直接醇类燃料电池用立体电极的构筑

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摘要：通过四步法制备了一系列具有立体结构的 Pt/PPy/PS/Au 电极。这种立体结构使液体醇燃料较容易扩散到催化剂层，降低了液封效应，从而使电化学反应的三相界面增大。与相同 Pt 载量的传统电极相比，这种立体电极对甲醇氧化表现出了更优越的电化学性能。

关键词：直接醇类燃料电池；立体电极；聚苯乙烯球；聚吡咯

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The fabrication of three-dimensional electrode for direct alcohol fuel cells

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Abstract: A novel three-dimensional electrode structured by Pt/PPy/PS/Au was fabricated through four-step processes. The three-dimensional structure permited liquid alcohol to diffuse into the catalyst layer easier and resulted in large three-phase interface for electrochemical reactions due to the reduction of the liquid sealing effect. Preliminary study on the methanol oxidation indicated that the three-dimensional electrode could give a better electric performance for methanol oxidation than that of conventional electrode at the same catalysts loading.

Key words: direct alcohol fuel cell；three-dimensional electrode；polystyrene spheres；polypyrrole