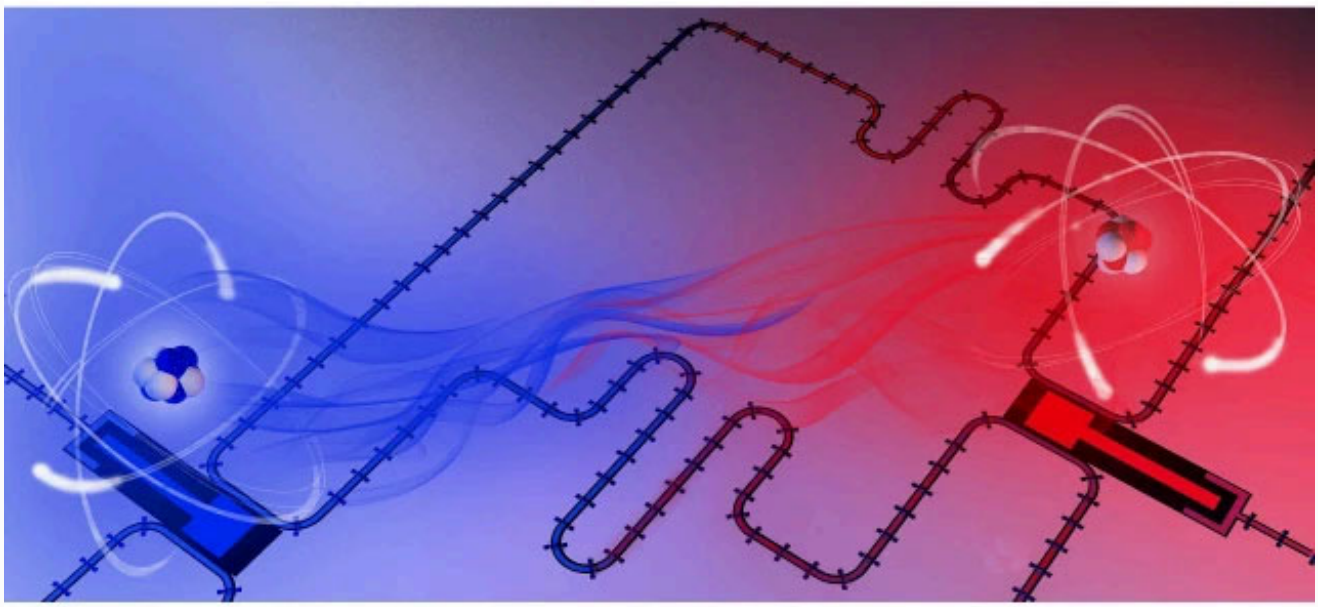
Workshop ● The event has passed

2nd International Workshop on Quantum Optics with Giant Atomic Emitters



Credit: Krantz NanoArt

Welcome to Chalmers University of Technology and the workshop on Quantum Optics with Giant Atomic Emitters.

Overview

● The event has passed

Date:
Starts 4 December 2024, 09:00
Ends 6 December 2024, 15:30

Location:
PJ-salen, Origo, Physics building

Language:
English

Last sign up date:
31 October 2024

Sign up

Following the first workshop on giant atomic emitters in Zürich 2023, we are excited to welcome everyone in the community to a gathering where the field of giant atoms got its start a decade ago. The aim is for this workshop to become a biannual event.

Giant atomic emitters have a spatial extent that is non-negligible compared to the wavelength of the electromagnetic radiation or sound they interact with, usually by coupling to such a field at multiple points. Until a first experiment at Chalmers University of Technology in 2014, this was a scenario rarely encountered in the study of light-matter interactions. Giant atomic emitters challenge standard approximations in quantum optics, such as the electric dipole approximation or the Markov approximation. Moreover the emission and absorption at the multiple coupling points leads to interference effects that both can modify well-known quantum-optics effects and give birth to new phenomena not seen with small atoms. The relatively young research field studying giant atoms in quantum optics has made many interesting discoveries in recent years, both in theory and experiment. This workshop aims to bring together the giant-atom community, from senior researchers to research students, to identify current trends and to discuss future directions of the field.

