

MS33-P04 | SYNTHESIS AND CHARACTERIZATION OF NEW LANTHANIDE MOFs USING A SEMI-FLEXIBLE BIS-IMIDE LIGAND.

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Metal-Organic Frameworks (MOFs) synthesized with lanthanide ions (LMOFs) has been less explored than the MOFs obtained with transition metals, probably because the rationalization of the synthesis of LMOFs is harder due to the variability in the coordination number and flexibility in the coordination geometry. However, the intrinsic properties of the lanthanide ions make attractive the research and its use in the building of new LMOFs because of its potential applications such as sensors, catalyst, magnetism, among others.

In this work we report five isostructural 2D LMOFs, obtained through the solvothermal reaction of the ligand 2,2'-(1,3,5,7-tetraoxo-5,7-dihydropyrrolo[3,4-f]isoindole-2,6(1H,3H)-diyl)dipropionic acid[1] and hydrate nitrate salts of Pr, Eu, Tb, Er, and Tm. The single X-ray diffraction showed that the materials are isostructural and crystallized in triclinic P-1 space group. The lanthanide ions are octacoordinated with 8 oxygens, three from the solvent (DMF) and five from the ligands. Two lanthanide ions are bridged by four carboxylates from the ligands giving place to the SBU. Each SBU is joined by ligands in such a way that 1D chains are obtained. These chains are transversally joined through another ligand resulting in a 2D MOF. The Eu and Tb material showed the characteristics red and green emissions when were excited under UV light. Their emission was enhanced almost four and three times respectively after a partially activation procedure.

[1] Joarder, B., et al., Guest-Responsive Function of a Dynamic Metal–Organic Framework with a π Lewis Acidic Pore Surface. *Chemistry – A European Journal*, 2014. **20**(47): p. 15303-15308.