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Preparation of Janus-type catalysts and their catalytic performance at emulsion interface

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Abstract: Two Janus-type catalysts were synthesized by selective modification and further functionalization with metal nanoparticles on one or both beads of snowman-like Janus particles. The catalytic performance of Janus-type catalysts both in homogeneous and interfacial reaction systems was systematically investigated using the reduction of nitro-compound as model reaction. The results showed that Janus-type catalysts have excellent catalytic activity in homogeneous reaction system and they are easy to recycle. Further, the Janus-type catalysts exhibited more efficient catalytic activity at emulsion interface than that of oil-water biphasic interface due to the exposed Au nanoparticles on snowman-like Janus particles offer high accessibility to reactants.

Keywords: Janus-type catalyst; selective modification; metal nanoparticles loading; recyclable; emulsion interfacial catalysis.

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