Synergistic Electronic Pull of Graphene Oxide Supported Pd Nanoparticles on Enhancing Catalytic Activity of Electro Deposited Pt Nanoparticles for Methanol Oxidation Reaction

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Graphene oxide supported clean Pd nanoparticles were synthesized by using CO as a reducing agent. Pt film was deposited on Pd NPs through electrochemical potential cycling method. The as-developed catalyst, which exhibits higher catalytic performance for electro oxidation of methanol and better tolerance to the CO poisoning effect suffered during methanol oxidation reaction (MOR). The higher performance of catalyst attribute towards the long chain organic capping agent free formation process of clean PdPt nanocomposite. This facile and effective route is of great significance for the synthesis of Pd-based catalysts on electrode surface directly with highest MOR activity. The synergistic electronic pull provided by graphene oxide supported Pd nanoparticles to Pt in the composite material highly enhanced the electro catalytic activity.

Keywords: Pd Nanoparticles, Pd-Pt Nanocomposite, graphene oxide support, electrochemical deposition, synergistic effect, methanol oxidation reaction

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