

Carbon nanotubes as support for catalysts of PEMFC

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Carbon nanotubes (CNTs) have attracted great interest owing to their high mechanical and unique electrical properties. Multiwalled carbon nanotube(MWNT) and single wall carbon nanotube(SWNT) were employed for the support materials of catalyst in the proton exchange membrane fuel cell(PEMFC). Until now, most of the researches related to the catalyst of fuel cells reported carbon blacks as catalyst support materials. In the present study, Pt/MWNT and Pt/SWNT were prepared by the various reduction methods. The behavior of supported platinum particles on these materials compared to that when the Pt was dispersed on Vulcan carbon (XC-72). The electrocatalysts from the reductants were investigated and compared with each other. In addition to the chemical treatments, physical thin film deposition and annealing methods are also used for controlling the Pt particle sizes. Pt particle size was controlled by preparing Pt/CNTs by deposition of DC sputtering at room temperature, and ex-situ annealing.

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