

Seminar

Unravelling the interplay between magnetism and structure in nanoscale systems

Sudipto Chakrabarti

SINP, Kolkata

Nanoscale spintronics aim to identify new spin transport effects near the limit of electronic component's miniaturisation. While the focus in this field is mainly on magneto-transport properties, not much is known about magneto-structural properties, despite their importance for microscopic understanding of magnetism and spin phenomena at the limiting scale of material dimensions. Here, we reveal a new phenomenon: the direction of an applied magnetic field and amplitude can affect the structural properties of nanoscale materials. Specifically, we use atomic chains and single molecule junctions to show that external magnetic field amplitude and direction can affect significantly the fundamental properties of materials like interatomic distance, formation and stability, and the strength of a chemical bond. Our findings open the door for atomistic understanding of the interplay between magnetism and structure in nanoscale systems.

Thursday, Feb 16th 2023

04:00 PM (Tea / Coffee 03.45 PM)

Auditorium, TIFR-H