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BOOK OF ABSTRACTS

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OC-8: Copper(I) based coordination polymers: synthesis, characterization and applications

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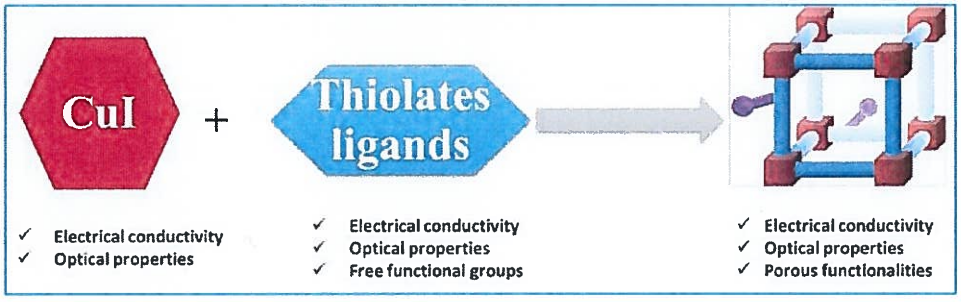
Coordination polymers (CPs), consisting of metal ions and bridging organic ligands, have attracted considerable interest as a potential source of functional materials that can bring display remarkable physical properties such as luminescence, magnetism, electrical conductivity, or a combination of more than one physical properties.[1] The properties of CPs/MOFs, basically, depend on the suitable selection of their main molecular components, and on how they align arrange to form the final solid state structure.

We are interested in the application of CPs and metal–organic frameworks (MOFs; porous coordination polymers) as chemical sensors which require signal transduction based on the dynamics of the analyte interacting with the CPs/MOF network. We honed from the design principles of previous research in the field of optical and/or conductive CPs/MOFs to select starting building blocks (Scheme 1) that can be employed to produce CPs/MOFs with remarkable optical and conductivity features. In that regard, copper(I) based CPs/MOFs have attracted great attention as potential candidates for optical, electronic, and optoelectronic applications. Copper(I), with a d^{10} electronic configuration, is well known for its diverse coordination geometries, which afforded CPs with unprecedented structural motifs and physico–chemical properties.[2] We present here copper(I) complexes with nitrogen–sulfur donor ligands has drawn much attention as suitable building units to construct new multifunctional materials with fascinating structure and properties where they adopt a wide range of coordination modes.[3] The selected units offer extensive connectivity, flexibility, and free functional groups that may interacting with the analytes by means of coordination bonds, π-π interactions or hydrogen bonds.



Scheme.1. Building blocks selected to prepare CPs/MOFs with multifunctionalities

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