur, Ph.D.

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*Specialty Keywords*: Fluorescent molecular sensors, Excitation energy transfer Multichromophoric systems.

Current interests: Design of fluorescent molecular sensors for ion recognition (e.g. calixarene-based fluorescent sensors for the detection of alkali, alkaline-earth and heavy metal ions). Multichromophoric systems (e.g. antenna effect and energy hopping in multichromophoric cyclodextrins; multichromophoric calixarenes for ion detection; excitation energy transfer in porphyrin assemblies). Investigation of surfaces by fluorescence spectroscopy (e.g. characterization of the distribution of hydroxyl groups on alumina surfaces via excimer formation of grafted pyrene probes).

B. Valeur (2002). Molecular Fluorescence. Principles and Applications. Wiley-VCH, Weinheim.
B. Valeur and I. Leray (2000). Design principles of fluorescent molecular sensors for cation recognition, *Coord. Chem. Rev.* **205**, 3-40.

Date submitted: 3rd September 2002

## Reinier K. van der Draai.

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draai@dnw.aero
www.dnw.aero

*Specialty Keywords*: PSP, Decay, Intensity.

A single luminophor Rhutinium paint was developed to be able to measure the pressure at the surface of an aircraft model. The methods used for this technique were decay and intensity.
The decay method still needs improvement. The intensity method is presently installed in the windtunnel.

Date submitted: 22nd July 2004

**Lambertus K. van Geest, M.Sc.**

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lkvgeest@lambert-instruments.com
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*Specialty Keywords*: FLIM, Image Intensifiers, ICCD Cameras, High Speed Cameras.

Development of imaging and detection systems for fluorescence microscopy often making use of image intensifiers which are fully digitally controlled and can be gated or modulated. Ongoing research that is aimed at the improvement of the instrument for Fluorescence Lifetime Imaging Microscopy (FLIM) and the application of LED's as modulated light source in such a system. New applications are developed in collaboration with universities and research institutes.

L.K. van Geest, K.W.J. Stoop (2003). FLIM on a wide field fluorescence microscope *Letters in Peptide Science Volume 10, Issues 5-6 in press*.

K.W.J. Stoop, K. Jalink, S.J.G. de Jong, L.K. van Geest (2004) Measuring FRET in living cells with FLIM *Proceedings of 8th Chinese International Peptide Symposium in press.*

Date submitted: 28th August 2002

**Kelly A. Van Houten, Ph.D.**

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12321 Middlebrook Road, Ste. 210,
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USA.
Tel: (301) 515 7260 Fax: (301) 515 0988
kvanh@s4ms.com
www.s4ms.com

*Specialty Keywords*: Glucose sensor, Dual-emitter, Oxygen sensor.

Currently, I am working on a fluorescence-based sensor for continuous in-vivo glucose monitoring. My interests involve the design of novel dual-emitting metal complexes as sensors and probes.

Van Houten, K.A.; Pilato, R.S. (1999) in K.S. Schanze; V. Ramamurthy (Eds.) *Molecular and Supramolecular Photochemistry: Multimetallic and Macromolecular Inorganic Chemistry*, Marcel Dekker Inc., New York, pp. 185-214.

Van Houten, K.A.; Heath, D.C.; Pilato, R.S. (1998) *J. Am. Chem. Soc.* **120**, 12359.

Date submitted: 20th August 2004

## Wilfried G.J.H.M. Van Sark, Ph.D.

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*Specialty Keywords*: Quantum dots, Solar cells.

Having obtained research experience on solar cells materials development and nanocrystals I now combine these to develop new concepts of solar cells in which full spectral use is the challenge. Spectral converters, such as quantum dots, and down and up converter materials are employed with an envisaged solar cell efficiency of 60 - 80%.

W.G.J.H.M. van Sark *et al.* (2002). Blueing, bleaching, and blinking of single CdSe/ZnS quantum dots *ChemPhysChem* **3** 871-879.
W.G.J.H.M. van Sark *et al.* (2004). Modeling improvement of spectral response of solar cells with spectral converters containing semiconductor nanocrystals *Semiconductors* **45**(8), 979.

Date submitted: 29th August 2002

## Martin J. vandeVen, Ph.D.

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www.luc.ac.be/engels/ & www.tul.edu

*Specialty Keywords*: Spectrofluorimetry, Microscopy, Image analysis.

Collaborative research centers on (1) fluorescence imaging microscopy of cellular interactions in autoimmune diseases Multiple Sclerosis (MS) and Rheumatoid Arthritis (RA) (2) polymer fluorescence characterization for biosensors (3) Chlorophyll and GFP fluorescence imaging related to leaf and fruit physiology (4) application of neural networks in image analysis (5) development of laser-based time- and frequency domain fluorescence methodologies at the LUC Biomed fluorescence Center.

Using fluorescence images in classification of apples. Codrea, M.; Tyystjärvi, E.; vandeVen, M.; Valcke, R. and Nevalainen, O.; IASTED-VIIP Benalmadena, Malaga, Spain Sept. 9-12 2002.

Date submitted: 16th September 2003

**Antonio Varriale, (Ph.D. Student)**

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*Specialty Keywords*: Analyte-binding proteins Biosensor, Fluorescence.

My Ph.D thesis deals with the realization of a biosensor for the patients with autoimmunity disease. In particular, I am involved in a project for the development of a fluorescence-based nanodevice for the follow-up of coeliac patients.

My primary goal is to contribute to the realization of new fluorescence protein-sensors for analytes of high social interest.

Date submitted: 21st August 2002

**David Vaudry, Ph.D.**

European Institute for Peptide Research (IFRMP 23),
Laboratory of Cellular and Molecular Neuroendocrinology,
INSERM U413, UA CNRS,
University of Rouen76821 Mont-Saint-Aignan Cedex, France.
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David.vaudry@univ-rouen.fr
www.univ-rouen.fr/inserm-u413/microscopie.htm
*Specialty Keywords*: Confocal microscopy, Microarray, Q-RT-PCR & Microplate reader.

We are studying the molecular and cellular mechanisms involved in the neurotrophic and antiapoptotic activities of the neuropeptide PACAP. The genes regulations and functions are investigated using the microarray, Q-RT-PCR or siRNA techniques. The protein levels and activities are measured by calcium imaging, western blotting or enzyme kinetics.

D. Vaudry et al. (2002) Pituitary adenylate cyclase-activating polypeptide protects rat cerebellar granule neurons against ethanol-induced apoptotic cell death. *Proc. Natl. Acad. Sci. USA* **99**: 6398-6403.

D. Vaudry et al. (in press) Analysis of the PC12 cell transcriptome after differentiation with pituitary adenylate cyclase-activating polypeptide (PACAP) *J. Neurochem.*

**Vazquez-Ibar, J. L.**
**Vekshin, N. L.**

Date submitted: 2nd August 2004


## Jose Luis Vazquez-Ibar, Ph.D.

Department of Molecular Biophysics and Biochemistry,
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*Specialty Keywords*: Membrane proteins, Luminescence, Tryptophan oxidation.


My research is focused on the study of the structure and dynamics of membrane proteins by combining protein engineering and luminescence techniques. We have probed a stacking interaction between the substrate and a tryptophan residue in the lactose permease of *E. coli* by exploiting the luminescence properties of the indole ring. Also, we recently have demonstrated that H-bond interactions of a tryptophan residue can be studied by oxidizing the aromatic ring with n-bromosuccinimide.


Vazquez-Ibar, J.L., Guan, L., Svrakic, M. & Kaback, H.R. (2003). Exploiting luminescence spectroscopy to elucidate the interaction between sugar and a tryptophan residue in the lactose permease of Escherichia coli. *Proc Natl Acad Sci U S A*. **100**, 12706-11.


Date submitted: 23rd August 2003


## Nikolai L. Vekshin, Ph.D.

Institute of Cell Biophysics,
Institutskaya street-3, Pushchino,
Moscow region, 142290,
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*Specialty Keywords*: Photonics, Biophysics, Spectroscopy.


Nikolai Vekshin has 5 books, 2 patents (multipass cuvettes for fluorescence) and many papers in international journals. His scientific interest is photophysics and spectroscopy of biopolymers. He uses: Steady-state, synchroneous, polarization and time-resolved fluorescence methods, phosphorescence, IR spectroscopy, luminescence microscopy, etc. He developed a number of new methodical approaches for high-sensitive detection and investigations of proteins, nucleic acids and membranes. The main part of his job was concerned with fluorescence energy transfer. His work was supported by RFFI, NWO, NATO, FEBS, NSF, CRDF, and so on.


Vekshin N.L. Energy Transfer in Macromolecules. Bellingham, SPIE, 1997.
Vekshin N.L Photonics of Biopolymers. Springer, 2002.

Date submitted: 4th July 2002

## Rance A. Velapoldi, Ph.D.

Nygaardskogen 28,
N-3408 Tranby,
Norway,

Tel: 0473 285 3445
velapoldi@netcom.no

*Specialty Keywords*: Fluorescence standards, Corrected spectra, Quantum yields.

In late 60's and 70's, performed extensive research on organic species in solution and inorganic ion-doped glasses for use as macro- and micro-luminescence standards in addition to some analytical applications of fluorescence at the National Bureau of Standards, Washington, DC. (now NIST). Retired from NIST in 1999 but continuing research on standards and luminescence at the Pharmacy Institute, University of Oslo, Blindern, Norway.

R.A. Velapoldi and K.D. Mielenz, NBS Special Publication 260-64, US Department of Commerce, Washington, DC. 1980.
R.A. Velapoldi and M.S. Epstein, Luminescence Standards for Macro- and Microspectrofluorimetry; in "Luminescence Applications" M.C. Goldberg, Ed. ACS Symposium Series, 383, pp 98-126 (1989), Washington, DC.

Date submitted: 29th August 2002

## Nel H. Velthorst, Ph.D.

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velthrst@chem.vu.nl
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*Specialty Keywords*: Laser induced and high-resolution molecular fluorescence.

The research has been directed on the potential of laser-induced fluorescence detection coupled to CE and LC and on the development and application of Shpol'skii Spectroscopy and Fluorescence Line Narrowing Spectroscopy for identification in analytical and environmental analysis, in particular applied on polycyclic aromatic hydrocarbons and their metabolites.

O.F.A. Larsen, I.S. Kozin, A.M. Rijs, G.J. Stroomberg, J.A. de Knecht, N.H. Velthorst and C. Gooijer: Direct identification of pyrene metabolites in organs of the isopod *Porcellio scaber* by Fluorescence Line Narrowing Spectroscopy. Anal. Chem. 70, 1182-1185 (1998).

**Venanzi, M.**
**Vercammen, J.**

Date submitted: 30th August 2002

## Mariano Venanzi, Ph.D.

Department of Chemical Sciences and Technologies,
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venanzi@uniroma2.it

*Specialty Keywords*: Biospectroscopy, Energy / electron transfer, Peptide structure.

