南京大学高济宇有机化学前沿讲座

Find the Art of Chemistry!

题　　目：**Molecular Wires and Switches with Organometallic Carbon-Rich Complexes and Photochromic Units for Molecular Electronics**

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时　　间：**2019年4月11号（星期四）下午16:30**

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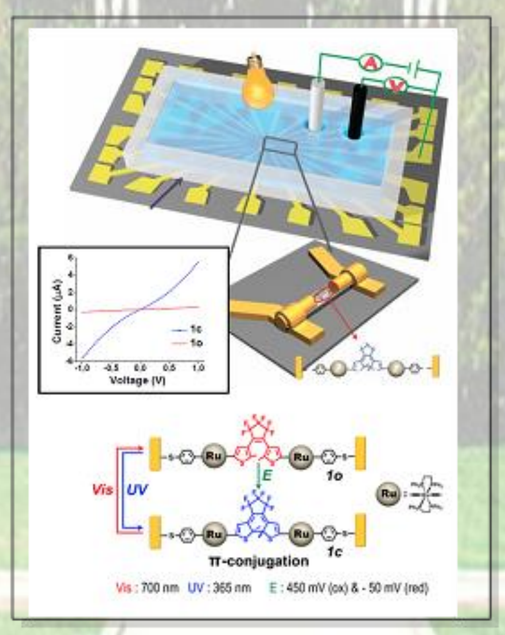
Scientific Career:

Stéphane Rigaut obtained his PhD in 1997 from the University of Bordeaux 1 under the supervision of Prof. Didier Astruc and Dr. Marie-Hélène Delville in "Redox Catalysis with mono and polymetallic electron reservoir metal complexes ".After a post-doctoral position in Minneapolis (USA) with Prof. Larry L. Miller dealing with “Vapoconductivity in Dendrimers and swollen commodity polymers”, he was hired in 1998 as an assistant Professor at the University of Rennes 1. The topic of his research was the study of electron transfer processes in redox active carbon-rich polymetallic ruthenium complexes with unusual topologies. In 2008, he obtained a full Professor position and his interest moved toward (i) the building of innovative multifunctional molecular wires and switches including redox active carbon-rich organometallics, lanthanide ions and photochromic units, and (ii) the study of their properties from solution to surfaces and devices.

Lecture abstract:

The aim of our research deals with the use of carbon-rich ruthenium complexes as useful tools for molecular electronics. These building blocks allow the achievement of original redox-active molecular wires and junctions owing to (i) their excellent ability to promote strong electronic coupling between the metal centres and the conjugated ligands, and (ii) their fast electron transfer dynamics associated to discrete oxidation events at low potentials.

In addition, combinations of such metal complexes with carefully chosen functional units, including photochromic units, lead to valuable tools to achieve functional materials that present effective switching behaviour of different properties, including magnetism, NIR luminescence or conductivity. In particular, association of dithienylethene units with ruthenium(II) complexes affords materials that gather efficient and suitable photo/electrochromic properties to achieve unique multifunctional switchable nanodevices.



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