



## **OPEN TALK ANNOUNCEMENT**

**20 July 2016**

**11:00 a.m**

**Fermion**

**Speaker:**

**Prof. Debanand Sa**

*(VASP short term visitor to Dr. Manoranjan Kumar)*

**Affiliation:**

*Department of Physics, Banaras Hindu University, Varanasi*

**Title:**

**Are the extreme underdoped high Tc cuprates topological?**

**Abstract:**

The high Tc superconductors are known to be nodal but a recent ARPES data on extreme underdoped high Tc LSCO sample has shown a finite nodal gap below the transition temperature. Since the material under consideration is at the border between antiferromagnetism (spin-density-wave) and superconductivity, we consider a coexistence model of both. But, due to the non-commutative nature of both these orders, it dynamically generates a third order parameter which becomes a triplet superconductivity. Such a model is solved at the mean-field level which gives rise to topological phase. This might be a reason for the origin of nodal gap in these systems. A phase diagram in such a model is constructed and the vortex structure is discussed.

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