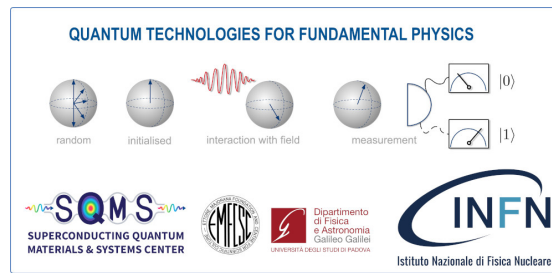


Quantum Technologies for Fundamental Physics



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Quantum noise in interferometric gravitational wave detectors

Saturday, 2 September 2023 15:30 (30 minutes)

Quantum noise plays an important role in limiting the sensitivity of current interferometric gravitational (GW) wave detectors. For this reason, in recent years all international collaborations have undertaken an R&D campaign aimed at overcoming the Standard Quantum Limit for GW detectors. The strategy employed is based on the use of squeezed vacuum states injected in to the detector port of the interferometers. This presentation will deal with the current state of these researches with particular emphasis on the main experimental difficulties to be faced in order to achieve a significant sensitivity improvement. Finally some recently proposed alternative methods for the reduction of quantum noise will be briefly discussed.

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Session Classification: Physics Case for Quantum Technologies