

# **Facile Synthesis of Multi-channel Surface Modified Amorphous Iron Oxide Nanospheres as a High-performance Anode Material for Lithium-ion Batteries**

*Shijin Yu<sup>\*</sup>, Wenzhen Zhu, Ying Wei, Jiahao Tong, Quanya Wei, Tianrui Chen, Xuannan He, Dingwen Hu, Cuiyun  
Li, Hua Zhu<sup>\*</sup>*

School of Mechanical and Electrical Engineering, Jingdezhen Ceramic University, Jingdezhen 333001, Jiangxi,  
China

**\* Corresponding author:** [yushijin@163.com](mailto:yushijin@163.com)(S. Yu), [zwchua@163.com](mailto:zwchua@163.com) (H. Zhu)

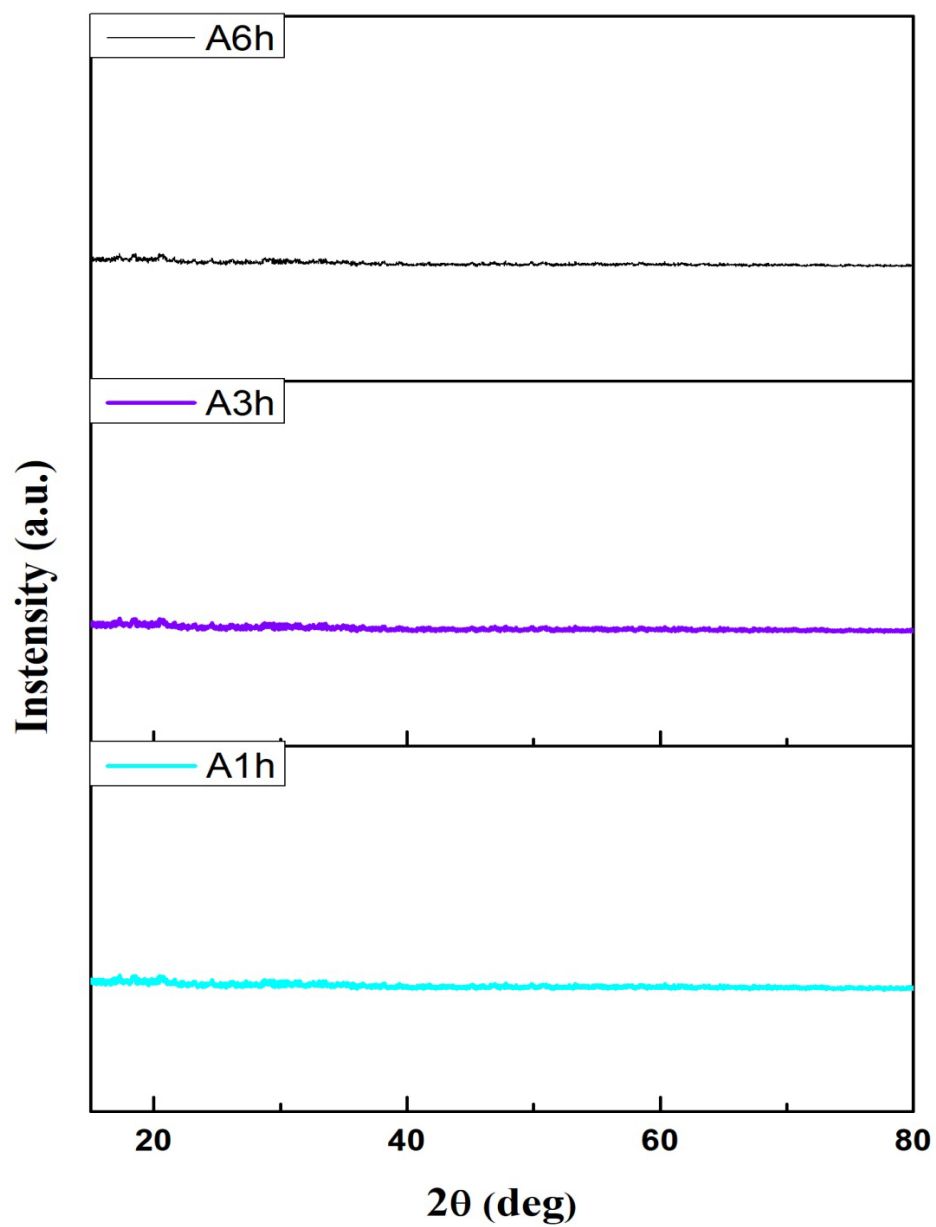


Figure S1. XRD patterns of the samples after hydrothermal treatment for different times (A1h, A3h, A6h).

