

**6th International Conference on Structural Analysis of Supramolecular  
Assemblies by Hybrid Methods  
(March 14-18, 2012)**

**PROGRAM**

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**WEDNESDAY, MARCH 14**

4:00-6:00 Meeting registration / check-in

5:00-6:00 Reception (Cedar House)

6:00-7:30 Dinner (Granhall)

**Session I (Evening), Hybrid Methods for Biological Pathways**

7:30-7:40 Welcome, **Phoebe L. Stewart**, Meeting Chair, Director Cleveland Center for Membrane and Structural Biology and Professor of Pharmacology, Case Western Reserve University, Cleveland, USA

7:40-7:45 Introduction, **Félix Rey**, Session Chair, Director of Virology, Institute Pasteur, Paris, France

7:45-8:45 **Wes Sundquist, KEYNOTE SPEAKER**  
Professor and Co-Chair of Biochemistry, University of Utah, Salt Lake City, USA  
*The ESCRT pathway in HIV budding and cell division*

8:45-11:00 Cash bar (Cedar House)

**THURSDAY, MARCH 15**

7:30-8:30 Breakfast (Granhall)

**Session II (Morning), Hybrid Approaches to Dynamic Assemblies**

8:30-8:35 Introduction, **Alasdair Steven**, Session Chair  
Chief, Laboratory of Structural Biology Research, NIAMS, National Institutes of Health, Bethesda, USA

8:35-9:05 **Karolin Luger**, Platform Speaker  
Professor of Biochemistry and Molecular Biology and Howard Hughes Medical Institute Investigator, Colorado State University, Fort Collins, USA  
*'Some folding required' - histone chaperones and nucleosome assembly*

- 9:05-9:35 **Z. Hong Zhou**, Platform Speaker  
Professor and Director Electron Imaging Center for Nanomachines,  
University of California Los Angeles, Los Angeles, USA  
*Diverse strategies for building chainmail by dsDNA virus capsids*
- 9:35-9:50 **Daniel Panne**, Abstract Selected Speaker  
EMBL Grenoble, Grenoble, France  
*Structure and activation mechanism of non-canonical IKK kinase complexes by hybrid methods*
- 9:50-10:05 **Stefan Bohn**, Abstract Selected Speaker  
Molecular Structural Biology, Max-Planck Institute of Biochemistry, Martinsried,  
Germany  
*Structural studies of the 26S proteasome*
- 10:05-10:35 Coffee Break
- 10:35-11:05 **Heidi E. Hamm**, Platform Speaker  
Professor and Chair of Pharmacology, Vanderbilt University School of Medicine,  
Nashville, USA  
*Mechanisms of receptor-mediated G protein activation*
- 11:05-12:05 **Susan S. Taylor, KEYNOTE SPEAKER**  
Professor of Chemistry and Biochemistry, and Pharmacology and Howard Hughes  
Medical Institute Investigator, University of California San Diego, USA  
*PKA: Assembly of dynamic macromolecular signaling scaffolds*
- 12:05 Lunch (Granhall)
- Poster Session I (Afternoon)**
- 4:30-6:00 Poster Session I (Bay Room)
- 6:00-7:30 Dinner (Granhall)
- Session III (Evening), Computational Approaches to Hybrid Analysis**
- 7:30-7:35 Introduction, **Andrej Sali**, Session Chair  
Professor of Bioengineering and Therapeutic Sciences, University of California at  
San Francisco, USA
- 7:35-8:05 **Adrian Elcock**, Platform Speaker  
Associate Professor of Biochemistry, University of Iowa, Iowa City, USA  
*Molecular simulation methods for modeling macromolecular behavior in vivo*
- 8:05-8:35 **Steven Ludtke**, Platform Speaker  
Associate Professor of Biochemistry and Molecular Biology, Baylor College of  
Medicine, Houston, USA  
*Symmetric or asymmetric? Accurate image processing of pseudosymmetric objects*

- 8:35-9:05 **Bridget Carragher**, Platform Speaker  
Associate Professor of Cell Biology, The Scripps Research Institute, La Jolla, USA  
*EM automation: The next decade*
- 9:05-11:00 Cash bar (Cedar House)

