MS33-P02 | POLARIZED FLUORESCENCE HARVESTED FROM FULLERENES LOADED IN NON-CENTROSYMMETRIC NI-MOF

Vasylevskyi, Serhii (University of Fribourg, Fribourg, CH); Raffy, Guillaume (Université de Bordeaux, Talence, FRA); Bassani, Dario (Université de Bordeaux, Talence, FRA); Fromm, Katharina (University of Fribourg, Fribourg, CH)

At this ECM-32 we will present a new functional Ni-MOF (Ni(II) metal-organic framework) capable to uptake fullerenes from the solution mixture. The crystal structure of the new Ni-MOF revealed hexagonal channels with sufficient pores size that can accommodate guests such as C_{60} and C_{70} inside. However, crystallographically those guests cannot be seen due to high disorder and random distribution in the 1D channels of Ni-MOF, therefore approach of confocal laser scanning microscopy (CLSM) was utilized to visualize and characterize spectroscopically the uptake of C_{60} and C_{70} into the pores of Ni-MOF with selective excitation of the crystals of Ni-MOF (Figure 1). Results show that new Ni-MOF has relatively selective uptake of the C_{70} in comparison to C_{60}. Results have been evaluated by emission from the single crystals, as well as by lifetime. In addition, the study of polarization of the light harvested from C_{60} and C_{70} in the channels indicates that the guests are located close to each other forming excimer emission. Also, evaluation of the selectivity of uptake of the guests was performed using HPLC of the destroyed Ni-MOF. These new results are very promising for producing a new generation of hybrid MOFs for new ultra high surface area materials for uptake energetically valuable gases e.g. H_2, CH_4, CO_2.

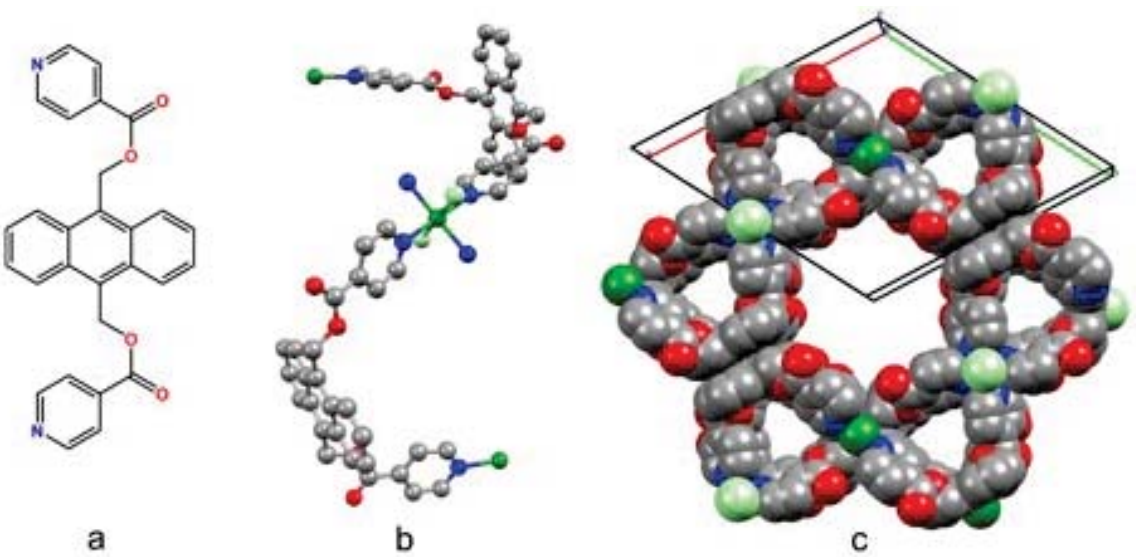

Figure 1. (a) Ligand used to synthesize the Ni-MOF (**1**), (b, c) functional groups bending, view along the c-axis in the crystal structure