

Proposition de financement doctorale pour la rentrée 2020 - 2021

Titre de la thèse :

Charge transport mechanisms in active organometallic layers : towards non-volatile organic memories

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The miniaturization of electronic components is a perpetual challenge. As conventional silicon devices are now reaching their limits with sizes of a few nanometers, chemistry has a key role to play. Molecular electronics can also rely on the benefits of molecular chemistry to create new electronic functionalities. However, the understanding of the electron transfer mechanisms involved in most devices containing these molecular objects remains partial to date. In order to fabricate efficient and robust molecular devices, we are interested in the design of electro- or photo-switchable molecular compounds with an electropolymerizable function, which can be integrated in electronic devices. Initially, the study of these molecular layers will be conducted by electrochemistry and ultrafast electrochemistry. In a second step, these molecular layers will be integrated into molecular junctions and the current-voltage characteristics will be evaluated. The ultimate goal is to obtain resistive memory-type devices..

Mots clés : diazonium reduction, ultrafast electrochemistry, memristors, charge transfer