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Antagonist elastic interactions tuning spin crossover and LIESST behaviors in Fe(II) complexes

Smail Triki,¹ Narsimhulu Pittala,¹ Emmelyne Cuza,¹ Dawid Pinkowicz,² Michał Magott,² Mathieu Marchivie,³ Kamel Boukheddaden,⁴

¹Université de Brest, CNRS, 6 A. V. Le Gorgeu, 29238 Brest, France (e-mail: smail.triki@univ-brest.fr)

²Faculty of Chemistry, Jagiellonian University, Gronostajowa 2, 30-387 Kraków, Poland

³Université de Bordeaux, CNRS, ICMCB, F-33600 Pessac, France

⁴Université de Versailles, GEMaC, 45 Av. des Etats-Unis, 78035 Versailles, France

Among the molecular switchable materials, the spin crossover (SCO) complexes are of particular interest, notably because of their potential applications in the development of new generations of electronic devices. The systems based on the 1,2,4-triazole ligands, exhibiting remarkable SCO behaviors, still remain among the most promising materials. However, the major lack of high-quality single crystals with complete structural data for those materials prevent any deep magneto-structural correlations which are essential to fine tune their SCO properties by acting of their cooperativity.⁽¹⁾

In this contribution we report a series of discrete polynuclear Fe(II) complexes including extended systems (1-D and 3-D) involving similar polynuclear units covalently linked.^(2,3) All exhibit almost similar structural features but very different magnetic behaviors, making them a wonderful experimental platform to evidence the origin of the cooperativity, and the most common spin crossover behaviors such as the abrupt/gradual and the multi-step characters.⁽⁴⁾

References

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