My research actvity focusses on the application of fluorescence spectroscopy and other photophysical techniques in the study of energy/electron flow in peptides and molecules of biological interest. Current research projects: Structure of peptide foldamers; design and characterization of peptide-based molecular devices for memories, switches and energy conversion; energy/electron transfer in porphyrin dimers and dendrimers; photocatalysis in micelles and organized environments.

(2002) Structural features and conformational equilibria of $3_{10}$-helical peptides in solution by spectroscopic and molecular mechanics studies *Biopolymers(Biospectroscopy)* **67**, 247-250.
(2002) Effects of helical distortions on the optical properties of amide NH infrared absorption in short peptides in solution. *J. Phys. Chem. B* **106**, 5733-5738.

Date submitted: 29th July 2002

## Jo Vercammen, Ph.D.

Biochemistry, K.U. Leuven,
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*Specialty Keywords*: HIV-1 integrase, Fluorescence Correlation Spectroscopy, Fluorescence Fluctuation Analysis.

The Laboratory of Biomolecular Dynamics is equipped with an FCS instrument and within this project this technique will be developed for the study of the enzyme integrase. HIV-1 integrase is a lentiviral protein and is regarded as one of the potential candidates for developing antiviral drugs, next to reverse transcriptase and protease. The study of the mechanism of the integrase reaction may also contribute to the further development of gene therapy using lentiviral vectors. The enzymatic activities of HIV-1 integrase will be studied as well as the multimerisation.

Date submitted: 25th August 2002

**Antonie J. W. G. Visser, Ph.D.**

MicroSpectroscopy Centre, Wageningen University,
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And Department of Structural Biology, Vrije Universiteit,
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www.mscwu.nl

*Specialty Keywords*: Flavoproteins, Fluorescence fluctuations, Time-resolved fluorescence.

The mission of our MicroSpectroscopy Centre is to strengthen the Dutch infrastructure in optical microspectroscopy, in particular fluorescence. We offer universities, research institutes and industrial companies microspectroscopic state-of-the-art facilities in which biomolecular interactions can be studied such as those among proteins, carbohydrates, lipids, nucleic acids, metabolites, either in isolated form or within cells. Current research is focused on: signal transduction in plants; characterization of plant pathogen resistance genes; gene display technology with high throughput screening; redox biochemistry in complex media and characterization of mesoscopic systems in food sciences.

Structural dynamics of green fluorescent protein alone and fused with a single chain Fv protein. M.A. Hink, R.A. Griep, J.W. Borst, A. van Hoek, M.H.M. Eppink, A. Schots and A.J.W.G. Visser (2000) J. Biol. Chem. 275, 17556-17560.

Date submitted: 23rd August 2002

**Radka S. Vladkova, Ph.D.**

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*Specialty Keywords*: Chlorophylls, Membranes, Fluorescent probes.

Intermolecular interactions, organization and dynamics of both the fluorescing molecules (e.g. Chlorophylls, 1,8-ANS) and the medium where they are imbedded (solvents, mixtures, low-temperature matrices, membrane lipid-water structures, and photosynthetic membranes) by using the full arsenal of fluorescence characteristics estimated from steady-state and time-resolved emission spectroscopy, as well as those from hole-burning and site-selection spectroscopy.

R. Vladkova (2000). Chlorophyll *a* self-assembly in polar solvent-water mixtures. *Photochem. Photobiol.*, **71**(1), 71-83.

R. Vladkova, K. Teuchner, D. Leupold, R. Koynova and B. Tenchov (2000). Detection of the metastable rippled gel phase in hydrated phosphatidylcholine by fluorescence spectroscopy. *Biophys. Chem.*, **84**(2), 159-166.

Date submitted: 20th August 2002

## Peter Vöhringer, Ph.D.

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*Specialty Keywords*: Femtosecond spectroscopy, Condensed matter.

Current interests: Dynamics of structural relaxations in biological environments. Ultrafast primary events involved in bioluminescence. Proton, electron, and energy transfer in condensed phase systems. Coherence in liquid phase chemical reactions. Molecular dynamics of liquids.

K. Winkler, J. Lindner, and P. Vöhringer (2002) Low-frequency depolarized Raman-spectral density from femtosecond optical Kerr-effect experiments: Lineshape analysis of restricted translational modes, *Phys. Chem. Chem. Phys.* **4**, 2144-2155.
K. Winkler, J. Lindner, V. Subramaniam, T.M. Jovin, and P. Vöhringer (2002) Ultrafast dynamics in the excited state of green fluorescent protein (wt) studied by frequency-resolved femtosecond pump-probe spectroscopy, *Phys. Chem. Chem. Phys.* **4**, 1072-1081 (2002).

Date submitted: 29th July 2003

## Anna von Mikecz, Ph.D.

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Auf'm Hennekamp 50, Duesseldorf,
Germany, 40225,
Germany.
Tel: +49 211 338 9358
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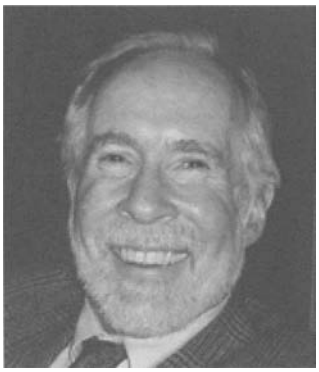
*Specialty Keywords*: Cell nucleus, Confocal microscopy, Subnuclear pathology of disease.

The mammalian cell nucleus is composed of dynamic subnuclear compartments that form in response to gene expression (→ form follows function). Disruption of nuclear function by xenobiotics such as heavy metals and nanoparticles results in altered proteasomal degradation and protein aggregation within the nucleus. These subnuclear pathologies occur in cellular senescence, neurodegenerative diseases and systemic autoimmune disorders, and can be visualized by confocal laser scanning microscopy.

von Mikecz, A. and P. Hemmerich. Subnuclear pathology. *in Visions of the Nucleus - Eukaryotic DNA*, P. Hemmerich & S. Diekmann (eds), American Scientific Publishers, Stevenson Ranch, CA, USA (2003).

Date submitted: 29th July 2003

## Alan S. Waggoner, Ph.D.



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*Specialty Keywords*: Fluorescence, Probes, Microscope imaging.

Development and application of fluorescence technologies in basic biological research, biotechnology, and medical diagnostics. This work includes new multicolor fluorescent labeling reagents, multi-parameter fluorescent antibodies, DNA probes, physiological indicators, molecular biosensors and associated fluorescence imaging systems.

Zhu Z, Waggoner AS. Incorporation of cyanine modified nucleotides into DNA by PCR. Cytometry, 28:206-211 (1997).

Randolph JR, Waggoner, AS. Stability, specificity and fluorescence brightness of multiply-labeled DNA probes. Nucl. Acids Res. 25:2923-2929 (1997).

Date submitted: 23rd June 2004

## Michael Wahl, Ph.D.

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Germany.
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www.picoquant.com

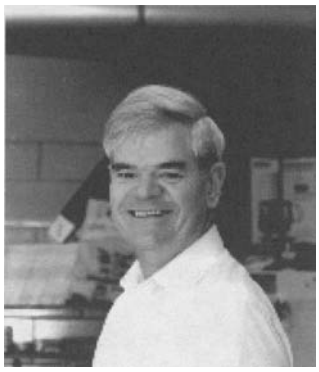
*Specialty Keywords*: TCSPC, TRF, FCS, SMD.
AIM 2003 = 0.761

M.W. is working as a senior scientist and project leader at PicoQuant GmbH. His research focuses on instrumentation and data analysis software for time-correlated single photon counting. These instruments are applied in ultra-sensitive analysis down to the single molecule level. Recent projects include data acquisition systems for time-resolved fluorescence microscopy and advanced data analysis algorithms for fluorescence correlation spectroscopy and fluorescence lifetime imaging, as well as work towards a novel high resolution TCSPC system/correlator.

M. Wahl, F. Koberling, M. Patting, H. Rahn and R. Erdmann (2004). Time-Resolved Confocal Fluorescence Imaging and Spectroscopy System with Single Molecule Sensitivity and Sub-Micrometer Resolution *Curr. Pharm. Biotech.* **5**, 299-308.

Date submitted: 18th October 2003

## William W. Ward, Ph.D.



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New Jersey, 08901 USA.
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crebb@rci.rutgers.edu
/www.rci.rutgers.edu/~meton/protein.html

*Specialty Keywords*: GFP, Bioluminescence, Proteins.

Professor Ward specializes in physical and chemical properties of green-fluorescent protein (GFP). He teaches a GFP-based short course in protein purification at his center (CREBB) and has organized GFP symposia in 1997, 1999, and 2004. He also teaches "Fluorescence:Basic Principles and Applications in Drug Discovery" for IBC. He has published more than 100 refereed papers, book chapters, and abstracts and has one issued patent and one pending on HTS of cell-based GFP.

H.A.Richards, C-T.Han, R.G.Hopkins, M.L.Failla,W.W.Ward, and C.N.Stewart(2003), Safety Assessment of Recombinant Green Fluorescent Protein Orally Administered to Weaned Rats, J.Nutr.,133:1909-1912.

Date submitted: 28th August 2002

## Peter Wardman, Ph.D., D.Sc.

Cancer Research UK *Free Radicals* Research Group,
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*Specialty Keywords*: Free radicals, Oxidative stress, Radiation chemistry.

My interests focus on the roles of free radicals in cancer biology, particularly the chemistry of cellular oxidative stress and the detection of free radicals or their products in biological systems. Radiation-produced free radicals are of special interest, as are the kinetics of radical reactions. Pulse radiolysis, stopped-flow rapid-mixing and EPR are to characterize reaction kinetics. The chemistry of fluorescent probes that are putative 'reporters' of oxidative and nitrosative stress is of current interest.

Wardman, P., *et al.*, 2002, Pitfalls in the use of common luminescent probes for oxidative and nitrosative stress. *Journal of Fluorescence*, **12,** 65-68.
Ford, E., *et al.*, 2002, Kinetics of the reactions of nitrogen dioxide with glutathione, cysteine, and uric acid at physiological pH. *Free Radical Biology & Medicine*, **32,** 1314-1323.

Date submitted: 4th September 2002

## Watt W. Webb, Sc.D.

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*Specialty Keywords*: Biophysics, Biomedical, Optics.

The aim of our research is to understand, at the molecular level, the dynamics of basic biophysical processes. The continual challenge is to detect the exquisite subtlety of biomolecular signals and to broaden the paradigms of physical science to encompass biological complexity. The creation of new physical instrumentations addresses this challenge. We study the dynamics of biophysical processes in living cells using modern physical optics such as fluorescence correlation spectroscopy and nonlinear laser scanning microscopy.

