

Seminar

Field-Free SMM Behavior of the Cyclopentadienyl Dysprosium Isonitrosyl Complexes

Arun Kumar Bar

IISER - Tirupati

The molecular metal complexes exhibiting magnetization blocking and slow relaxation of magnetization below a critical temperature are generally known as single-molecule magnets (SMMs). High-performance SMMs have immense applications in modern technology namely data storage, quantum computing and communication, spintronics, bionics, etc. Enormous efforts are being paid to achieve systems displaying SMM behavior at higher temperature, preferably at room temperature. Strong magnetic anisotropy and large spin ground states of lanthanide ions make them as potential candidates for achieving high performance SMMs. However, design and synthesis of desired SMMs appear to be non-trivial. Constraining metal ions under certain coordination geometries with appropriate crystal-field topology can render the stabilization of high spin ground states with strong magnetic anisotropy of the metal ions. Moreover, association of anisotropic magnetic building blocks through efficient magnetic mediators can result in large spin ground state multimetallic systems that could exhibit slow relaxation of magnetization at higher temperature. NO as bridging ligand is anticipated to be excellent magnetic mediator between 3d-4f metal ions. In this presentation, the synthesis and single-molecule magnet behavior of a series of novel isonitrosyl coordinated dysprosocene complexes will be portrayed.

Monday, Jul 22nd 2019

11:30 AM (Tea/Coffee at 11:00 AM)

Auditorium, TIFR-H