

Anode Material Nanoparticles on Carbon Materials by Electrodeposition for Stability Anodes of Lithium Ion Battery

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Lithium-ion battery (LIB) usually used for valuable electronic devices are extended to applications. High stability negative electrode materials for LIB were investigated using electrodeposition of nanoparticles (NPs) on the nanostructured carbon. NPs with about 70 nm diameters were evenly prepared on the graphitic carbon materials using electrodeposition process at room temperature. It was observed that the NPs were homogeneously embedded into not only external surface but bottom part of the graphitic carbon network. The graphitic carbon material covered with NPs enables facile electron transport owing to the network structure and improves structural collapse during cycling. This facile room temperature process is expected to be applicable to other anode materials such as Sn and Al for the anode of LIB.

Keywords: Si nanoparticle, LIB anode

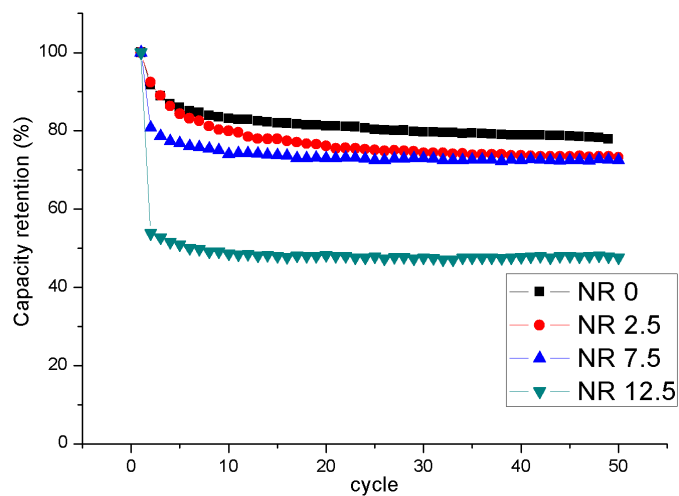


Fig. 1

Electrodeposition of Si/C anode

Si nanoparticles wrapped from top to bottom side **Non rolling press carbon slurry**

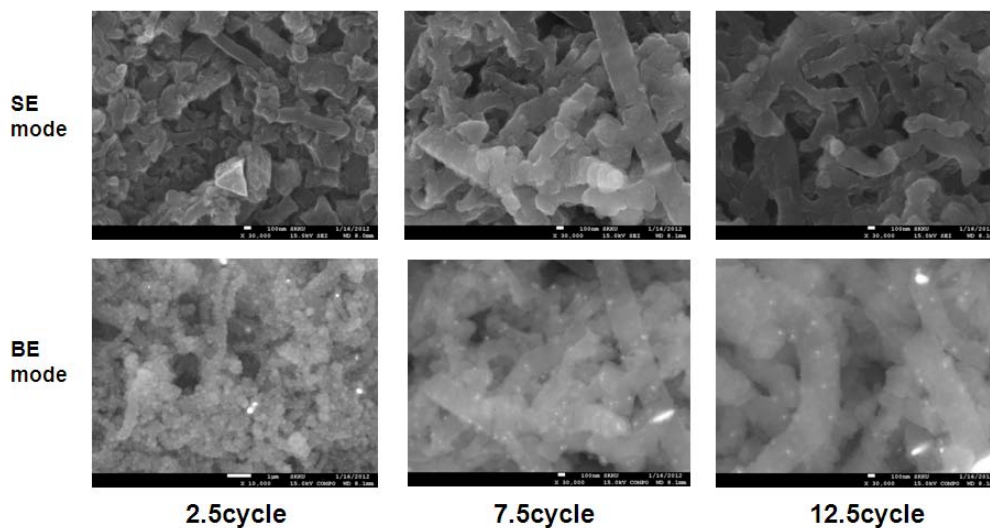


Fig. 2