## FRIDAY, MARCH 16

- 7:30-8:30 Breakfast (Granhall)

### Session IV (Morning), Hybrid Approaches to Cell Biology

- 8:30-8:35 Introduction, **Ron A. Milligan**, Session Chair  
Professor of Cell Biology, The Scripps Research Institute, La Jolla, USA
- 8:35-9:05 **Antonina Roll-Mecak**, Platform Speaker  
Investigator, NINDS and NHLBI, National Institutes of Health, Bethesda, USA  
*Tales of tubulin tails: Insights into the mechanism of tubulin modifying enzymes*
- 9:05-9:35 **Takahide Kon**, Platform Speaker  
Department of Macromolecular Science, Osaka University, Osaka, Japan  
*Structural and functional analysis of dynein motors*
- 9:35-9:50 **Paul W. Keller**, Abstract Selected Speaker  
Laboratory of Structural Biology Research, NIAMS, National Institutes of Health, Bethesda, USA  
*Cryo-ET analysis of maturation inhibitor treated HIV-1*
- 9:50-10:05 **Elizabeth Villa**, Abstract Selected Speaker  
Max Planck Institute of Biochemistry, Department of Molecular Structural Biology, Martinsried, Germany  
*Opening windows into the cell: The molecular architecture of nuclear transport*
- 10:05-10:50 Coffee Break and Group Photo
- 10:50-11:05 **Luke M. Rice**, Platform Speaker  
Assistant Professor of Biochemistry, Southwestern Medical Center at Dallas, Dallas, USA  
*Catch and Release: Conformation-based mechanisms in a microtubule polymerase*
- 11:05-11:20 **Guo-Bin Hu**, Abstract Selected Speaker  
Department of Biological Chemistry & Molecular Pharmacology, Harvard Medical School, Boston, USA  
*Intermediates captured in intact cells by cryo-electron tomography reveal spontaneous mitochondrial division*

11:20-11:35 **Susan Buchanan**, Abstract Selected Speaker  
 Laboratory of Molecular Biology, National Institute of Diabetes and Digestive and  
 Kidney Diseases, National Institutes of Health, Bethesda, USA  
*Structural basis for iron piracy by pathogenic Neisseria*

12:00 Lunch (Granhall)

## **Workshop (Afternoon), Latest Advances in Hybrid Methods**

4:30-4:35 Introduction, **Dorit Hanein**, Session Chair  
 Associate Professor of Bioinformatics and Systems Biology, Sanford Burnham  
 Medical Research Institute, La Jolla, USA

4:35-4:50 **Niels Volkman**, Abstract Selected Speaker  
 Associate Professor, Sanford-Burnham Medical Research Institute, La Jolla, USA  
*Probabilistic mapping of distance constraints onto electron microscopy  
 reconstructions*

4:50-5:05 **Alexander Rigort**, Abstract Selected Speaker  
 Max Planck Institute of Biochemistry, Molecular Structural Biology, Martinsried,  
 Germany  
*Micromachining eukaryotic cells for cryo-electron tomography with a focused ion  
 beam microscope*

5:05-5:30 **Pawel Penczek**, Platform Speaker  
 Professor of Biochemistry and Molecular Biology, Director of Structural Biology  
 Imaging Center, The University of Texas, Houston, USA  
*Visualization of macromolecular variability by cryo-EM*

5:30-5:55 **Art Olson**, Platform Speaker  
 Professor of Molecular Biology, The Scripps Research Institute, La Jolla, USA  
*Visualizing and interacting with the molecular cell*

6:00-7:30 Dinner (Granhall)

## **Session V (Evening), Hybrid Approaches to Membrane Biology and Membrane Proteins**

7:30-7:35 Introduction, **William Weis**, Session Chair  
 Professor of Structural Biology, Stanford University, Stanford, USA

7:35-8:05 **Axel T. Brunger**, Platform Speaker  
 Professor of Molecular and Cellular Physiology and Howard Hughes Medical  
 Institute Investigator, Stanford University, School of Medicine, Stanford, USA  
*Single vesicle/molecule studies of calcium triggered synaptic vesicle fusion*

