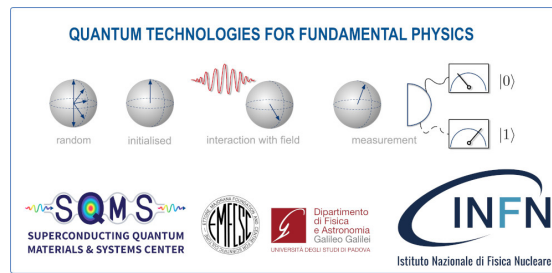


Quantum Technologies for Fundamental Physics



ID contributo: 28

Tipo: non specificato

Quantum sensing with cavities and more

domenica 3 settembre 2023 12:30 (20 minuti)

Quantum sensors offer the most promising way to detect a number of light, weakly coupled particles, such as gravitons or axions. Cavities, as well as other optomechanical systems, are current realizations of such sensors in operation. I will discuss how a theoretical tool from quantum optics, the input-output formalism, allows calculation and understanding of the sensitivity of these different systems. I will further comment on how quantum-enhanced techniques may be used to reduce the quantum mechanical noise of these systems, allowing for unprecedented new physics sensitivities.

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Classifica Sessioni: Superconducting cavities, materials, and quantum technology for detection of weakly-coupled particles