



Frontiers in Microscopy II: Imaging From Single Molecules to Whole Organisms and Its Application

June 18 – 21, 2007

Meeting Agenda

Talk Times/Titles subject to change

For more information, please contact nancy.place@jax.org

All lectures to be held at The Jackson Laboratory's CC Little Auditorium.

Monday, June 18th

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| 4:45 – 5:30PM | <i>Shuttle Vans from BH Regency to The Jackson Laboratory</i> |
| 5:00 – 6:00PM | Registration and Welcome Reception |
| 6:00 – 6:15PM | Opening Remarks |
| 6:15 – 6:45PM | Prof. Peter Fromherz , Max-Planck Institute
<i>"Anellated Hemicyanine Dyes: Spectroscopy, Voltage-Sensitivity, Cell-Staining"</i> |
| 6:45 – 7:15PM | Ranieri Bizzarri, Ph.D. , NEST-INFM, Scuola Normale Superiore
(Participant presentation)
<i>"GFP pH-dependent ground states: a way to design tailored ratiometric pH biosensor targetable in vivo"</i> |
| 7:20 – 7:45PM | <i>Shuttle Vans from The Jackson Laboratory to BH Regency</i> |

Tuesday, June 19th

- 7:30 – 8:15AM *Shuttle Vans from BH Regency to The Jackson Laboratory*
- 8:00 – 8:30AM **Late registration**
- 8:30 – 9:00AM **Shimon Weiss, Ph.D.**, University of California, Los Angeles
“Single Molecule probing of Dynamic Conformation, Molecular Interactions and Dynamic Localizations in vitro, in Live Cells and in Organisms”
- 9:00 – 9:30AM **Amit Agrawal, Ph.D.**, Massachusetts Institute of Technology
“Single Molecule Detection and Imaging with Fluorescent Nanoparticle Probes”
- 9:30 – 10:00AM **Jay Nadeau, Ph.D.**, McGill University
(Participant presentation)
“Fluorescence intermittency and modulation as tools for tracking nanoparticle surface modification and breakdown in living cells”
- 10:00 – 10:45AM **Coffee Break**
- 10:45 – 11:15AM **Eric Potma, Ph.D.**, University of California, Irvine
“CARS microscopy in tissues”
- 11:15 – 11:45AM **Dr. Martin Schmidt**, University of Heidelberg
“Towards probing of single living cells by polarized infrared microspectroscopy”
- 11:45 – 12:15PM **Hans Juergen Kreuzer, Ph.D.**, Dalhousie University
“Digital In-line Holographic Microscopy”
- 12:30 – 1:30PM **Lunch at Roscoe’s**
- 1:30 – 2:00PM **Robert Balaban, Ph.D.**, National Institutes of Health
“Multiphoton Microscopy, Invivo”
- 2:00 – 2:30PM **Justin D. Pearlman, M.D., M.E., Ph.D.**, Dartmouth University
Medical School
“Whole body MRI applications to Microscopy”
- 2:30 – 3:00PM **Bastiaan Driehuys, Ph.D.**, Duke University
“Image-Based Phenotyping”
- 3:00 – 3:45PM **Coffee Break**

- 3:45 – 4:15PM **Goran Johansson, Ph.D.**, Lawrence Berkeley National Laboratory
"Three dimensional chemical mapping by scanning transmission X-ray spectromicroscopy"
- 4:15 – 4:45PM **Tamas Haraszti, Ph.D.**, University of Heidelberg
"Composition and structure of pigment storing organelles studied by soft X-ray spectro-microscopy"
- 4:50 – 5:15PM *Shuttle Vans from The Jackson Laboratory to BH Regency*

