University of Crete
Department of Physics

Physics Colloquium

Thursday, 24 October 2024 | 17:00 – 18:00, Seminar Room 3rd Floor

Quantum optics in cold atomic gases

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ABSTRACT

The groundbreaking demonstration of slow and even stopped light in cold atomic ensembles led to remarkable applications of quantum technology, spanning from ultrasensitive sensors and precise interferometers to single-photon switches and quantum memories.

In my talk, after an introduction to the field of quantum optics with cold atomic gases, I will be presenting a number of experiments that demonstrate that the versatility of light-matter interactions in a cold atomic ensemble has enabled us to access seemingly unrelated physical phenomena. These observations range from the creation of a non-Hermitian quantum interface between single atoms and light, to the simultaneous manipulation of the spatiotemporal wavefunctions of single Airy photons, and finally to the induction of fictitious magnetic fields by spatially engineered light for quantum storage.