Short Communication

***In situ* Fabrication of Copper Nanocubes with Platinum Skin on 3D Graphene-Carbon Nanotubes Hybrid for Efficient Methanol Electrooxidation**

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Tuning the macro-morphology and micro-structure simultaneously of platinum (Pt)-based electrocatalysts is pivotal for enhancing catalytic performance, but still remains great challenge. Herein, we first report elaborate copper nanocubes with Pt skin on 3D reduced graphene oxide-carbon nanotubes (rGO@CNTs) support. Graphene oxide is used as a surfactant to disperse pristine CNTs with a little CuSO₄ for electrochemical preparation of macro-morphological rGO@CNTs supporting Cu nanocubes, and subsequently reacted with H₂PtCl₆ solution *via* galvanic replacement to realize Pt skin micro-structure. Cyclic voltammetry and chronoamperometry technique indicate that the resultant Pt-Cu/rGO@CNTs catalyst is equipped with outstanding electrocatalytic activity and stability towards methanol oxidation reaction.

Keywords: Graphene; Carbon nanotubes; Cu nanocubes; Pt skin; Electrodeposition; Energy storage and conversion

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