Magde, D., Webb, W. W. & Elson, E. Thermodynamic Fluctuations in a Reacting System - Measurement by Fluorescence Correlation Spectroscopy. *Physical Rev Lett* **29**, 705-708 (1972).
Denk, W., Strickler, J. H. & Webb, W. W. Two-Photon Laser Scanning Fluorescence Microscopy. *Science* **248**, 73-76 (1990).

Date submitted: 29th August 2002

## Gunnar Westman, Ph.D.

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*Specialty Keywords*: Synthesis, Cyanine dyes, Benzophenoxazine.

Current interests: Design and synthesis of new fluorescent molecules for the detection and studies of biological systems. Currently we design fluorescent probes that bind in the minor groove of nucleic acids. We also develop fluorescent dyes that show specific staining of cells.

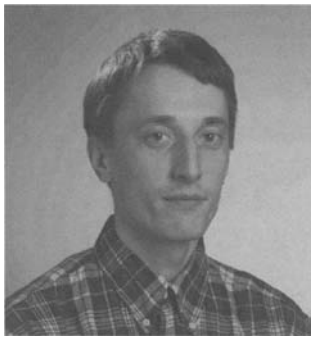
Svanvik, N., Westman, G., Wang, D. and Kubista M. Anal. Biochem. 281, 26-35 (2000).

Isacsson J and Westman G Tet. Lett. 42, 3207-3210 (2001).

**Widengren, J.**
**Wilgenhof, G. J.**

Date submitted: 30th August 2002

## Jerker Widengren, Ph.D., M.D.



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*Specialty Keywords*: FCS, Single Molecule Spectroscopy.

Current research: Development of techniques and applications of Fluorescence Correlation Spectroscopy (FCS) and single molecule Multi-parameter Fluorescence Detection (smMFD). Monitoring and characterization of transient photophysical states, conformations and conformational fluctuations of biomolecules. Detection, characterization and diagnostics of sparse amounts of biomolecules on cell surfaces and in body fluids.

Widengren J, Schweinberger E, Berger S, and Seidel C: J. Phys. Chem., 105, 6851-6866, 2001.
Widengren J, Mets, Ü: Conceptual basis of FCS and related techniques as tools in bioscience p. 69-119, in Single Molecule Detection in Solution, Eds. Zander, Enderlein, Keller, Wiley VCH 2002.

Date submitted: 11th September 2002

## Gert J. Wilgenhof, Ing.

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*Specialty Keywords*: Fluorometer, Spectrofluorometer, Applications.

Varian offers high quality products for measuring fluorescence in many applications. Especially the Cary Eclipse fluorometer offers every wavelength for analyzing fluorescence, phosphorescence and chemi-luminescence with excitation and emission scans as well as 2D / 3D plots. Temperature control, polarization, fiber optic and wellplate options are available. With the instrument knowledge Varian participates in research projects and helps with developing new applications. The Varian office in Bergen op Zoom is equipped with all the necessary tools to make your fluorescent application work.

Please contact: Gert Wilgenhof – Cary Eclipse specialist The Netherlands.

Date submitted: 29th August 2003

## Gerald M. Wilson, Ph.D.

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gwils001@umaryland.edu

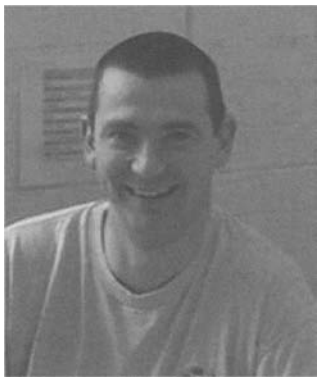
*Specialty Keywords*: RNA biology, RNA folding, FRET.

My principal research foci concern trans-acting factors contributing to the regulation of messenger RNA turnover and the roles of RNA conformational heterogeneity in modulating association and function of these factors. To these ends, we employ fluorescence anisotropy and resonance energy transfer to evaluate RNA-protein binding and RNA folding events under solution conditions.

Wilson, G.M., Lu, J., Sutphen, K., Suarez, Y., Sinha, S., Brewer, B., Villanueva-Feliciano, E.C., Ysla, R.M., Charles, S., and Brewer, G. (2003) *J. Biol. Chem.*, **278,** 33039-33048.
Wilson, G.M., Sutphen, K., Moutafis, M., Sinha, S., and Brewer, G. (2001) *J. Biol. Chem.* **276,** 38400-38409.

Date submitted: 6th August 2002

## Stuart A. Windsor, Ph.D.



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www.npl.co.uk/biotech

*Specialty Keywords*: Fluorescence standards, Quantum dots, Biological fluorescence, FCS, Multparameter fluorescence.

*Current Research Interests:* My research is focused on the validation and standardization of fluorescence based techniques (particularly those used in the bioscience), and the development of new biological characterization methods based on fluorescence measurement. Current active research includes the development of quantum dot fluorescence standards; the use of multi-parameter fluorescence measurements for biopharmaceutical characterization; the validation of high-throughput fluorescence measurement methods; and the development of single molecule structural characterization methods based on fluorescence correlation spectroscopy. I work closely with industry and academia, and have recently initiated a major consortium (BEACON) to improve biopharmaceutical characterization methods (incl. fluorescence) used in regulation.

Date submitted: 20th June 2004

## Otto S. Wolfbeis, Ph.D.

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*Specialty Keywords*: FLIM, Fluorescent probes, Fluorescent (bio)sensors, New materials for sensors.
AIM 2003 = 44.6

Main research interests: (fiber optic) chemical sensing and biosensing; novel schemes in analytical fluorescence spectroscopy incl. dual lifetime referencing (DLR); design of advanced materials for use in (bio)chemical sensing; clinical sensing; conducting organic polymers for sensors; fluorescent probes derived from ruthenium and europium; protein and DNA labels; fluorescent beads; biosensors based on thin gold films and molecular imprints;
Fiber Optic Chemical Sensors and Biosensors (2002-2003), O. S. Wolfbeis, *Anal. Chem.* **2004**, *76*, 3269-3283 (biannual review).
Advanced Luminescent Labels, Probes and Beads, and Their Application to Luminescence Bioassay and Imaging, O. S. Wolfbeis et al., *Springer Series in Fluorescence Spectroscopy,* vol. 2 (R. Kraayenhof, A. J. W. G. Visser, H. C. Gerritsen, eds.), Springer, Berlin, **2002**; pp. 3-42.

Date submitted: 16th September 2002

## Danuta Wróbel, Ph.D.

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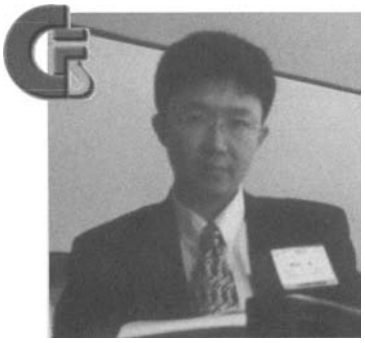
*Specialty Keywords*: Molecular Physics, Molecular Spectroscopy, Organic dyes.

The study of spectral properties of synthetic organic dyes and chlorophyll pigments in isotropic and anisotropic media to follow: Mechanisms of radiative and non-deactivation processes of porphyrins and phthalocyanines, of porphyrin-melanin systems, mechanisms of generation of the photovoltaic effects in photoelectrochemical cells based on synthetic organic dyes and biological materials, Langmuir-Blodgett layers, optical and IR studies, organic photovoltaics, photodynamic therapy.

D.Wróbel, *et al.*, Fluorescence and time-resolved delayed luminescence of porphyrins in organic solvents and polymer matrices, J.Fluorescence, 8 (1998) 191-198.
A.Boguta, D.Wróbel, Fluorescein and phenolophthalein-Correlation of fluorescence and photovoltaic properties, J. Fluorescence, 11 (2001), 131-139.

Date submitted: 17th July 2004

## Meng Wu, Ph.D.



**C**enter for **F**luorescence **S**pectroscopy,
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*Specialty Keywords*: Imaging, Lanthanide, Sensors.

Generally my main research interests are on the fluorescence detections as well as their possible biomedical and clinical applications. Fluorescent probes, fluorescent assays and imaging, and the constructions of biosensors and arrays have been covered. The current research is focused on the latest development of lifetime-based fluorescent technologies for assays, imaging and arrays, such as those for lanthanide probes.

Fluorescent Imaging of Citrate and Other Intermediates in the Citric Acid Cycle, Zhihong LIN, Meng WU, M. Schaeferling and Otto S. Wolfbeis, Angew. Chem. Int. Ed. (2004) 431735.
Determination of the Activity of Catalase Using a Europium(III)-tetracycline Derived Fluorescent Substrate, Wu, Meng; Lin, Z.; Wolfbeis, O. S. Anal. Biochem. (2003)32, 129–135.

Date submitted: 15th August 2003

## Li Yao-Qun, Ph.D.

Department of Chemistry,
Xiamen University,
Xiamen 361005,
China.
Tel / Fax: +86 592 218 5875
yqlig@xmu.edu.cn

*Specialty Keywords*: Fluorescence, Multi-component analysis.

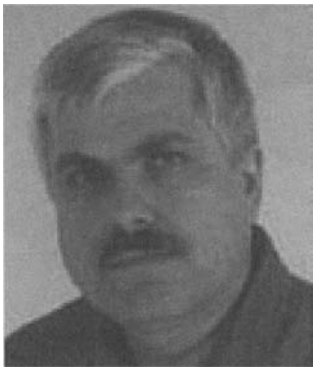
The research fields include molecular fluorescence spectroscopy and its application in environmental and biological analysis, multi-component analysis, and surface analysis. Special interests have focused on the development, instrumentation and application of some fluorescence techniques, such as synchronous fluorescence spectroscopy, multi-dimensional fluorescence, derivative technique, reflection fluorescence and confocal microscopy.

Derivative matrix isopotential synchronous fluorescence spectroscopy for the direct determination of 1-hydroxypyrene as a urinary biomarker of exposure to polycyclic aromatic hydrocarbon, with Wei Sui, Chun Wu, Li-Jun Yu, *Anal Sci.*, **2001**, 17(*1*),167.

Spectral fluctuation and heterogeneous distribution of porphine on the water surface, with Maxim. N. Slyadnev, Takanori Inoue, Akira Harata and Teiichiro Ogawa, *Langmuir*,**1999**, 15(*9*), 3035.

Date submitted: 12th July 2004

## Sergiy M. Yarmoluk, Ph.D.



Inst. of Molecular Biology and Genetics of NAS of Ukraine,
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Kyiv, 03143,
Ukraine.
Tel: / Fax: +38 044 252 2458
sergiy@yarmoluk.org.ua
www.yarmoluk.org.ua

*Specialty Keywords*: Organic synthesis, Fluorescent probes, Cyanines.

