

## Heterogeneous enantioselective hydrogenation over size-controlled Pt nanoparticles

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In many heterogeneous catalysis using metal nanoparticles, the catalytic performance is sensitive to the size and structure of the nanoparticles. To understand the structure sensitivity, it is necessary to prepare uniform heterogeneous catalysts with size-controlled nanoparticles. In this study, we investigated size effect of Pt nanoparticles on heterogeneous enantioselective hydrogenation. The size-controlled Pt nanoparticles were synthesized by using polyvinylpyrrolidone (PVP) as a capping agent. The 3nm, 5nm, 8nm Pt nanoparticles were supported on mesoporous silica, MCF with window size of 23nm. These catalysts were characterized by TEM, TGA, CO chemisorption technique. For enantioselective hydrogenation of ethyl 2-oxo-phenylbutyrate, the Pt/MCF catalysts were chirally modified by cinchonidine. Our results showed that the 3nm Pt/MCF reveals the highest catalytic performance compared to 5nm and 8nm Pt/MCF catalysts.