Second European Physical Society Conference on Gravitation: measuring gravity



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Testing Gravity with Atoms

Tuesday, 6 July 2021 11:00 (30 minutes)

The ability to control the quantum degrees of freedom of atoms using laser light opened the way to precision measurements of fundamental physical quantities. I will describe experiments for precision tests of gravitational physics using new quantum devices based on ultracold atoms, namely, atom interferometers and optical clocks. I will report on the measurement of the gravitational constant G with a Rb Raman interferometer, on experiments based on Bloch oscillations of Sr atoms confined in an optical lattice for gravity measurements at small spatial scales, and on new tests of the Einstein equivalence principle. I will also discuss prospects to use atoms as new detectors for gravitational waves and for experiments in space

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Session Classification: Fundamental Tests and Equivalence Principle

Track Classification: Gravity: Fundamental Tests and Equivalence Principle