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**ATRP of MMA on Asymmetrically Functionalized Gold Nanoparticles** BINGBING WANG, BING LI, CHRISTOPHER LI, Drexel University — Metal nanoparticles have attracted enormous interest due to their unique optical and electronic properties. After the pioneer work of Brust and Schiffrin, a lot of reports have been focused on the modification of the surface of metal nanoparticles with functional groups. However, it still remains a challenging task to synthesize Janus metal nanoparticles, which could potentially lead to directed assembly of the functionalized nanoparticles, an essential step towards using these nanoparticles in real world applications. Asymmetrical gold nanoparticles (AuNPs) modified with two different kinds of polymers on the opposite sides were synthesized using poly(ethylene oxide) single crystals with thiol end groups as the substrate. After the immobilization of AuNPs, room temperature ATRP was performed using the ‘grafting from’ method to obtain asymmetrical AuNPs, which possess the ‘Janus’ nature: i.e. two types of polymer chains were selectively patterned on the different locations of the AuNPs. The asymmetric nature of these AuNPs was demonstrated by NP decoration.

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