

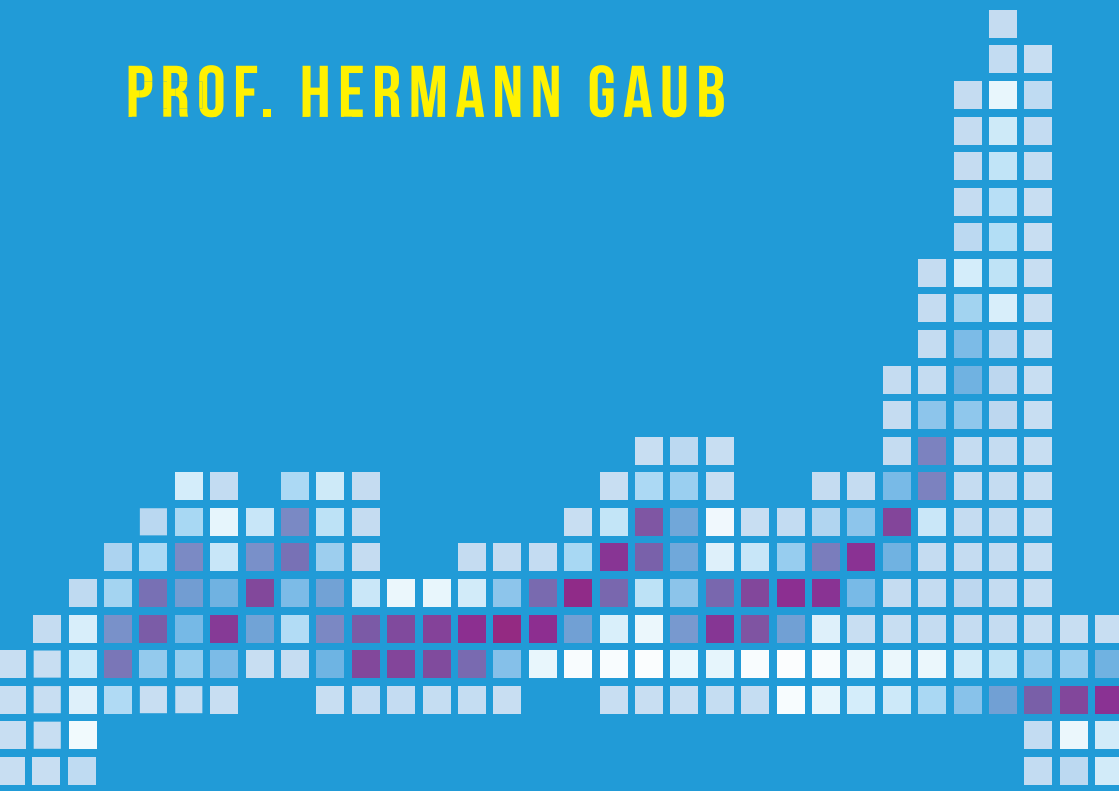


SEPTEMBER 2019 **06-07**

NANO-BIO-PHYSICS SYMPOSIUM

"STRETCHING THE BOUNDARIES OF PHYSICS,
ONE MOLECULE AT A TIME"

PROF. HERMANN GAUB



VENUE



LMU Munich
Geschwister-Scholl-Platz 1
80539 Munich

September 6, 2019 - Lecture Hall **H030**
accessible via Schellingstr. 4

September 7, 2019 - Lecture Hall **N120**
accessible via Amalienstr. 54

PROGRAM COMMITTEE

Prof. Matthias Rief (TU Munich)
Prof. Jan Lipfert (LMU Munich)
Dr. Martin Benoit (LMU Munich)

Administrative Coordination:
Sylvia Kreuzer

USEFUL INFORMATION

Wi-Fi
You can use @BayernWLAN.
In addition, eduroam Wi-Fi is available.
Let us know if you need any assistance.

Coffee break
Foyer, Schellingstr. 4

Lunch/Dinner
Good weather: Salinenhof, Faculty of Physics
Bad weather: StuCafé, Adalbertstraße 5



08:30 Registration opens

09:05 Opening and welcome remarks

Chairperson – Prof. Jan Lipfert

09:30 Prof. Joachim Rädler, LMU Munich

As time goes by: Insights from single cell timelapse movies

09:50 Prof. Wolfgang Parak, University of Hamburg

Interfacing cells with semiconductors

10:10 Dr. Kerstin Blank, Max Planck Institute, Potsdam

Molecular Force Sensors – From Molecular Mechanisms to Applications in Biology and Materials Science

