Functionalized dipyrrin ligands for the construction of coordination networks

Fan Zhang[1], Stéphane Baudron[1], Mir Wais Hosseini[1]

[1] *Université de Strasbourg-CNRS, UMR 7140, Laboratory of Molecular Tectonics F-67000 Strasbourg, France*

E-mail: fan.zhang2@etu.unistra.fr

The bis-pyrrolic dipyrrin derivatives[1] (Fig.1) form monoanionic chelates under basic conditions and can be easily synthesized and functionalized at their periphery. These features have made them ligands of choice for the preparation of luminescent complexes as well as for the construction of heterometallic coordination polymers.[2,3] In the latter case, the introduction of secondary coordinating units at position 5 has been particularly investigated.[3]
In this work, a series of novel functionalized dipyrrins bearing coordinating units at different positions has been developed. Indeed, using Knoevenagel type reactions,[4] different functions could be introduced, thus leading to ligands incorporating the dipyrrin chelate and coordinating groups at positions 1 and 9. Using the position 5, either an additional binding unit or a solubilizing group has been introduced. This type of triply differentiated derivatives was used for the synthesis of luminescent complexes (BODIPYs or zinc complexes) and their interconnection into periodic coordination networks in the crystalline state has been explored (Fig.1)

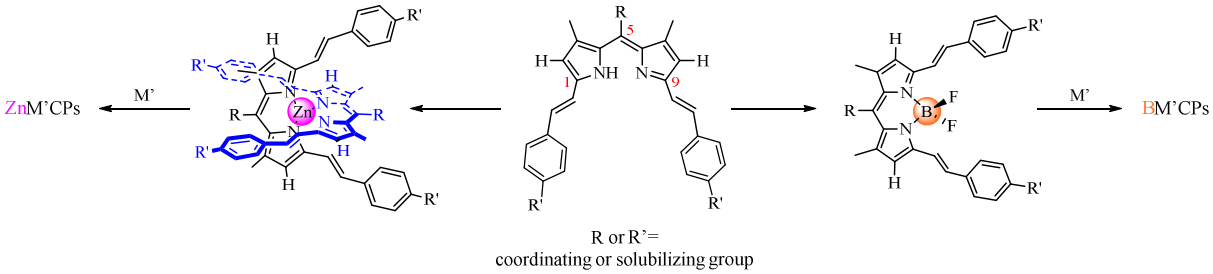

Figure 1. Strategies for the formation of bimetallic coordination networks based on 1,9-styryldipyrrin

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