ADSORPTION OF FLUOROUS COPPER(II)-CARBOXYLATE COMPLEXES ONTO TEFLON OR GLASS: STRAIGHTFORWARD PREPARATION OF SUPERHYDROPHILIC AND COORDINATING SURFACES

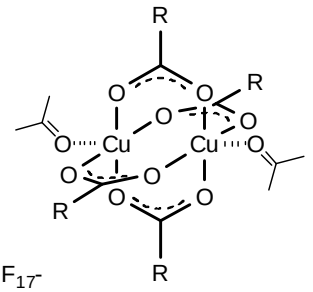
Jean-Marc Vincent

Institut des Sciences Moléculaires, Université Bordeaux 1, UMR-CNRS 5255, 351 Crs de la Libération, 33405 Talence Cedex, France; jm.vincent@ism.u-bordeaux1.fr

Methodologies based on coordination chemistry are emerging as powerful tools for the preparation of mono- and multilayers assemblies providing in some cases, a high control of molecular ordering in the resulting films.[1] Of particular interest is the preparation of porphyrin films because of their great potential for application in devices for molecular information storage, photovoltaics or sensing.[2]

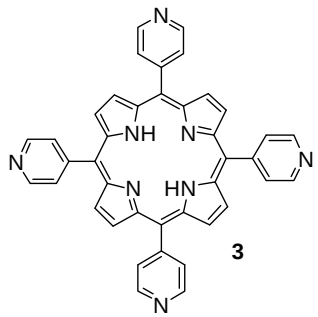
We recently discovered that the fluorous dicopper(II) complex **1**, in which the perfluorinated chain is directly appended to the carboxylate group, exhibits an extremely high affinity for water in the solid state.[3] The adsorption of **1** or **2** onto materials such as glass[4] or Teflon[5] strongly affects their surface properties as it leads to surfaces exhibiting both hydrophilic and coordinating properties. For instance, complexes **1** or **2** are readily chemisorbed on SiO_2 surfaces providing super-hydrophilic binding copper(II) monolayers which can be further functionalized by non-fluorophilic pyridyl-tagged compounds like the *meso*-tetra(4-pyridyl)porphyrin **3**.[4]

In the presentation, the preparation of the modified surfaces, their characterization (AFM, SEM, fluorescence microscopy, contact angles…), wettability and binding properties will be described.



1, R = C_8F_{17}-

2, R = $CF_3CF_2CF_2$-O-[$(CF_3)CF$-CF_2-O]$_3$-$(CF_3)CF$-



3

References

1. H. Nishihara, K. Kanaizuka, Y. Nishimori, Y. Yamanoi, *Coord. Chem. Rev.* **2007**, *251*, 2674.
2. M. Zhou, Z. Li, T. Liu, P. Zhang, D. Xu and S. Gao, *J. Phys. Chem.* **2010**, *114*,1790.
3. A. Motreff, R. Correa da Costa, H. Allouchi, M. Duttine, C. Mathonière, C. Duboc and J.-M. Vincent, *Inorg. Chem.* **2009**, *48*, 5623.
4. A. Motreff, G. Raffy, A. Del Guerzo, C. Belin, M. Dussauze, V. Rodriguez and J.M. Vincent, *Chem. Comm.* **2010**, 2617.

5 *Chem. Commun.* accepted

…...