The research interests of Dr. Yarmoluk are connected with fluorescent detection of biological molecules. In the department of combinatorial chemistry of biological active compounds guided by Dr. Yarmoluk the series of novel dyes promising for use as fluorescent probes for nucleic acids and proteins detection were created [1,2], and novel methods for biomolecules labeling with cyanine dyes were developed. Also mechanisms of interaction of the dyes with nucleic acids and photophysical properties of the dyes are studied [2].

T.Y. Ohulchanskyy, H.E. Pudavar, S.M. Yarmoluk, V.M. Yashchuk, E.J. Bergey, P.N. Prasad (2003) Photochemistry and Photobiology, *77*, 138-145.
V.B. Kovalska, M.Yu. Losytskyy and S.M. Yarmoluk (2004) Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, *60*, 129-136.

Date submitted: 7th July 2004

## Lu Yi, Ph.D.

Department of Chemistry,
University of Illinois at Urbana - Champaign,
600 S. Mathews Ave., Urbana, IL 61801,
U.S.A.
Tel: 217 333 2619 Fax: 217 333 2685
yi-lu@uiuc.edu
montypython.scs.uiuc.edu/

*Specialty Keywords*: FRET, Biosensor, DNA.

We are interested in the design of catalytic DNA-based fluorescent biosensors for a broad range of non-nucleic acid analytes such as metal ions [1]. The substrate and enzyme strands of catalytic DNA were labeled with fluorophore and quencher, respectively, resulting in a suppressed initial fluorescence. In the presence of target analyte, the substrate was cleaved by the enzyme, increased fluorescence was observed. We have also developed a multi-fluorophore FRET method to label several arms of biomolecules simultaneously and study their folding [2].

Ref 1: J. Li and Y. Lu (2000). A Highly Sensitive and Selective Catalytic DNA Biosensor for Lead Ions *J. Am. Chem. Soc.* **122**10466-10467.
Ref 2: J. Liu and Y. Lu (2002). FRET Study of a Trifluorophore-Labeled DNAzyme *J. Am. Chem. Soc.* **124**(51), 15208-15216.

Date submitted: 22nd August 2002

## Liming Ying, Ph.D.

Department of Chemistry,
University of Cambridge,
Lensfield Road, Cambridge,
CB2 1EW, UK.
ly206@cam.ac.uk
www-klenerman.ch.cam.ac.uk

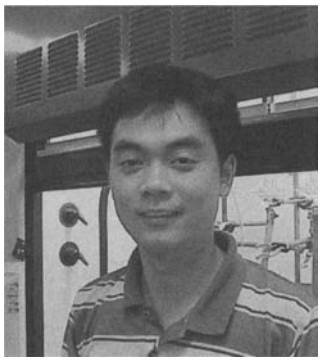
*Specialty Keywords*: Single Molecule Fluorescence, Fluorescence Resonance Energy Transfer (FRET).

My research focuses on applying single molecule fluorescence spectroscopy, especially single molecule FRET and FRET correlation spectroscopy to study structural heterogeneity and conformational dynamics of biomolecules including DNA hairpins and G-quadruplexes. I am also developing novel fluorescence methods such as single molecule fluorescence coincidence to detect the interaction of proteins with nucleic acids. My current projects aim to tackle the structure and mechanism of DNA polymerase and telomerase at the single molecule level.

Wallace M. I., Ying L. M., Balasubramanian S., Klenerman D. Non-Arrhenius Kinetics for the Loop Closure of a DNA Hairpin, *Proc. Natl. Acad. Sci. USA,* **98**, 5584 (2001).
Ying L. M., Xie X. S., Fluorescence Spectroscopy, Exciton Dynamics, and Photochemistry of Single Allophycocyanin Trimers, *J. Phys. Chem. B* **102**, 10399 (1998).

Date submitted: 2nd March 2004

## Xianghua (Bruce) Yu, Ph.D.



Department of Chemistry,
University of Tennessee,
Knoxville, Tennessee 37996,
USA.
Tel: 865 974 3738 Fax: 865 974 3454
yu@novell.chem.utk.edu
web.utk.edu/~xyu1

*Specialty Keywords*: Organometallics, X-ray, Synthesis.

Materials containing both metals and silicon are important components of current very-large-scale-integration (VLSI) devices. These materials include M-Si-N ternary materials and metal silicides. Our research focuses on synthesis, structures and reactivity of groups 4 and 5 transition metal amide silyl complexes. Their kinetics and thermodynamics have also been studied. I have also served as a group single crystal X-ray crystallographer for three years and solved about fifty-five new organic and organometallic complexes.

X. Yu, H. Cai, I. A. Guzei, Z. Xue. (2004). Unusual equilibria involving group 4 amides, silyl complexes, and silyl anions via ligand exchange reactions. *J. Am. Chem. Soc.* in press.
X. Yu, F. Li, X. Ye, X.; Xin, Z. Xue. (2000). Synthesis of cerium(IV) oxide ultrafine particles by solid-state reactions. *J. Am. Ceram. Soc.* ***83***, 964.

**Yuan, J.**
**Yue, S.**

Date submitted: 22nd July 2004

## Jingli Yuan, Ph.D.

Dept. of Analytical Chemistry, Dalian Inst. of Chem. Physics,
Chinese Academy of Sciences,
161 Zhongshan Road, Dalian 116012,
P. R. China.
Tel / Fax: +86 411 8 369 3509
jingliyuan@yahoo.com.cn
www.gsc.dicp.ac.cn/dsjs/fx1/yjl.htm

*Specialty Keywords*: Lanthanide, Fluorescence probe, Bioassay.
AIM 2003 = 14.7

Several kinds of lanthanide chelate-based fluorescent nano-materials have been prepared and developed as new type of fluorescence probes for biolabeling and time-resolved fluorescence bioassay. As fluorescence probes, the newly developed lanthanide nanoparticles have the advantages of smaller size (< 50 nm), high hydrophilicity, biocompatibility, photo-stability and fluorescence quantum yield (10-50%), easy to be bound to biomolecules and used for highly sensitive time-resolved fluorescence bioassays.

Z. Ye, M. Tan, G. Wang and J. Yuan (2004) *Anal. Chem.* **76**, 513-518.

M. Tan, Z. Ye, G. Wang and J. Yuan (2004) *Chem. Mater.* **16**, 2494-2498.

Date submitted: 31st May 2002

## Stephen Yue, Ph.D.

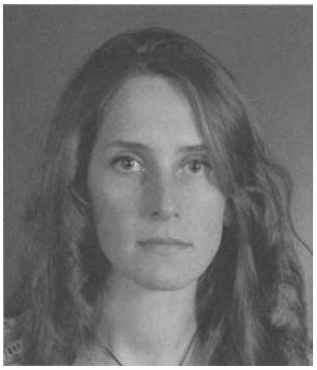
Organic Chemistry, Molecular Probes Inc.,
4849 Pitchford Avenue, Eugene,
Oregon, 97402,
USA.
Tel: (541) 465 8300 Fax: (541) 344 6504
stephen.yue@probes.com
www.probes.com

*Specialty Keywords*: Fluorescence.

Earned Ph.D. in Organic Chemistry from Oregon State University (1982). Principal Scientist at Molecular Probes, Inc. and Inventor of SYBR series nucleic acid stains and some NIR Alexa Fluor dyes. Other activities are in development of new fluorescent dyes.

Date submitted: 5th July 2004

## Urszula Zabarylo, M.Sc.



Charité – Universitätsmedizin Berlin,
Campus Benjamin Franklin,
Biomedizinische Technik und Physik, Fabeckstr. 60-62,
14195 Berlin, Germany.
Tel.: +49 308 449 2311 Fax: +49 308 445 4377
urszula.zabarylo@charite.de
www.fu-berlin.de

*Specialty Keywords*: Optical Biopsy, Optical Molecular Imaging, Quantum dots, Image processing and analysis.

Current Research Interests: My research is a development of laser-induced fluorescence (LIF) spectroscopy for applications in medicine. Special research interest are applications of autofluorescence and diffuse reflectance spectroscopy spectroscopy from native fluorophors like NADH and synthetic markers as a method in early detection of tumors. Special interest are fluorescence imaging of synthetic fluorescent tumor markers through turbid media and fluorescence image processing by deconvolution.

Minet O, Zabarylo U, Beuthan J: Deconvolution of fluorescent images of superficial tumors *in vivo*. Mediterranean Conference on Medical and Biological Engineering: Health in the Information Society, Napoli 2004 (in press).

Date submitted: 3rd September 2002

## Christoph C. Z. Zander, Ph.D.

AG Biochemistry, University of Siegen,
Adolf-Reichwein-Strasse 2, Siegen,
D-57068,
Germany.
Tel: +49 271 740 4129
zander@chemie.uni-siegen.de
www.uni-siegen.de

*Specialty Keywords*: Laser cooling, Single molecule detection, Anti Stokes fluorescence.

My group is working since 1991 in the field of fluorescence. The mayor topics of this works are laser cooling by anti Stokes fluorescence (see ref. 1) and single molecule detection (see ref. 1).

*Cooling of a Dye Solution by Anti-Stokes Fluorescence*, C. Zander, K.H. Drexhage, Advances in Photochemistry, Volume 20, John Wiley & Sons (1995) 59.

Single Molecule-Detection in Solution: Methods and Applications, eds. Ch. Zander. J. Enderlein, R.A. Keller, Wiley-VCH Verlag Berlin GmbH, S. 247 – 272, Berlin 2002.

**J. Zhang.**
**J. Zheng.**

Date submitted: 1st July 2004


## Jian Zhang, Ph.D.

**C**enter for **F**luorescence **S**pectroscopy,
Dept. of Biochemistry and Molecular Biology,
University of Maryland School of Medicine,
725 West Lombard St, Baltimore, Maryland, 21201, USA.
Tel: 410 706 7978 Fax: 410 706 8408
Jian@cfs.umbi.umd.edu
cfs.umbi.umd.edu



*Specialty Keywords*: Luminescence, Surface chemistry, Biosensor.


My research interest focus on designing and developing the biological detection technology including the carbohydrate, DNA, and protein through absorbance and luminescence spectral changes based on the nano-scale superstructures.


J. Zhang, J. Malicka, I. Gryczynski, J. R. Lakowicz (2004) Oligonucleotide-displaced Organic Monolayer-protected Silver Nanoparticles and Enhanced Luminescence of Their Salted Aggregates: Anal. Biochem. 330, 81-86.


