Electronic communication within bis(dithiolene) ligands bridging molybdenocenes

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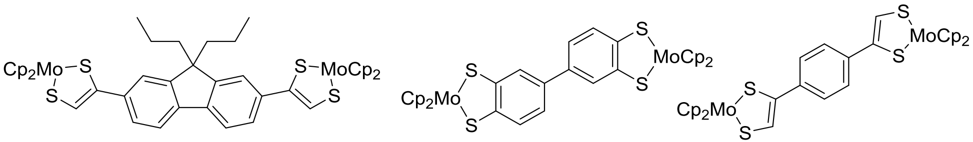
Metal−organic frameworks (MOFs) containing redox-active linkers are focusing a lot of attention with the aim of generating conducting MOFs which will enable their use in applications such as electronics[1] and electrocatalysis.[2] One of the most interesting redox-active ligands is the 1,2-dithiolene one which is known as a non-innocent ligand. Indeed, some of the rare bis or tris(1,2-dithiolene) ligands were successfully used for the formation of conducting one- and two-dimensional polymeric materials.[3] In order to generate novel MOFs, we recently investigated the synthesis of new bis(dithiolene) ligands and their corresponding bimetallic complexes to detect the electronic interaction between the two metallic electrophores along the organic linker. For that purpose, we choose bis(cyclopentadienyl) molybdenum dithiolene moieties, Cp_2Mo(dithiolene), as an electroactive moiety connected through an organic bridge, such as a benzene-1,4-bis(ethylenedithiolate), **Mo$_2$1,4-P**, or along a 4,4′-bis(benzenedithiolate), **Mo$_2$bP** (Chart 1).[4] Herein, we continued this work by developing a fluorene linker between the two redox active metallacycles, **Mo$_2$Fl** (Chart 1). Electrochemical and spectro-electrochemical investigations in the UV-vis-NIR range, evidence the influence of the fluorene linker on the electronic interaction between the metalladithiolene units.[4] The synthesis of this new bimetallic complex together with the electrochemical and spectroscopic properties, and DFT investigations, will be presented.



Mo$_2$Fl **Mo$_2$bP** **Mo$_2$1,4-P**

Chart 1

References

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