



464th WE-Heraeus-Seminar
Self Organization in Cell Assemblies and Tissues
Physikzentrum Bad Honnef, Germany
August 29 – September 03, 2010
Organizers:
Prof. Dr. Claus Fütterer
Prof. Dr. Josef Käs

Program

Sunday, August 29, 2010

18:30 **Welcome**

Monday, August 30, 2010

08:45 – 09:00 **Opening Claus Fütterer**
(University of Leipzig, Germany)

09:00 – 09:45 **Hans Meinhardt**
(Max-Planck-Institut für Entwicklungsbiologie, Tübingen, Germany)

Vertebrates, insects and planarians: different strategies to generate primary body axes with an orthogonal orientation

09:45 – 10:30 **discussion & coffee**

10:30 – 11:15 **Françoise Brochard-Wyart**
(Institut Curie, Paris, France)

Wetting transition and morphogenesis under flow of living drops

11:15 – 11:30 **discussion**

11:30 – 12:15 **Andrea Robitzki**
(Center for Biotechnology and Biomedicine (BBZ) Leipzig, Germany)

Real-time monitoring of relaxation and contractility of smooth muscle cells on microarrays

12:15 – 14:00 **discussion & lunch**

- 14:00 – 14:45 **Markus Affolter**
(University of Basel, Switzerland)
In vivo analysis of vessel fusion during DLAV formation in the zebrafish embryo
- 14:45 – 15:00 **discussion**
- 15:00 – 15:45 **Robert B. Laughlin**
(Stanford University, USA)
The meter stick of higher organisms
- 15:45 – 16:00 **discussion & coffee**
- 16:00 – 16:45 **Thomas Meyer**
(University of Cologne, Germany)
Emergence, reduction and supervenience - a philosophical debate
- 16:45 – 17:00 discussion
- 17:00 – 17.15 **Ernst Dreisigacker**
WE Heraeus Foundation
- 18:30 **dinner**
- 19:30 – 20:15 **poster session**

Tuesday, August 31, 2010

- 09:00 – 09:45 **Roland Wedlich-Söldner**
(Max Planck Institute of Biochemistry, Martinsried, Germany)
Cycling and recycling – new insights into the mechanisms of cell polarization
- 09:45 – 10:30 **discussion & coffee**
- 10:30 – 11.15 **Frank Jülicher**
(Max Planck Institute for the Physics of Complex Systems, Dresden, Germany)
Planar cell polarity and cell flows in epithelia
- 11:15 – 11:30 **discussion**
- 11:30 – 12:15 **Thomas Surrey**
(EMBL, Heidelberg, Germany)
Microtubule organization by mitotic motors studied in vitro

12:15 – 14:00	discussion & lunch
14:00 – 14:45	Damian Brunner (EMBL, Heidelberg, Germany) <i>Exploring the generation and coordination of forces shaping the Drosophila Embryo</i>
14:45 – 15:00	discussion
15:00 – 15:45	Erwin Frey (LMU, Munich, Germany) <i>Biological Model Systems of Pattern Formation</i>
15:45 – 16:00	discussion & coffee
16:00 – 16:45	Eva-Maria Schötz (Princeton University, USA) <i>Biophysics of asexual reproduction in the planarian S.mediterranea</i>
16:45 – 17:00	discussion
18:30	dinner
19:30 – 20:15	poster session
Wednesday, September 1, 2010	
09:00 – 09:45	Malcolm Steinberg (Princeton University, USA) <i>Contributions of intercellular adhesion and cortical tension to tissue self-assembly</i>
09:45 – 10:30	discussion & coffee
10:30 – 11:15	Paul Janmey (University of Pennsylvania, USA) <i>Mechanosensing at cell-cell and cell-matrix junctions</i>
11:15 – 11:30	discussion
11:30 – 12:15	Thomas W. Holstein (University of Heidelberg, Germany) <i>Gradients and regulatory networks of Wnt signaling in hydra pattern formation</i>

12:15 – 14:00 **lunch**

14:00 - 17:00 **excursion to
Max Planck Institute for Radio-Astronomy, Effelsberg**

18:30 **dinner**

19:30 – 20:15 **poster session**

Thursday, September 2, 2010

09:00 – 09:45 **Cornelius Weijer**
(University of Dundee, UK)

Chemotactic cell movement a key mechanism of tissue dynamics and morphogenesis

09:45 – 10:30 **discussion & coffee**

10:30 – 11:15 **Jacques Prost**
(ESPCI ParisTech, Paris, France)

Constructing tools for describing tissue dynamics

11:15 – 11:30 **discussion**

11:30 – 12:15 **Ramin Golestanian**
(University of Sheffield, UK)

Emergent hydrodynamic phenomena in a bacterial carpet

12:15 – 14:00 **discussion & lunch**

14:00 – 14:45 **Albrecht Ott**
(Saarland University, Germany)

Hydra: fluctuation driven axis determination

14:45 – 15:00 **discussion**

15:00 – 15:45 **Paul Layer**
(TU Darmstadt , Germany)

From cells to complete retinal tissues: teachings and applications of cellular reagggregates

15:45 – 16:00 **discussion & coffee**

16:00 – 16:45 **Roman Zantl**
(Ibidi GmbH Munich, Germany)

New tools for functional cell based assays using video microscopy

16:45 – 17:00 **discussion**
19:30 – 20:00 **poster session**
20:00 **WE Heraeus dinner**

Friday, September 3, 2010

09:00 – 10:30 **poster session & discussion**
10:30 – 11:15 **Kristian Franze**
(University of Cambridge, UK)
Mechanics in foreign body reactions to neural implants
11:15 – 11:30 **discussion**
11:30 – 12:15 **Josef Käs**
(University of Leipzig, Germany)
Are biomechanical changes necessary for tumor progression?
12:15 – 14:00 **discussion & lunch**
14:00 **departure**