New NIR dyes in quinoid chemistry

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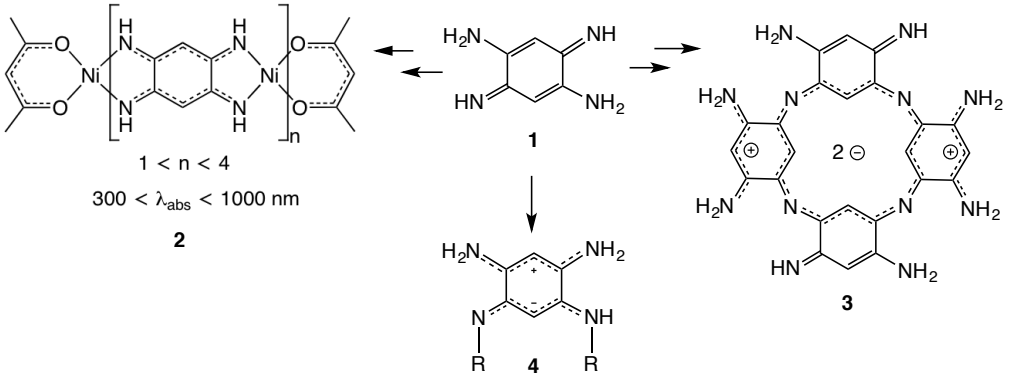
2,5-Diamino-1,4-benzoquinonedimine **1** is a very long known molecule (1887)[1] that has been poorly investigated owing to its low solubility and its instability in solution. We decided to revisit the chemistry of **1** in order to elaborate new NIR dyes that are of major interest in many technological sectors. Our strategy is based on: 1) the use of **1** as ligand in coordination chemistry both in solution and on metallic surfaces to give oligomers **2**[2] and metallo-polymers, respectively;[3] 2) the introduction of **1** in a macrocycle to afford the first "pyrrol-free" aza-analogue of porphyrins **3** which revealed unusual fundamental and applied aspects;[4] and 3) a fine control of the N-substituents that allowed a rare rearrangement of the π-distribution (see molecule **4**) that induces drastic changes of the absorption properties.[5]



The three different strategies and the mentioned properties will be described and discussed in the presentation.

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