

PhD Open Seminar

Department of Chemistry, IISER Bhopal

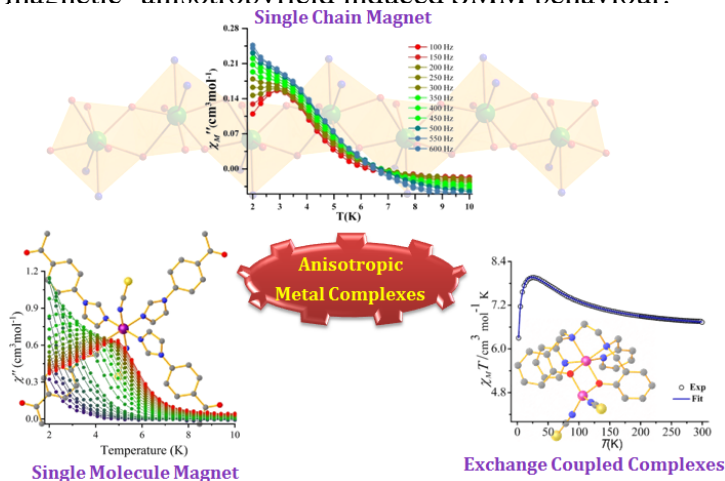
Synthesis and Study of Magnetically Anisotropic Metal[Tb(III) and Co(II)] Complexes

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Abstract: Single molecule magnets^{1a} (SMMs) are valued as prospective component in devices for information processing and data storage due to their slow magnetic relaxation behaviour after the removal of an applied magnetic field.^{1b} Magnetic anisotropy and exchange interactions play a vital role in slow magnetic relaxation behaviour and understanding of these parameters can be useful to improve the high energy barriers of SMMs.²

In this thesis, we have utilized experimental and theoretical tool to understand the magnetic exchange and field induced single molecule magnetic behaviour in strongly anisotropic metal ion complexes. In this regard, we demonstrated the Tb(III) based single chain magnet and studied their magnetic exchange and field induced SMM behaviour. Then, we have used hydroxyl and carboxylate bridged Co(II) complexes and metal organic frameworks to understand their exchange and magnetic behaviour. Further we have synthesized Co(II) based 2D-coordination polymers and single ion magnets to understand their magnetic anisotropy field induced SMM behaviour.



Highly anisotropic metal ion complexes and their magnetic behaviour

References:

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- 5) **A. K. Kharwar**, S. Konar, (manuscript under revision)
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- 7) **A. K. Kharwar**, A. Mondal, S. Konar, (manuscript under Preparation)