INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A&B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

Org. by

Theoretical Physics Department

Title:	**Parafermions in atomic gases and the solid state quantum Hall state without superconducting back-scattering**
Speaker:	**Jay Deep Sau,Joint Quantum Institute and Condensed Matter Theory Center, University of Maryland, USA**
Date:	**January 03,2017 (Tuesday)**
Time:	**04:00 p.m.**
Venue:	**Theoretical Physics Seminar Room (R/No.-C406), 3rd Floor, Centenary Building, IACS**
Abstract:	Parafermions are generalizations of Majorana fermions that have been predicted to occur at the Interface of superconductors and fractional quantum Hall states. I will start by discussing a recent application of these ideas to potential bosonic quantum Hall systems in ultracold atomic gases[1]. I will then discuss an aspect of the solid state proposal, which makes them experimentally challenging i.e. they require cross Andreev scattering of quasiparticles between counter-propagating edge states of the fractional quantum Hall state. I will describe a theoretical variant on this proposal [2] which eliminates this requirement and is based on superconducting forward scattering alone, which can be generically argued to be present in FQH/SC systems. [1]Phys. Rev. Lett. 115, 065301 (2015) [2] **arXiv:1612.01548**

All are cordially invited to attend the seminar