

Preparation of nanosized gold-platinum catalysts for direct methanol fuel cells

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Recently, gold has received a growing interest as electrocatalysts with nearly half cost of platinum, improved CO tolerance and higher performance for fuel cells. Although the efficacy of gold nanoparticles as electrocatalysts is also markedly enhanced, the preparation of nanosized gold and gold-based bimetallic system with platinum group metal continues to remain elusive.

Nanosized gold-platinum catalysts on carbon support were prepared in a wide range of pH, from alkaline to acidic condition. The prepared catalysts were characterized using X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), and X-ray photoelectron spectroscopy (XPS). Electrochemical performance was measured by cyclic voltammetry (CV). In this work, the preparation of nanosized gold-platinum catalysts on carbon and its application in the fuel cell as electrode materials were discussed.