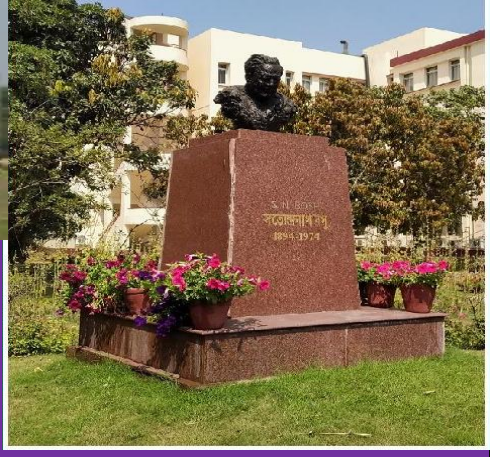

Institute Colloquium

S. N. Bose National Centre for Basic Sciences

(An Autonomous Research Institute established under DST, GOI)

Title: Flat, magnetic, and exotic: Designing quantum states in 2D

Abstract: Over the past decade, two-dimensional magnetism has grown into a vibrant frontier in condensed matter physics with vast fundamental and technological prospects. This talk will explore a variety of 2D magnetic platforms, extending beyond traditional van der Waals materials to include chemically bonded layered oxides and ultrathin perovskites governed by competing correlations and spin-orbit coupling. We will address the fundamental limitations of magnetic ordering in two dimensions, as well as strategies for its tunability. Finally, we will highlight how leveraging 2D magnets in proximity-coupled heterostructures allows us to design emergent quantum phases, ranging from quantum anomalous Hall and axion insulators to the elusive Majorana zero mode.

Speaker: *Prof Mukul Kabir, Professor*
Department of Physics, Indian Institute of Science Education and Research, Pune

21st August, 2026

4.00 PM

At FERMION HALL

YouTube YouTube Link

Webinar Link

Short Biography of the Speaker:

Prof. Mukul Kabir received his PhD in computational condensed matter physics in 2006 from the S. N. Bose National Centre for Basic Sciences, Kolkata. He subsequently worked as a postdoctoral associate at the Massachusetts Institute of Technology from 2006 to 2011.

Awarded the Ramanujan Fellowship, he joined the Department of Physics at IISER Pune as an Assistant Professor and is now a Professor.