Controllable Synthesis of Fusiform-shaped Te@Au hybrids for Efficient Electrocatalytic Oxidation of Isopropanol

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In this study, Te@Au hybrids with the shape of fusiform were successfully prepared through a simple two-phase interfacial reaction and were subsequently applied as the electrocatalysts for the oxidation of isopropanol. Comparing with poly-Au, the Te@Au hybrids showed excellent performance in the oxidation of isopropanol, such as higher limiting current density, better stability, etc. Characterization with electron scanning microscopy reveals that there are numerous edges and defects on the Te@Au surface. The presence of a large number of defects/edges on the catalyst surface, together with the intimate connection between Te and Au, is suggested to be responsible for the observed high electrocatalytic performance. This study presents a new direction for developing low-cost, highly efficient electrocatalysts of direct alcohol fuel cell.

Keywords: Te@Au hybrids; Isopropanol; electrocatalytic oxidation; Direct alcohol fuel cell

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