Quantum Information Group Seminars

Speaker: Angelo Bassi
University of Trieste, Trieste, Italy.

TITLE: Models of spontaneous wave function collapse: what they are and how they can be tested.

ABSTRACT:
To make quantum theory consistent, models of spontaneous wave function collapse (collapse models) propose to modify the Schrödinger equation by including nonlinear and stochastic terms, which describe the collapse of the wave function in space. These spontaneous collapses are “rare” for microscopic systems, hence their quantum properties are left almost unaltered. At the same time, since these effects add coherently in composite systems, macroscopic spatial superpositions of macro-objects are rapidly suppressed. I will review the main features of collapse models, in a pedagogical way, by presenting the GRW (Ghirardi-Rimini-Weber) collapse model. Next, I will present an update of the most promising ways of testing them in interferometric and non-interferometric experiments, showing the current lower and upper bounds on their parameters.

Place: Partovi Lecture Hall
Date: Tuesday 5th of Bahman, 3:00 pm.