Metal-organic frameworks-based materials for biomass transformations

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Metal–organic frameworks (MOFs) are a new class of porous materials, which have potential applications in a wide range of areas including catalysis, gas storage, separation, and energies. Owing to their high surface area, porosity, and chemical tunability, the utilizations of MOFs in heterogeneous catalysis have attracted tremendous attention.

Taking advantage of their ordered structures and relatively low thermal stability, MOFs could be utilized for the preparation of new metal oxides or carbon nanomaterials by thermal decomposition. In MOFs, the highly ordered metal ions are isolated by organic ligands regularly, which will play an important role in preventing metal from aggregation during thermolysis. Here we report that metal nanoparticles/atoms embedded in carbon prepared from MOFs thermonlysis could catalyze a variety of transformations, such as aerobic oxidation of alcohols to esters, domino synthesis of natural flavones, and furfural upgrading to aviation biofuels. [1-5].

References

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