ECT*
EUROPEAN CENTRE
FOR THEORETICAL STUDIES
IN NUCLEAR PHYSICS AND RELATED AREAS

FONDAZIONE
BRUNO KESSLER

WORKSHOP

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A Modern Odyssey: Quantum Gravity meets Quantum Collapse at Atomic and Nuclear physics energy scales in the Cosmic Silence

Which is the connection between quantum physics and general relativity (i.e. gravity)? Despite the various proposed Quantum Gravity theories, it is not yet clear if gravity should indeed be quantized. Actually, there are proposals going in the opposite direction, i.e. to gravitize quantum physics, or even models where gravity is an emergent phenomenon from quantum collapse. At the other side of the spectrum, Quantum Theory itself faces the "measurement problem", expressed by the Schroedinger's cat paradox, which received numerous possible solutions, including the collapse models, some of which connected with gravity. We plan to discuss in the framework of our workshop the interplay between Quantum Gravity and Quantum Collapse Models, in particular in relation to nuclear and atomic physics energy scale signatures for experiments in underground laboratories, which, thanks to their extreme precision, can test theories beyond the Standard Model facing the clash between quantum theory and gravity.

Organizers

C.Curceanu (LNF-INFN Frascati), A.Bassi (University of Trieste), A.Marciano (Fudan University & INFN), K.Piscicchia (Museo Sorico della Fisica e Centro Studi e Ricerche "Enrico Fermi"), L.Diósi (Wigner Research Center for Physics), L.Baudis (University of Zurich)

Key-note speakers

F.Artibani (LNF - INFN & Roma Tre University), P.Belli (INFN Roma Tor Vergata), A.Bismark (University of Zurich), N.Bortolotti (Sapienza University, Centro ricerche Enrico Fermi (CREF)), C.Curceanu (INFN LNF), S.Das (Faculty of Physics, Ludwig-Maximilians-Universität München), L.De Paolis (INFN LNF), C.De Rosa (Università di Trento), L. Diósi (Wigner Research Center for Physics & Eötvös Loránd University), F.Finster (University of Regensburg), J.L. Gaona Reyes (Università degli Studi di Trieste), S.Manti (INFN LNF), A.Marcianò (Fudan University & INFN), U.Moschella (Universita dell'Insubria), L.Pettinari (Università di Trento), F.Piacentini (INRIM - Istituto Nazionale di Ricerca Metrologica), K.Piscicchia (Centro Ricerche Enrico Fermi - Museo Storico della Fisica e Centro Studi e Ricerche), F.Sgaramella (INFN LNF), T.Singh (IUCAA, Pune, India), A.Tilloy (Mines Paris – PSL), A.Vinante (Istituto di Fotonica e Nanotecnologie (IFN-CNR) & FBK), M.Wright (The Archive Trust for Research)

Director of ECT*: Eng. Andrea Simoni

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