Spin-State Switching in Dynamic Molecular Materials

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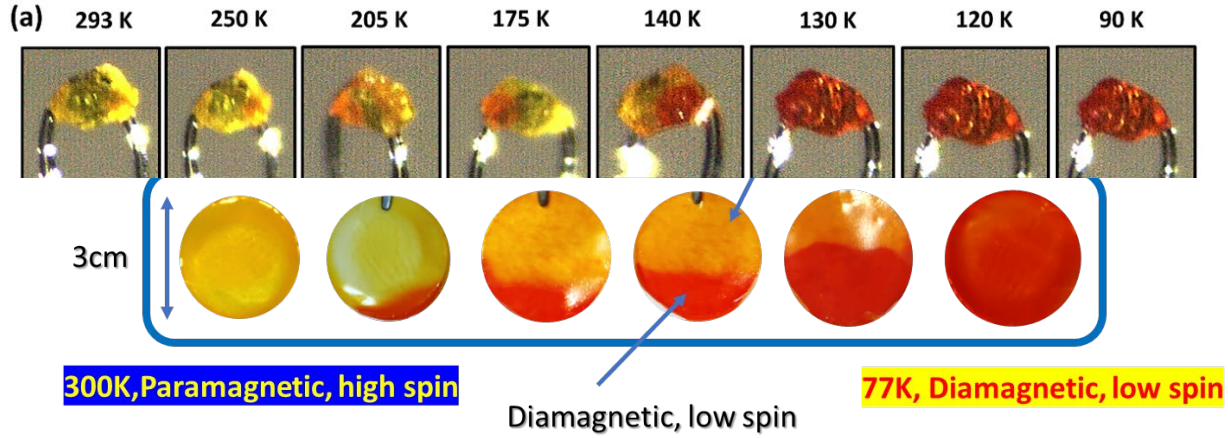
Abstract:
The development of molecular materials that can be switched between two different spin states through the application of external stimuli is of great interest owing to their potential use in molecular devices and information technology.[1,2] This switching behavior can be triggered by different phenomena such as a charge/proton transfer, a change in the solid-state structure, or molecular orientation. When the *cooperativity* between spin centres is strong enough, a region of bistability might open, in which either of the two states can be found depending on the material's immediate past. This *memory* effect has been widely exploited in transition metal complexes. Some exciting recent discoveries[3-4] of spin-state switching in the transition metal complexes in presence of external perturbation would be discussed in this presentation.

Figure: Dynamic behavior of spin-crossover crystals and their polymer nanocomposite



References

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[3] Yadav, J., Mondal, D. J., Konar, S., *Chem Commun.* **2021**, 57, 5925-5928.
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Bio-Sketch of Sanjit Konar

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Sanjit Konar received his Ph.D. from the Indian Association for the Cultivation of Science, Kolkata. After that, he worked as a postdoctoral fellow at the University of Notre Dame and Texas A&M University, College Station, TX, USA. He is a recipient of an Alexander von Humboldt Fellowship and has worked at Universität Bielefeld, Germany. Currently, he is working as a Professor at the Department of Chemistry, IISER Bhopal, India. His research revolves around molecular magnetism, switchable magnetic materials, and polyoxometalates.

He has published 150+ peer-reviewed journal articles, having ~5700 citations and an H-index of 44. He currently serves as the international editorial board member of the Wiley journal European Journal of Inorganic Chemistry, MDPI journal Magnetochemistry and an associate editor of ACS journal Crystal Growth and Design.