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ABSTRACT

Herein, nickel carbide (Ni_3C) nanoparticles were controlled synthesized by decomposing nickel acetylacetonate in oleylamine and oleic acid solvent at a comparatively low temperature of 280 °C. The resultant Ni_3C nanoparticles with an average size of 18 nm exhibited large specific surface area and excellent electrical conductivity. And the charge transport during the Li^+ intercalation and deintercalation processes can be effectively facilitated by this kind of unique structure. Serving as an anode material in lithium-ion batteries, the Ni_3C nanoparticles presented a high stable specific capacity of 390.1 mAh g^{-1} during 100 cycles at a current density of 0.1 A g^{-1} and excellent rate performance (e.g. 152.1 mAh g^{-1} at 5 A g^{-1}). This phenomenon attributed to the advantages of the high intrinsic electrical conductivity and