Public Lecture at IACS, Kolkata

MLS Hall, 22nd December, 4 pm.

Quantum entanglement in nature: superconductors and black holes

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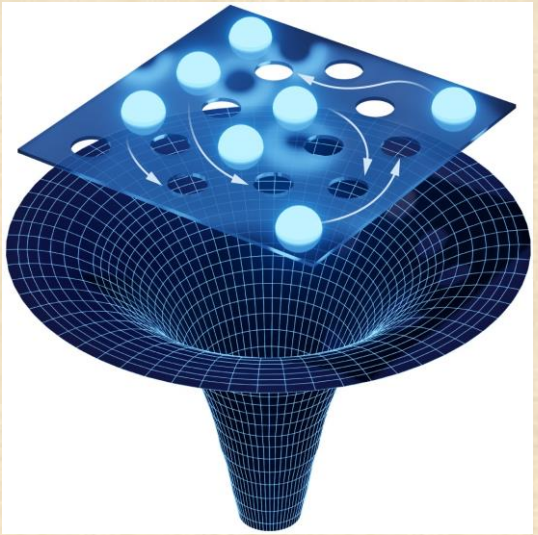
(Raman Chair, IASc)



Abstract: Entanglement is the strangest feature of quantum theory, which Einstein dubbed "spooky action at a distance''. Quantum entanglement can occur on a macroscopic scale with millions of electrons, leading to "strange metals" and novel superconductors which can conduct electricity without resistance even at relatively high temperatures. Remarkably, related entanglement structures also arise across the horizon of a black hole, and give rise to Hawking's black hole entropy. I will describe a simple model of many particle quantum entanglement which has shed light on long-standing problems in these distinct physical systems.

About the Speaker: Prof. Subir Sachdev is currently the Herchel Smith chair professor at Harvard University. He works on several aspects of condensed matter physics and is widely known for his body of work on topological and critical states of quantum matter. He is a foreign member of the UK Royal Society, has been elected to the US National Academy of Sciences and the American Academy of Arts and Sciences, is a foreign fellow of INSA, Delhi and honorary fellow of IASc, Bangalore. He is a recipient of the ICTP Dirac medal in 2018 and the APS Lars Onsager prize in 2015.