ELECTRONIC COMMUNICATION THROUGH TETRAZOLE-BASED BRIDGING LIGANDS IN BIMETALLIC RUTHENIUM SYSTEMS.

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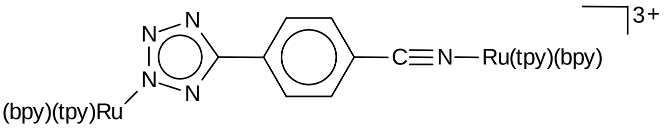
The electronic interactions between redox-active metal centers, across organic bridging ligands, are continuing to be of particular interest both for the investigation of intramolecular electron transfer processes under carefully controlled geometry,[1,2] and for the potential applications of di- and polynuclear complexes in the rapidly expanding field of molecular electronics and as new materials showing linear and non-linear optical properties.[3]

In order to control the interaction between the metal centers, the electronic properties of the mononuclear moieties and those of bridging ligand must be properly tuned.

In this communication we report the electrochemical, UV-Vis-NIR spectroelectrochemical and electrochemiluminescence behaviour of a class of new dinuclear Ruthenium-polypirydine complexes with tetrazole-based bridges. The magnitude of the metal-metal interaction through the various bridging ligands will be discussed, together with their promising use as solid state light emitting devices (LEDs).



bpy = 2,2'-bipyridine **tpy** = 2,2':6',2''-terpyridine

References
1. M.D. Ward *Chem. Soc. Rev.* **1995**, 187.
2. K.D. Demadis, C.M. Hartshorn, T.J. Meyer *Chem. Rev. 101*, **2001**, 2655.
3. *Mixed Valence Systems: Applications in Chemistry, Physics and Biology*, K. Prassides (Editor), NATO ASI Series 343; Kluwer Academic Publishers: Dordrecht, The Netherlands, 1990