

UniCat Lecture

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Lecturer: **Prof. Christophe Copéret**, Department of Chemistry and Applied Biosciences, ETH Zürich, Switzerland

Title: **Controlled fonctionnalisation of surfaces for the preparation of supported single-site and “nano”-catalysts**

Abstract: Homogeneous and heterogeneous catalysts have each specific advantages. Homogeneous catalysts are typically associated with efficient chemical transformations at low temperatures (high selectivity), while heterogeneous ones are typically preferred in term of processes (easier regeneration and separation processes).

Here, we will show that it is possible to combine the advantages of homogeneous and heterogeneous catalysts by the controlled fonctionnalisation of the surfaces of oxide materials.¹ This approach can lead to the formation of well-defined “single-sites”, whose performance and stability can be far above those displayed by homogeneous and heterogeneous catalysts, e.g. the well-defined heterogeneous alkene metathesis catalysts.² It can also provide a way to control the growth of nanoparticles and to access highly reactive sites, which allows the activation and the transformation of H₂, O₂ and alkanes at low temperatures.^{1c,3-4}

[1] (a) C. Copéret *et al. Angew. Chem. Int. Ed.* **2003**, *42*, 156. (b) C. Copéret *New. J. Chem.* **2004**, *28*, 1. (c) C. Copéret, *Pure Appl. Chem.* **2009**, *81*, 585.

[2] (a) C. Copéret *Dalton Trans.* **2007**, 5498. (b) I. Karamé *et al. Chem. Eur. J.* **2009**, *15*, 11820.

[3] D. Gajan *et al. J. Am. Chem. Soc.* **2009**, *131*, 14667.

[4] C. Copéret *Chem. Rev.* **2010**; *110*, 656.

Date: **Wednesday, 26 January 2011**

Time: **5:15 pm - around 6:45 pm**

Location: **TU Berlin, Institute of Chemistry,
Building C, Straße des 17. Juni 115,
10623 Berlin, room C 243**

Organiser: Prof. Dr. Drs. h.c. Helmut Schwarz (TUB)

Coffee and tea will be served thirty minutes prior to the lecture start.
Guests are cordially invited to attend!

Prof. Dr. Matthias Driess, Chair of the Cluster of Excellence UniCat