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Enabling new physics searches with high-precision atomic theory and open science

Tuesday, 9 December 2025 16:30 (15 minutes)

The search for new physics beyond the Standard Model using quantum sensors relies heavily on the synergy between experimental precision and accurate theoretical modeling. This talk outlines a comprehensive computational infrastructure designed to support these efforts, including complex atomic structure calculations with automated workflows and the consolidation of results into the Portal for High-Precision Atomic Data and Computation. By building a common language and shared toolset across AMO, particle physics and related fields, this infrastructure aims to lower the threshold for entry and maximize the scientific reach of precision experiments.

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