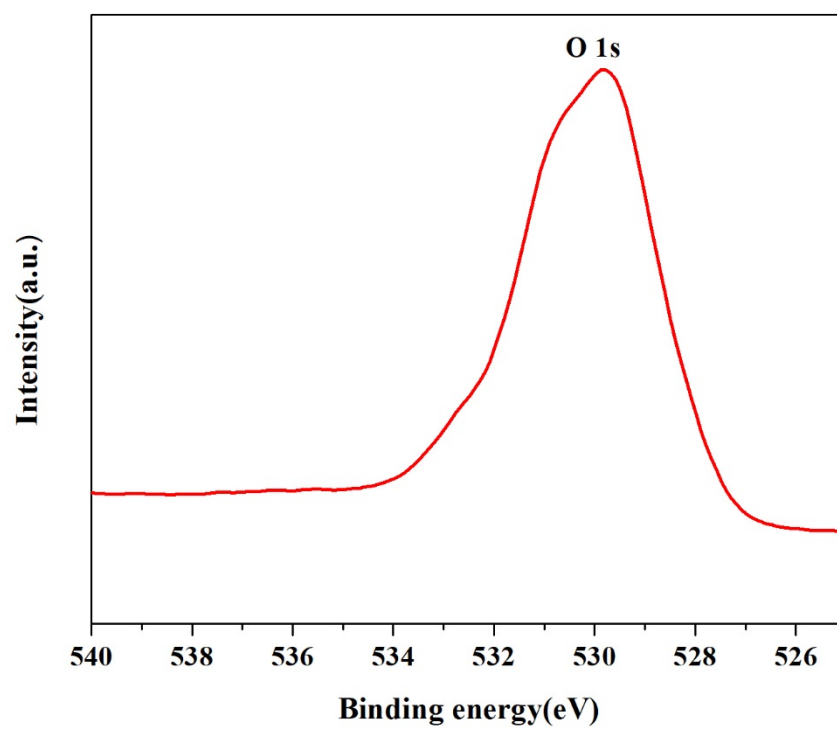


Figure S2. XPS spectrum (O 1s spectrum) of the amorphous Fe<sub>2</sub>O<sub>3</sub>.

