Facile synthesis of 3D hexagonal-like $CuCo_2O_4$ nanotubes for methanol oxidation application

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Transition metal oxides have become one of the most promising alternative energy storage materials for exhibiting high electrochemical activity and stability. In this study, a simple, a one-step solvothermal synthesis of hollow $CuCo_2O_4$ nanotubes was developed for methanol oxidation application. $CuCo_2O_4$ nanotubes exhibited superior electrochemical performance in terms of capacity and cycling capability, with 95 mA/cm ^{2} and 85% retention rate after 1000 cycles, respectively. Given that the synthesis of $CuCo_2O_4$ nanoparticles involves a facile and cost-effective technique, the present approach thus opens a new era to novel materials for large-scale processes in different electrochemical applications. This work was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and Future Planning(NRF-2016R1C1B2008694).