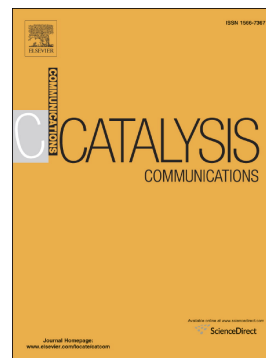


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Self-etching preparation of yolk-shell Ag@carbon nanostructures for highly effective reduction of 4-nitrophenol

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Abstract

Yolk-shell nanostructures have attracted much attention because of their superior properties in various fields. In the present work, a facile self-etching route has been used to synthesize uniform and highly active yolk-shell Ag@carbon nanostructures by selective etching of Ag nanoparticles as the core under an acidic environment. Both the penetrable carbon shell and the empty inner space provide a homogenous environment for heterogeneous catalysis and effectively prevent aggregation of Ag nanoparticles. The well-built Ag@carbon yolk-shell nanoparticles exhibit remarkable catalytic activity and an excellent cycling stability for the reduction of 4-nitrophenol due to their uniform shape, penetrable carbon shell and stable nanostructure.

Keywords: Ag@carbon; Yolk-shell; Nanostructure; Self-etching; Catalytic reduction.

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