

Pt/Ru Catalysts for Direct Methanol Fuel Cell by Using Electrical Deposition Method

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Direct methanol fuel cells (DMFCs) are promising candidates for the next generation of power sources for portable electronic devices. The ideal support materials of electrocatalysts should have the following features: provide a high electrical conductivity, have an adequate water-handling capability, and also show a good corrosion resistance under oxidizing conditions.

A widely used supporting material of catalysts is a carbon, on which metallic nanoclusters should be well dispersed to minimize a metal loading. Generally, electrocatalysts with a small particle size and a high dispersion will result in high electrocatalytic activity. However, the effects of the preparation method and the structure of various carbon materials as supporting materials have not fully studied to our best knowledge.

In this work, the electrical deposition of Pt/Ru nanoparticles on graphite nanofibers has been investigated. Electrical behaviors of the catalysts were discussed by cyclic voltammetry.