

ZERNIKE INSTITUTE COLLOQUIUM

Thursday, March 6th, 2014

16:00h, Lecture Hall: 5111.0080

Coffee and cakes from 15:30h

Non-aqueous sol-gel routes to hybrid materials

Nicola Pinna
Humboldt-Universität zu Berlin
Institut für Chemie
Berlin, Germany

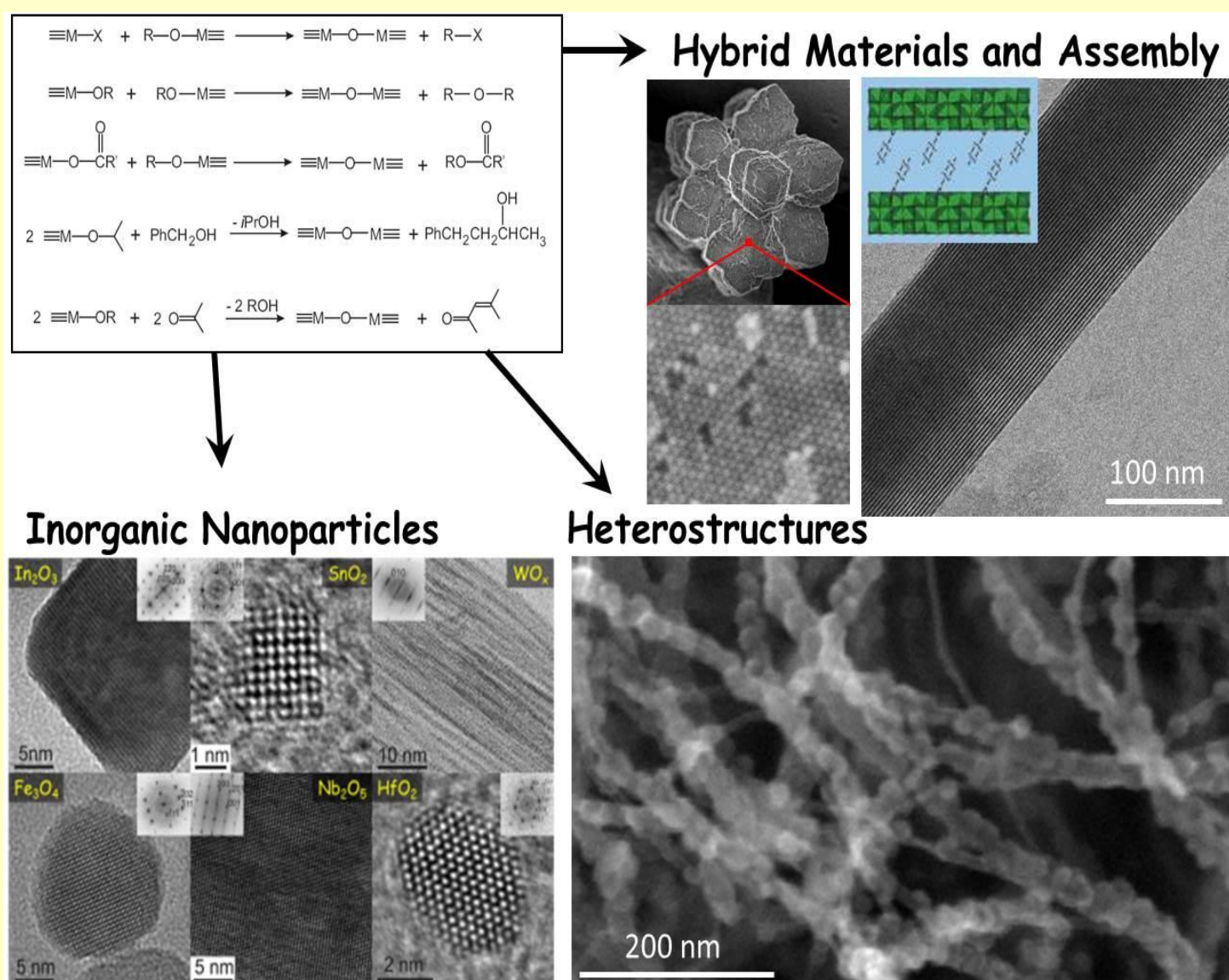


Among soft chemistry approaches, non-aqueous sol-gel routes are elegant routes for the synthesis of metal oxide nanocrystals,[1] ordered organic-inorganic hybrid materials,[2] inorganic heterostructures.[3]

These routes, involving the reaction of metal oxide precursors in organic solvents (e.g. benzyl alcohol) at moderate temperature and pressure, offer advantages such as high crystallinity of the

as synthesized oxides, high purity, high reproducibility and the ability to control the crystal growth without the need of using additional ligands. Moreover, non-aqueous sol-gel is particularly suitable for the syntheses of multi-metal oxides and doped materials.[4]

In this presentation, after a short introduction to non-aqueous sol-gel chemistry, I will focus on our recent work on the synthesis of metal oxide nano-building blocks and their assembly in organic-inorganic hybrid materials and their optical properties [5].



References:

- [1] N. Pinna, M. Niederberger, *Angew. Chem. Int. Ed.*, **2008**, 47, 5292-5304.
- [2] N. Pinna, *J. Mater. Chem.*, **2007**, 7, 2769-2774.
- [3] S. Baek, et al. *RSC Advances*, **2011**, 1, 1687 - P. A. Russo et al. - *Angew. Chem. Int. Ed.*; **2012**, 51, 11053 - S.-H. Yu, et al. *Adv. Funct. Mater.*, **2013**,
- [4] N. Pinna, et al. *J. Sol-Gel Sci. Technol.*, **2011**, 57, 323
- [5] A. Pucci, et al. *ACS Nano*, **2012**, 6, 4382 - G. Caputo, N. Pinna, *J. Mater. Chem., A* **2013**, 1, 2370



university of
 groningen

zernike institute for
 advanced materials