Organisers:

Anton Frisk Kockum, Ariadna Soro Álvarez, Guangze Chen

Confirmed Speakers

Schedule

Wednesday 4 December

09:00-09:30	Registration, mingle
09:30-09:40	Opening of the workshop
09:40-10:20	**Christopher Wilson**, University of Waterloo. Engineering giant atoms with superconducting circuits
10:20-10:50	Coffee
10:50-11:30	**Simone Gasparinetti**, Chalmers University of Technology Waveguide quantum thermodynamics with superconducting circuits
11:30-12:10	**Aziza Almanakly**, MIT Deterministic remote entanglement using a chiral quantum interconnect
12:10-13:30	Lunch
13:30-14:10	**Xin Wang**, Xi'an Jiaotong University Nonlinear waveguide QED with giant atoms

14:10-14:50	**Yaotong Chen,** ICFO - The Institute of Photonic Sciences Rydberg Giant Atoms in the Optical Regime
14:50-15:30	**Tomás Levy-Yeyati,** Institute of Fundamental Physics IFF-CSIC Two-Photon Physics and Quantum Gates with Two-Level Emitters
15:30-16:00	Group photo, coffee
16:00-16:40	**Federico Roccati**, Max Planck Institute for the Science of Light Controlling Markovianity with Chiral Giant Atoms
16:40-17:20	**Chaitali Joshi,** Google Research/ Caltech A chiral light-matter interface for superconducting qubits
19:00	Conference dinner, Villa Belparc

Thursday 5 December

09:00-09:40	**Francesco Ciccarello**, University of Palermo, Italy Emission of (giant) atoms under an electric field
09:40-10:20	**Lei Du**, Chalmers University of Technology Giant emitters meet the non-Hermitian skin effect
10:20-10:50	Coffee
10:50-11:30	**Zhihai Wang**, Northeast Normal University Bound states and dynamics in giant atom waveguide QED system
11:30-12:10	**Luca Leonforte**, University of Salerno Quantum optics with giant atoms in a structured photonic bath
12:10-12:35	**Enrico Di Benedetto**, Università degli Studi di Palermo Quantum Optics near photonic Flat Bands
12:35-14:00	Lunch
14:00-15:00	Discussion time
15:00-15:20	Coffee
15:20-16:00	**Marco Scigliuzzo**, EPFL Compact High Impedance Cavity Array Collectively Coupled to a Qubit
16:00-16:40	**Jian-Qiang You**, Zhejiang University Giant spin ensembles in waveguide magnonics

16:40-17:20	**Philipp Treutlein**, University of Basel Coupling quantum systems with a laser loop

Friday 6 December

09:00-09:40	**Kseniia Vodenkova**, University of Innsbruck Continuous Coherent Quantum Feedback with Time Delays: Tensor Network Approach
09:40-10:20	**Lingzhen Guo**, Tianjin University, China Giant Atom with Disorder
10:20-10:50	Coffee
10:50-11:30	**Franco Nori,** RIKEN and University of Michigan Nonlinear chiral quantum optics with giant-emitter pairs
11:30-12:10	**Göran Johansson**, Chalmers University of Technology Scattering from one and more atoms in waveguide QED
12:10-13:30	Lunch
13:30-14:10	**David Zueco**, Instituto de Nanociencia y Materiales de Aragón (INMA) CSIC-Unizar A Cavity as a Giant Impurity: Inducing Spin Localization through Bound Polaritons
14:10-14:35	**Maryam Khanahmadi**, Chalmers University of Technology Production of Schrödinger Cat and Pair-Cat State Quantum Wave Packets by Reservoir Engineering
14:35-15:00	**Vincent Jouanny**, EPFL/HQC Directional emission in a giant atom superstrongly coupled to a high-impedance cavity array.
15:00-15:25	**Claudia Castillo-Moreno,** Chalmers University of Technology Dynamical excitation control and multimode emission of an atom-photon bound state
15:25-15:40	Closing of the workshop

Abstracts

Abstracts Quantum Optics With Giant Emitters V3 →
PDF 228 KB 03 Dec 2024

Tags:

- Workshop
- quant
- physics
- Department of Microtechnology and Nanoscience
- Wacqt

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