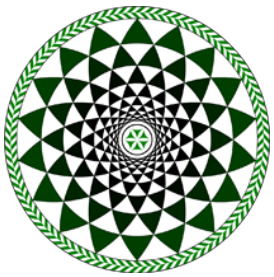

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Spin transition of Fe(II) 1D triazole chains: hybrid materials and lattice dynamics

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Iron(II) spin crossover (SCO) complexes continue to attract a great deal of interest [1,2], due to their potential technological applications, for instance in pressure sensors [3]. SCO nanomaterials have emerged as an appealing class of materials considering nanostructuration processes and size reduction effects. Although sophisticated techniques can be used for the preparation of SCO nanoparticles, we have introduced a botanic biomembrane as a soft and green support for deposition of SCO micro and nanocrystals, which were used for printing on various supports [4]. More recently, we investigated the SCO properties of a hybrid nanomaterial [5], based on a metal organic framework embedding $[Fe(HB(pz)_3)_2]$. We have also studied the composite material made of MCM-41 and 1D Fe(II) 1,2,4-triazole coordination polymers [6]. This later class of SCO materials, which were shown to present the LIESST effect [2,7], afforded the first 1D chain with 1,2,4-triazole ligands displaying a thermally induced two-step spin conversion [8]. A non solvated 1D SCO chain switching at room temperature with a wide reversible bistability domain of 60 K, has been recently discovered [9].

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