



University of Crete
Department of Physics

Physics Colloquium

Thursday, 16 March 2023 | 17:00 – 18:00, Seminar Room 3rd floor

Hybrid quantum circuits: from atomic physics on a chip to quantum enhanced detection of dark matter

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ABSTRACT

In this talk, I will show how hybrid quantum circuits can be used to follow three paths related to quantum information science. In particular, I will discuss how they can host quantum bits for spins or topological degrees of freedom, with perspectives for quantum computing. I will also show that they could be a resource for quantum simulation of interacting hybrid fermion-boson systems. Finally, I will also discuss our prospects for using them as quantum sensors for axions or axion-like particles, which, if they exist, are promising candidates to explain dark matter in the universe.