

Synthesis of Phosphorus-Doped Amorphous Carbons for Use in High-Capacity Lithium-Ion Battery

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Rapid growth of portable electronic devices sparked a significant development in lithium-ion battery technology. However, present battery technologies face serious performance limitations in capacity and rate capability. Especially, the poor charge rate property and low capacity of the graphite-based anode have prevented practical opening of electric vehicle (EV) market. Recently, remarkable progresses have been presented as a part of efforts to replace the graphite anode. Lithium-alloy-materials have attracted much attention due to their high theoretical capacities. However, major issues such as cycle life and initial efficiency have remained unanswered. In this work, we present a new approach to control the structure of amorphous carbons in order to get improve reversible capacity as well as rate performance.