

A sulfur host based on metal oxide/CNT composites for lithium-sulfur batteries

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Lithium-sulfur batteries are in the spotlight with about 6 times higher specific energy compared to conventional lithium-ion batteries. Typical intrinsic problems of lithium-sulfur batteries are the dissolution of lithium polysulfide and the uncontrollable deposition of lithium sulfide. As a typical cathode, a composite of nanostructured metal oxide and high surface area carbon has been widely adopted. Here, we present the results of applying a metal oxide/CNT composite as a sulfur host electrode. We present adsorption and conversion of lithium polysulfide on the metal oxide surface, growth of lithium sulfide, and charge/discharge reactions in metal oxide/CNT electrodes.