PUBLIC LECTURE

PROGRAM FINANCED FROM THE NRDI FUND

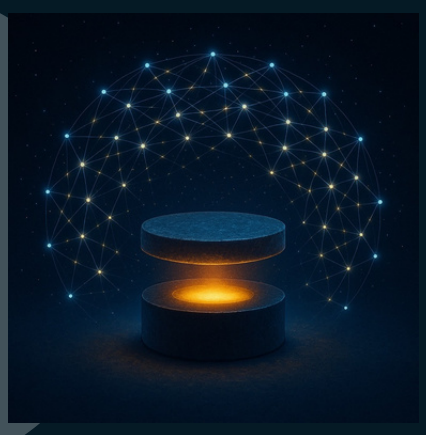
100 years of many-particle quantum mechanics: from Bose and Fermi to quantum materials and devices.

Prof. Subir Sachdev

Herchel Smith Professor of Physics, Harvard University

Dirac Medal & Onsager Prize (2018)

In quantum theory, all particles in the universe are either bosons (named for S.N. Bose, 1924) or fermions (named for E. Fermi, 1926). This fact is crucial to our understanding of the flow of electrons in all materials, including those found in smartphones. In recent decades, it has become clear that certain many-particle systems with complex quantum entanglement can exhibit emergent particles called `anyons', which are neither bosons nor fermions. Even more intriguing are systems, such as the Sachdev-Ye-Kitaev model, which don't exhibit any particle-like excitations at all. I will describe how these remarkable many-particle systems are playing a role in our understanding of modern quantum materials, such as the high temperature superconductors, and also in the design of fault-tolerant quantum devices.



7 Oct 2025 Tuesday

16:00-17:15 PM

IBM Quantum Computing: Real-World Benefits Now and the Road Ahead

Ádám Szilágyi

IBM Quantum Ambassador

7 Oct 2025 Tuesday | 17:30-18:30 PM

How to reach

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Conference Website

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