

Quantum Control of Light

783. WE-Heraeus-Seminar

**28 Mar - 31 Mar 2023
at the Physikzentrum Bad Honnef/Germany**

The WE-Heraeus Foundation supports research and education in science, especially in physics.
The Foundation is Germany's most important private institution funding physics.

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Tuesday, 28 March 2023

16:00 – 20:00	Registration	
From 18:00	<i>BUFFET SUPPER</i>	
19:30 – 19:45	Scientific organizers	Welcome / Introduction
19:45 – 20:00	Stefan Jorda	About the Wilhelm and Else Heraeus Foundation
Open end	Discussion	

Wednesday, 29 March 2023

08:00	<i>BREAKFAST</i>	
09:00 – 09:40	Jaqueline Bloch	Kardar Parisi Zhang Universal Scaling in the Coherent Emission of Polariton Condensates
09:40 – 10:20	Janne Ruostekoski	Interaction of Light with Planar Atomic Arrays
10:20 – 11:00	Jonathan Simon	Making & Probing Photon Fluids and Solids
11:00 – 11:30	<i>COFFEE BREAK</i>	
11:30 – 12:30	Poster Flash 1	
12:30 – 12:40	Conference photo	
12:40	<i>LUNCH</i>	

Program

Wednesday, 29 March 2023

14:00 – 14:40	Susanne Yelin	Cooperative Arrays: A novel Quantum Tool
14:40 – 15:20	Charles S. Adams	Seeing the invisible: Rydberg Atoms as an Interface to the Optical
15:20 – 16:00	Anders S. Sørensen	Strongly Interacting Photons based on two-level Systems coupled to Waveguides: one, two, many
16:00 – 16:30	<i>COFFEE BREAK</i>	
16:30 – 17:10	Stephan Dürr	A Quantum-Logic Gate between two Optical Photons with an Average Efficiency above 40%
17:10 – 17:50	Darrick Chang	The Ultimate Limits to Refractive Index: From Quantum Optics to Quantum Chemistry
17:50 – 18:30	Ofer Firstenberg	Quantum Vortices of Strongly Interacting Photons
18:30	<i>HERAEUS DINNER at the Physikzentrum (cold & warm buffet, with complimentary drinks)</i>	
19:30 – 20:10	Christine Silberhorn	Controlling the Temporal Modes of Pulsed Quantum Light
Open end	Poster Session 1 / Discussion	

Program

Thursday, 30 March 2023

08:00	<i>BREAKFAST</i>	
09:00 – 09:40	Jeff Thompson	Indistinguishable Single Photons from a Single Er³⁺ ion
09:40 – 10:20	Ana Maria Rey	Emergent Entangled Dark States from Superradiance Emission in Multi-Level Atoms
10:20 – 11:00	Robin Kaiser	Resonant Dipole-Dipole Interactions: Dicke Subradiance and Anderson Localisation
11:00 – 11:30	<i>COFFEE BREAK</i>	
11:30 – 12:30	Poster Flash 2	
12:30	<i>LUNCH</i>	
14:00 – 14:30	Doerte Blume	Photon-Induced Droplet-like Bound States in One-Dimensional Qubit Array
14:30 – 15:00	Sophie Hermans	Entangling Remote Qubits using the Single-Photon Protocol: An in-depth Theoretical and Experimental Study
15:00 – 15:30	Alexei Ourjoumtsev	Quantum Engineering of Light with an Intracavity Rydberg Superatom
15:30 – 16:00	Wenchao Xu	Repulsive Photons in a Quantum Nonlinear Medium
16:00 – 18:30	Excursion Drachenfels	
18:30	<i>DINNER</i>	
19:30 – 20:10	Arno Rauschenbeutel	Observation of Superradiant Bursts in Waveguide Quantum Electrodynamics
Open end	Poster Session 2 / Discussion	

Program

Friday, 31 March 2023

08:00	<i>BREAKFAST</i>	
09:00 – 09:40	Julian Leonard	From Quantum Gas Microscopy to Photon-Mediated Interactions
09:40 – 10:20	Beatrix Olmos-Sanchez	Dispersionless Subradiant Photon Storage in one-dimensional Emitter Chains
10:20 – 11:00	Antoine Browaeys	Collective Light Scattering in Cold Atomic Ensembles: Super-Radiance & Driven Dicke Model
11:00 – 11:20	<i>COFFEE BREAK</i>	
11:20 – 12:00	Alexander Poddubny	Subradiant States in Waveguide Quantum Electrodynamics
12:00 – 12:40	Nina Stiesdal	Waveguide QED with Rydberg Superatoms
12:40 – 12:50	Scientific Organizers	Closing remarks and poster awards
12:50	<i>LUNCH</i>	

End of seminar and departure

NO DINNER for participants leaving on Saturday!