

# 第 17 回機能物質化学講演会のお知らせ

日時：2014 年 1 月 24 日（金）午後 3 時～午後 4 時 30 分

場所：J 棟 505 室

概要： 仏リール第 1 大学の Michel SLIWA 博士（CNRS 研究員）が来日するにあたり、本学相模原キャンパスで講演会を開催いたします。

講演題目：Design of Efficient Photo-Induced Charge Separation in Donor- Copper (I)-Acceptor Triad

講演概要：The transduction of light energy into a long-lived charge-separated state with a high quantum yield is a fundamental step for the development of artificial photosynthetic devices. In this context, multi-component triadic systems composed of a sensitizer connected to an electron donor ligand and an electron acceptor ligand represent the generally well-accepted strategy to reach long-lived charge-separated states.<sup>[1]</sup> Despite that Cu (I) diimine complexes has similar properties than Ru (II) one, with the advantage to be more abundant, cheaper and less toxic, there is only one recent reported photo-induced charge separation in a mixture of homoleptic and heteroleptic donor-heteroleptic Cu (I)-acceptor triad.<sup>[2]</sup>

We present herein the first design of a pure and stable Donor-Sensitizer-Acceptor triad in which a bis-diimine Cu (I) sensitizer assembles a naphthalene diimide (NDI) and a ferrocene. The design of the triad was optimized through the synthesis of new heteroleptic Cu (I) complexes<sup>[3]</sup> and 2 dyads with different distances between the NDI and Cu (I).<sup>[4]</sup> The detailed mechanism was established by UV-Visible and infrared femtosecond transient experiments. The results will be discussed focusing into the design of future bisdiimine Cu (I) complexes for photo-induced charge separation.

[1] D. Gust, T. A. Moore, A. L. Moore, *Acc. Chem. Res.* **2001**, *34*, 40 - 48.

[2] M. S. Lazorski, R. H. Gest,; C. M. Elliott, *J. Am. Chem. Soc.* **2012**, *134*, 17466 - 17469

[3] Y. Pellegrin, M. Sandroni, E. Blart, A. Planchat, M. Evain, N. C. Bera, M. Kayanuma, M. Sliwa, M. Rebarz, O. Poizat, . Daniel, F. Odobel, *Inorg. Chem.* **2011**, *50*, 11309 - 11322

[4] M. Sandroni, A. Maufroy, M. Rebarz, Y. Pellegrin, E. Blart, O. Poizat, C. Ruckebusch, M. Sliwa, F. Odobel, submitted