

## Spin-Bistable Ensembles of Iron(II) Complexes on HOPG Surfaces

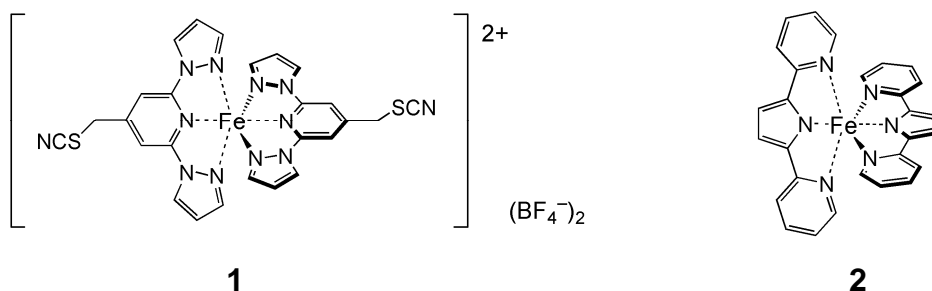
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One of the fascinating perspectives of molecular-scale electronic materials is information storage on the basis of arrays of molecular switches. Spin-crossover (SCO) compounds hold considerable potential in this context.

With a view to creating spin-switchable units on surfaces, we investigated the self-assembly of iron(II) complexes containing pairs of planar terdentate nitrogen ligands on highly oriented pyrolytic graphite (HOPG). In our current approach, we use spin-switchable iron(II) complexes of bis(pyrazolyl)pyridine ligands such as **1**<sup>[1]</sup>. As a reference, we also investigated the non-SCO complex **2**.



Both complexes form regular one-dimensional aggregates on HOPG, on a length scale of hundreds of nanometres. Scanning tunnelling microscopy (STM) techniques have been used to investigate the molecular conductance and thus the spin state of the adsorbates. Complex **1** can adopt a high-spin and low-spin configuration in the aggregate whereas **2** only adopts the high-spin configuration<sup>[2]</sup>.

[1] Haryono, M.; Heinemann, F. W.; Petukhov, K.; Gieb, K.; Müller, P.; Grohmann, A. *Eur. J. Inorg. Chem.* **2009**, 2136.

[2] Alam, M. S.; Stocker, M.; Gieb, K.; Müller, P.; Haryono, M.; Student, K.; Grohmann, A. *Angew. Chem. Int. Ed.* **2010**, 49, 1159.

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