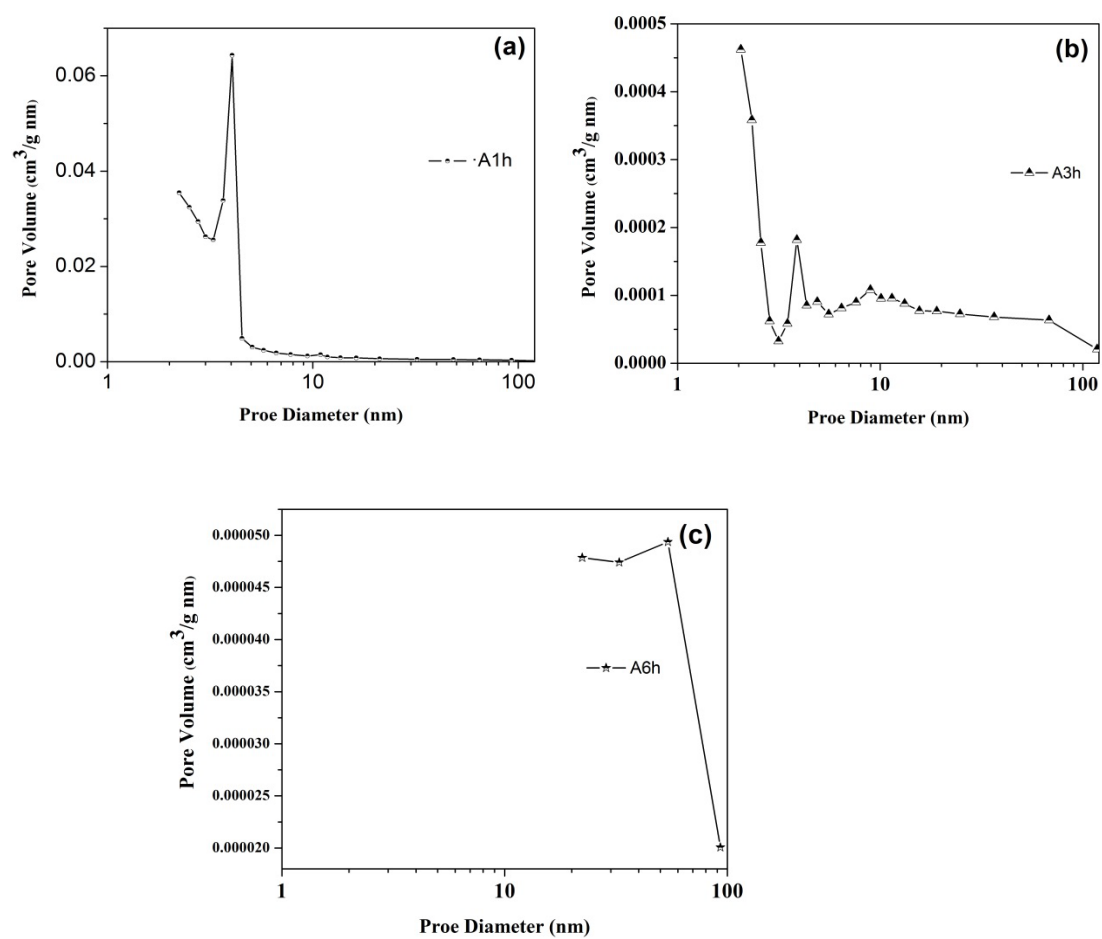


Figure S3. Pore-size distributions of the amorphous  $\text{Fe}_2\text{O}_3$  samples: (a) A1h, (b) A3h and (c) A6h.

