



Tuesday, 3 December 2013 at 16:00 c.t.
Seminar room 0815, 8th floor, physics highrise

Quantum Mechanics and the Equivalence Principle

Domenico Giulini

UNIVERSITY OF HANNOVER

Abstract

Einstein's Equivalence Principle (EEP) has been expressed in a variety of ways, most of which using notions and idealisations from classical physics, which do not easily apply to Quantum Mechanics (QM). There seems to be some confusion in the literature as to whether QM either obeys, eludes, or even contradicts EEP. In my talk I will start with some general remarks concerning EEP and then try to clarify some issues which have recently confused the discussion concerning so-called "Quantum Tests of EEP" and which also touch upon the question: "what is a clock?". Finally I move on to the semi-classical Einstein equations, discuss how they give rise to a non-linear Schroedinger equation, and illustrate some of the properties of the latter.