S N BOSE NATIONAL CENTRE
FOR BASIC SCIENCES
Block JD, Sector III, Salt Lake, Kolkata 700 106

DEPARTMENTAL SEMINAR

Condensed Matter and Materials Physics

15th June,2023 **4.00 PM** **ONLINE/ FERMION**

SPEAKER

Prof. Indranil Paul,
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TITLE OF THE TALK

PSEUDOGAP AND EXCEPTIONAL VAN HOVE SINGULARITY IN THE CUPRATES

ABSTRACT

In the last few years there is increasing evidence that the behaviour of several cuprates in the doping range where the pseudogap ends is rather unusual. Thus, the charge response measured via electronic Raman spectroscopy shows anomalous enhancement, while the specific heat coefficient of the underlying metal increases in this doping range. Simultaneously, numerical studies of the Hubbard model have shown that the pseudogap exists only when the Fermi surface is hole-like, thereby raising the question why a strong coupling feature such as the pseudogap is sensitive to a weak coupling feature such as the Fermi surface topology. In this talk I will present a phenomenological work that attempts to explain the above puzzling observations by postulating the presence of an "exceptional" van Hove singularity, which is a consequence of strong coupling physics, and which is not adiabatically connected to an ordinary weak coupling van Hove singularity.

HOST FACULTY

Dr. Arijit Haldar, Assistant Professor

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