Synthesis and Redox Properties of Silver and Nickel Complexes of N-confused Porphyrin Dimer

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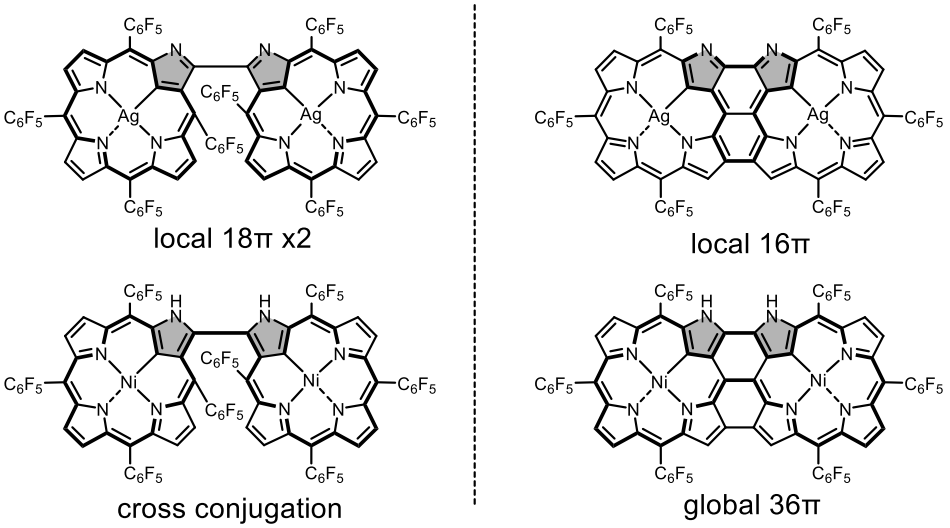
Owing to the unique near-infrared optical properties and molecular wires, various dimeric porphyrins and their related analogues have been developed so far.[1] The distance and orientation of the porphyrin units are essential factors in controlling the interchromophore electronic interactions and communications.

In this study, as a monomer unit of the dimeric porphyrin analogues, N-confused porphyrin (NCP) was used to synthesize singly- and triply-linked dimers. Owing to the NH tautomerism, NCP can provide the dianionic and trianionic coordination environments depending on the valence states of the central metal ions. In the case of dimers, the NH tautomerism and orientation of NCP units can change the interchromophore electronic interactions and communications. The unique optical and electrochemical properties of the NCP dimers were investigated by UV/vis/NIR absorption and NMR spectroscopy, electrochemical measurements, and theoretical calculations.

In this presentation, the detail of the synthesis and properties of a series of NCP dimers will be presented.



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