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LI-ANODE NANOCOMPOSITE USING POROUS SILICON NANOPARTICLES

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ABSTRACT

Lithium Ion Batteries are in great demand because of their high energy storage capability. But they have slow charging and discharging time, also the lifetime of lithium ion batteries is about 1000 cycles, whereas Silicon nanoparticles can be used for upto 10000 cycles retaining the same efficiency. Silicon Nanparticles are attractive for use as anode in lithium ion Batteries as it has low discharge potential. Silicon Nanparticles were synthesized by sol-gel method by using Tetraethylorthosilicates. the obtained silicon Nanoparticles were doped with Boron and facile electrolysis Etching was performed. Porous silicon nanoparticles are a prospective candidate for lithium-ion battery anodes, as the pores can provide additional space for volume expansion of silicon during the charging process, which will help to retain the structural integrity of silicon and prevent large capacity degradation

KEYWORDS: Porous Silica, Nanomaterial, XRD, CV, SEM