CNT/$FePO_4$ Core/Shell Nanocomposite as a High-Performance Cathode for Li-ion Batteries

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Core-shell nanowires composed of carbon nanotube (CNT) core and amorphous $FePO_4$ shell are investigated as a cathode material for Li rechargeable battery. The core-shell nanowires are fabricated by mineralization technique by repeating sequential adsorption of Fe^{3+} and PO_4^{3-} ions resulting in formation of thin FePO4 layers onto the CNT surface. As the cathode material, facile Li ion and electron transports through nanosized FePO4 and CNT, respectively, improve the electrochemical properties such as specific capacity and rate capability. The proposed mineralization technique is a promising fabrication route for the CNT-based hybrid materials due to simpleness, environmental friendliness, and possibility of large scale fabrication.