

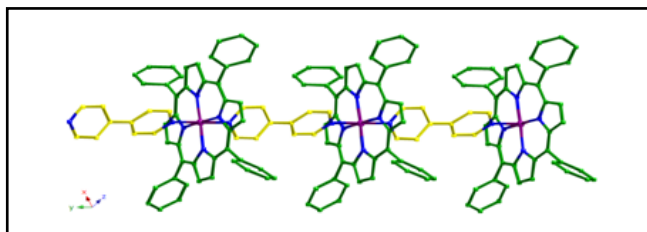
Self-assembly of metallated TPP porphyrin by external dipyrrolyl ligands Arkaitz Fidalgo-Marijuan,^a Gotzone Barandika,^b Begoña Bazán,^a Miren Karmele Urriaga,^a Maria Isabel Arriortua,^a ^a*Department of Mineralogy and Petrology, Universidad del País Vasco (UPV/EHU), Leioa (Spain)*
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Supramolecular entities based on self-assembly of metalloporphyrins are paradigmatic examples of the great efficiency of the nanodevices used by natural systems in photosynthesis, oxygen transport, electron transfer and catalysis [1]. Therefore, they constitute reference models for the development of new materials that make these, and other yet unexplored, functions.

While metalloporphyrin biosystems operate in solution, the preparation of materials based on these macrocycles moves the problem to the solid state synthesis. Thus, obtaining supramolecular entities may be approached by different strategies of synthetic design. One of them consists on the use of external dipyrrolyl ligands to assemble the metallated porphyrin units. In this aspect, the range of compounds that can be used is endless. In this context, our research group is working with different combinations of organic ligands and metalloporphyrins, and the work herein presented corresponds to the compound [FeTPP(bipy)] (TPP=meso-tetraphenylporphyrin and bipy=4,4'-bipyridine), obtained by solvothermal synthesis.

The crystal structure of [FeTPP(bipy)] consists of 1D chains of alternating FeTPP and bipy molecules bonded to the axial positions of the coordination sphere. These chains are sustained by π - π stacking between the phenyl rings at about 5 Å.

So far, very few compounds with TPP and bipy have been described, of which only one [2] is really a 1D coordination polymer, being all others isolated dimers. It is also remarkable that, as far as we know, this is the first structure with these ligands based on Fe, one of the most important metals in porphyrin biosystems.



[1] S. Mohnani, D. Bonifazi, *Coord. Chem. Rev.* **2010**, 254, 2342-2362.

[2] R. K. Kumar, S. Balasubramanian, I. Goldberg, *Chem. Commun.* **1998**, 14, 1435-1436.

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