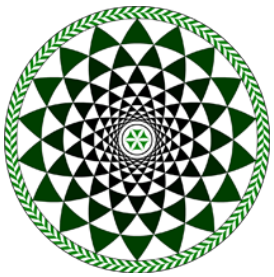

Contribution ID: **27** Type: **oral presentation**

Spin-crossover phenomena of a Jahn-Teller active Mn(III) complex [Mn(taa)]

Thursday 6 July 2017 15:00 (30 minutes)

The octahedral manganese(III) complex, [Mn^{III}(taa)] (H_3taa = tris(1-(2-azolyl)-2-azabuten-4-yl)amine), has long been known as a rare example of $(3d)^4$ spin-crossover system, having a steep spin-crossover phase transition at T_c = 48 K between a high-spin ^5E_g and a low-spin $^3T_{2g}$ states [1, 2]. Since the high-spin state is obviously subject to the Jahn-Teller effect, the electronic states are coupled with lower-symmetry deformation modes lifting ^5E_g orbital degeneracy in addition to a symmetrical breathing mode responsible for the spin crossover. This simultaneous involvement of two molecular bistabilities may afford a variety of condensed states (phases) due to competitive or cooperative interactions [3]. The phase diagram and the phase transition behavior were thoroughly explored via several probes, including dielectric measurements [4], magnetization under pulsed high field [5], HF-EPR [6], and magnetic susceptibility measurements using high-pressure clamp cell [7]. All the results were successfully interpreted in a unified fashion based on a four-state Ising-Potts model with mean-field approximation.

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