

عنوان مقاله:

Platinum nano particles supported by a Vulcan and conductive polymer substrate as a new Electrocatalyst for PEM

محل انتشار:

چهارمین همایش پیل سوختی (سال: 1389)

تعداد صفحات اصل مقاله: 11

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خلاصه مقاله:

A film of PANI nanowires (PANI (NWs)) was deposited onto the surface of a stainless steel electrode via cyclic voltammetry. During the polymerization of aniline (ANI), PANI(NWs) were doped with trifluoromethane sulfonic acid, and the doped PANI were utilized for the fabrication of a Vulcan (C) PANI composite. Pt particles were subsequently deposited by reduction onto the CPANI composite to produce a Pt/C-PANI electrocatalyst. the electrodes are characterized by cyclic voltammetry, current–potential measurements, electrochemical impedance spectroscopy, and chronoamperometry. The polyaniline is found to be homogenously dispersed in the catalyst layer, making it a good candidate proton and electron conductor. Use of polyaniline instead of Nafion in the catalyst layer, increases the utility of the electrocatalyst by 18%.The results are consistent with the presence of polyaniline as a conductive polymer in the reaction layer reducing the polarization resistance of the electrode in comparison with that of a corresponding electrode containing Nafion. Thus, the present results indicate that PEMFCs using polyaniline-containing electrocatalysts should give superior performance to those using catalysts containing traditional ionomers

کلمات کلیدی:

oxygen reduction reaction, impedance spectroscopy, cyclic voltammetry, Vulcan, pem

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