

Internal Seminar

Probing proximity-induced superconductivity by MgB₂ Thin films

S Mathimalar

TCIS, Hyderabad

MgB₂ is known for its high transition temperature (T_c) ~ 39 K and still, it is a simple BCS superconductor. Larger band gap ($\Delta\sigma \sim 7$ meV) and higher T_c makes it an interesting candidate for probing proximity-induced superconductivity (PIS) on non-superconducting metals/ferromagnets. To study PIS, single target sputtering chamber is designed and built. The MgB₂ thin film is sputtered on Si substrates and ex-situ STM measurements are carried out. The initial local density of states measurement shows promising results with two energy gaps at 13 K. In this talk, I will explain the instrumentation that we developed for growing and characterizing the MgB₂ thin films. I will also explain the difficulties in attaining the superconducting phase formation of MgB₂ and the steps taken towards growing better thin films.

Monday, May 21st 2018

2:30 PM (Tea/Coffee at 2:00 PM)

Seminar Hall, TIFR-H