

Furukawa Group Seminar

Date

April 12th, 2023
10:00–11:00

Venue

Kyoto University, KUIAS
iCeMS Main Building
2F Seminar Room
(#A207)

Registration



- Required from Google form (<https://forms.gle/PrkkqmHKGfiapjrDg>)
- On-site only

Contact

KUIAS iCeMS
Furukawa Group
furukawa-g@icems.kyoto-u.ac.jp

Solvent-free synthesis of Metal-Organic Frameworks: a route towards elusive materials



Prof.
Guillermo Mínguez Espallargas

Institute of Molecular Science (ICMol)
University of Valencia (Spain)

Abstract

The development of metal-organic frameworks (MOFs) has grown very rapidly in the last years, with numerous applications in a wide range of different fields resulting from the ample chemical versatility of this type of crystalline porous materials. Herein we will present an uncommon synthetic approach, very versatile, for the preparation of elusive porous materials, based on the absence of solvents. With this approach, we will present the iron(II) analogue of ZIF-8.[1] Then, we will extend this approach for the preparation of multivariate ZIFs, which is typically limited due to the absence of control of topologies when a mixture of ligands/metals is used.[2] We will show also its applicability to prepare iron(II) glasses, achieved through a series of solid-state transformations that result in a meltable iron based zeolitic imidazolate framework (ZIF).[3] And finally, we will use this methodology for the inclusion of catalytically active Pd(II) centres in a highly robust MOF.

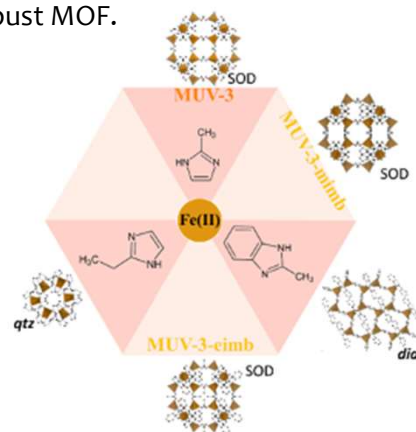


Figure. Scheme of the different achievable crystal structures by solvent-free synthesis combining Fe(II) and different imidazole derivatives.

References

- [1] J. López-Cabrelles, et al. *J. Am. Chem. Soc.* **2019**, 141, 7173–7180.
- [2] J. López-Cabrelles, et al. *Chem. Sci.* **2022**, 13, 842–847.
- [3] L. León-Alcaide, et al. *submitted*.
- [4] E. Miguel-Casañ, et al. *Chem. Sci.* **2023**, 14, 179–185.



FURUKAWA LAB

