

MaMaSELF

Contribution ID: 21

Type: **not specified**

Chiral Hybrid porous materials for enantioselective catalysis: synthesis and reactivity studied by in-situ x-ray power diffraction

Thursday, 23 May 2013 11:15 (30 minutes)

Hybrid porous materials have become during the past decade one of the most promising classes of synthetic compounds. These materials have potential applications in various fields, from gas storage purification and separation, heterogeneous catalysis, breathing or even controlled drug delivery. Making a judicious choice of the organic and inorganic building units (BU) it is possible to introduce functional characteristic to this materials. In this project MOFs (Metal Organic Frameworks) are functionalized by the introduction of chirality for enantioselective heterogeneous catalysis. Following previous studies in Rennes on MOFs elaborated from original ligands, we synthesized three new optically pure large spacers (L1,L2,L3) containing two or four carboxylate functions and chiral alkyl chains grafted on a fluorene core which is until now very few used for MOFs synthesis. By combination with Cd, Cu and Zn based inorganic BU we synthesized three new families of stable, porous (from 20 to 60%) and chiral MOFs. Most promising 3D MOFs (Figure) present desolvated phases whose structures are still not determined. Project will deal with in situ laboratory and synchrotron powder diffraction study on these new MOFs. MOF activation and interaction with molecules relevant for enantioselective separation and catalysis (i.e. butanol-2, benzaldehyde for further cyanosilation) will be studied. The insight will be of crucial importance in the understanding of enantioselective separation and catalytic tests currently in progress on these MOFs. Furthermore part of the project will concern synthesis of new chiral MOFs from commercial ligands (champhoric acid), determination of their structures and study of their reactivity from in situ laboratory and synchrotron powder diffraction in order to evidence interesting activated phases.

Primary author: Mrs LOPES SELVATI, Ana Carolina (Université de Rennes 1)

Presenter: Mrs LOPES SELVATI, Ana Carolina (Université de Rennes 1)

Session Classification: Late Morning Session Thursday