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Seminar über Quanten-, Atom- und Neutronenphysik (QUANTUM)

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None

Prof. Dr. Konrad Lehnert
JILA, University of Colorado, Boulder, USA

Quantum Enhanced Sensing in Fundamental Physics Experiments

Can emerging quantum information technologies, in some way, improve or enhance searches for fundamental physical phenomena? Indeed, the use of optical squeezing in gravitational wave observatories is a beautiful example that they can. In addition to this one prominent example, the search for dark matter may offer several other near-term experiments that can, and perhaps must, use enhanced quantum sensing methods. In particular detail, I'll discuss the case of searching for a hypothetical dark matter particle known as the axion and accelerating the search using quantum squeezing approaches.

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