

The development of PEM fuel cell electrode by modifying cathode using CNTs on carbon paper supported Pt nanoparticles

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Carbon nanotubes(CNTs) have been proposed as promising support materials for PEMFC catalysts. The considerable properties of CNT include high surface area, outstanding thermal, good electrical conductivity and mechanical stability. However, uniform deposition of Pt nanoparticles on carbon surface remains inaccessible territory because of the inert carbon surface. In this study, carbon surface was functionalized using aryl diazonium salt for increasing adhesion of Ni particles which is precursor for growing CNTs. and the deposition of Pt nanoparticle on CNTs directly grown on the carbon paper has investigated. Due to CNTs' unique structural, mechanical, and electrical advantages, the deposited Pt nanoparticles are improved dispersion on top of the CNTs. The structure and morphology of the Pt nanoparticles on CNTs were characterized by Scanning electron Microscopy(SEM) and Transmission electron Microscopy (TEM). The average diameter of Pt nanoparticles was 3nm.