ACCADEMIA NAZIONALE DEI LINCEI

Venerdì 6 giugno 2025 - ore 15.30

CONFERENZA

FRANCESCO DE MARTINI

(Linceo)

QUANTUM-VACUUM AND DARK-ENTITIES IN THE UNIVERSE: EXPERIMENTAL TEST

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ABSTRACT

Insightful consideration of the very large inhomogeneity of the quantum vacuum-field in the Universe, never seriously considered in the past, is expected to resolve several crucial enigmas of modern Cosmology: as for instance the very nature of Dark-Matter and Dark-Energy, the "Cosmological Constant" puzzle, the "Hubble Tension" problem. Since the QED vacuum is necessarily invisible to any quantum detector, including our own eyes, an experimental Test is proposed based on atomic "spontaneous-emission" (SE). The simple (SE) test-device should be carried in the sky by a Mission spacecraft.

Francesco De Martini has been full professor of "Quantum Optics" and "Quantum Computation" al the Sapienza University in Roma. His scientific activity, carried out for many years at the Massachusetts Institute Technology, at the University of Berkeley, at Bell-Labs in Holmdel, NJ, at the Université de Paris-Sud covered many aspects of atomic, molecular physics in "entanglement" configuration. In the year 1998 his laboratory in Roma realized the first experiment of "Quantum-State Teleportation" and the first - so far, unique - experimental realization of a multi-particle "Schroedinger-Cat".

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