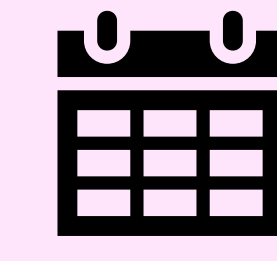


Prof. Madhavan Varadarajan
Raman Research Institute
Bengaluru, INDIA



Date & Time:

2nd May, 2025 @ 4:00 PM IST



Venue:

Classroom-4, TCG CREST

Join Zoom Meeting:



[Click here to join](#)

(or)



Join YouTube Live:



[@tcgcrest357](#)

Title- Quantum Gravity: The quest for a Quantum Mechanics of Space and Time

Abstract

Gravity is the geometry of space and time. This profound insight of Einstein underlies his classical theory of General Relativity. While General Relativity provides an exquisitely accurate description of a vast range of gravitational phenomena, it predicts the breakdown of spacetime (and hence its own demise) in extreme physical situations such as those encountered at the first instants of the birth of our Universe and at the centre of Black Holes. In these situations, it is expected that quantum aspects of gravity become important. A satisfactory quantum mechanical description of gravity does not yet exist. This, yet unknown, description is called Quantum Gravity. I will discuss the motivations for engaging in the search for Quantum Gravity and the unique conceptual challenges involved which derive from the fact that our very notions of space and time become uncertain. Along the way we shall encounter tantalising connections, clues and puzzles thrown up by the strange behavior of Black Holes and the possibility of looking through the mists of Space and Time, back to the very beginning of our Universe. I will end with some remarks about an approach to the problem of quantum gravity which goes by the name of Loop Quantum Gravity and, time permitting, touch on the application of Loop Quantum Gravity ideas to the physics of the Early Universe.

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