International Year of Quantum Science and Technology (IYQ)-2025, at TCG CREST (Kolkata, India)

Sir Roger Penrose

Physics Nobel Laureate

University of Oxford, UK

Date & Time:

25th September, 2025 @ 3:30 PM IST

Venue:

Classroom-4, TCG CREST

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(or)

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@tcgcrest357

Title - Collapse of the Quantum Wave-function: Influences from both Special and General Relativity

Abstract

Einstein's principle of equivalence (originally due to Galileo) asserts that, locally, a gravitational field, is equivalent to the use of an accelerating reference system, and can be eliminated by free fall. As applied to a quantum system subject to the Schrödinger equation, one is led to the presence of a curious phase factor, involving the exponential of the time cubed, which turns out to be inconsistent with the macroscopic quantum superposition principle. This incompatibility leads to a lifetime for macroscopic quantum superpositions according to a formula originally put forward by Lajos Diósi.

For this lifetime to be consistent with the principles of special relativity, one is led to a curious distinction between the quantum and classical notions of physical reality for which it is possible to ascertain the classical reality of a system, but its quantum reality can only be experimentally confirmed.

Organized by:

CQuERE (Centre for Quantum Engineering, Research and Education), TCG CREST, Kolkata, INDIA

For more details, please visit the website: http://www.tcgcrest.org/iyq2025

For any queries, feel free to contact us through the email: iyq.2025@tcgcrest.org