Sensing with Quantum Light

845. WE-Heraeus-Seminar

07 Dec - 10 Dec 2025
at the Physikzentrum Bad Honnef, Germany

WILHELM UND ELSE
HERAEUS-STIFTUNG

Program

Sunday, December 7, 2025

17:00 – 21:00	Registration
18:00	*BUFFET SUPPER and informal get-together*

Program

Monday, December 8, 2025

07:30	*BREAKFAST*	
08:30 – 08:45	Scientific organizers	**Opening Remarks**
08:45 – 09:20	Dan Oron	**Massively multiplexed photon correlation sensing**
09:20 – 09:55	Andrei Nomerotski	**Two-photon interference with massive spectral multiplexing and other applications of fast single photon sensitive cameras**
09:55 – 10:30	Bohmishikha Ghosh	**Utilizing structured waves: From observing anomalous transverse local momenta to quantum information processing**
10:30 – 11:00	*COFFEE BREAK*	
11:00 – 11:35	Daniel I. Herman	**Dual-comb interferometry: practical classical sensing approaches and novel quantum-enhanced techniques**
11:35 – 12:10	Juan P. Torres	**Optical coherence tomography in a nonlinear interferometer**
12:10	*LUNCH*	
14:00 – 14:35	Ady Arie	**Generation of structured quantum light and its applications in sensing and communication**
14:35 – 15:10	Maria Bondani	**Superthermal optical states: Generation, statistical characterization, and applications in correlated Imaging**
15:10 – 15:40	*COFFEE BREAK / Discussion*	

Program

Monday, December 8, 2025

15:40 – 15:55	Stefan Jorda	**About the Wilhelm and Else Heraeus Foundation**
15:55 – 16:35	**Poster Pitch I**	
16:35 – 18:15	**Poster Session I**	
18:15 – 19:30	*DINNER*	
19:30	**“Tracing Light” film screening and forum**	

Program

Tuesday, December 9, 2025

07:30	*BREAKFAST*	
08:30 – 09:05	Perola Milman	**Resources for bosonic metrology: quantum-enhanced precision from single photons to continuous variables**
09:05 – 09:40	Marco Barbieri	**Quantum metrology: making it work when it should not**
09:40 – 10:15	Benjamin Sussman	**Ultrafast Quantum Photonics: Beating Decoherence with Fast Light Pulses**
10:15 – 10:45	*COFFEE BREAK*	
10:45 – 11:20	Frank Setzpfandt	**Quantum Imaging with high resolution**
11:20 – 11:55	Brian Smith	**Challenges in Fluorescence-Detected Entangled Two-Photon-Absorption Experiments: Exploring the Low-to-High-Gain Squeezing Regimes**
11:55 – 12:10	***Conference photo***	
12:10 – 13:30	***LUNCH***	
13:30 – 16:00	**Hike to the ‚Drachenfels' is planned**	
16:00 – 16:40	**Poster Pitch II**	
16:40 – 18:20	**Poster Session II**	
18:20	*HERAEUS DINNER at the Physikzentrum* *(cold and warm buffet, with complimentary drinks)*	

Program

Wednesday, December 10, 2025

07:30	*BREAKFAST*	
08:45 – 09:20	Milena D'Angelo	**Correlation imaging, from 3D to hyperspectral**
09:20 – 09:55	Nicolas Treps	**Estimation of multiple parameters encoded in the modal structure of light**
09:55 – 10:30	Benjamin Brecht	**Generating, controlling and harnessing pulsed quantum light based on nonlinear integrated optics**
10:30 – 11:00	*COFFEE BREAK*	
11:00 – 11:35	Avi Pe'er	**Quantum matched filtering: breaking time-energy separability by 12 orders of magnitude**
11:35 – 12:10	Zheshen Zhang	**Quantum Measurement and Sensing Enhanced by AI and Entanglement**
12:10 – 12:30	Scientific organizers	**Poster prizes, closing remarks, outlook**
12:30	*LUNCH*	

End of the seminar and departure

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