Date submitted: 6th June 2004


## Jie Zheng, Ph.D.

Department of Physiology and Membrane Biology,
University of California at Davis, School of Medicine
Davis, CA 95616,
USA.
Tel: 530 752 1241 Fax: 530 752 5423
JZheng@UCDavis.edu



*Specialty Keywords*: FRET, Patch-clamp fluorometry, Fluorescent proteins, Ion channels, Signal transduction.
AIM 2003 = 13.8


Using novel fluorescence techniques in combination with electrophysiology and molecular biology to better understand the membrane protein structure and dynamic rearrangements in the structure that underlie cellular signal transduction. The focus of my research is ion channels that form the basis of electrical excitability of neurons and muscle cells. Fluorophores are attached to the moving parts of the channel as molecular sensors to detect structural changes in real time.


J. Zheng, and W.N. Zagotta (2000). Gating rearrangements in cyclic nucleotide-gated channels revealed by patch-clamp fluorometry. *Neuron*, **28**, 369-374.
J. Zheng, and W.N. Zagotta (2003). Patch-clamp fluorometry recording of conformational rearrangements of ion channels. *Science's STKE*, **pl7.**

Date submitted: 16th July 2004

## Alexander Zilles, Ph.D.

ATTO-TEC,
Am Eichenhang 50,
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Germany.
Tel: +0049 271 740 4735
zilles@atto-tec.de
www.atto-tec.com

*Specialty Keywords*: Fluorescence, Fluorescent organic dyes, Biolabeling, Bioanalytics, Photofading, UV-absorber.

My research interests are based on the design and synthesis of novel fluorescent dyes. Individual functionalisation of these dyes make them highly suitable for bioanalytical applications e.g. biolabeling of nucleotides, proteins, etc.
I am further interested in the development and investigation of detergent additives to prevent photodegradation of dyed fabrics in particular cellulosic based fibers e.g. cotton.

Arden-Jacob J., Frantzeskos J., Kemnitzer N. U., Zilles A., Drexhage K.H., Spectrochim. Acta 57A, 2271-2283 (2001). Zilles A., PhD Theses "The design and synthesis of detergant additives for the photo-chemical protection of dyed fabrics". University of Leeds, Department of Colour Chemistry (2002).

Date submitted: 2nd August 2004

## Victor N. Zozulya, Ph.D.

Department of Molecular Biophysics,
B.Verkin Inst. for Low Temperature Physics and Engineering,
NAS of Ukraine, 47 Lenin Ave., Kharkov, 61103,
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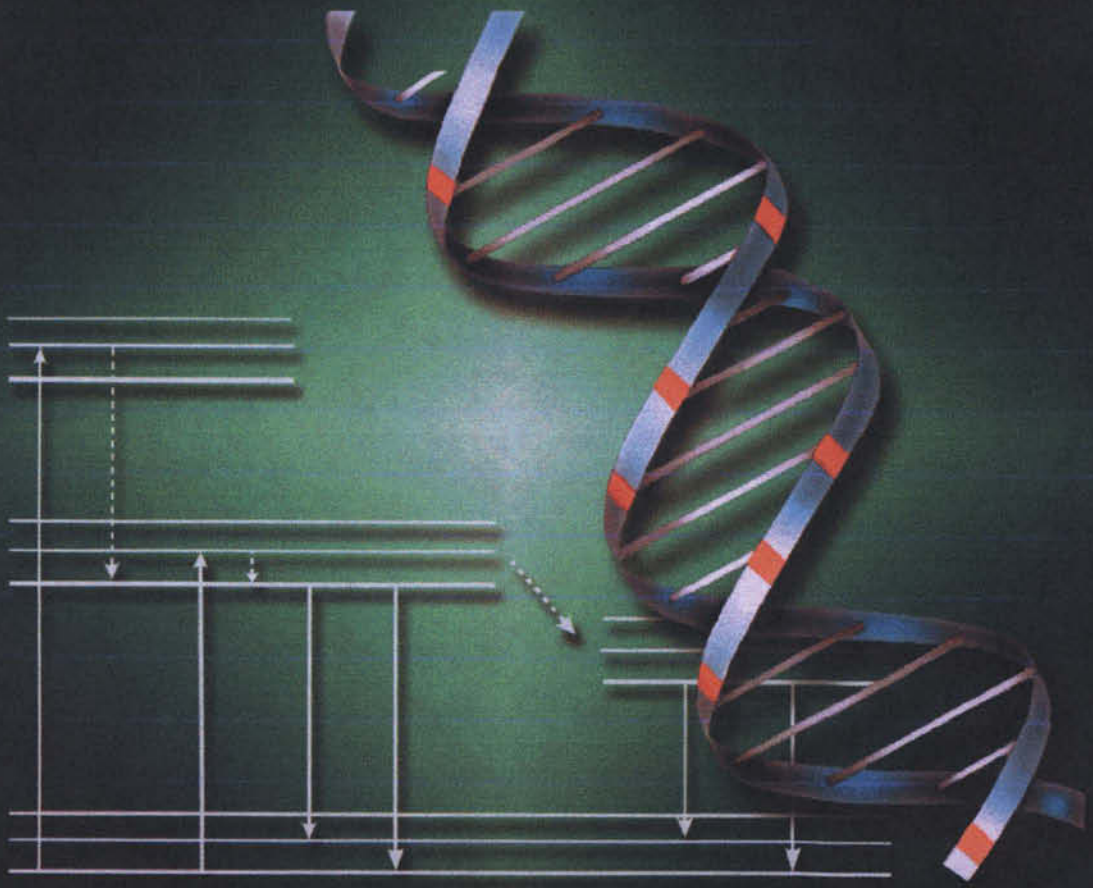
*Specialty Keywords*: Fluorometry, Dye-Nucleic acid complexes, Dye-oligonucleotide conjugates.

Investigation of fluorescent and binding properties of intercalating dyes and drugs in complexes with polynucleotides and nucleic acids. Utilization of covalently attached dyes as fluorescent probes and stabilizers of antisense and antigene oligonucleotide hybridization.

V. Zozulya, Yu. Blagoi, I. Dubey, D. Fedoryak, V. Makitruk, O. Ryazanova, A. Shcherbakova (2003) *Biopolymers (Biospectroscopy)* **72**, 264-273.

O. A. Ryazanova, V. N. Zozulya, I. M. Voloshin, V. A. Karachevtsev, V. L. Makitruk, S. G. Stepanian (2003) *Spectrochim. Acta* **60 A** , 2005-2011.

# 2005



# Companies & Institutions In Fluorescence

## *Company & Institution Contents*

# Biomolecular Dynamics

Katholieke Universiteit Leuven,
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Belgium, B3001,
Belgium.
Tel: +32 16 32 7160 Fax: +32 16 32 7974
Yves.Engelborghs@fys.kuleuven.ac.be
www.chem.kuleuven.ac.be/research/bio/webye_en.html

*Specialty Keywords*: Proteins, Tryptophan, dynamics, Fluorescence Correlation Spectroscopy.

The Laboratory of Biomolecular Dynamics is specialized in the study of dynamic phenomena in Biological systems.
In a first part conformational changes in proteins are modeled in great detail with the technique called 'Targetted Molecular Dynamics" and the calculated pathways are connected to reality by studying the kinetics of the conformational changes experimentally and applying site directed mutagenesis to the protein to modify the dynamics. Examples are Ha-ras-p21 and alpha-chymotrypsin.

In a second part the laboratory is very much interested in the study of time resolved protein fluorescence, the linkage of Trp-fluorescence and the Trp-microstates, and the dynamic properties of the protein. The laboratory has built a laser-based multifrequency phase fluorometer which automatically measures the phase shifts at 50 frequencies between 0.8 MHz and 1 GHz. Many multiple Trp-containing proteins have been studied in great detail (Barnase, colicin, DsbA, NSCP, trichosantin, plasmin-activator-inhibitor). Also anisotropies can be analysed. Trp-rotamers are modeled with the technique of Dead-End elimination.
In a third aspect, the laboratory is very much involved in Fluorescence Correlation Spectroscopy and is equipped with the Confocor I and Confocor II microscopes from Zeiss. The technique of FCS is applied to the study of drug-protein, protein-protein and DNA-protein interations. It has been applied in the context of proteins like tubulin, HIV-integrase and their cofactors. We are applying these techniques to the measurement of diffusion and molecular interactions directly in the living cell and in the nucleus.

The laboratory is very open for international collaborations.

July 23, 2004

# Boston Electronics Corporation

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(800)347-5445 or (617)566-3821 fax (617)731-0935
www.boselec.com tcspc@boselec.com

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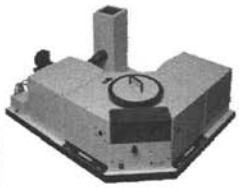

## Edinburgh Instruments Modular TCSPC Lifetime and Steady State Spectrometers

**FL920** Fluorescence Lifetime
**FLP920** Fluorescence & Phosphorescence Lifetime
**FS920** Steady State Fluorescence
**FSP920** Steady State & Phosphorescence Lifetime
**FLS920** Steady State & Fluorescence Lifetime
**FLSP920**Complete Fluorescence Laboratory
**LifeSpec Series** Compact Lifetime series
**OB920 Series** Dedicated Lifetime systems
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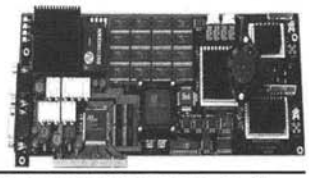
Edinburgh Instruments Analytical Division is a world leader in the design and manufacture of single photon counting sensitive steady state and time-resolved fluorescence and phosphorescence spectrometers.

Laser Flash Photolysis spectrometers measure laser induced transient absorption and emission with temporal resolution from nanoseconds to seconds together with the associated emission spectra.



