

# 平成 30 年度第 1 回 VBL セミナー

## 1<sup>st</sup> VBL Seminar, 2018

日時：平成 30 年 7 月 18 日（水）13 時 30 分～15 時 00 分

場所：工学研究科 1 号館 4 階 144 講義室

講師：Pierre Mobian 准教授（University of Strasbourg, フランス）  
（VBL 客員准教授）

題目：Colored Titanium Oxo-Clusters

要旨：Titanium dioxide ( $\text{TiO}_2$ ) is a cheap non-toxic semiconductor, which elicits a major interest for applications in photocatalytic water splitting,<sup>1</sup> photocatalytic degradation of pollutants<sup>2</sup> or solar energy conversion.<sup>3</sup> However,  $\text{TiO}_2$  mainly absorbs the UV light due to its high band gap (3.2 eV). Therefore, to develop more practical  $\text{TiO}_2$ -based photo-active materials, the researches are focused on materials that can absorb light in the visible domain. Titanium oxo-clusters<sup>4</sup> are fascinating models of the bulk  $\text{TiO}_2$ , and the intensive researches are devoted to the synthesis of polyoxotitanium complexes absorbing light in the visible region. In that context, we will describe our approach leading to an unprecedented family of colored oxo-clusters formed by a  $\text{Ti}_{10}\text{O}_{12}$  inorganic core that is decorated by eight catecholato ligands and eight labile substituted pyridine ligands.<sup>5</sup> The compound formulated as  $\text{Ti}_{10}\text{O}_{12}(\text{cat})_8(\text{py})_8$  (py: pyridine; cat: catecholato) is an efficient nano-building block to generate colored hybrid materials in the presence of poly(4-vinylpyridine). The homogeneity of the resulting material and the functionalization of surfaces with oxo-cluster-based thin films will also be presented.

### References

(1) A. Fujishima, K. Honda, *Nature* **1972**, 238, 37. (2) (a) A. L. Linsebigler, G. Lu, J. T. Yates, *Chem. Rev.* **2009**, 109, 735. (b) S. Josset, N. Keller, M.-C. Lett, V. Keller, *Chem. Soc. Rev.* **2008**, 37, 744. (3) M. Gratzel, *Inorg. Chem.* **2005**, 44, 6841. (4) L. Rozes, C. Sanchez, *Chem. Soc. Rev.* **2011**, 40, 1006. (5) (a) C. Chaumont, P. Mobian, M. Henry, *Dalton Trans.* **2014**, 43, 3416. (b) C. Chaumont, A. Chaumont, N. Kyritsakas, P. Mobian, M. Henry, *Dalton Trans.* **2016**, 45, 8760.

問い合わせ先：

名古屋大学 大学院工学研究科 有機・高分子化学専攻  
八島栄次

Tel: 052-789-4495, Fax: 052-789-3185

E-mail: yashima@chembio.nagoya-u.ac.jp