Short Communication

Electrodeposition of Silver Dendritic-Graphene Composite Film for Photocatalytic Application

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In this work, a facile one-step electro-deposition approach was reported to synthesize the silver dendritic structure through the multi-walled carbon nanotube (MWCNT) dispersed in AgNO₃ solution which was modified with graphene oxide (GO). Scanning electron microscopy was conducted, which demonstrated that the as-synthesized silver material exhibited a well-defined dendritic structure. Besides, according to XRD measurements, the silver was found to be in the cubic phase. GO was demonstrated to be present in silver dendrites through UV-Vis spectroscopy, where GO was electrochemically reduced during the process of silver-deposition. However, based on the preliminary performance test, the pure Ag exhibited a remarkably poor photocatalytic activity, whereas a considerable photocatalytic capacity was observed with the hydrids.

Keywords: One-step electro-deposition; Silver dendrites; Graphene oxide; Photocatalysis; Multi-walled carbon nanotube

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