

Accepted Manuscript

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PII: S1385-8947(18)31726-1
DOI: <https://doi.org/10.1016/j.cej.2018.09.017>
Reference: CEJ 19856

To appear in: *Chemical Engineering Journal*

Received Date: 6 July 2018
Revised Date: 23 August 2018
Accepted Date: 3 September 2018

Please cite this article as: L. Yin, Y.J. Gao, I. Jeon, H. Yang, J-P. Kim, S.Y. Jeong, C.R. Cho, Rice-panicle-like γ -Fe₂O₃@C nanofibers as high-rate anodes for superior lithium-ion batteries, *Chemical Engineering Journal* (2018), doi: <https://doi.org/10.1016/j.cej.2018.09.017>



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Rice-panicle-like γ -Fe₂O₃@C nanofibers as high-rate anodes for superior lithium-ion batteries

Linghong Yin^a, Ying Jun Gao^a, Injun Jeon^a, Hang Yang^a, Jong-Pil Kim^b,

Se Young Jeong^c, Chae Ryong Cho^{a,d,*}

^a*Department of Nano Fusion Technology, Pusan National University, Busan 46241, South Korea*

^b*Busan Center, Korea Basic Science Institute, Busan 46742, South Korea*

^c*Department of Optomechatronics Engineering, Pusan National University, Busan 46241, South Korea*

^d*Department of Nanoenergy Engineering, Pusan National University, Busan 46241, South Korea*

Abstract

We synthesized nanoarchitectures comprising γ -Fe₂O₃@C nanofibers with one-dimensional rice-panicle-like morphologies via a facile electrospinning and annealing process for use as anodes in lithium-ion batteries (LIBs). A thin carbon layer grown on the surface of γ -Fe₂O₃ provides a synergistic effect to relieve the stress and alleviate the volume expansion occurring during the lithium-ion insertion/extraction process. The unique structure not only offers good electron transport routes, but also enhances the lithium-ion conductive channels, resulting in excellent electrochemical activity and electrical conductivity of the LIB anode material. A high reversible specific capacity of

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