

Cavity Control: From Condensed Matter to Ultracold Atoms

846. WE-Heraeus-Seminar

14 - 18 December 2025

at the Physikzentrum Bad Honnef, Germany

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Sunday, 14 December 2025

17:00 - 21:00 Registration

18:30 - 20:00 *BUFFET SUPPER and informal get-together*

Program

Monday, 15 December 2025

07:30 - 09:00	<i>BREAKFAST</i>	
09:00 - 9:40	Richard Warburton	A quantum dot in an open microcavity
9:40 - 10:20	Tracy Northup	t.b.a
10:20 - 10:30	CONFERENCE PHOTO (in front of the main entrance)	
10:30 - 10:50	<i>COFFEE BREAK</i>	
10:50 - 11:30	Francesco Piazza	Non-equilibrium as a resource: Non-thermal steady-states of cavity-quantum-materials
11:30 - 12:10	Olivier Morin	Single atoms in a cavity: A platform for graph states generation
12:10 - 12:40	Francois Damanet	Controlling Matter Phases beyond Markov
12:40 - 14:00	<i>LUNCH</i>	
14:00 - 14:40	Ana Maria Rey	New frontiers in quantum simulation and sensing via cavity mediated interactions
14:40 - 15:10	Mikolaj Schmidt	Molecular optomechanics: cavity control of molecular vibrations
15:10 - 15:40	<i>COFFEE BREAK</i>	
15:40 - 16:20	Parvinder Solanki	Universal relaxation speedup in open quantum systems through transient conditional and unconditional resetting

Program

Monday, 15 December 2025

16:20 - 17:30	Poster flash
17:30 - 18:30	Poster Session 1
18:30 - 20:00	<i>HERAEUS-DINNER</i>
20:00 - 21:00	Poster Session 1

Program

Tuesday, 16 December 2025

07:30 - 09:00 *BREAKFAST*

09:00 - 9:40 Sylvain Ravets Exploring Multiband Topology in
Exciton-Polariton Lattices

9:40 - 10:20 Cristiano Ciuti Recent theoretical advances on cavity-
controlled quantum materials and
circuits

10:20 - 10:50 *COFFEE BREAK*

10:50 - 11:30 Cristina Benea-
Chelmus On-chip measurements of cavity-
confined fields

11:30 - 12:10 Frieder Lindel Cavity control in multimode
nanophotonic resonators

12:10 - 12:40 Michael Spencer Electro-Optic Cavities for THz Cavity
Electrodynamics

12:40 - 14:00 *LUNCH*

14:00 - 18:30 Christmas Market

18:30 - 20:00 *DINNER*

20:00 - 20:15 Stefan Jorda About the Wilhelm and Else Heraeus
Foundation

20:15 - 21:00 Dan Stamper-Kurn Cavity control and measurement of
mesoscopic atomic systems

Program

Wednesday, 17 December 2025

07:30 - 09:00	<i>BREAKFAST</i>	
09:00 - 09:40	Jean Philippe Brantut	Fermi gases with cavity-mediated interactions
09:40 - 10:20	Corinna Kollath	Dynamics of interacting atoms in an optical cavity
10:20 - 10:50	<i>COFFEE BREAK</i>	
10:50 - 11:30	Jonathan Simon	Quantum Science in Cavity Arrays
11:30 - 12:00	Ameneh Sheikhan	Fluctuation-Induced Bistability of Fermionic Atoms Coupled to a Dissipative Cavity
12:00 - 12:30	Maximilian Pruefer	A continuous-wave cavity microscope
12:30 - 14:00	<i>LUNCH</i>	
14:00 - 14:30	Hamid Pashaei Adl	Exploring Strong Light–Matter Coupling and Polariton Condensation in Quasi-2D Perovskites at Room Temperature
14:30 - 15:00	Tomasz Wasak	Engineering interactions by collective coupling of atom pairs to cavity photons for entanglement generation
15:00 - 15:30	<i>COFFEE BREAK</i>	
15:30 - 16:00	Gian-Marco Schnüriger	Quantum correlations of exciton polaritons
16:00 - 16:30	Olivier Bleu	Resonantly enhanced polariton-mediated superconductivity in a monolayer semiconductor

Program

Wednesday, 17 December 2025

16:30 - 17:30 Discussion Time

17:30 – 18:30 Poster Session 2

18:30 - 20:00 *DINNER*

20:00 - 21:00 Poster Session 2

Program

Thursday, 18 December 2025

07:30 - 09:00 *BREAKFAST*

09:00 - 09:40 Angela Montanaro Cavity electrodynamics of quantum materials in terahertz Fabry-Pérot resonators

09:40 - 10:20 Michael Sentef Towards cavity control of superconductivity

10:20 – 10:50 *COFFEE BREAK*

10:50 - 11:30 Tobia Nova Cavity-Driven Attractive Interactions in Two-Dimensional Quantum Materials

11:30 - 12:00 Olesia Dmytruk Probing fermion parity switching points in the Kitaev chain with cavity embedding

12:00 - 12:30 Peter Kirton PT Symmetry Breaking in an LMG Dimer

12:30 - 12:40 Poster prize and closing remarks

12:40 - 14:00 *LUNCH*

End of the seminar and departure