Short Communication

Application of Platinum Nanoparticles Decorated Three-Dimensional Graphene Modified Electrode for Methanol Electrooxidation

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doi: 10.20964/2016.09.52

Received: 15 June 2016 / Accepted: 13 July 2016 / Published: 7 August 2016

A three-dimensional graphene (3DGR) was synthesized by electrodeposition directly on carbon ionic liquid electrode (CILE) with N-butylpyridinium hexafluorophosphate. Nanosized Pt catalyst was further electrodeposited onto 3DGR/CILE with its properties investigated through electron microscopy and electrochemistry. Electrocatalytic performances of the modified electrode (Pt/3DGR/CILE) to methanol oxidation were investigated. Experimental results demonstrated that an enhanced efficiency of Pt/3DGR nanohybrid on the electrode surface for methanol oxidation with the enhancement of the ratio of forward to backward peak current (I_f/I_b), which was due to the large surface area of nanohybrid with 3D porous structure of GR and higher dispersion of Pt nanoparticles onto the electrode surface.

Keywords: Three-dimensional graphene, Platinum nanoparticles, Carbon ionic liquid electrode, Methanol, Electrooxidation.

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