Accepted Manuscript

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PII: S0925-8388(18)32126-1

DOI: 10.1016/j.jallcom.2018.06.016

Reference: JALCOM 46352

To appear in: *Journal of Alloys and Compounds*

Received Date: 21 March 2018

Revised Date: 29 May 2018

Accepted Date: 1 June 2018

Please cite this article as: Z. Liu, Z. Wang, T. Lu, P. Dai, P. Gao, Y. Zhu, Modification of $LiNi_{0.8}Co_{0.15}Al_{0.05}O_2$ using nanoscale carbon coating construction, *Journal of Alloys and Compounds* (2018), doi: 10.1016/j.jallcom.2018.06.016.

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Abstract

Two different carbon sources, sucrose and glucose, were used as raw materials for constructing a nanoscale carbon coating on the surface of $LiNi_{0.8}Co_{0.15}Al_{0.05}O_2$ (NCA). They were mixed with a certain mass ratio and then were annealed to form a nanoscale even coating, which showed a C@NCA shell-core structure. The core layer was NCA and the shell layer was nanoscale carbon coating. The cathode coating material using nanoscale carbon layer has better electrical conductivity and high diffusivity of Li-ion. It can effectively reduce the mechanical stress, prevent the formation of micro-cracks on secondary particle surface and maintain the integrity of the cathode material. Obtained by comparison, the results show that the material with sucrose as carbon source has better performance. When the mass ratio of coating is 1%, it has the best electrochemical performance. The initial discharge specific capacity is 250 mAh / g at