Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

Internal Webinar

Investigation of Magnetic Bistable Systems

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Magnetic bistability of a system is defined by its ability to be in two different magnetic states in different physical conditions. Spin crossover is one such magnetic bistable phenomenon where different spin states (low spin and high spin) can be achieved by using various external stimuli such as light, temperature, and pressure. Fe(II) and Fe(III) are most commonly studied to explore various aspects of spin crossover. These magnetic bistable states if assigned as “0” (low spin state) and “1” (high spin state) then it can be used to read and write digital information which makes this type of system very appropriate for preparing next-generation memory storage devices.

In this talk, I am going to briefly discuss the basics of spin crossover and how the research field has evolved, and my contributions to this field. I have mostly worked on Fe(III) based spin crossover because it is more air stable than Fe(II) systems and also it can have various ligand field environments to exhibit SCO, such as N_4O_2, N_3O_3, $N_2O_2S_2$. The air stability is preferred for practical device fabrication. Further, the advantages of moving from mononuclear systems to multi-nuclear systems will be discussed which gives more room for storing digital information. I am also going to discuss briefly about single-molecule magnets (SMM) which is another class of magnetic bistable system.

Monday, Dec 30th 2024

11:30 Hrs