

Enhanced CO tolerance of Shape and Composition-Controlled Platinum-based Nanoparticles

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Platinum-based catalysts have been researched for various reactions, because of their catalytic properties with high activity and wide applications for electrocatalysts of fuel cells. However, platinum nanoparticles are usually suffered from poisoning by CO. For preventing this problem, many researches proposed platinum alloy catalysts. In this study, we synthesized not only shape-controlled platinum nanoparticles (cube, branch shapes and unmodified shapes) but also platinum-cobalt alloy nanoparticles with different cobalt ratios. We characterized Pt-Co alloy nanoparticles using TEM, EDX and cyclic voltammetry (CV) tests. The shape-controlled platinum-cobalt alloy nanocrystals show good activities for methanol oxidation electrocatalytic-reaction with enhanced CO tolerance.