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IMAGING

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Suite 100, Auburn Hills,
Michigan, 48326-2670,
U.S.A.
Tel: 248 276 8820 Fax: 248 276 8825
info@cookecorp.com
www.cookecorp.com

*Specialty Keywords*: **CCD cameras, Microscope cameras, Low light level imaging.**

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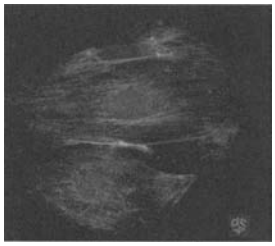
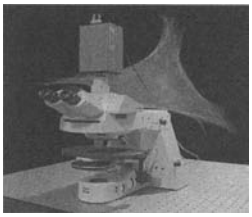
Complete specifications can be downloaded in acrobat format from
cookecorp.com/bioimaging.html



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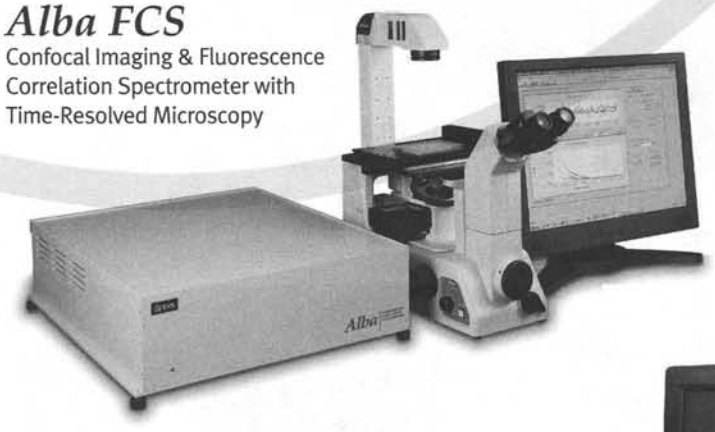


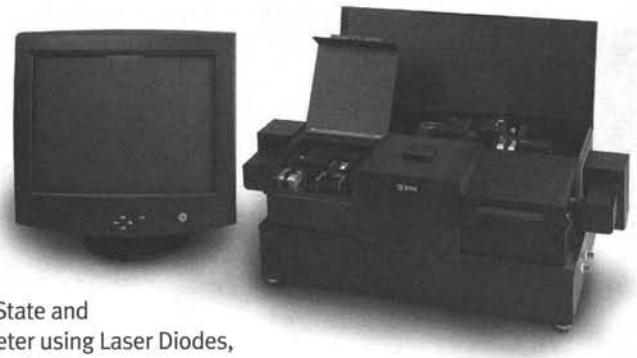

## *Chronos*

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**LAMBERT INSTRUMENTS**
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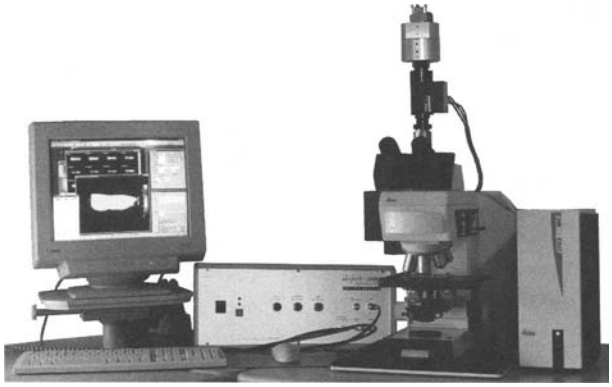
lkvgeest@lambert-instruments.com
www.lambert-instruments.com


*Specialty Keywords:* Fluorescence Lifetime Imaging Microscopy - FLIM, Fluorescence Resonance Energy Transfer - FRET, Frequency domain, LED.

Lambert Instruments specializes in low light level image detectors and systems for scientific applications making use of image intensifiers, standard and custom made.

The **LIFA Fluorescence Lifetime Imaging Attachment** is a system that can be attached to any wide field fluorescence microscope, allowing fluorescence image acquisition and the generation of lifetime images.

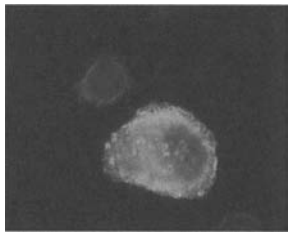


The LIFA system works in the frequency domain, giving a very efficient use of the available photons.

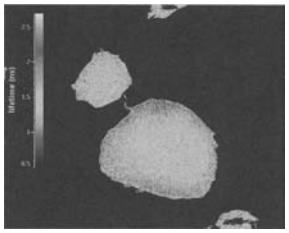
The use of LED's as modulated light source makes the system reliable, easy to operate and very cost effective.

A high resolution image intensifier that can be modulated up to 120 MHz is efficiently coupled to a digital CCD camera at the detection side.

The system is used in Cancer Research and in the study of macro molecular interactions using GFP labeling in combination with FLIM as the technique to detect fluorescence resonance engergy transfer (FRET).

Intensity 

MCF7 cells with ErbB.1-GFP as donor and Py72/Cy3 as acceptor showing FRET by a change of lifetime

 Lifetime

## Ocean Optics B.V.

Nieuwgraaf 108G, Duiven,
Gelderland, 6921 RK,
The Netherlands.
Tel: 0031 26 319 0500
Fax: 0031 26 319 0505
info@oceanopticsbv.com
http://www.oceanoptics.com

Specialty Keywords: Miniature spectrometers, Light sources, Spectroscopy accessories.

As a leading manufacturer of **miniature fiber optic spectrometers** we supply a full range of spectrometers including related products such as light sources, thin film measurement systems, sampling accessories, LIBS (Laser-induced breakdown spectroscopy) systems, optical fibers and probes.
Recognizing and seizing opportunities is what **Ocean Optics** is all about. In fact, one of our basic goals is to generate a partnership with each customer, so we can better appreciate the customer's application challenge.
Before we developed the latest high resolution miniature spectrometer, with an unmatched resolution of 0.04 nm (FWHM), we gathered over 12 years of experience in miniature spectrometers and sold over 45.000 units.
As each customer has its specific needs we deliver pre-configured systems as well as user configured systems. A few of the applications we successfully supplied with our systems:

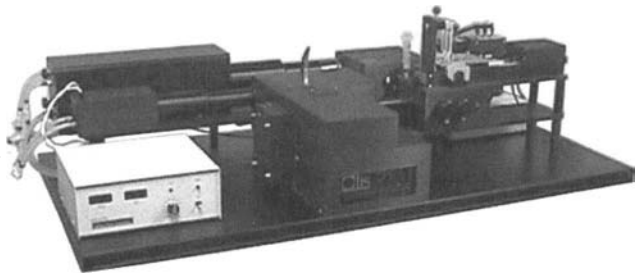
- Air and soil in situ monitoring
- Biological and chemical warfare agent detection
- Cancer detection
- Color measurement
- pH monitoring
- Dissolved oxygen
- Plasma monitoring
- Exhaust emission analysis
- Flow injection analysis

To provide the customer with a complete range of optical equipment we have over a 1000 accessories ranging from light sources, in-house made optical fibers, and lenses to patterned dichroic filters developed and produced in our thin film & optics division.
Within this division we are able to design thin films and optics with such precision and quality that we even use it in our own products, ensuring that the quality complies with the professionalism of our customers.
And to deliver the best service and support in Europe we have a sales/service office based in The Netherlands. For the United Kingdom and Ireland, Dr. Nick Barnett located in Oxford is your local contact, but we can equally well serve you from our European headquarters.

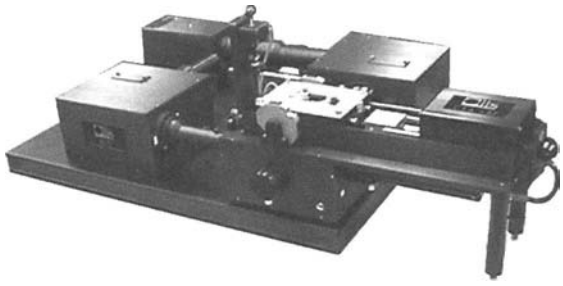
**Olis Inc.**
**(On-Line Instrument Systems)**

130 Conway Drive, Suites A & B,
Bogart, Georgia 30622,
USA.
(800) 542 3504
(706) 353 6547
Fax: (706) 353 1972
sales@olisweb.com
http://www.olisweb.com

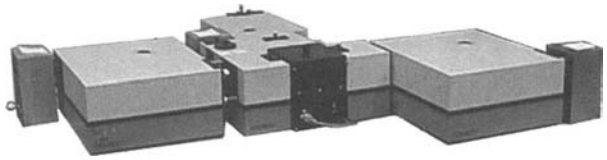
**SLM Upgrades, Stopped-Flow, Anisotropy.**



Olis RSM 1000F Spectrofluorimeter with U.S.A. Stopped-Flow

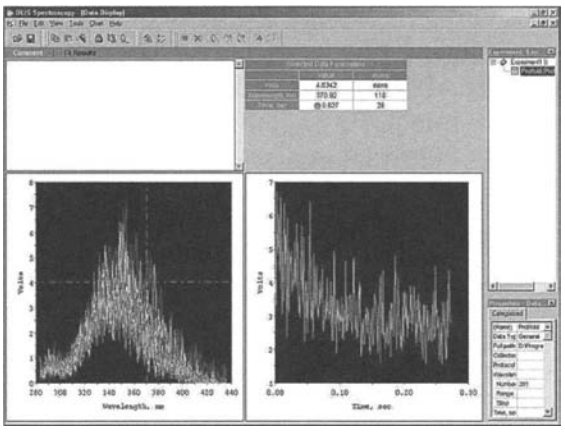


Olis DM45 Spectrofluorimeter with U.S.A. Stopped-Flow



Olis Upgraded SLM 8000 Spectrofluorimeter

# Olis spectrofluorimeters support the most routine applications through the most challenging.



The Olis RSM 1000F (top) uniquely supports millisecond scanning as a function of excitation or emission wavelengths; emission spectra (shown) captured a protein unfolding in 250 millisecond.

All Olis fluorimeters support addition of polarizers, stopped-flows, titrators, Peltier cells, and other accessories; all operate with Olis SpectralWorks (Windows 2000 Professional) software.

## Photon Technology International, Inc.

1009 Lenox Drive, Suite 104, Lawrenceville,
NJ 08648,
USA.
Tel: 609 896 0310 Fax: 609 896 0365
mktg@pti-nj.com
www.pti-nj.com

Specialty Keywords: **Fluorescence, Lifetimes, Imaging.**

### *PTI Products...*

***Photon Technology International*** offers complete systems for the three primary areas of fluorescence measurements: **steady state**, **lifetime,** and **microscopy/imaging**. Steady state and ratiometric measurements are represented by the **QuantaMaster** line – the world's most sensitive fluorometers. Fluorescence lifetimes are addressed by the **TimeMaster** line, the extremely versatile and powerful time-domain based lifetime fluorometers based on ***PTI***'s proprietary technology. And finally the **MicroMaster** offers systems for conventional fluorescence microscopy, fluorescence imaging, as well as specialized microscope-based systems for the measurement of fluorescence lifetimes. ***PTI***'s **Open Architecture Design** allows compatibility between all of our fluorescence systems. A QuantaMaster steady state fluorometer purchased today can be easily enhanced with TimeMaster lifetime system capabilities tomorrow. The ability to make measurements with microscopes can be added to a cuvette-based system and vice versa. ***PTI*** also offers an extensive line of **Optical Building Blocks (OBB)**, which include various types of pulsed and continuous light sources, nitrogen and dye lasers, optical choppers, monochromators, digital/analog PMT housings, various microscope accessories including single and dual channel photometers. Last but not least, *PTI* offers our **FluoDia T70** filter-based high temperature **fluorescence microplate reader**. It is an excellent platereader for people who want to measure fluorescence intensity. The most outstanding features of the FluoDia T70 are: sensitivity, temperature control ability, reproducibility, and dynamic range.