8:05-8:35 **Alain R. Brisson**, Platform Speaker  
 Professor of Biochemistry, University of Bordeaux, Talence, France  
*The function of Annexin-A5 in cell membrane repair*

- 8:35-9:05 **James H. Hurley**, Platform Speaker  
Principal Investigator, Laboratory of Molecular Biology, NIDDK, National Institutes of Health, Bethesda, USA  
*Structure of the membrane budding ESCRT-I and -II supercomplex from SAXS, EPR, and single molecule FRET*
- 9:05-11:00 Cash bar (Cedar House)

## SATURDAY, MARCH 17

- 7:00-8:30 Breakfast (Granhall)

### Session VI (Morning), New Structural Characterization Methods and PSI Biology

- 8:30-8:35 Introduction, **Wah Chiu**, Session Chair  
Director, National Center for Macromolecular Imaging, Baylor College of Medicine, Houston, USA
- 8:35-9:05 **Bo Huang**, Platform Speaker  
Assistant Professor of Pharmaceutical Chemistry, Biochemistry and Biophysics, University of California, San Francisco, USA  
*Molecular complexes under the light: super-resolution microscopy*
- 9:05-9:35 **Bob Stroud**, Platform Speaker  
Professor of Biochemistry & Biophysics and Pharmaceutical Chemistry, University of California San Francisco, San Francisco, USA  
*PSI biology and uncovering molecular mechanisms of biological processes*
- 9:35-9:50 **Michael Levitt**, Abstract Selected Speaker  
Professor and Chair, Computational Structural Biology, Stanford University School of Medicine, Stanford, USA  
*New methods solve the recalcitrant structure of group II chaperonin*
- 9:50-10:05 **Jeffrey Liu**, Abstract Selected Speaker  
Department of Molecular Biology, The Scripps Research Institute, La Jolla, USA  
*Biased signaling pathways in  $\beta$ 2-adrenergic receptor characterized by  $^{19}\text{F}$ -NMR*
- 10:05-10:35 Coffee Break
- 10:35-11:05 **Katherine Henzler-Wildman**, Platform Speaker  
Assistant Professor of Biochemistry and Molecular Biophysics, Washington University in St. Louis, School of Medicine, St. Louis, USA  
*Conformational exchange and the mechanism of multidrug resistant transport by EmrE*

- 11:05-11:35 **Brian T. Chait**, Platform Speaker  
Professor, Laboratory of Mass Spectrometry and Gaseous Ion Chemistry, The Rockefeller University, New York, USA  
*Mass Spectrometry as a tool for probing macromolecular assemblies*
- 11:35-11:50 **Pananghat Gayathri**, Abstract Selected Speaker  
MRC Laboratory of Molecular Biology, Cambridge, UK  
*Mechanism of plasmid segregation by ParM, a bacterial actin*
- 11:50-12:05 **Michael Elbaum**, Abstract Selected Speaker  
Department of Materials and Interfaces, The Weizmann Institute of Science, Rehovot, Israel  
*Synchrotron-based diffraction and tomographic cryo-imaging of hemozoin growth in Plasmodium falciparum*
- 12:05 Lunch (Granhall)

### Poster Session II (Afternoon)

- 4:30-6:00 Poster Session II (Bay Room)
- 6:00-7:30 Dinner (Granhall)

### Session VII (Evening), Hybrid Approaches for Increasing Resolution and Probing Conformational Change

- 7:30-7:45 Introduction, **Michael Rossmann**, Session Chair  
Professor of Biological Sciences, Purdue University, West Lafayette, USA  
*Vision for the future of hybrid structural methods*
- 7:45-8:15 **Shimon Weiss**, Platform Speaker  
Professor of Chemistry and Biochemistry, Physical Chemistry, and Physiology, University of California Los Angeles, Los Angeles, USA  
*Advances in Superresolution Optical Fluctuation Imaging (SOFI)*
- 8:15-8:45 **Toshio Ando**, Platform Speaker  
Professor of Mathematics and Physics, Kanazawa University, Kanazawa, Japan  
*Current state of high-speed AFM: its advantages and limitations*
- 8:45-12:00 Cash Bar/Social Time (Cedar House)

### SUNDAY, MARCH 18

- 7:00-9:00 Breakfast (Granhall)
- Departures