



SEMINAR ANNOUNCEMENT

**“Raman light scattering in high temperature superconductors
”**

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Monday, 27 Mar. 2017, 12-1 PM

Superconductivity “disappearance of resistivity below a specific transition temperature T_c ” was discovered in metals in 1911 by Heike Onnes [Nobel Prize in Physics, 1913]. In the late 1950s, Bardeen, Cooper, and Schrieffer proposed the BCS theory which successfully explains the Cooper pairing of electrons in such superconductors. About three decades later, superconductivity (SC) was discovered in copper oxide (cuprates) materials with superconducting transition temperatures far above that of conventional superconductors; the T_c is almost an order of magnitude of any previously discovered conventional superconductor.

The pairing mechanism of high temperature superconductors (HTSC) in cuprates is still not yet fully understood. Numerous experiments and theoretical attempts have been made to explain their pairing mechanism; however, several obstacles have arisen because of the complex phase diagram of cuprates. Most mysterious in the phase diagram is the pseudogap (PG) state that opens in the underdoped regime at temperatures far above the superconducting transition. A fundamental question in the physics of HTSC is whether the PG state is a precursor to superconductivity or it originates from competing order parameters that are detrimental to superconductivity.

In my talk, I will discuss several issues related to the nature of the SC and PG states using Raman scattering technique.