

La Dr.ssa

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nell'ambito del progetto FFR "Gravità e Fisica Quantistica"

terrà un seminario dal titolo:



Investigating collapse models with optomechanical systems

Martedì 30 Luglio, ore 15.00 presso l'aula B, DiFC, via Archirafi 36

Tutti gli interessati, in particolare **studenti** e **dottorandi**, sono invitati a partecipare.

Abstract

Quantum mechanics is a very well-grounded theory but, even if it does not set any limits to the size of systems, it seems to be valid only for microscopic systems. The superposition principle appears to unavoidably fail when scaling to larger and more complex systems. Alternative theories to standard quantum mechanics have been formulated in the endeavour to solve this incompatibility; collapse models are the most accredited and studied ones. In this talk I will introduce the framework of collapse models and a general set up of an optomechanical cavity as a suitable platform to set strong constraints on these models. I will discuss how the dynamics of the movable mirror in such systems is affected when a collapse effect is taken into account. I will compare results from assuming different collapse models: standard Continuous Spontaneous Localisation (CSL) with white noise, coloured CSL which utilizes coloured noise, and as well as a dissipative version of the above. Eventually, I will present some preliminary results on the new approach we are currently investigating.