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Nanochemistry, Nanoparticles, Nanocatalysis

(Last update: August 23th, 2022)

Description

Nanochemistry enables the synthesis of nanostructures with controlled properties (size, shape, crystallinity, chemical composition, surface composition...) for applications in numerous fields such as optics, nanomedicine or nanocatalysis. Mono or multimetallic nanoparticles can be either used directly (i.e. as unsupported nanocatalysts) or stabilized using a support (oxides or carbon) for thermal-activated-, photo- and electro-catalysis. Optimizing their performance requires a better understanding of their structure at the atomic level in relation to their properties, especially under real conditions of use. In this context, this session will be devoted to the understanding of the nucleation and growth mechanisms of chemically synthesized nanostructures, and of their integration in macroscopic systems. It will be also dedicated to the determination of the relationships between the main features (composition, shape, structure, surface state) and performances of these materials in various applications. A particular focus will be on the understanding on the evolution of the nanostructures and the active sites under reaction conditions and its impact on the catalytic performance. Experimental and theoretical results will be discussed in this session organized in partnership with the GDR NINO (study group on inorganic nanostructures elaborated in solution) and the GECAT (Study Group on Catalysis).

Keywords

Wet chemistry, inorganic nanoparticles, nucleation and growth mechanisms, in situ and operando studies, catalysis, modelling

Scientific committee

Fabien Can* (Univ. Poitiers – IC2MP)

Florence Epron* (CNRS – IC2MP, Poitiers)

Manuel Gaudon (Univ. Bordeaux – ICMCB, Bordeaux)

Myrtil Khan (CNRS – LCC, Toulouse)

Ksenia Parkhomenko (CNRS- CPEES, Strasbourg)

Jean-Yves Piquemal (Univ. Paris Cité- ITODYS, Paris)

** session Coordinator*

In partnership with GDR NINO, GECAT