

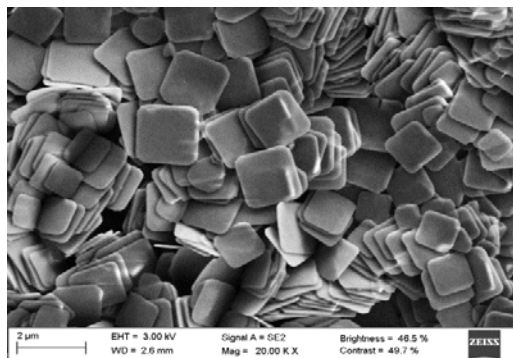
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Nanoscale hybrid nanocomposites: NP@ZIF-8

Initial efforts on metal-organic-frameworks (MOF) chemistry were put on building crystalline porous bulk structures without controlling the shape and size of the crystal. In contrast to pure inorganic materials, in which the nanoscale dimension brings new physicochemical properties, MOFs, independently of their size, exhibit localized electronic states rather than delocalized ones. However, other applications may demand nanoscale MOFs (i.e., NMOFs).

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Here hybrid nanomaterials with properties derived from metallic NPs and MOFs were produced. The hybrid nanostructures were synthesized by growing ZIF-8 (Zeolitic Imidazolate Framework) around pre-stabilized NPs. UV-Vis spectroscopy, X-ray diffraction, dynamic laser-light scattering (DLS), SEM and TEM were performed in order to characterize the physicochemical properties and the morphology of the composites.