

عنوان مقاله:

Enhanced activity and durability of platinum anode catalyst by the modification of cobalt and employed GO/PANI nanocomposite as a support for direct methanol fuel cells

محل انتشار:

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نویسندگان:

Amirmohammad Khosravi Ghasemi - *Department of Chemical Engineerng, Babol Noshirvani University of Technology, Babol, Iran*

Mohsen Ghorbani - *Department of Chemical Engineerng, Babol Noshirvani University of Technology, Babol, Iran*

Mohammad Soleimani Lashkenari - *Technologies, Amol University of Special Modern Technologies, Amol, Iran*

Seyyed Reza Shabanian - *Department of Chemical Engineerng, Babol Noshirvani University of Technology, Babol*

خلاصه مقاله:

In this study, graphene oxide (GO)/polyaniline (PANI) supported platinum (Pt)-cobalt (Co) electrocatalyst (GO/PANI/Pt-Co) is designed and prepared for methanol oxidation reduction (MOR). For the first time, the modification of electrocatalyst decreases the Pt particle size significantly and increases the electrochemical surface areas due to the interaction between Pt and Co, which is evidenced by Fourier transform infrared spectroscopy (FT-IR). The GO/PANI was utilized as the support catalyst for Pt-Co alloy that was electrochemically deposited on its surface for methanol oxidation reaction. Our nanocomposites at the atomic level makes the nanostructure highly durable and this modified electrode exhibited high electro catalytic activity towards methanol oxidation. Moreover, this electrocatalyst also exhibits the higher onset current density and steady current density than the other Pt-based catalysts. The work provides a promising method to develop the highly active and stable Pt-based catalyst for direct methanol fuel cells. In terms of the electrochemical activity for methanol oxidation examined by cyclic voltammetry (CV).

کلمات کلیدی:

methanol oxidation reaction, PANI, electrocatalyst

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