### *About PTI...*

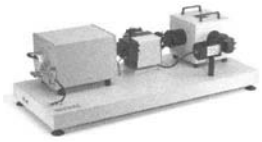
***Photon Technology International Inc.*** is a public corporation that was established in 1983 to develop light-based instrumentation for fluorescence and phosphorescence spectroscopy and has been instrumental in pioneering many new innovations in the field. ***PTI*** develops and manufactures its own equipment. The Company, in conjunction with related companies (***PhotoMed GmbH***, ***PTI Canada*** and ***PTI UK***), maintains offices, customer support and service in the U.S., Canada, Germany, Denmark and England. The remainder of our worldwide distribution is handled through company-trained representatives.

**PicoQuant GmbH**

Rudower Chaussee 29,
12489 Berlin,
Germany.
Tel / Fax: +49 (0)30 6392 6560 / 6561
photonics@pq.fta-berlin.de
www.picoquant.com

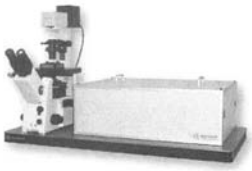
Special Keywords: **Pulsed and Modulated Laser Systems, Photon Counting Instrumentation, Fluorescence Lifetime Systems**

PicoQuant GmbH is a research and development company based in Berlin-Adlershof, Germany. The company is leading in the field of single photon counting applications. The product line includes:

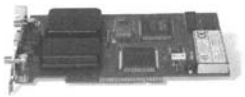


**Fluorescence Lifetime Systems**
- Picosecond time resolution
- Count rates up to 3 MHz
- Data analysis software

**Picosecond Pulsed Diode Lasers**
- Wavelengths from 370 to 1550 nm
- Repetition rates up to 80 MHz
- Pulse widths down to 50 ps



**Laser Fluorescence Microscopes**
- Ultimate sensitivity
- FLIM upgrade for Laser Scanning Microscopes
- Comprehensive analysis software



**PC boards for TCSPC / Multi-channel Scaling**
- ps, ns, µs timing
- Time-tagged mode & FCS option
- 4 channel routing capability

**Services:** 1) Annual International Workshop on Single Molecule Detection/Spectroscopy and Ultrasensitive Analysis in Life Science and 2) European Short Course on Principles and Applications of Time-resolved Fluorescence Spectroscopy.

# Sigma-Aldrich

Industriestrasse 25,
CH-9471 Buchs,
Switzerland.
Tel: +41 81 755 2828 Fax: +41 755 2815
e-mail: pnording@sial.com
www.sigma-aldrich.com

Highlights:

- **over 700 catalog items specific for fluorescence applications**
- **continual innovation of fluorescence probes**
- **rigorous quality testing**

**Fluka – Your trusted partner for fluorescence applications**
Based on our extensive experience in organic synthesis, a tradition of highest quality assurance, our focus on bioanalytical techniques and contacts with thousands of customers worldwide we offer dyes and auxiliaries for almost any fluorescence application.

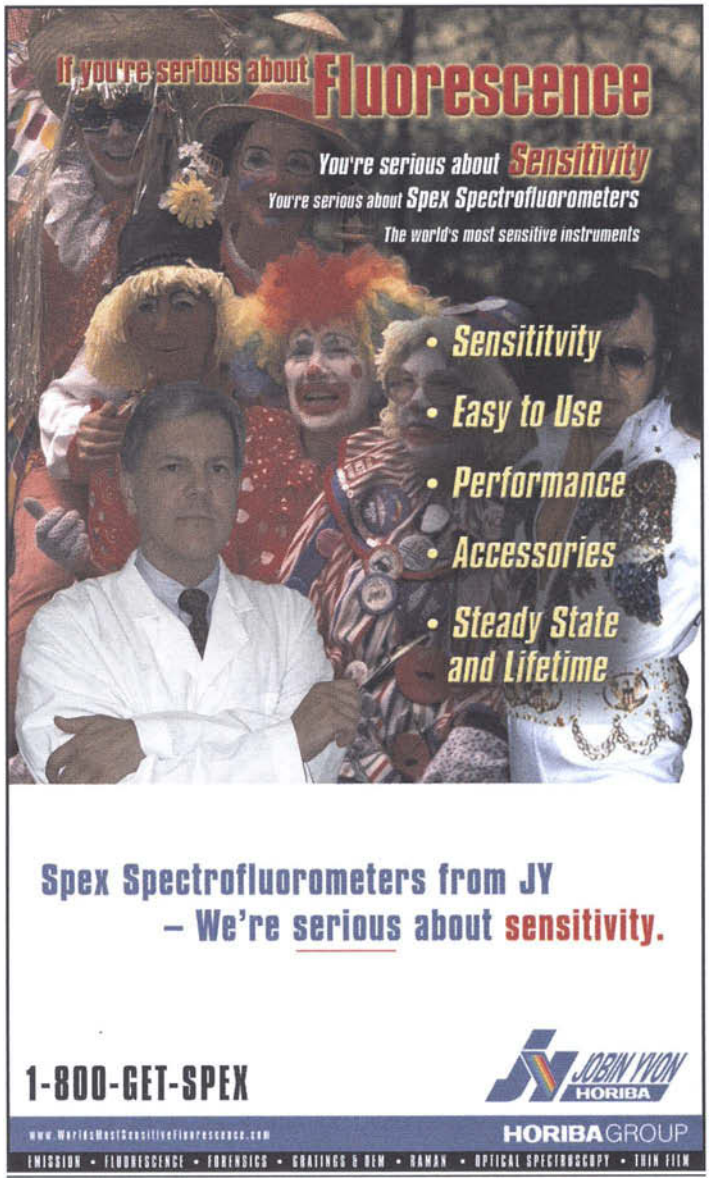
**Product range**
Our product range includes fluorescent labels, stains, fluorescent enzyme substrates, pH and redox potential sensitive dyes, ion probes, fluorescent protein conjugates and kits.

**Commitment to quality**
We routinely analyze flourescent markers for purity (e.g. HPLC, TLC) as well as spectral (absorption and emission) properties. Application tests (e.g. succinimidyl ester couplings tests, target molecule staining tests) are performed where appropriate.

**Innovation**
For many years Fluka has introduced new fluorescent probes. Among the latest product additions we offer are new fluorescent labels with excitation maxima up to 800 nm, fluorescent quenchers, and antibody conjugates with new, innovative labels.

**Product range**
Our product range includes fluorescent labels, stains, fluorescent enzyme substrates, pH and redox potential sensitive dyes, ion probes, fluorescent protein conjugates and kits.

SPEX Fluorescence Division
3880 Park Ave. Edison, New Jersey 08820, USA.
800-GET-SPEX or 732 494 8660 Fax: 732 549 5157
email: fluorescence@jyhoriba.com
www.WorldsMostSensitiveFluorescence.com
**Keywords: Fluorometers, Fluorescence, Spectrofluorometers.**



**Thermo**
ELECTRON CORPORATION

5225 Verona Road, Madison Wisconsin, 53711 USA.
Tel: 800 642 6538, 608 276 6100
Email: spectroscopy@thermo.com
Web: www.thermo.com/fluorescence

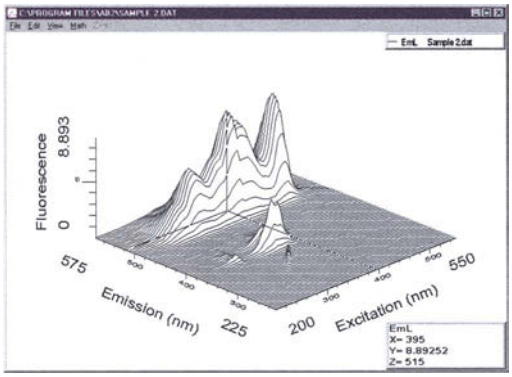
*Specialty Keywords:* Thermo, Thermo Electron, AB2, AMINCO-Bowman, Spectrofluorometer, Luminescence Spectrometer.

AMINCO-Bowman™ spectrofluorometers have been providing solid, reliable performance for almost fifty years. Thermo Electron has built on that history, combining an exclusive dual light-source design with a versatile sample compartment. As a result, the hardware of the AMINCO-Bowman Series 2 (AB2) provides capabilities that rank this instrument second to none in your laboratory.

The research-quality sensitivity, sampling flexibility, easy-to-use built-in software applications and an extensive selection of accessories make the AB2 a versatile instrument for research and routine applications. We created the industry-standard sampling compartment, and continue to offer a wide range of accessories to meet your needs.

**Instrument features**

- Signal-to-noise sensitivity of 900:1 (p-p) and 2000:1 (RMS) at 4nm BP (Water Raman emission)
- Fast, sub-millisecond data acquisition
- Spectral Bandpass selectable from 0.5-16nm
- Xenon power: 150W CW and 10ms Flash Lamps can be simultaneously installed (allows ultra-sensitive measurements and phosphorescence decays in the same instrument)
- Versatile sample compartment
- Rugged design for years of use




**Software features**

- Full user control over all instrument parameters: manage your experiment variables
- Automated Polarization and Anisotropy measurements
- Excitation, Emission, 3D, and Synchronous wavelength scans
- Intracellular Probes: Pre-programmed setup for dual-emission or dual-excitation calcium probes
- Intelligent Queue (IQ™): allows hands-free automation for multiple tests on the same samples
- Data manipulation: subtract solvent background, determine derivatives, perform curve fitting, or export to Microsoft® Excel or Thermo's GRAMS/AI package for additional capability

**Accessories**

- Automated or manually-controlled UV and Vis-wavelength polarizers
- T-Optics™ external PMT configuration for fast polarization or dual emission probes
- Stirring, 2-cell, and 4-cell turrets
- Automated or manually-controlled second order filters
- Solid sample holder: allows surface and bulk measurements

- Variable-angle coverslip for *in situ* cell growth with perfusion and injection capability
- Fiber-Optic: take the light to the sample
- MilliFlow™ Stopped-flow accessory for rapid-mix experiments - only 2ms dead time!
- Thermo Electron water baths for heating and cooling your samples
- Microcells and HPLC-compatible flowcells increase the applicability of the AB2 to other samples and measurement techniques

# Thermo

ELECTRON CORPORATION

Microplate Instrumentation Business,
Ratastie 2,
01620 Vantaa,
Finland.
Tel: +358 9 329 100
Fax: +358 9 32910 415
www.thermo.com

Specialty keywords: **Spectral scanning, Spectrofluorometer, Spectrophotometer, Fluorescence, Absorbance, FRET, FI, Microplate.**

## Varioskan, the most sensitive and flexible spectral scanning multimode reader for measuring a wide range of drug discovery applications.

