

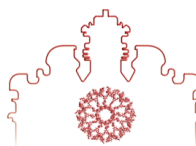
# SUPRAMOL2019

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## BOOK OF ABSTRACTS



## Electrical Conductivity Criteria In Polyiodides Networks: Stunning Architectures In The Solid State

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Iodine and polyiodides have long been in the spotlight for the preparation of conductive materials or the enhancement of polymer conduction properties via iodine doping. Following our recent report about the stabilization of polyiodide networks in the solid state through anion- $\pi$  interactions,[1] we took a vivid interest in understanding conduction criteria in such systems and preparing novel crystalline supramolecular polyiodide assemblies. To this end, on the experimental side, the famous Stoddart's Blue Box (BB) (Cyclobis(paraquat-p-phenylene)) has been exploited to prepare a series of materials, whose complexity, and beauty, increase with the iodine content, peaking, for the time being, with the crystal structure of  $I_5^- @ BB^{4+} @ I_5^-(I_3^-)_2$ , Figure 1. These crystals display a stunning arrangement, featuring supramolecular  $([3]\text{-catenane})_\infty$  ribbons of pentaiodide and Blue Box molecules, which in turn are further catenated to gigantic 22-terms supramolecular polyiodide rings, constituted by 2 pentaiodides and 4 triiodides each. Characterization of these materials, especially from an electrical conduction standpoint, is expected to provide further insight and future guidance for the effective preparation of iodine-based supramolecular solid-state conductors.

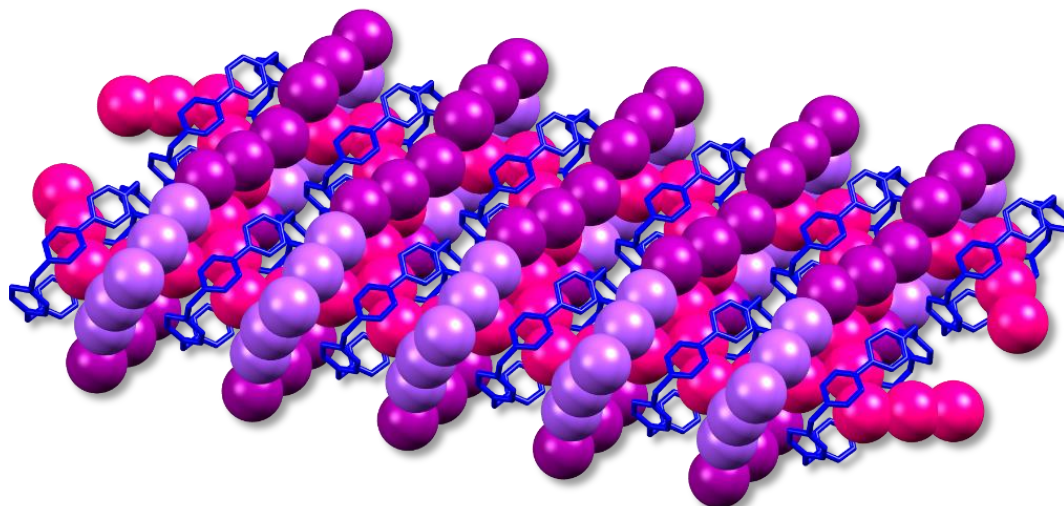


Figure 1: A glimpse of the solid structure of supramolecularly interlocked crystal structure of the  $I_5^- @ BB^{4+} @ I_5^-(I_3^-)_2$  complex.

### References

1. M. Savastano, C. Bazzicalupi, C. García, C. Gellini, M. D. López de la Torre, P. Mariani, F. Pichierri, A. Bianchi and M. Melguizo, *Dalton Trans.* **2017**, 46, 4518-4529.