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Supramolecular design for biomimetic model complexes

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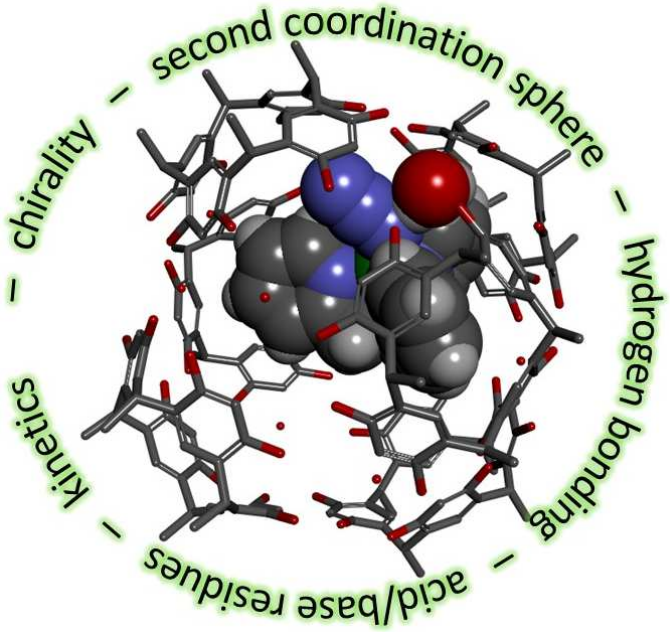
The design of biomimetic models of metalloenzymes needs to take into account many factors and is therefore a challenging task. While most of the works rely on the introduction of functional groups on the ligands in the periphery of the metal centres, supramolecular chemistry appears to be a fruitful alternative for controlling the properties of metal complexes.[1] In this presentation, we discuss an original strategy to control the second coordination sphere of a metal centre and its distal environment. A biomimetic model is assembled with a tris(2-pyridylmethyl)amine (TMPA) ligand-based complex encapsulated in a supramolecular hydrogen-bonded capsule.[2] The characterization of some of the properties resulting from this design will be presented. This simple and broad scope strategy is unprecedented in biomimetic studies and appears as a very promising method for the stabilization of reactive species and for the study of their reactivity.



1. a) J.-N. Rebilly, B. Colasson, O. Bistri, D. Over, O. Reinaud *Chem. Soc. Rev*. **2015**, *44*, 467 ; b) D. Fiedler, D. H. Leung, R. G. Bergman, K. N. Raymond *Acc. Chem. Res*. **2005**, *38*, 349 ; c) L. J. Jongkind, X. Caumes, A. P. T. Hartendorp, J. N. H. Reek *Acc. Chem. Res*. **2018**, *51*, 2115.
2. T. Zhang, L. Le Corre, O. Reinaud, B. Colasson *Chem. Eur. J*. **2021**, *27*, 434.