# Nanocomposite synthesis strategies based on the transformation of well-tailored metal-organic frameworks

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Increasing the complexity of nanomaterials in terms of their structure and chemical composition has attracted significant attention, because it can yield unique scientific outcomes and considerable improvements for practical applications. Various approaches are being developed for the synthesis of nanostructured composites. Coordination polymers (CPs) emerged as new precursors in solid-state reactions for nanomaterials nearly two decades ago; the repetitively arranged inorganic and organic units can facilitate the production of nanoscale particles and porous carbon upon thermal decomposition. Metal–organic frameworks (MOFs), a subgroup of CPs featuring crystalline and porous structures, have subsequently become primary objects of interest in this field, as can be seen by the rapidly increasing number of reports on this topic. However, unique composite materials with increasingly complex nanostructures, which cannot be achieved via conventional methods, have been rarely realised, even though conventional MOF research has enabled the delicate control of structures at the molecular level and extensive applications as templates. In this context, here we present the fabrication strategies of MOF-based precursors and the thermal transformation into functional nanomaterials, with a particular emphasis on our recent developments in nanocomposite research. We believe that abundant synthetic and control techniques inherited from traditional MOF research are still awaiting discovery through more advanced investigations.