

Synthesis of hierarchical binary core-branch nanocomposite of carbon microspheres@ α -Fe₂O₃ for enhancing electrochemical behavior

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Abstract

A facial strategy for the synthesis of hierarchical binary core-branch carbon microspheres (CMS)@ α -Fe₂O₃ is presented. X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), energy-dispersive X-ray spectroscopy (EDX), scanning electron microscopy (SEM), transmission electron microscopy (TEM), high-resolution TEM (HR-TEM), and Brunauer–Emmett–Teller (BET) were used to characterize the structural and morphological properties of the products. XRD diffraction analysis of CMS@ α -Fe₂O₃ reveals the highly crystalline nature of α -Fe₂O₃ in the hierarchical binary core-branch CMS@ α -Fe₂O₃ nanocomposite. Morphological analyses show that the α -Fe₂O₃ shell