

Intergroup Retreat Program
Obergurgl 20-22 February 2023

Monday 20 February 2023		
09:15-10:00	Arrival + Registration	
10:00-10:30	Coffee	
10:30-11:00	Farokh Mivehvar (Ritsch group) <i>Density-wave self-ordering in a strongly correlated Fermi gas with photon-mediated long-range interactions</i>	Session Chair: Thomas Agrenius
11:00-11:30	Natalia Masaleva (Ritsch group) <i>Shaping the interatomic interactions in a multimode cavity: from non-rigid supersolid to droplets</i>	
11:30-12:00	Arkadiusz Kosior (Ritsch group) <i>Quantum many-body dynamics of cavity QED systems: time crystals, gauge fields and flat bands</i>	
12:00-15:45	Lunch + Discussions + Skiing	
15:45-16:15	Coffee	
16:15-17:00	Thomas Agrenius (Romero-Isart group) <i>Decoherence by thermal radiation in levitated nanoparticles</i>	Session Chair: Zhongda Zeng
17:00-17:45	Carlos Gonzalez-Ballester and Silvia Casulleras (Romero-Isart group) <i>Pulse design for quantum optics and magnonics</i>	
17:45-18:30	Poster Flash Presentations	Session Chair: Piotr Grochowski
18:30-20:00	Dinner	
20:00-22:00	Poster Session (together with Kirchmair group) / Socials	

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Tuesday 21 February 2023			
09:00-09:45	Ian Yang (Kirchmair group) <i>Garfield states in a high Q cavity with superconducting circuits</i>	Joint Session with Kirchmair group	Session Chair: Joey Li
09:45-10:30	Kseniia Vodenkova (Pichler group) <i>Delayed coherent quantum feedback and one-dimensional cascaded chains</i>		
10:30-10:45	Coffee		
10:45-11:30	Karol Gietka (Ritsch group) <i>Unique Steady-State Squeezing in a Driven Quantum Rabi Model</i>	Joint Session with Kirchmair group	Session Chair: Joey Li
11:30-12:15	Marc Rodà-Llordés and Andreu Riera-Campenya (Romero-Isart group) <i>Macroscopic Quantum Mechanics in a Static Double-Well Potential</i>		
12:15-16:30	Lunch + Discussions + Skiing		
16:30-17:00	Coffee		
17:00-17:45	Joey Li (Pichler group) <i>Variational dynamics in constrained spin systems: A model for quantum scars</i>	Session Chair: Karol Gietka	
17:45-18:30	Laurin Ostermann (Ritsch group) <i>Radiating Arrays, Bistability and a Minimalist Laser: Three Pitches for Inter-Group Collaborations</i>		
18:30-20:00	Dinner		
20:00-22:00	Poster Session / Socials		

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Wednesday 22 February 2023		
09:15-10:00	Carlos Gonzalez-Ballester (Romero-Isart group) <i>Quantum Light-Matter Interaction with a Dielectric Sphere: Theory and Applications</i>	Session Chair: Raphael Holzinger
10:00-10:30	Coffee	
10:30-11:00	Tatiana Vovk (Pichler group) <i>En route to optimization of master equation unravellings</i>	
11:00-11:30	Francesco Cesa (Pichler group) <i>Efficient generation of loss tolerant graph states with a single emitter and feedback</i>	Session Chair: Raphael Holzinger
11:30-12:00	Roberto Tricarico (Pichler group) <i>Transient dynamics in Rydberg-EIT</i>	
12:00-15:45	Lunch + Discussions + Skiing + Departure	

List of posters

1. Thomas Agrenius (Romero-Isart group)
Interaction between an optically levitated nanoparticle and its thermal image: internal thermometry via displacement sensing
2. Anna Bychek (Ritsch group)
Superradiant laser with intrinsic light force generated inversion
3. Davide Candoli (Romero-Isart group)
Towards high-orbital angular momentum quantum states of a levitated nanoparticle
4. Martin Fasser (Ritsch group)
A Superradiant laser based on a thermal atomic beam

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5. Charles Fromonteil (Pichler group)
Robust Rydberg entangling gates
6. Piotr Grochowski (Romero-Isart group)
Quantum control of atomic motion via optimization of potential landscape
7. Raphael Holzinger (Ritsch group)
Efficient storage and manipulation of many photons
8. Katja Kustura (Romero-Isart group)
Optimized potentials for macroscopic quantum mechanics
9. Moser Julian (Ritsch group)
Symbolic Summations in QuantumCumulants.jl
10. Verena Scheil (Ritsch group)
Optical Properties of Concentric Nanorings of Quantum Emitters
11. Judith Senn (Romero-Isart group)
Optimization of wave propagation for wave-based information processing

