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Bridging Homogeneous and Heterogeneous Catalysis through MOF Support Platforms and Other Efforts to Obtain New Class of Highly Active Recyclable Catalysts

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The talk will focus around developing recyclable catalysts and analytical methods to study them. We will start with the discussion with synthesis, analysis and catalytic properties of Metal-Organic Frameworks (MOFs) with immobilized bidentate nitrogen ligands. This will include discussion on preparation of a number of alkyne functionalized ligands and their immobilization on the MOF surface through azide-alkyne “click” reaction. We will then shift the discussion to nanoparticle solubilization in nonpolar media with terminally functionalized Polyisobutylene (PIB) oligomers and application of this method to analyze MOF particles with immobilized complexes. We will show that MOF nanoparticles solubilized through this method can be interrogated through methods used for solution state analyses.

Keywords: Catalysis by Metal Organic Frameworks, nanoparticle solubilization.