Developments in Advanced Microscopy and Spectroscopy Methods for Medicine

780. WE-Heraeus-Seminar

12 – 16 February 2023

at the Physikzentrum Bad Honnef, Germany

WILHELM UND ELSE
HERAEUS-STIFTUNG

Program

Sunday, 12 February 2023

16:00 – 20:00	Registration	
18:00	*BUFFET SUPPER and informal get-together*	
19:30	Scientific organizers	**Welcome words**
19:40	Hermann Einsele	**tba**

Monday, 13 February 2023

08:00	*BREAKFAST*	
08:55 – 09:10	Joachim Heberle	**Introduction**
09:10 – 10:00	Marloes Groot	**Translation of higher harmonic generation microscopy into the clinic for tumor tissue assessment**
10:00 – 10:50	Leif Schröder	**Hyperpolarized Xenon NMR for exploring molecular host cavities and advancing MR imaging**
10:50 – 11:20	*COFFEE BREAK*	
11:20 – 11:40	Jer-Shing Huang	**Chiral structured illumination microscopy for simultaneous imaging of chiral and achiral domains**
11:40 – 12:30	Katerina Kanevche	**Infrared nanoscopy and tomography of intracellular structures: glimpse inside cells with infrared light**
12:30	*LUNCH*	

Program

Monday, 13 February 2023

14:00 – 14:50	Jan Becker	**Unlabeled detection of biomolecules through mass photometry**
14:50 – 15:40	Werner Mäntele	**Novel infrared techniques for medical applications**
15:40 – 16:00	Karsten Niehaus	**Imaging small molecules in tissues and single cells by Mass Spectrometry Imaging (MSI)**
16:00 – 16:30	*COFFEE BREAK*	
16:30 – 18:30	**Poster session**	
18:30	*DINNER*	

Program

Tuesday, 14 February 2023

08:00	*BREAKFAST*	
08:55 – 09:10	Markus Sauer	**Introduction**
09:10 – 10:00	Gabriele Kaminski Schierle	**A small molecule drug inhibits Aβ1-42 aggregation and cellular thermogenesis.**
10:00 – 10:50	Mike Heilemann	**Exploring the inner workings of cells with super-resolution fluorescence microscopy**
10:50 – 11:00	**Conference Photo** (in the front of the lecture hall)	
11:00 – 11:20	*COFFEE BREAK*	
11:20 – 11:40	Christina Verbruggen	**dSTORM imaging of chimeric antigen receptors on the T cell membrane**
11:40 – 12:30	Nils Brose	**Dynamic regulation of presynaptic function and plasticity in health and disease**
12:30	*LUNCH*	

Program

Tuesday, 14 February 2023

14:00 – 14:50	Jennifer Lippincott-Schwartz	**Looking under the hood of cells: from single molecule dynamics to whole cell organelle reconstructions**
14:50 – 15:40	Gerhard Schütz	**Following T cell antigen recognition molecule by molecule**
15:40 – 16:00	Gerti Beliu	**Bioorthogonal click chemistry enables site-specific fluorescence labeling for quantitative super-resolution imaging**
16:00 – 16:30	*COFFEE BREAK*	
16:30 – 17:20	Silvio Rizzoli	**Expansion microscopy at one nanometer resolution**
17:20 – 17:40	Christian Franke	**Unraveling the nanoscale Fate of mRNA Vaccines by multi-colour dSTORM**
17:40 – 18:00	Stefan Jorda	**About the Wilhelm and Else Heraeus-Foundation**
18:30	*HERAEUS DINNER* *(social event with cold & warm buffet with complimentary drinks)*	

Program

Wednesday, 15 February 2023

08:00	*BREAKFAST*	
08:55 – 09:10	Tilman Kottke	**Introduction**
09:10 – 10:00	Olav Schiemann	**Pulsed dipolar EPR spectroscopy: Following conformational changes of biomacromolecules with time and in cells**
10:00 – 10:50	Philipp Selenko	**Looking at proteins in live cells with atomic resolution: From science fiction to science reality**
10:50 – 11:20	*COFFEE BREAK*	
11:20 – 11:40	Lukas Gött-Zink	**In-cell infrared difference spectroscopy on blue light receptors in living cells**
11:40 – 12:30	Ute Neugebauer	**Raman spectroscopy as emerging method in clinical spectroscopic diagnostic of infections**
12:30	*LUNCH*	

Program

Wednesday, 15 February 2023

14:00 – 14:50	Marc Baldus	**Probing the conformational landscape of biomolecules in situ using NMR spectroscopy**
14:50 – 15:40	Martina Meinke	**Application of electron paramagnetic resonance (EPR) spectroscopy in dermatology**
15:40 – 16:00	Ulrike Alexiev	**Advanced biophysical visualization methods for nanomedicine and theranostics**
16:00 – 16:30	*COFFEE BREAK*	
16:30 – 17:20	Thomas Huser	**Multiscale fluorescence imaging of the liver - from the mesoscale to the nanoscale**
17.20 – 17.40	Sven Thoms	**High-end microscopy of peroxisomes**
17:40 – 18:30	**Discussion and outlook**	
18:30	*DINNER*	

Thursday, 16 February 2023

08:00	*BREAKFAST*

End of the seminar and departure