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qBOUNCE, a Quantum Bouncing Ball Gravity Spectrometer

Wednesday 19 October 2016 17:00 (30 minutes)

This talk focuses on the control and understanding of a gravitationally interacting elementary quantum system using the techniques of resonance spectroscopy. It offers a new way of looking at gravitation at short distances based on quantum interference. The ultra-cold neutron reflects from a mirror in well-defined quantum states in the gravity potential of the earth allowing the application of gravity resonance spectroscopy (GRS). GRS relies on frequency measurements, which provide a spectacular sensitivity. The neutron gives access to all parameters: distance, mass, curvature, energy-momentum tensor, and torsion.

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