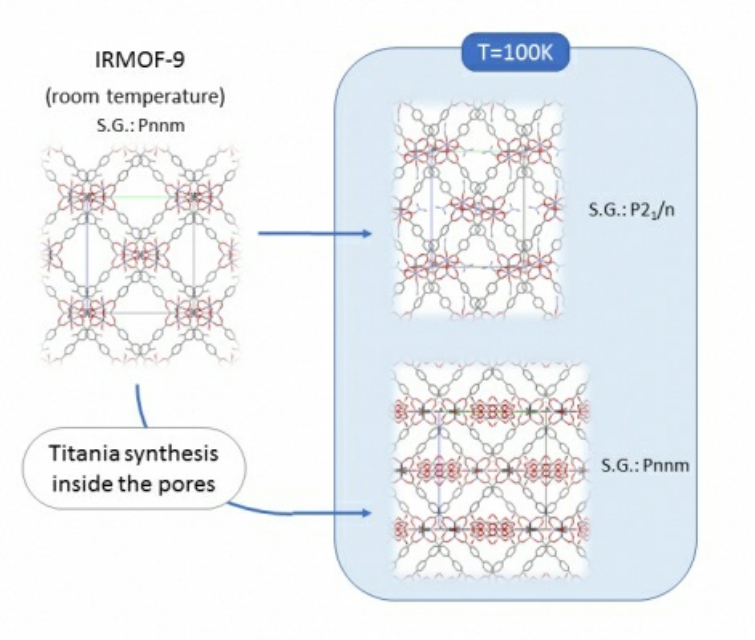
Poster Presentation

MS011.P01

Synthesis and structural elucidation of TiO_2 aggregates grown inside MOFs

Stefano Canossa[1], Paolo Pelagatti[1], Claudia Graiff[1], Giovanni Predieri[1], Alessia Bacchi[1]
[1]*Chemistry, Parma, Italy*
E-mail: stefano.canossa@studenti.unipr.it

The ordered porosity of Metal Organic Frameworks is commonly acknowledged as the most important feature when their use in the field of host guest materials chemistry is concerned. This is indeed one of their main application, and the possibilities offered by their crystalline nature for structural studies concerning the trapped species make these materials even more versatile and interesting.
In this project we aim to exploit the porosity of MOFs to synthesize titania particles inside the pores, in order to obtain MOF-TiO2 composite materials with promising applications in photocatalysis. Structural studies by X-ray diffraction are among the main performed activities, in order to characterize any change in the structure of the original MOF and to gain any useful information about the aggregate grown inside the solid. Preliminary results including the structural characterisation of an titanium oxo-cluster linked by an oxo bridge to Zn atoms of IRMOF-9(1) suggested that Zn based MOFs can be promising starting materials for our purpose. In the cited case, the MOF was not only able to endure the synthetic procedure of the aggregate but also showed different behaviour with temperature changes with respect to the untreated material(1).
1 Yaghi, O. M., et al. (2002). Science. 295, pp 469-472



Keywords: Metal Organic Frameworks, post synthetic modification, nano-titania