

## TTF Type Donors and Bisdithiolene Complexes Substituted with Nitrogen Coordinating Groups

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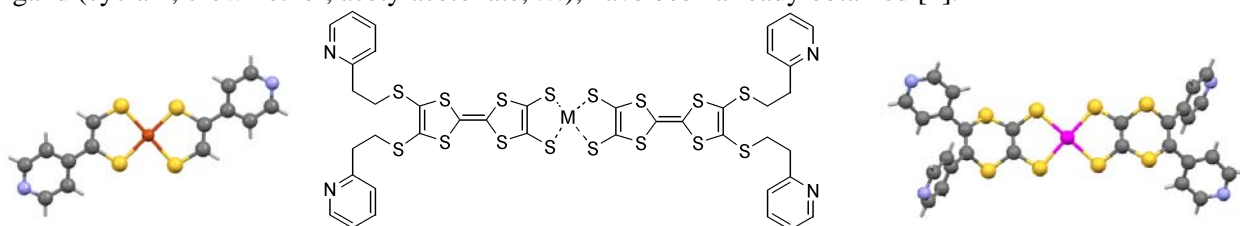
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Both TTF type donors and square planar bisdithiolene complexes which can be seen as their inorganic analogues, have been widely used as key units for the preparation of conducting and magnetic materials and many substituent's have been explored in the last 30 years. However only more recently there has been paid attention to the preparation of such molecular units which, in addition to their electroactive role, can bind directly to transition metals. Towards that end we focused our interest on such type of molecules, namely bis(dithiolene) complexes based on thio-azo ligands, bearing heterocyclic groups and our recent work is summarized in this presentation.

The first example of a tetra-azo substituted bisdithiolene transition metal complex was achieved by Ni(dpesdt)<sub>2</sub> [1] and the corresponding TTF type donor was also prepared and used as a bridging ligand to obtain a dinuclear Co<sup>II</sup>-coordination complex [2]. Another example of potential substrates for preparing multifunctional materials was given by a group of vinylenedithio-TTFs bearing two or four pyridyl groups along with related Ni and Au bisdithiolenes [3] as well as complexes based on a new thio-azo donor ligand containing pyridine rings and extended  $\pi$ -systems with TTF moieties. Other complexes and extended networks obtained through the N coordination ability are currently being explored and novel supramolecular coordination architectures with the general formula: [M(L)<sub>2</sub>][M'(ditholene)<sub>2</sub>], L=auxiliary ligand (cyclam, crown ether, acetylacetonate, ...), have been already obtained [4].



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[3] A.C. Brooks, P. Day, S.I.G. Dias, S. Rabaça, J.D. Wallis, M. Almeida, *Eur. J. Inorg. Chem.* **2009**, in press.

[4] S. Rabaça, et al. , *Polyhedron*, **2009**, 28, 1069.