IACS Colloquium from School of Physical Sciences by Professor Sandip Trivedi, Dept. of Theoretical Physics, TIFR Mumbai

Speaker: Professor Sandip Trivedi, Dept. of Theoretical Physics, TIFR Mumbai

Date & Time: February **7**, 2025 (Friday) at 15.00 hrs

Venue: CV Raman Hall

Title: Universal Themes in Physics: From Black Holes To A Grain of Graphene

Abstract: In this colloquium, I will review some of the universal ideas which underlie Condensed Matter Physics, High Energy Physics and String Theory. This includes new ideas of symmetry breaking which arise in the SYK model, and in fast rotating Black Holes. Graphene provides an interesting system in which these ideas can be realised, allowing the physics of Black Holes, and even Wormholes, to be probed in on-going experiments.

Biography

Professor Sandip Trivedi is a professor at the theoretical physics department and the former director of TIFR Mumbai. He completed his MS in 1985 from the IIT Kanpur and received his Ph.D. from the Caltech, USA in 1990. He went on to pursue professional training as a Post Doctoral Research Associate at the Institute for Advanced Study, Princeton, New Jersey until 1992 before returning to India. Prof. Trivedi is well known for his contributions to string theory, in particular on finding the first models of accelerated expansion of the universe. His research areas include string theory, cosmology and particle physics. Professor Trivedi has been awarded numerous prizes including the Shanti Swarup Bhatnagar Award in the Physical Sciences in 2005, the Infosys Prize in 2010 and the TWAS prize in 2018. He has been a Fellow of the Indian Academy of Science since 2005. He currently serves as a member of the Program Advisory Board of the International Center for Theoretical Sciences (ICTS).