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General relativity tests and precision measurements (F)

Wednesday, 23 October 2019 15:35 (20 minutes)

In this talk, a series of experiments based on atom interferometry that can provide precision measurements and tests of gravitational interactions will be presented.
First, with rubidium atom interferometers, experiments aimed at the precision measurement of the Newtonian gravitational constant and at the test of the Equivalence Principle with quantum superpositions of internal states will be considered.
Second, with strontium atom interferometers, it will be shown that it is possible to implement gravimeters and gradiometers that can measure gravity. Finally, it will be shown that strontium interferometers can also be configured to operate on a single-photon transition, a condition that is interesting for the development of gravitational-wave detectors.

Summary

Primary author: SALVI, Leonardo (Università degli Studi di Firenze)

Co-authors: CACCIAPUOTI, Luigi (European Space Agency); D'AMICO, Giulio (Università degli studi Firenze); Dr HU, Liang (State Key Laboratory of Advanced Optical Communication Systems and Networks, Department of Electronic Engineering, Shanghai Jiao Tong University, Shanghai 200240, China); Dr JAIN, Manan (Università degli Studi di Firenze); Prof. POLI, Nicola (Dipartimento di Fisica e Astronomia and LENS); ROSI, Gabriele (FI); Dr TINSLEY, Jonathan (Università degli Studi di Firenze); TINO, Guglielmo Maria (FI)

Presenter: SALVI, Leonardo (Università degli Studi di Firenze)

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