

*Title:* **Design of Fe(II)-based spin-crossover compounds for high dimensional molecular materials**

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Complexes with SCO have been widely studied due to their switching magnetic behaviour based on their two different states with similar energy and accessible with an external stimulus such as pressure, light or temperature. For this reason, this kind of compounds can be used in future technologies as memories, molecular sensors or in single-molecule electronics. This work focuses on use crystal engineering, modifying the intermolecular forces of a novel bpp ligand synthesized into the GMMF of the Universitat de Barcelona, and crystallize new supramolecular SCO compounds with different connectivity networks. Through this approach, the cooperativity between neighbour complexes can be changed, and the local geometry around the metallic centre altered. Different molecular connectors featuring H-bonding acceptors are used, taking into account the potential H-donor groups exhibited by the SCO compounds used. The geometry and framework of the complexes are studied through single-crystal X-ray diffraction, allowing evaluating their potential as switchable materials.