Synthesis of high capacity MoO_2/Graphene oxide composite anode material using supercritical methanol for lithium-ion batteries

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Nowadays, rechargeable lithium-ion batteries have been applied in the fields of portable electronic devices, hybrid electrical vehicles and electrical vehicles. To increase the capacity of lithium-ion batteries, many researchers try to find new electrode material having high capacity, high energy density and good cycling stability. By fixing metal oxide particles on the graphene sheet, it has high conductivity, prevent aggregation of metal oxide particle effectively and increase cycle stability. In this paper, one-pot molybdenum dioxide and graphene oxide composite synthesized using supercritical methanol. Because of the many functional groups on the surface of graphene oxide, molybdenum dioxide nanoparticles can be easily anchored on the graphene sheet within a few minutes in supercritical condition. Well-made composites delivered high initial charge/discharge capacity and it was 1600.8mAh/g and 955.8mAh/g at the current density of the 50mA/g respectively.