

## **Students' Annual Seminar**

### **Spin Seebeck and thermoelectric effects in Zeeman split superconductors**

#### **Satyaki Sasmal**

Spin Seebeck effect is one of the most popular effects among spin-caloric effects where a temperature gradient creates a spin current, which is then converted into an electrostatic potential by inverse Spin Hall Effect. In this regard, the influence of a thermal gradient in a Zeeman-split superconductor and its proximity to a ferromagnetic insulator (FI) is experimentally not well studied. We focus on different material choices to experimentally probe these effects. Yttrium iron garnet (YIG) is one of the few FI materials which can convert a temperature gradient into a spin current. I will show how far we have progressed to grow thin films of YIG using magnetron sputtering technique. In addition, a low temperature transport measurement setup with a superconducting magnet is being fully automated using Labview controls to start probing our devices.

Additionally, I will also talk about a collaborative effort in advanced gravitational wave detectors (aLIGO) with University of Strathclyde, where a setup to measure the mechanical loss of mirror coatings is being developed.

***Friday, Feb 8<sup>th</sup> 2019***

***12:15 PM (Tea/Coffee at 11:30 AM)***

***Seminar Hall, TIFR-H***