Spin-Spin Coupling in Metallo Porphyrin Dimer: Modulation, and Magneto-Structural Correlation

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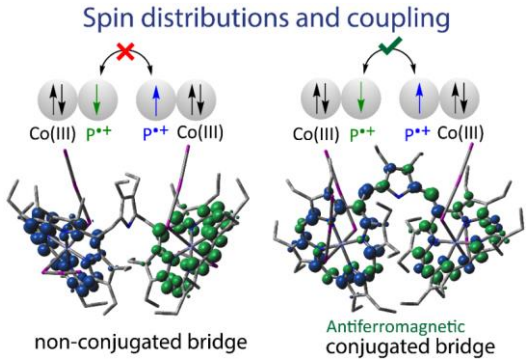
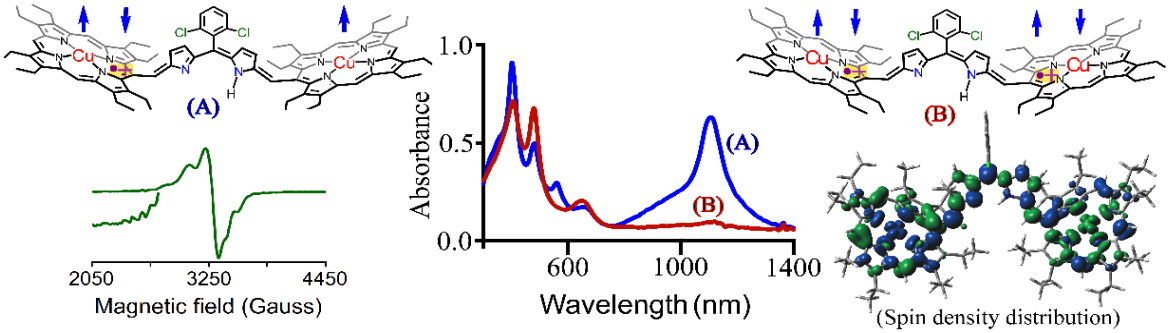
Design and construction of metalloporphyrin arrays continues to attract considerable attention due to their unique properties. These systems provide valuable information regarding the mechanisms of electron and charge transport behaviours and provide promising platforms for systematic studies of spin coupling to promote long-range communication across the bridge connecting the metalloporphyrin centers. The interchromophore separation and the extent of electronic coupling are the vital factors in the development of electron and charge-resonance phenomena. Using redox-active bridge is particularly appealing as they are able to tune the communication by simple oxidation or reduction acting as a very efficient magnetic relay between the spins. Interaction between the organic radical and paramagnetic metal centre is important machinery for designing functional magnetic materials with desired properties. Our group has been very active in working on the metallo porphyrin dimers covalently connected either by a non-conjugated or conjugated bridge, and thereby able to modulate various structures and properties *via* inter-macrocyclic as well as intermetallic interactions. My talk will highlight our recent activities [1-3].





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