

# Bad Honnef Physics School

Supported by the Wilhelm and Else Heraeus-Foundation

## Advanced microscopy – physical concepts and impacts in life sciences

11 – 16 June, 2017, Physikzentrum Bad Honnef, Germany

Joerg Bewersdorf (Yale University), Christian Eggeling (Oxford University)

The school covers fundamentals as well as recent developments in modern microscopy research with a focus on biological applications. Topics include the physical foundations (geometrical and wave optics, fluorescence) and a comprehensive overview of the latest techniques including super-resolution microscopy (single-molecule approaches like PALM and STORM, targeted switching approaches like STED and RESOLFT, structured illumination microscopy), light-sheet, non-linear microscopy, plasmonics, label-free microscopy, force measurements, X-ray and electron microscopy, correlative microscopy and image processing. Additionally, examples of their biological application and insights into the industry landscape and career paths are discussed.

The target audience are doctoral and Master's students but the School is also open to individuals at a more advanced stage of their career. A physics background is assumed.

### Topics and speakers:

- Geometrical optics - Joerg Bewersdorf (Yale University)
- Wave optics - Martin Booth (Oxford University)
- Fluorescence and labeling - Christian Eggeling (Oxford University)
- STED and RESOLFT - Katrin Willig (Max Planck Institute for Experimental Medicine)
- SMS (PALM/STORM/...) - Aleksandra Radenovic (EPF Lausanne)
- Structured Illumination and Light Sheet Microscopy Hari Shroff (National Institutes of Health)
- Measuring molecular dynamics - Michelle Digman (UC Irvine)
- Non-linear microscopy and plasmonics - Gail McConnell (University of Strathclyde)
- Label-free microscopy - Philipp Kukura (Oxford University)
- Force microscopy and spectroscopy - Eric Dufresne (ETH Zurich)
- X-ray microscopy - Sarah Koester (University of Goettingen)
- EM + correlative imaging - Kay Gruenewald (Oxford University)
- Image processing and quantification - Susan Cox (King's College London)
- Challenges in Biological Applications Bewersdorf/Eggeling
- Advanced imaging using metal surface Joerg Enderlein (University of Goettingen)
- Working as a Microscopist in Industry - to be determined

### Fees:

Covering full board and lodging at the Physikzentrum Bad Honnef  
200 € (for DPG members 100 €).



Physikzentrum Bad Honnef

Application & more information:

[www.pbh.de](http://www.pbh.de)

Deutsche Physikalische Gesellschaft

