学术报告

题 目: Localized Electrochemistry and Functional Surfaces

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Localized Electrochemistry and Functional Surfaces

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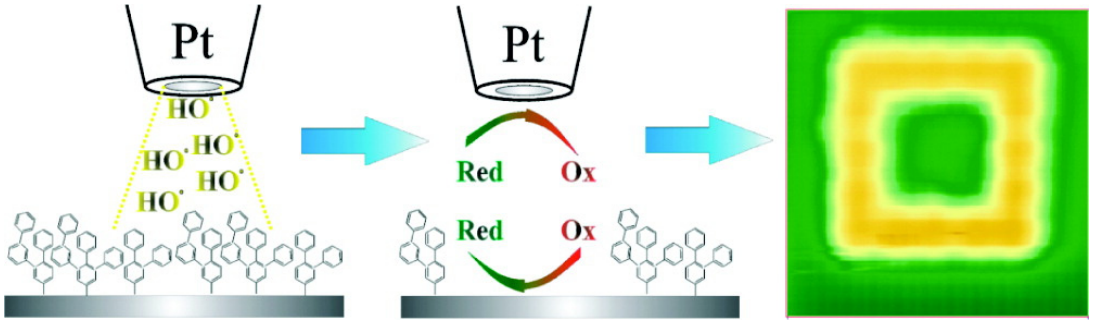
Abstract

Surfaces functionalization presents growing interests due to the large range of possible applications as for example those in analytical, bio-analytical chemistry or molecular electronic. In relation with these expending fields, classical electrochemistry and the more recent developments of electrochemistry at a local scale (micro- and nano-electrochemistry) appear as versatile and straightforward means for building and analyzing functionalized and nanostructured surfaces.

In this lecture, we will discuss how a surface reaction and properties of a functionalized surface on different common substrates (Si, C, Pt, Au,…) could be probed and controlled through adapted and relatively low cost electrochemical techniques, the Scanning Electrochemical Microscopy (SECM) [1] being particularly well-adapted.[1]

Different examples will be presented taken from our recent studies in relation with surface reactions implying ROS (reactive oxygen species), « click » chemistry coupling or the enhancement of charge tunnelling though an insulating media using redox dendrimers.[2-4]



References

[1] A.J. Bard, M.V. Mirkin, *Scanning Electrochemical Microscopy*; Marcel Dekker: New York, 2001.

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[3] “Locally Induced and Self-Induced Electroclick onto a Self-Assembled Monolayer: Writing and Reading with SECM under Unbiased Conditions” S. Lhenry, Y.R. Leroux, C. Orain, F. Conan, N. Cosquer, N. Le Poul, O. Reinaud, Y. Le Mest, P. Hapiot *Langmuir* **2014**, 30, 4501.

[4] “Tunneling Dendrimers. Enhancing Charge Transport through Insulating Layer Using Redox Molecular Objects” S. Lhenry, J. Jalkh, Y.R. Leroux, J. Ruiz, R. Ciganda, D. Astruc, P. Hapiot *J. Am. Chem. Soc.* **2014**, 136, 17950.