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Metal-Organic Frameworks for catalysis: exploring atomic structures without crystals

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Metal-Organic Frameworks, composed of molecular components connected to give porous architectures, have demonstrated to be unexpectedly dynamic. However, porous framework materials have been commonly regarded as static frameworks, mostly driven by a conventional understanding of crystallinity.

In this talk we will discuss how this idea is incomplete and needs to be rethought. What is the real structure of a MOF under working conditions? Which is the role of atomic distortions and rearrangements in the ultimate catalytic properties of a MOF? By using advanced X-ray scattering characterization tools, such as the Pair Distribution Function analyses, we can look at the atomic structure of materials regardless their degree of crystallinity.[1] This is pivotal to provide a better understanding of catalytic materials under conditions relevant for applications.[2,3]

Referencias/ References

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