10:30 - 11:00 Coffee break and time for poster viewing

Chairperson – Dr. Daniel Lietha

11:00 Prof. Andreas Engel, University of Basel

Aquaporins: ancient proteins present in all cells

11:20 Prof. Jan Lipfert, LMU Munich

Magnetic Tweezers: New regimes of Force Spectroscopy

11:40 Prof. Ernst-Ludwig Florin, University of Texas at Austin

When noise is your signal

12:00 Dr. Philipp Baaske & Dr. Stefan Duhr, NanoTemper Munich

2008 – 2019: A Biotech's Odyssey

12:20 - 13:30 Lunch and time for poster viewing

Chairperson – Prof. Wenke Zhang

13:30 Prof. Tom Perkins, University of Colorado

Uncovering hidden dynamics in protein unfolding

13:50 Prof. Elias Puchner, University of Minnesota

Investigating lipid droplet metabolism in living cells with novel labeling strategies for super-resolution microscopy

- 14:10 Prof. Philip Tinnefeld, LMU Munich
SMFS (single-molecule FLUORESCENCE spectroscopy)
meets DNA nanotech
- 14:30 Prof. Hauke Clausen-Schaumann, Munich University of Applied Sciences
Mechanical activation of amide bond hydrolysis
-

14:50 - 15:20 Coffee break and time for poster viewing

Chairperson – Dr. Claus Duschl

- 15:20 Prof. Daniel Müller, ETH Zurich
Mechanically Detecting and Directing Virus Transduction
towards Vision Restoration
- 15:40 Prof. Manfred Radmacher, University of Bremen
Mechanics in Diseases
- 16:00 Dr. Niels Fertig, nan]i[on Munich
High-throughput ion channel measurements – from university lab
to global player
-

16:20 - 16:50 Coffee break and time for poster viewing

Chairperson – Prof. Monika Fritz

- 16:50 Prof. Evan Evans, University of British Columbia
Nano-engineering enables tactile control & photonic calibration for an
O-T micro-force probe exploring nano-interfacial contacts in liquids
- 17:10 Prof. Thorsten Hugel, University of Freiburg
Seeing the boundaries of physics, photon by photon
- 17:30 Prof. Kay Gottschalk, University of Ulm
Biophysics of Cellular Aging
-

17:50 Concluding remarks

18:15 Group Picture

18:45 Conference dinner (informal discussions, music, open end)



09:15 Opening remarks

Chairperson – Prof. Cui Shuxun

- 09:20 Prof. Matthias Rief, TU Munich
Single Molecule Mechanics in Protein Folding and Binding
- 09:40 Prof. Viola Vogel, ETH Zurich
Mechanobiology at the single molecule level
- 10:00 Prof. Erich Sackmann, TU/LMU Munich
How molecular forces guide the global polar cell migration
-

10:20 - 10:50 Coffee break and time for poster viewing

10:45 Paul Koza, LMU Munich: best experiments part 1

Chairperson – Prof. Christiane Helm

- 10:50 Prof. Ed Bayer, The Weizmann Institute of Science
Cellulosomes
- 11:10 Prof. Dieter Braun, LMU Munich
Emergence of Replication
- 11:30 Prof. Helmut Grubmüller, Max Planck Institute, Göttingen
Once upon a force...
-

11:50 - 13:30 Lunch and time for poster viewing

13:10 Paul Koza, LMU Munich: best experiments part 2

Chairperson – Prof. Josef Käs

- 13:30 Prof. Roland Netz, FU Berlin
Stretching water: How plants avoid embolies at negative pressures
- 13:50 Dr. Günther Gerisch, Max Planck Institute, Martinsried
Dynamic patterns of the cell membrane and actin cortex
- 14:10 Prof. Michael Nash, University of Basel/ETH Zurich
Quantifying Dual Binding Modes of a Mechanostable Adhesion Complex

14:30 - 15:00 Coffee break and time for poster viewing

14:55 Paul Koza, LMU Munich: best experiments part 3

Chairperson – Dr. Martin Benoit

15:00 Prof. Jürgen Rabe, HU Berlin

Between two faces – a gap to act and stretch the imaginable

15:20 Prof. Ulrich Hofmann, University of Freiburg

Connecting to brains - Electroceuticals are coming!

15:40 Prof. Hongbin Li, University of British Columbia

Mechanical Design Governs the Efficient Translocation of Bacterial Toxin RTX Proteins

16:00 - 16:50 Coffee break and time for poster viewing

16:20 Paul Koza, LMU Munich: best experiments part 4

Chairperson – Prof. Christoph Bräuchle

16:50 Prof. Tim Liedl, LMU Munich

DNA origami force clamps: Stretching billions of molecules at a time

17:10 Prof. Zaida Luthey-Schulten, University of Illinois

Modeling the minimal cell: Integration of experiments, theory, and simulations

17:30 Dr. Benjamin Gaub, ETH Zurich

FullCircle

17:50 Prof. Hermann E. Gaub

Concluding remarks

18:10 Informal discussions (open end)



SFB1032 nano
agents

Forces in **SFB**₈₆₃
Biomolecular Systems



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