Electrical Deposition of Pt/Ru Alloy and Conducting Polymer Anode in a DMFC

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Direct methanol fuel cells (DMFCs) are attractive portable power source because of their high energy density, easy fuel handling, and low operating temperature. Recently, research efforts have concentrated on the use of proton exchange polymers such as Nafion and its modification as a route to increase proton conductivity and decrease methanol crossover and electronic conducing polymers in a DMFC. Interest has focused on the development of supporting materials, one of key factors in increasing the utilization of noble metal catalysts.
In this study, water soluble polyaniline (PAni) was selected as catalyst support to overcome the low electronic conductivity problem, and their composites with PtRu nanoparticles were examined to evaluate their use to improve the interfacial properties between metal electrode and polymeicr electrolyte in a DMFC anode.