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JOHANNES GUTENBERG UNIVERSITÄT MAINZ

PRISMA+ Colloquium

June 8, 2017 at 2:15 p.m. c.t.
Lorentz-Raum 05-127, Staudingerweg 7

Note: findet über das Quantum Seminar statt (Do, 14 Uhr c.t., Lorentzraum)

Prof. Dr. Stephan Schiller
Institut für Experimentalphysik, Universität Düsseldorf

Frequency Metrology under Extreme Conditions: towards an Optical Clock in Space

Measurements of time intervals and frequencies are arguably the most fundamental measurement types in Physics and Technology. For a long time already, these quantities have been the ones most precisely measurable. Nevertheless, the last decade has seen a further strong development of time/frequency metrology techniques, with a further nearly 100-fold improvement in the precision. So far, the applications of these techniques have mostly been confined to specialized national metrology laboratories. There are great opportunities if these very advanced techniques can be applied outside such laboratories, even in the field. These are to be found both in fundamental physics (tests of Relativity) and in applied physics (navigation, geophysics). As an example, I will present a European activity aimed at developing an optical atomic clock for operation on the ISS (ESA mission I-SOC).

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