



پژوهشگاه دانشهای بنیادی
پژوهشکده ذرات بنیادی و شتابگرها

عنوان:

Theory and experiments to test the quantum superposition principle

سخنران:

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چکیده:

There is a great excitement in the scientific community, to understand whether quantum mechanics holds also at the macroscopic scale, or not. On the theory side, models of spontaneous wave function collapse explicitly allow for deviations of the quantum superposition principle. The Schroedinger equation is modified by including nonlinear and stochastic terms. These terms preserve the quantum properties of microscopic systems but, at the same time, make sure that the wave function of macroscopic system is always well localized in space. I will review the main features of collapse models. Then I will present the most interesting experimental tests of the quantum superposition principle. They range from matter-wave interferometry, to optomechanics, to spectroscopy, to future experiment in outer space.

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