Metals in Polymers: Hybridization Enables New Functions

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Chemistry Seminar on Metals in Polymer/Inorganic Materials

Thursday Feb. 1 at 4 pm in 303 Schrenk

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Loading metal ions and nanoparticles on polymer Abstract: supports to produce "soluble" catalysts has long been used in catalysis. Harnessing synergies at the interface of polymers and inorganic catalytic components is, however, still challenging. Our group works on developing new synthetic methodologies of hybrid polymer/inorganic materials (metal ions and nanoparticles) with well-defined chemical compositions, nanostructures and synergetic functionalities. We seek to understand the role of polymers in tuning the interface of hybrid materials in order to control the catalytic properties of inorganic materials. My talk will show our recent effort on, i) the development of new synthetic methods to prepare polymer-tethered nanoparticles and explore the role of new ligand chemistry in the stabilizing metal nanoparticles in electrocatalysis; and ii) control over the electronic properties and accessibility of nanoparticles or metal ions that are incorporated in polymer frameworks. I will introduce the concept of polymer-tethered nanoparticles and the application of hybrid building blocks for selfassembly.

About the speaker: Jie He received his BS and MS degrees in Polymer Materials Science and Engineering from Sichuan University and his PhD in Chemistry from Université de Sherbrooke in 2010. He joined the faculty of the University of Connecticut after working as a postdoctoral fellow at the University of Maryland in 2011–2013. He is currently an Associate Professor of Chemistry and Polymer Program at the Institute of Materials Science, University of Connecticut. His research group focuses on design and synthesis of hybrid materials of polymers and metals that are capable activating small molecules as inspired by metalloenzymes.