Optical Nanofibre Applications: From Quantum to Biotechnologies (ONNA 2025)

829. WE-Heraeus-Seminar

16 – 21 March 2025

at the Physikzentrum Bad Honnef, Germany



Sunday, 16 March 2025

17:00 – 21:00 Registration

18:00 BUFFET SUPPER and informal get-together

Monday, 17 March 2025

08:00	BREAKFAST	
08:45 – 09:00	Scientific organizers	Opening Comments
09:00 – 09:45	Frank Vollmer	A single-molecule technology for decoding protein biophysics
09:45 – 10:30	Nikita Toropov	Spherical microresonators: From thermo-optoplasmonic single-molecule sensing to cavity quantum electrodynamics effects
10:30 – 11:00	COFFEE BREAK	
11:00 – 11:45	Stephan Goetzinger	Efficient generation and manipulation of single photons with a single molecule
11:45 – 12:30	Witlef Wieczorek	Microcavity optomechanics with suspended photonic crystal reflectors
12:30	LUNCH	

Monday, 17 March 2025

14:00 – 14:20	Antonio Balena	Fabrication and characterization of deterministic metal nanostructures on tapered optical nanofibers by blurred electron beam-induced deposition
14:20 – 14:40	Maarten Hoogerland	States of light generated by cold atoms and mediated by optical nanofibres
14:40 – 15:00	Minsu Jang	Fabrication and characterization of large millimeter-scale microbubble cavities with high Q-factor
15:00 – 15:20	Rusi Lu	Small-molecule ice micro/nano fibers
15:20 – 15:30	Conference photo	
15:30 – 16:00	COFFEE and TEA BRE	AK
16:00 – 16:45	Constanze Bach	Emergence of second-order coherence in superfluorescence
16:45 – 17:30	Robert Loew	Hot vapor spectroscopy with integrated photonic waveguides
17:30 – 17:45	Stefan Jorda	About the WE-Heraeus-Foundation
17:45 – 18:30	Discussion	
18:30	DINNER	
19:30 – 20:30	Poster Flash talks I	
Open end	Poster I	

Tuesday, 18 March 2025

08:00	BREAKFAST	
09:00 – 09:45	Pascal Del'Haye	Integrated photonics with low temperature SiN and visualization of microresonator modes
09:45 – 10:30	Hong Tang	High Purcell photonic resonators for light-atom coupling
10:30 – 11:00	COFFEE BREAK	
11:00 – 11:45	Alper Kiraz	Advancing biological imaging: From light sheet microscopy to deep learning-enhanced solutions
11:45 – 12:30	Lan Yang	Whispering-gallery microresonators sensors: Fundamentals and applications
12:30	LUNCH	
14:00 – 14:30	Mark Sadgrove	Electron beam methods for optical nanofibers
14:30 – 15:00	Sylvie Lebrun	Study of self-heated tapered silica microfibers by laser
15:00 – 15:30	Abraham Qavi	Controlling light to reimagine clinical diagnostics

15:30 – 16:00 COFFEE and TEA BREAK

Tuesday, 18 March 2025

16:00 – 16:45	Aswathy Raj	Rydberg atom interactions at the interface of an optical nanofiber
16:45 – 17:30	Sebastian Hofferberth	Rydberg quantum optics meet nanofibers
17:30 – 18:30	Discussion	
18:30	DINNER	
19:30 – 20:30	Poster Flash Talks II	
Open end	Posters II	

Wednesday, 19 March 2025

08:00 BREAKFAST

09:00 – 09:45	Beatriz Olmos Sanchez	Modified dipole-dipole interactions in the presence of a nanophotonic waveguide
09:45 – 10:30	Alexander Poddubny	Non-hermitian skin effect in waveguide quantum electrodynamics
10:30 – 11:00	COFFEE BREAK	
11:00 – 11:45	Tal Carmon	Optical resonators of many phases of matter
11:45 – 12:30	Yulia Semenova	Recent advances in sensing with optical fibre microresonators
12:30	LUNCH	
14:00 – 18:30	Excursion	
18:30	DINNER	
19:30 – 20:15	Kerry Vahala	The new integrated high-Q landscape
Open end	Discussion	

Thursday, 20 March 2025

08:00	BREAKFAST	
09:00 – 09:45	Thomas Pohl	Non-equilibrium phases of dipole- coupled quantum emitters
09:45 – 10:30	Lucia Hackermueller	Bayesian sensing and photon storage using atoms in a fibre void
10:30 – 11:00	COFFEE BREAK	
11:00 – 11:45	Hadiseh Alaeian	Rydberg photonics
11:45 – 12:30	Jean-Charles Beugnot	Nanofiber platform to manipulate photons and phonons
12:30 – 14:00	LUNCH	
14:00 – 14:30	Ahreum Lee	Atomic arrays with tunable spacing coupled to an optical nanofiber
14:30 – 15:00	Alban Urvoy	Optical routing with arrays of cold atoms around a nanofiber
15:00 – 15:30	Saijun Wu	Toward optical spin-wave control at a ferromagnetic 2D-MOT optical naofiber interface

15:30 – 16:00 COFFEE and TEA BREAK

Thursday, 20 March 2025

16:00 – 16:45	Silvia Soria	Microbubble Resonators based Photoacoustic Detection and Characterization of Flowing Contrast Agents in Real Matrixes.
16:45 – 17:30	Alejandro Gonzalez-Tudela	Generating and controlling propagating quantum states of light with waveguide QED
17:30 – 18:00	Poster Prize Award	
18:00	HERAEUS DINNER (social event with cold & wa	rm buffet with complimentary drinks)

Friday, 21 March 2025

08:00	BREAKFAST	
09:00 – 09:45	Takao Aoki	Nanofiber cavity quantum electrodynamics systems for distributed quantum computing
09:45 – 10:30	Chen-Lung Hung	Collective emission from a dense atomic ensemble coupled to a nanophotonic resonator
10:30 – 11:00	COFFEE BREAK	
11:00 – 11:45	Hanna Le Jeannic	Photon-photon interactions using single solid-state emitters and waveguides
11:45 – 12:30	Anders Sørensen	Quantum computation based on photon-emitters in waveguide
12:30 – 12:45	Scientific organizers	Closing remarks
12:45	LUNCH	

End of the seminar

Departure

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