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研究简报

一种新型的钛基纳米多孔网状铂电极对甲醇氧化反应的电催化活性

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摘要 利用水热法一步制备出钛基纳米多孔网状铂催化剂(nanoPt/Ti), 并研究了它对甲醇氧化反应的电催化活性.

关键词 纳米多孔铂电极 甲醇氧化 电催化 水热法

分类号 0646.5

Electrocatalytic Activity of a Novel Nanoporous Platinum Electrode Towards Methanol Oxidation

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Abstract A novel titanium-supported nanoporous platinum (nanoPt/Ti) with a network structure was fabricated by using the hydrothermal process. Electrochemical oxidation of methanol on nanoPt/Ti was investigated in alkaline solutions for the first time. It was shown from the voltammograms that the peak current density of methanol oxidation on the nanoPt/Ti electrode increases significantly compared to the polycrystalline Pt. As shown in anodic polarization curves at 1 mV/s, the peak current density on the nanoPt/Ti is over 45 times higher than that on the polycrystalline Pt. Moreover, chronoamperometric measurements at different potentials locating round the peak potential of methanol oxidation exhibit highly stable current densities under the applied experimental conditions.

Key words Nanoporous platinum electrode Methanol oxidation Electrocatalysis Hydrothermal process

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