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Titre de la thèse :

Heterobinuclear complexes as building blocks for molecular electronics.

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The development of metal complexes for optoelectronics applications is a fertile area of research. Recently binuclear species have enabled important breakthroughs in the fields of OLEDs, photocatalytic water splitting and CO2 reduction or smart materials due to their multifunctional properties and their various applications, partially induced by their bridging ligands. The structure-property relationship of such entities leads to complicated inter and intra-molecular electron and energy transfer processes and make them interesting candidates for molecular electronics. In this project, we propose (i) to design and synthesize new molecular systems including coordination complexes and photo- and redox active bridging ligand, (ii) to study energy and electron tranfers in such binuclear metal complexes (iii) to electrochemically deposit such functional entities on different substrates, (iv) to investigate transport properties at different scale and (v) to focus on the possibility to photo-switch such devices by applying an external stimulus.

Mots clés : Binuclear coordination complexes/Molecular swithes/Molecular electronics

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