

# Physical Modes of Action of Membrane-Active Compounds

807. WE-Heraeus-Seminar

07 – 10 April 2024

at the Physikzentrum Bad Honnef, Germany

**WILHELM UND ELSE  
HERAEUS-STIFTUNG**



# Program

**Sunday, 07 April 2024**

*Early arrivers are welcome to join a small hike to Drachenfels*

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|---------------|--|----------------------|
| 16:00 – 21:00 | Registration                                   |                      |
| 18:00         | <i>BUFFET SUPPER and informal get-together</i> |                      |
| 20:00         | Heiko Heerklotz                                | <b>Welcome words</b> |
| 20:10         | <b>Debate 1</b>                                |                      |

**Monday, 08 April 2024**

- |               |                             |  |
|---------------|-----------------------------|--|
| 07:15         | <i>BREAKFAST</i>            |  |
| 08:30 – 08:40 | Alfred Blume                | <b>INTRO integrity</b>   |
| 08:40 – 09:20 | Daniel Harries              | <b>Insights into the material properties of nanodiscs and other mesophases</b> |
| 09:20 – 10:00 | Sandro Keller               | <b>Native nanodiscs for membrane-protein biophysics</b>                        |
| 10:00 – 10:20 | Attila Tortorella           | <b>Bacterial model membranes under the harsh subsurface conditions of Mars</b> |
| 10:20 – 10:50 | <i>COFFEE &amp; POSTERS</i> |  |
| 10:50 – 11:50 | <b>30 poster flashes</b>    |  |
| 11:50 – 12:20 | <b>Posters</b>              |  |
| 12:20         | <i>LUNCH</i>                |  |

# Program

**Monday, 08 April 2024**

13:50 – 14:00	<b>Conference photo</b> (in the front of the lecture hall)	
14:00 – 14:10	John Seddon	<b>INTRO curvature</b>
14:10 – 14:50	Rumiana Dimova	<b>Membrane remodeling in artificial cells: To bud or not to bud</b>
14:50 – 15:30	Michael Kozlov	<b>Model for tension propagation in cell membranes</b>
15:30 – 15:50	Lisa Hua	<b>How to relieve asymmetry stress in model membranes</b>
15:50 – 16:20	<i>COFFEE &amp; POSTERS</i>	
16:20 – 17:00	Dimitrios Stamou	<b>Plasma membrane curvature induces long-lived multimodal activation of G protein coupled receptors.</b>
17:00 – 17:40	<b>20 poster flashes</b>	
17:40 – 19:00	<b>Posters</b>	
19:00	<i>DINNER</i>	
20:00	<b>Debate 2</b>	

# Program

**Tuesday, 09 April 2024**

07:15	<i>BREAKFAST</i>	
08:30 – 08:40	Kalina Hristova	<b>INTRO permeability</b>
08:40 – 09:20	Paulo Almeida + Antje Pokorny	<b>A molecular view of peptide binding and translocation across lipid bilayers</b>
09:20 – 10:00	Lorenzo Stella	<b>Quantitative studies on peptide interaction with live bacterial cells: lessons learned and new questions</b>
10:00 – 10:20	Jasmin Schlauch	<b>Fluorescence quenching reveals the distribution of two synergistic antimicrobial peptides on a lipid membrane surface.</b>
10:20 – 10:50	<i>COFFEE &amp; POSTERS</i>	
10:50 – 11:30	William Wimley	<b>Self-assembling peptide nanopores are stabilized by a cooperative hydrogen- bond network</b>
11:30 – 12:10	Claudia Steinem	<b>Lugdunin: a cyclic peptide that partitions and self-assembles in lipid membranes to form water-filled channels</b>
12:10 – 12:30	Maria Hoernke	<b>Membrane permeabilization and other membrane perturbations: a network of mechanisms affecting the significance of model studies</b>
12:30	<i>LUNCH</i>	

# Program

**Tuesday, 09 April 2024**

14:00 – 14:10	Roland Winter	<b>INTRO order- hydration</b>
14:10 – 14:50	Daniel Huster	<b>Membrane thickness can regulate protein function</b>
14:50 – 15:30	Olaf Andersen	<b>Bilayer-mediated regulation of membrane protein function by small molecules, friend or foe</b>
15:30 – 15:50	Guillaume Gilliard	<b>The elicitor surfactin triggers plant immunity by altering membrane lipid properties</b>
15:50 – 16:20	<i>COFFEE &amp; POSTERS</i>	
16:20 – 17:00	Emma Sparr	<b>The impact of nonequilibrium conditions in interfacial barrier membranes</b>
17:00 – 19:00	<b>Posters</b>	
19:00	<i>HERAEUS DINNER (social event with cold &amp; warm buffet with complimentary drinks)</i>	

# Program

Wednesday, 10 April 2024

07:15	<i>BREAKFAST</i>	
08:30 – 08:40	Georg Pabst	<b>INTRO heterogeneity</b>
08:40 – 09:20	Ilya Leventhal	<b>Novel dimensions of membrane asymmetry: phospholipid and cholesterol abundance imbalances and their remarkable consequences</b>
09:20 – 10:00	Rainer Böckmann	<b>Non-universal impact of cholesterol on membranes: Mobility, curvature sensing, and elasticity</b>
10:00 – 10:20	Zhibo Deng	<b>Unravelling cholesterol flip-flop dynamics in lipid bilayers under thermal gradients: Insights from coarse-grained molecular dynamics simulations</b>
10:20 – 10:50	<i>COFFEE &amp; POSTERS</i>	
10:50 – 11:30	Tobias Baumgart	<b>Connecting lipid bilayer asymmetry with membrane shape</b>
11:30 – 12:10	Thomas Gutsman	<b>How pathogens can kill and be killed by membrane-active peptides</b>
12:10 – 12:30	Heiko Heerklotz	<b>Poster awards</b> <b>Closing words</b>
12:30	<i>LUNCH</i>	

**End of the seminar and departure**

*NO DINNER for participants leaving on Thursday; however, a self-service breakfast will be provided on Thursday morning*