

Accepted Manuscript

Full Length Article

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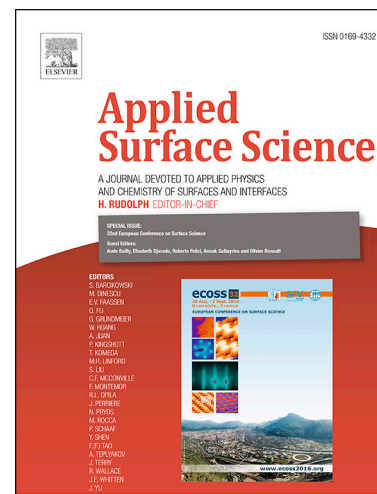
PII: S0169-4332(18)30366-0
DOI: <https://doi.org/10.1016/j.apsusc.2018.02.023>
Reference: APSUSC 38481

To appear in: *Applied Surface Science*

Received Date: 17 December 2017
Revised Date: 1 February 2018
Accepted Date: 2 February 2018

Please cite this article as: H. Liu, Y. Zou, L. Huang, H. Yin, C. Xi, X. Chen, H. Shentu, C. Li, J. Zhang, C. Lv, M. Fan, Enhanced Electrochemical Performance of Sandwich-Structured Polyaniline-wrapped Silicon Oxide/Carbon Nanotubes for Lithium-Ion Batteries, *Applied Surface Science* (2018), doi: <https://doi.org/10.1016/j.apsusc.2018.02.023>

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Enhanced Electrochemical Performance of Sandwich-Structured Polyaniline-wrapped Silicon Oxide/Carbon Nanotubes for Lithium-Ion Batteries

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Abstract: Sandwich-structured carbon nanotubes, silicon oxide, and polyaniline (hereafter denoted as CNTs/SiO_x/PANI) were prepared by combining a sol-gel method, magnesiothermic reduction at 250 °C, and chemical oxidative polymerization. The CNTs, SiO_x and PANI in the composite was 16 wt%, 51 wt% and 33 wt%, respectively. The CNTs/SiO_x/PANI electrodes exhibited excellent cycle and high-rate performance as anodes in Li-ion batteries, including charge/discharge capacities of 1156/1178 mAh g⁻¹ after 60 cycles at 0.2 A g⁻¹ current density and 728/725 mAh g⁻¹ at 8 A g⁻¹ current density. The improvement was due to the synergy between CNTs and PANI. The SiO_x scattered on the CNTs core and coated by PANI improved its

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