

Seminar

Engineering quantum transport in low dimensional electron systems

Chandni U

IQIM, Caltech, CA

When electron systems are constrained to low dimensions, interactions can lead to exciting many body physics and broken symmetry states, exhibiting topological order and emergent behavior. In this talk, I will discuss electron transport in nanoscale structures consisting of two dimensional (2D) layered materials as well as one dimensional metallic nanowires. In particular I will focus on our ongoing efforts in understanding electron tunneling in 2D Van der Waals heterostructures. I will also briefly describe some of our earlier experiments on transport in ultrathin gold nanowires. We observe tunability between a non-Fermi Luttinger liquid state and a disordered state exhibiting hopping transport. In the end, I will present how these efforts can be expanded to create heterostructures of 1D and 2D materials to further explore spintronics, straintronics, tunneling and spin-orbit interactions among other phenomena.

Thursday, Feb 11th 2016

4:00 PM (Tea/Coffee at 3:45 PM)

Seminar Hall, TCIS