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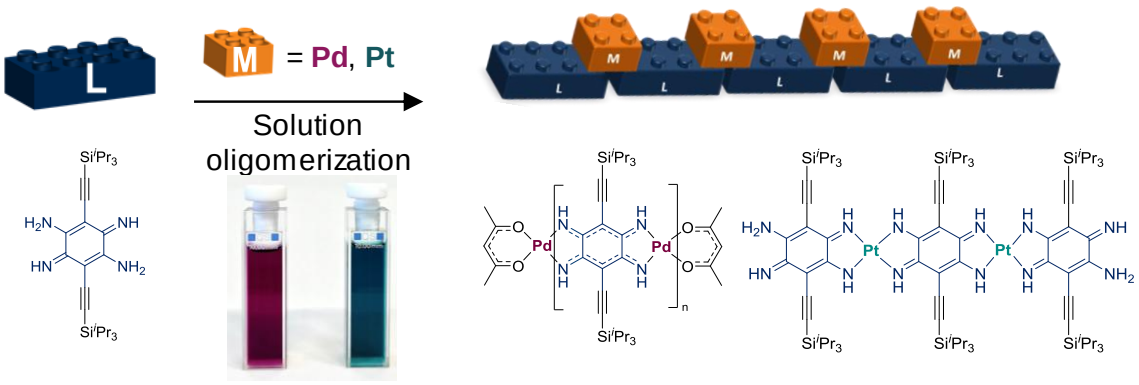
From Visible to NIR Absorption via the Coordination Chemistry of Diamino-benzoquinonediimines

Tatiana Munteanu[1*], Simon Pascal[1], Denis Jacquemin[2], Olivier Siri[1]
[1]*Centre Interdisciplinaire de Nanoscience de Marseille (CINaM) - UMR 7325 CNRS Aix-Marseille Université, Campus de Luminy, Case 913 13288 MARSEILLE Cedex 09, France*
[2]*Université de Nantes, CNRS, CEISAM UMR 6230, 44000 Nantes, France*
*Email: tatiana.munteanu@univ-amu.fr

Highly extended dyes with optical properties ranging from visible to near-infrared (NIR) are of considerable interest, given their potential for multiple fields application, in particular for optoelectronics.[1-2] Along the classic organic synthesis, coordination chemistry enters the game with a strategy centered on solid-phase or in-solution metal-ligand assembly to reach extended or highly conjugated architectures.[3-4] In this context, 2,5-diamino-1,4-benzoquinonediimine (BQDI) stands as versatile ditopic and bis-bidentate ligand for the preparation of coordination complexes featuring catalytic, optical or magnetic properties.[5]

The complexation of such a ligand in solution is a stepwise mechanism that allows the isolation of stable mono-, di- or polynuclear oligomers with absorption up to the NIR region due to the extension of the π-d conjugation.[5-7] The *N*-substitution of BQDI plays an important role on the coordination properties of this building block but can notably be detrimental (steric effect) for the electronic delocalization between the metal centers.[3,7] Consequently, our present investigations takes the process one step further, by introducing *C*-substituents on the ligand and screening the metalation mechanism and the optical properties of unprecedented palladium and platinum coordination oligomers.



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