Author's Accepted Manuscript

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 PII:
 S0272-8842(17)30550-3

 DOI:
 http://dx.doi.org/10.1016/j.ceramint.2017.03.168

 Reference:
 CERI14937

To appear in: Ceramics International

Received date: 8 March 2017 Revised date: 25 March 2017 Accepted date: 27 March 2017

Cite this article as: Li Feng, Gang Li, Sheng Zhang and Yu Xin Zhang Decoration of Carbon Cloth by Manganese Oxides for Flexible Asymmetric S u p e r c a p a c i t o r s , *Ceramics* International http://dx.doi.org/10.1016/j.ceramint.2017.03.168

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ACCEPTED MANUSCRIPT

Decoration of Carbon Cloth by Manganese Oxides for

Flexible Asymmetric Supercapacitors

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Abstract:

Here we describe the production of carbon cloth coated with MnO_2 nanosheets or MnOOH nanorods through a normal temperature reaction or a hydrothermal approach, respectively. Of note, the electrochemical performance of MnO_2 -coated carbon cloth was better (429.2 F g⁻¹) than that of MnOOH-coated carbon cloth. When the MnO_2 -coated carbon cloth is introduced as the positive electrode and the Fe₂O₃-coated carbon cloth as the negative electrode, a flexible asymmetric supercapacitor was obtained with an energy density of 22.8 Wh kg⁻¹ and a power density of 159.4 W kg⁻¹. Therefore, such a hierarchical MnO₂-coated carbon cloth nanocomposite is a promising high-performance electrode for flexible supercapacitors.

Keywords: Carbon cloth; Manganese oxide; Supercapacitors; Electrochemistry

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