Short Communication

Ti₄O₇ Layer Coated Sulfur Composite as High-Performance Cathode Material for Lithium-Sulfur Battery

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The application of Li-S battery is hindered mainly due to the shuttle effect of the polysulfide, which is produced via discharge process. Most recently, metal oxides are applied for inhibiting this shuttle effect. In our work, mesoporous Ti₄O₇/S composites are prepared and employed into Li-S battery. The mesoporous Ti₄O₇ layer in the Ti₄O₇/S composites could provide both physical absorption and chemical bond between the polysulfide and cathode material. As a result, the electrochemical results show that the Ti₄O₇/S composites have excellent cycle stability and high specific capacity. This excellent electrochemical performance is attributed to the presence of Ti₄O₇ layer in the composite.

Keywords: Cathode; S@Ti₄O₇; Cycle stability; Capacity; Electrochemical performance

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