Docket #: S08-312

Crystalline-Amorphous Core-Shell Silicon Nanowires as Battery Electrodes

Researchers in Stanford's Materials Science department have developed a method that makes use of core-shell nanowires for improved power rate and cycling life for the lithium battery. The technique involves a simple one-step synthesis for growing silicon crystalline-amorphous core-shell nanowires directly onto stainless steel substrates. These core-shell nanowires have high charge storage capacity, long cycle life and high power rate.

Applications

- Lithium ion batteries

Advantages

- High energy density
- Good cycle performace
- High power rate

Publications

- L.-F. Cui, R. Ruffo, C. K. Chan, H. Peng, Y. Cui, "Crystalline-Amorphous Core-Shell Silicon Nanowires for High Capacity and High Current Battery Electrodes", *Nano Lett.* 9, 491-495 (2009).

Patents

- Published Application: 20110151290
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