

Water-based Synthesis of Metal-Organic Frameworks for Chemical Engineering Applications

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Metal-organic frameworks (MOFs) have been attracting great attention owing to their extremely high specific surface area, uniform pore size, versatile composition, and so on. So far, the synthesis of MOFs has been usually conducted in organic solvent systems for dissolving organic ligands, which would cause environmental pollution and thus inhibit the practical applications of MOFs. My group has been working on the water-based synthesis of MOFs since seven years ago. In this talk, I will start with how we use this new green chemistry approach of water-based synthesis to prepare MOFs. In addition, I will introduce how we apply these MOFs in various kinds of chemical engineering applications, including enzyme immobilization, membrane separation, and biomass conversion.