Short Communication

Novel core-shell Structure $\text{TiO}_2@\text{TiN}$ Spheres as High-Performance Anode Material for Lithium-Ion Battery

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Novel core-shell structure $\text{TiO}_2@\text{TiN}$ spheres are successfully synthesized as anode materials for Li-ion batteries. The obtained $\text{TiO}_2@\text{TiN}$ electrodes exhibit superior rate performance and perfect cycle performance. The capacity of $\text{TiO}_2@\text{TiN}$ electrodes remain 286 mAh g^{-1} after 200 cycles at 0.1 C. Even when the current density improves to 40 C, the capacity retention of $\text{TiO}_2@\text{TiN}$ is about 89% after 300 cycles. This improved electrochemical performance of $\text{TiO}_2@\text{TiN}$ is ascribed to the presence of TiN, which could enhance the conductivity and suppress the aggregation of TiO_2 at the same time.

Keywords: Energy storage and conversion; $\text{TiO}_2@\text{TiN}$ spheres; Li-ion battery; Nanoparticles.

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