

3D Si based composite@CNF paper electrodes fabricated using an electrospinning method for lithium-ion batteries

김시진, 김민철, 이규호, 박경원†
승실대학교

Here 3D Si based composite(Si/Si₃N₄/SiC)@CNF paper electrodes(denoted as SiCP) are fabricated by electrospinning technique for lithium-ion batteries.[1-2] Which combine the advantage of Si(high capacity) Si₃N₄(high stability) and carbon nanofiber(good electrical conductivity). SiCP can be cut into appropriate sizes to be used directly as binder-free, conducting agent-free and metal current collector-free. The superior electrochemical performance of the SiCP is evident from the high reversible discharge capacity of 665 mAh g⁻¹ at 10 A g⁻¹ with capacity loss less than 0.021% per cycle for 2000 cycles.

Reference

- [1] S. Jing, H. Jiang, Y. Hu, J. Shen, C. Li, Adv. Funct. Mater. 2015, 25, 5395-5401.
- [2] D. Lin, Z. Lu, P. -C. Hsu, H. R. Lee, N. Liu, J. Zhao, H. Wang, C. Liu, Y. Chi, Energy Environ. Sci., 2015, 8, 2371--2376.