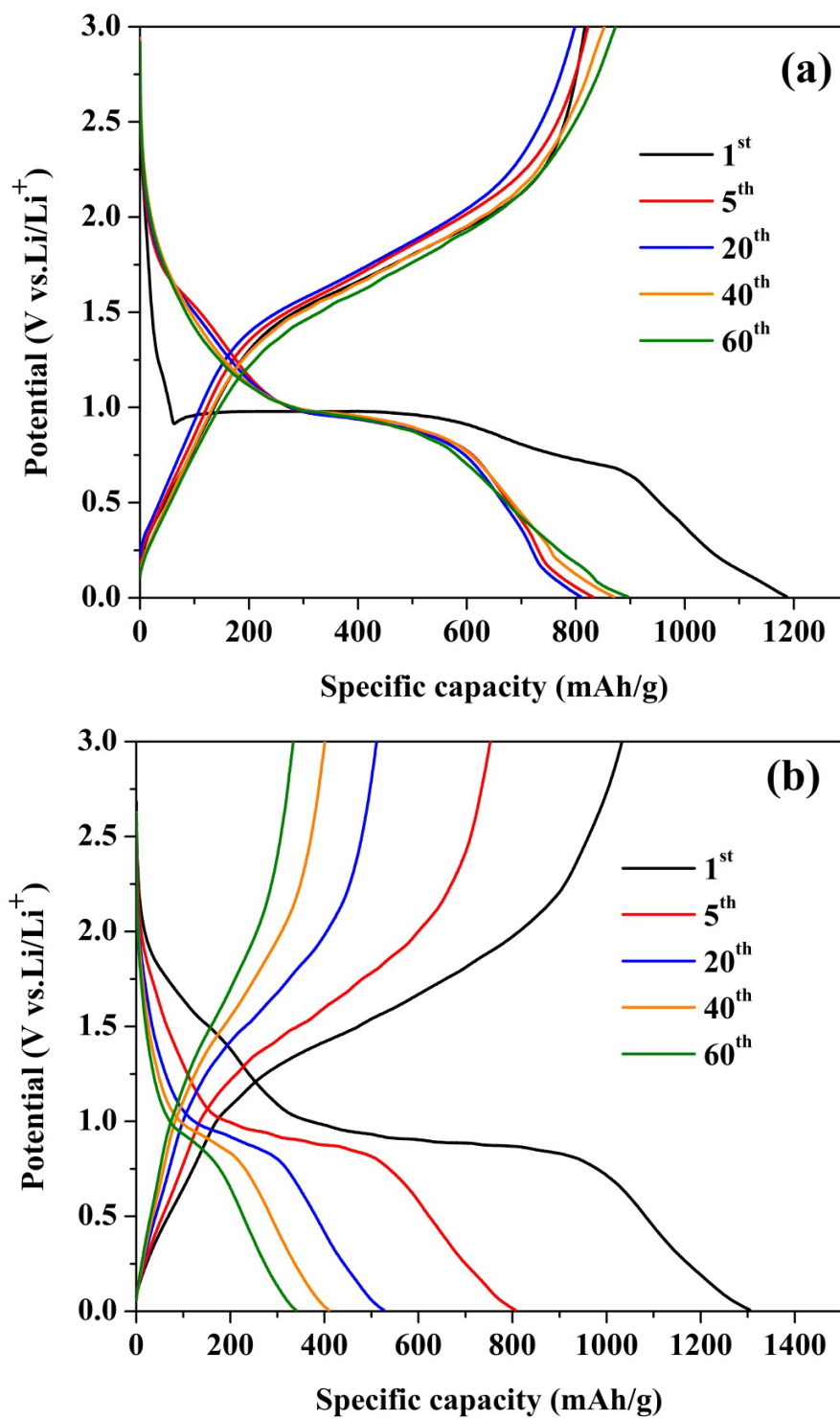


Figure S4. Representative charge/discharge curves of the amorphous (a) and crystalline (b)  $\text{Fe}_2\text{O}_3$  electrodes.

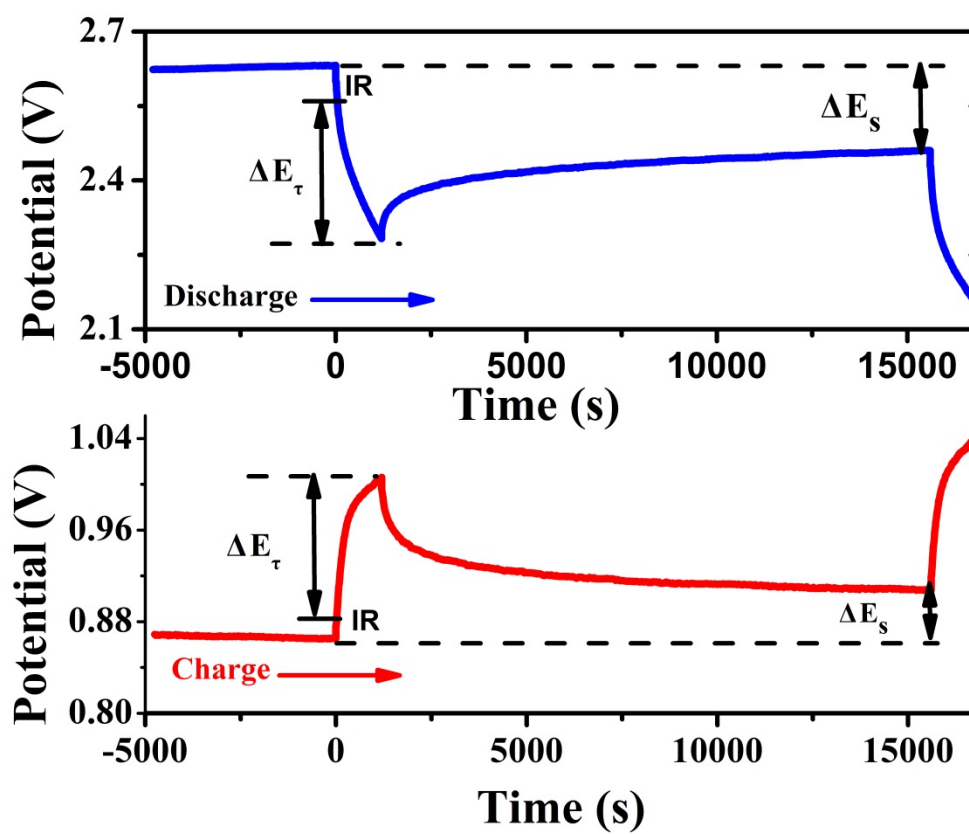


Figure S5. Close-up views of the GITT curves of the amorphous  $\text{Fe}_2\text{O}_3$  electrode.