

In-Situ Synthesized Shape-Controlled Pt/MWNTs

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Platinum nanoparticles are widely used as catalysts for various reactions, because of high activity for fuel cells reaction, remediation of environmentally toxic compounds of NO_x, etc. Carbon nanotubes are also well known as a support due to their high conductivity and large surface area. Generally, the platinum nanoparticles have been loaded on the acid-pretreated carbon nanotubes. In this process, synthesized platinum nanoparticles are often very polydisperse and conductivity of crystalline carbon nanotubes is severely damaged.

In this study, we synthesized shape-controlled platinum nanoparticles on the thiolated MWNTs (cube, sphere and flower shapes) in situ. And thiolated MWNTs worked as support and assisted shape control without addition of organic capping agents. We characterized Pt/MWNTs using HR-TEM, EDX, and XPS and their catalytic activity was tested for electrocatalytic reaction.