### Varioskan provides superior performance for:

- Unlimited wavelength selection with spectral scanning for both fluorometric and photometric assays.
- Optimizing kinetic reactions with a built-in dispenser.
- Easy methods development with advanced SkanIt Software.
- 21 CFR part 11 compliance.

### Application areas for Varioskan include:

Cellular assays, Ca (2+) flux assays, Reporter gene assays, Apoptosis, Cell proliferation, Cytotoxicity and ADMETox, Signal transduction, Molecular interactions, Direct DNA, RNA and protein quantification, Tryptophan fluoresecence, FRET assays, Enzyme kinetic assays, Multilable assays, Spectral scanning.

### About Thermo

A world leader in high-tech instruments, Thermo Electron Corporation helps life science, laboratory, and industrial customers advance scientific knowledge, enable drug discovery, improve manufacturing processes, and protect people and the environment with instruments, scientific equipment and integrated software solutions. Based in Waltham, Massachusetts, Thermo Electron has revenues of more than $2 billion, and employs approximately 11,000 people in 30 countries worldwide.

**Varian, Inc.**
**Scientific Instruments**
3120 Hansen Way
Palo Alto, CA 94304-1030, USA
Telephone: +1.925.939.2400
Facsimile: +1.925.945.2360
Email: fluorescence@varianinc.com
Web: www.varianinc.com

VARIAN

**We're leaders and innovators in creating solutions that solve a wide range of challenges in life science and industry.**

Varian instruments, consumable supplies, and solutions are key tools in bio-molecular and academic research, pharmaceutical R&D and manufacturing, and industrial R&D and quality control. Our major product ranges include:

AAS • Dissolution • Fluorescence • GC • HPLC • ICP • MS • UV-Vis-NIR • NMR • Consumables

Varian's range of Fluorescence and UV-Vis spectrophotometers bear the Cary name that has been associated with high performance spectrophotometers for over 50 years. The Cary Eclipse fluorescence spectrophotometer fits well within the Cary range, offering the excellent specifications and modern software that has become the Cary standard. Features include:

- Choice of fluorescence, phosphorescence or chemi/bio-luminescence collection modes
- Excellent sensitivity, which extends across the entire UV-Vis wavelength region
- The widest range of accessories in the industry, including a microplate reader, polarizers, peltier multicell and single cell holders, fast filter device, fiber optics, and more
- Powerful and easy-to-use software

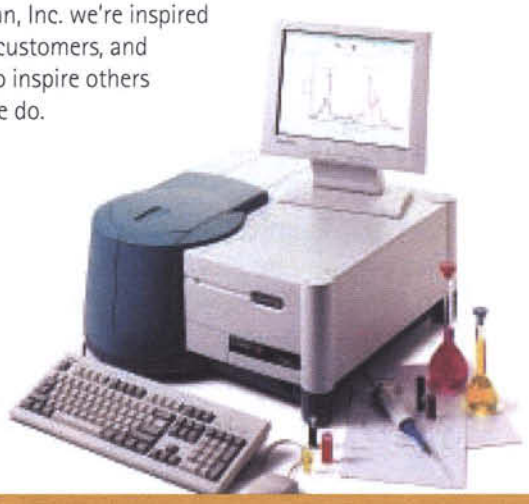
***Inspiring Excellence™* is at the Heart of Our Business**

Our people, products, and solutions enable customers to meet increasingly complex challenges in life sciences and industry.

We're a diversified, global technology leader helping customers innovate with confidence, enhance their competitiveness, and boost their efficiency.

Our businesses–Scientific Instruments, Vacuum Technologies, and Electronics Manufacturing–bring together our high quality, innovative and user-friendly products with industry-leading service and support to create genuinely inspired solutions.

Each person at Varian, Inc. is dedicated to our credo–*Inspiring Excellence*, which calls on us to always act with integrity, and with absolute commitment to our customers needs and dreams. At Varian, Inc. we're inspired by our customers, and strive to inspire others in all we do.



**www.varianinc.com**

# WaferGen Inc.

46571 Fremont Blvd.,
California,
CA 94538,
USA.
Tel: +1 510 651 4450 Fax: +1 510 651 4599
info@wafergen.com
www.wafergen.com

*Specialty Keywords*: **Silicon wafer, Microchip, Fluorescence microscopy, Cell imaging, Optical switches, Optical readout, Fluorescent probes, Real-time PCR**.

WaferGen is an instrument systems company that aims to replace microtiter plates and microscope slides and their readers with intelligent silicon devices to remove significant bottlenecks in drug discovery. Replacing passive plastic and glass containers with active silicon devices results in exquisite feedback control over reaction conditions in each well for thousands of wells in parallel and real-time multi-modal data acquisition.

## *Instructions for Contributors*

Scientists and workers in academia, industry or government employing fluorescence in their everyday working lives are invited to apply for entry in the *Who's Who in Fluorescence* 2006 annual volume.

The annual volume, edited by Dr's Chris D. Geddes and Joseph R. Lakowicz, publishes the names, addresses, contact details and a brief paragraph describing fluorescence workers specialities.

To apply for entry in the Who's Who in Fluorescence 2006 volume, complete the personal template (Word 2000 format) found at http://cfs.umbi.umd.edu/jf/ and e-mail to wwif@cfs.umbi.umd.edu no later than August 31st 2005. Unsuccessful entries, entries not conforming to the template format, or those received after the closing date will be returned without further consideration.

Contributors are asked to keep file sizes as small as possible by using appropriate standard picture formats, such as JPEG and TIFF etc. Alternatively, electronic versions can be submitted by post (CD) to:

Chris D. Geddes and Joseph R. Lakowicz
Editors: *The Who's Who in Fluorescence*,
The Institute of Fluorescence and
The Center for Fluorescence Spectroscopy,
Medical Biotechnology Center,
725 West Lombard St,
Baltimore, Maryland, 21201, USA.

Galley proofs will no longer be posted on the Who's Who in Fluorescence website as in previous years. Subsequently, we ask authors to be extra vigilant in the preparation of their entries.

Personal half-page entries in the Who's Who in Fluorescence 2006 volume are free of charge. Further instructions and announcements will be posted on the website during the Who's Who entry collection period, January 1st – August 31st annually.

Fluorescence based companies may also submit a full-page company profile in the Who's Who in Fluorescence 2006 volume for a fee of $600.00 (black and white), $2000.00 (4-colour), prices subject to change. Full-page company templates may be found at: http://cfs.umbi.umd.edu/jf/ For colour images and high resolution images, companies are asked to contact the editors to discuss their requirements beforehand.

Institutions, academic research groups and centres of scientific excellence are also invited to submit full-page profiles for a fee of $250.00 (black and white), $2000.00 (4-colour), also using the company template found on the Who's Who website. Both company and institutional submissions are also to be submitted by August 31st 2005.

Further enquiries are to be directed to the editors at the above address or to: wwif@cfs.umbi.umd.edu

## *Author Impact Measure (AIM): An Author Publication Statistic*

The *Who's Who in Fluorescence* annual volume now employs a voluntary personal publication statistic, first appearing in the 2005 volume.

Contributors are asked to calculate their *Author Impact Measure* (AIM) number and supply this along with their completed Who's Who in Fluorescence template via the usual e-mail address: wwif@cfs.umbi.umd.edu no later than August 2005 for the 2006 volume.

The AIM number is expected to show both an author's progress and productivity in the previous year. This statistic will be published in the Who's Who in Fluorescence volume, on a voluntary basis. The AIM number is simply calculated as the cumulative *impact number* (from the ISI database) of Journals published in, in that year, multiplied by the frequency of publications.

For example, if an contributor published 3 papers in the *Journal of Fluorescence* and 1 paper in the *Journal of Physical Chemistry B* in the year 2002. The 2002 AIM number would be:

$3*(0.761) + 1*(3.611) = \underline{5.894}$

AIM (2002) = 5.894

Aim numbers are to be calculated only for articles published at the time of submission (not pending or in press). AIM numbers for up to 3 years previous to the Who's Who in Fluorescence Annual publication date can be quoted, i.e. the 2006 volume will publish *one AIM number* from the years 2003, 2004 or 2005 at the contributor's discretion.

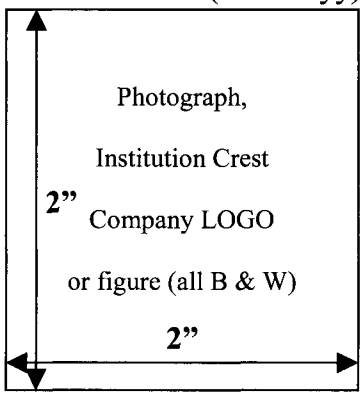
We hope you find this new author publication statistic informative and we look forward to any suggestions you may have.

Chris D. Geddes,
Joseph R. Lakowicz

September 2004.

# Personal Template

Date submitted (dd/mm/yy) **First Name, Initial, Surname, Highest Degree** –14 pt Bold




Department, Institution, (One main Address),
Street name, City,
County, Zip code,
Country.
Tel: Fax Numbers
E-mail Address
Homepage URL

Specialty Keywords: Keyword 1, Keyword 2, Keyword 3
AIM 2004 = 000

A brief description of ones research is to be included here, 12 pt, single space. All fonts should be 12 pt, Times New Roman. This text should be no more than 75 words (6 lines). Letter page size, 8.5x11 in (Portrait), 1" left, 1" right margins. The total area *should not exceed* 4.25 in height x 6.5 in width. A maximum of 2 references in the New *Journal of Fluorescence* format can also be placed at the bottom of the text to reflect ones expertise.

Ref 1: Chris D. Geddes and Joseph R. Lakowicz, (2002), Metal-enhanced Fluorescence, *J. Fluorescence,* **12**(2), 121-129.

Ref 2: E-mail complete forms by August 2005 too: wwif@cfs.umbi.umd.edu

Two entries per page will appear

Names will appear alphabetically.

Company entries will appear at the back of the issue, also alphabetically.

*Please do not embed Hyperlinks and / or Smart Tags.*

# Company and Institutional Template

**Company Name / Institution** (14 pt Times New Roman, **Bold**)

Department, Institution, Branch
Street name, City,
County, Zip code,
Country.
Tel: Fax Numbers
E-mail Address
Homepage URL

Specialty Keywords: **Keyword 1, Keyword 2, Keyword 3**

Letter page size, 8.5x11 in (Portrait), 1" left, 1" right margins. The total area *should not exceed* 8.5 *in* height x 6.5 *in* width. Where possible text should be 12 pt Times New Roman.

Please submit entries as a word file and not pdf.

This space may be filled as required. All figures or images are to be black and white. For pricing of color images, please contact Chris D. Geddes at the editorial office.

Company entries will appear at the back of the issue, also alphabetically.

Companies and institutions occupy one Page respectively.

E-mail complete forms by August 2005 to: wwif@cfs.umbi.umd.edu