Wednesday, June 20th

- 7:45 – 8:15AM *Shuttle Vans from BH Regency to The Jackson Laboratory*
- 8:30 – 9:00AM **Roger Y. Tsien, Ph.D.**, University of California, San Diego and Howard Hughes Medical Institute
"Building molecules to image synaptic plasticity and tumors"
- 9:00 – 9:30AM **Mark Howarth, D. Phil.**, Massachusetts Institute of Technology
"Chemical and Biophysical Approaches to the Study of Protein Trafficking and Function in Living Cells"
- 9:30 – 10:00AM **Wolfgang Eck, Ph.D.**, The Jackson Laboratory & Institute for Molecular Biology
 (Participant presentation)
"PEGylated gold nanoparticles functionalized with monoclonal antibodies — new biologically targeted labeling and contrast agents for reflective light microscopy and x-ray computed tomography"
- 10:00 – 10:45AM **Coffee Break**
- 10:45 – 11:15AM **Watt Webb, Sc.D.**, Cornell University
"Nonlinear Optical Microscopy Illuminates the Biophysics of Life"
- 11:15 – 11:45AM **Karl Kasischke, M.D.**, University of Rochester Medical Center
"Intracellular NADH as a quantitative functional neuroimaging signal"
- 11:45 – 12:15PM **Karsten Bahlmann, Ph.D.**, Massachusetts Institute of Technology & TissueVision, Inc.
"Large Scale 3D Tissue Imaging"
- 12:30 – 1:30PM **Lunch at Roscoe's**

- 1:30 – 2:00 PM *Shuttle Vans from The Jackson Laboratory to BH Regency*
- 1:30 – 5:30 PM **Free Afternoon**
- 5:30 – 7:00 PM **Poster Session and Cocktails at the Walsh House, Bar Harbor Regency**
- 7:00 PM **Lobster Banquet at the Walsh House, Bar Harbor Regency**

Thursday, June 21st

- 7:45 – 8:15AM *Shuttle Vans from BH Regency to The Jackson Laboratory*
- 8:30 – 9:00AM **Qing Yin Zheng, M.D.**, Case Western Reserve University
(Participant presentation)
“Imaging from Stereocilia to Whole Mount Ears of Mice”
- 9:00 – 9:30AM **Dr. Tim Kuchel**, Institute of Medical and Veterinary Science
(Participant presentation)
“The application of Imaging Technologies in Biomedical Research – a drug eluting embolisation bead case study , and what are the future directions in technology access”
- 9:30 – 10:00AM **Coffee Break**
- 10:00 –10:30AM **Dr. Matthias Heydt**, University of Heidelberg
Study of motile marine organisms during their exploration of surfaces by digital in-line holography
- 10:30 – 11:00AM **Gabriel Popescu, Ph.D.**, Massachusetts Institute of Technology
“Nanoscale structure and dynamics of live cells measured by quantitative phase imaging”
- 11:00 – 11:30AM **Coffee Break**
- 11:30 – 12:00PM **Kenichi Suzuki, Ph.D.**, Kyoto University
“Mechanism for Raft-Based Signal Transduction as Studied by Single-Molecule Tracking”
- 12:00 – 12:30PM **Torsten Wittmann, Ph.D.**, University of California, San Francisco
“Multidimensional Microscopy of Cytoskeletal Dynamics”

- 12:30 – 1:30PM **Lunch at Roscoe’s**
- 1:30 – 2:00PM **Xiaowei Zhuang, Ph.D.**, Harvard University
"Single-molecule and super-resolution imaging of biomolecules and cells"
- 2:00 – 2:30PM **Christoph Cremer, Ph.D.**, University of Heidelberg
"Laseroptical Nanoscopy of Cellular Structures"
- 2:30 – 3:00PM **Samuel Hess, Ph.D.**, Institute for Molecular Biophysics
Lecture title to be announced
- 3:00 – 3:45PM **Coffee Break**
- 3:45 – 4:15PM **Johann Engelhardt, Ph.D.**, German Cancer Research Center
"Advances in 4Pi-Microscopy"
- 4:15 – 4:45PM **Karen Deuschle, Ph.D.**, Ulm University
(Participant presentation)
"4Pi microscopy of subcellular structures highlighted using EosFP, a photoconvertible autofluorescent protein"
- 4:45 – 5:00PM **Closing Remarks**
- 5:10 – 5:30PM *Shuttle Vans from The Jackson Laboratory to BH Regency*