

International WE-Heraeus Workshop

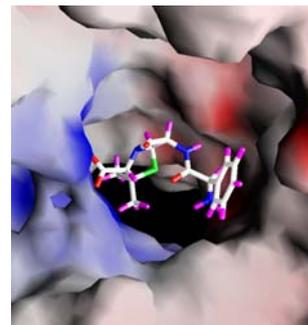
Jacobs University Bremen, 26. June - 1. July 2011



Nanofluidics in Biology: Protein and Toxin Translocation through Nanopores

Subject of the Seminar

A fundamental principle of life is to have compartments with a well-defined “in” and “out” separated by a cell envelope. To control the in- and efflux of the important molecules like ions, nutrients, metabolic intermediates, proteins and drugs nature developed numerous gates: channels and membrane transport proteins. For example, the channeling of proteins across biological membranes through nanometer-scale pores is a process common to all living organisms. Examples include the protein secretory pathways of bacteria, the protein import pathways in the endoplasmic reticulum, mitochondria, chloroplasts, and peroxisomes.



Understanding of transport across cell membranes on a molecular level requires an interdisciplinary approach. This seminar will bring together researchers from very different disciplines working on biological or artificial channels, from biophysics, molecular microbiology, bioinformatics, crystallography, medicine, cell biology, physics in confined systems, micro- or nanofluidics. This seminar will provide the state-of-the-art knowledge from different research areas with respect to molecular architecture and functions of biological /artificial channels, their differential expression and regulation, as well as new experimental and computational approaches. In particular, we want to discuss the underlying physics of transport and possible biotechnological applications.

Working Program

The core program will include invited general and research talks from experts in the field. Special emphasis will be given on the outline of current developments and the discussion of promising future research directions. Participating students and post-docs will have the opportunity to present and discuss their own research in poster sessions and student seminars. The program includes the following topics: Transport of toxins, Protein import into mitochondria, Protein import into peroxisomes, Export of amino acids, Protein folding, Osmoregulation, New technologies, Physics in confined systems, Modelling & Structure.

Confirmed Speakers

Klaus Aktories (Freiburg, Germany), Dario Anselmetti (Bielefeld, Germany), Nurit Ashkenasy (Beer-Sheva, Israel), Holger Barth (Ulm, Germany), Jan C. Behrends (Freiburg, Germany), Sergey M. Bezrukov (Bethesda, USA), Lyderic Bocquet (Lyon, France), Erhard Bremer (Marburg, Germany), Marco Colombini (Maryland, USA), Vito de Pinto (Catania, Italy), Arnold J.M. Driessen (Groningen, The Netherlands), Nils Fertig (München, Germany), Partick Huber (Saarbrücken, Germany), Ulrich F. Keyser (Cambridge, UK), Reinhard Krämer (Köln, Germany), Hamid Mobasher (Tehran, Iran), Murugappan Muthukumar (Amherst, USA), Ekaterina Nestorovich (Washington, USA), Stephan Nußberger (Stuttgart, Germany), Peter Pohl (Linz, Austria), Michel-Robert Popoff (Paris, France), Ulrich Rant (München, Germany), Sigrun Reumann (Stavanger, Norway), Ralf Seemann (Saarbrücken, Germany), Richard Wagner (Osnabrück, Germany), Markus Zweckstetter (Göttingen, Germany)

Organizing Committee

Loïc Auvray (Université Paris Diderot)
Karin Jacobs (Universität Saarbrücken)
Mathias Winterhalter, Roland Benz,
Helge Weingart (Jacobs University Bremen)

Applications

For details see: www.faculty.jacobs-university.de/mwinterhalter/heraeus-2011/

Registration by email to
h.weingart@jacobs-university.de

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