

Role of Au-TiO₂ interfacial sites in enhancing the electrocatalytic glycerol oxidation performance

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In this work, we present an efficient catalyst design strategy using an atomic layer deposition (ALD) method that allows atomic level surface control of the Au catalyst, enhancing the electrochemical glycerol oxidation performance. Using ALD, a thin TiO₂ layer was overcoated on a commercial Au/C catalyst. Catalytic activity and stability of TiO₂ coated Au/C (ALD(TiO₂)-Au/C) and pristine Au/C were tested and compared by cyclic voltammetry measurement in a half cell system. Using an electrochemical batch reactor system, product analysis over the catalysts was performed by high-performance liquid chromatography (HPLC) to determine how reaction pathways and reaction rate for glycerol electrooxidation are affected by formation of Au-TiO₂ interface.