

Supporting Information

**Beaded Manganese Oxide (Mn₂O₃) Nanofibers: Preparation and
Application for Capacitive Energy Storage**

Muhamed Shareef Kolathodi^{1,3*}, Samrender Nagam Hanumantha Rao^{1,2}, Tirupattur

Srinivasan Natarajan¹, Gurpreet Singh³

¹Conducting Polymer Lab, Department of Physics, Indian Institute of Technology Madras,

Chennai - 600036, India Fax: +91- 44 22574852; Tel: +91- 4422574860;

**Email: muhamed@ksu.edu*

²Department of Biomedical Engineering, Michigan Technological University, Houghton, MI

49931, USA

³Department of Mechanical and Nuclear Engineering, Kansas State University, Manhattan,

Kansas 66506, United States Tel.: +1-785-532-7085; Fax: +1-785-532-7057.

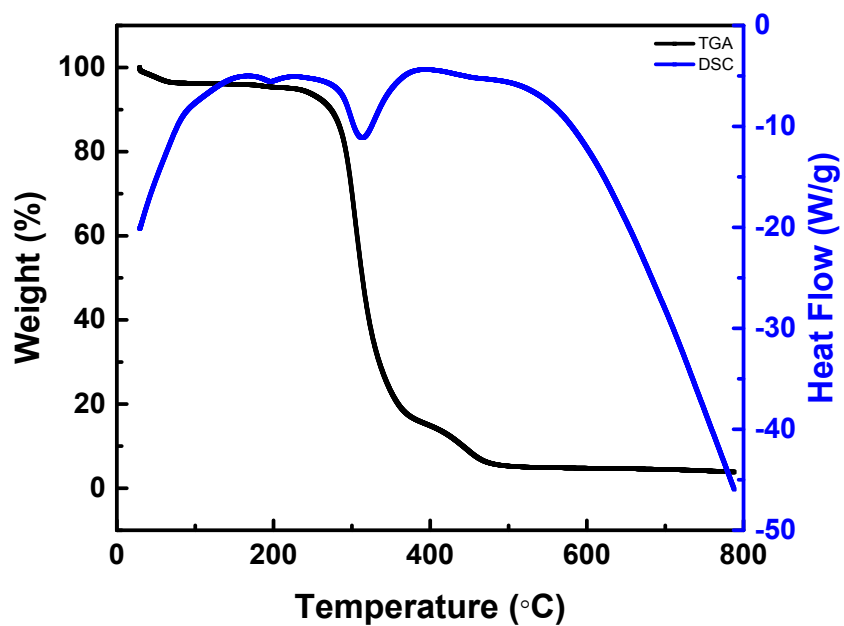


Fig. S1. TGA and DSC plots of as-spun PVA nanofibers.

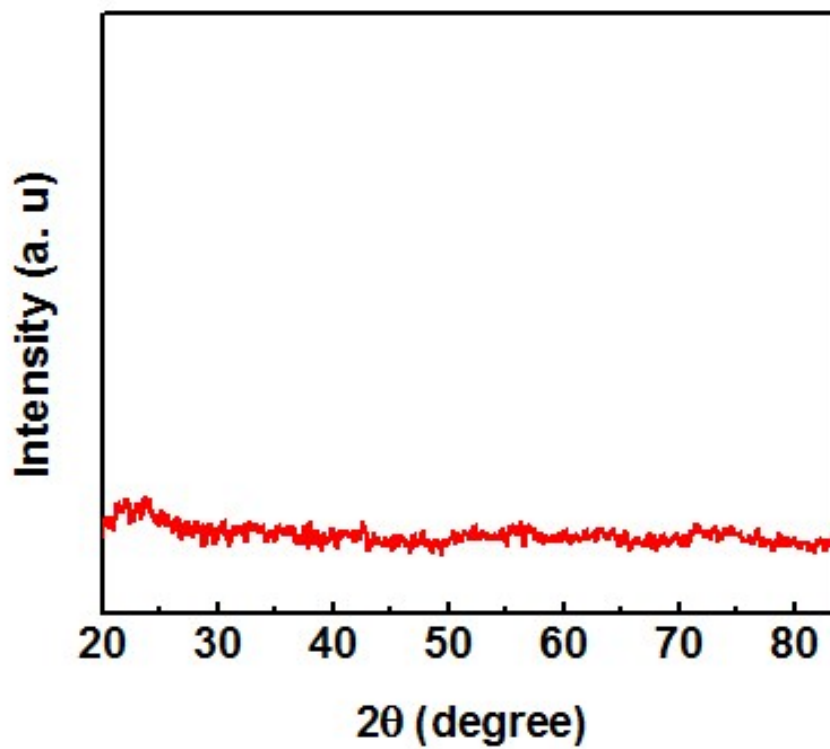


Fig. S2. Powder XRD pattern of as-spun MnAc-PVA nanofibers

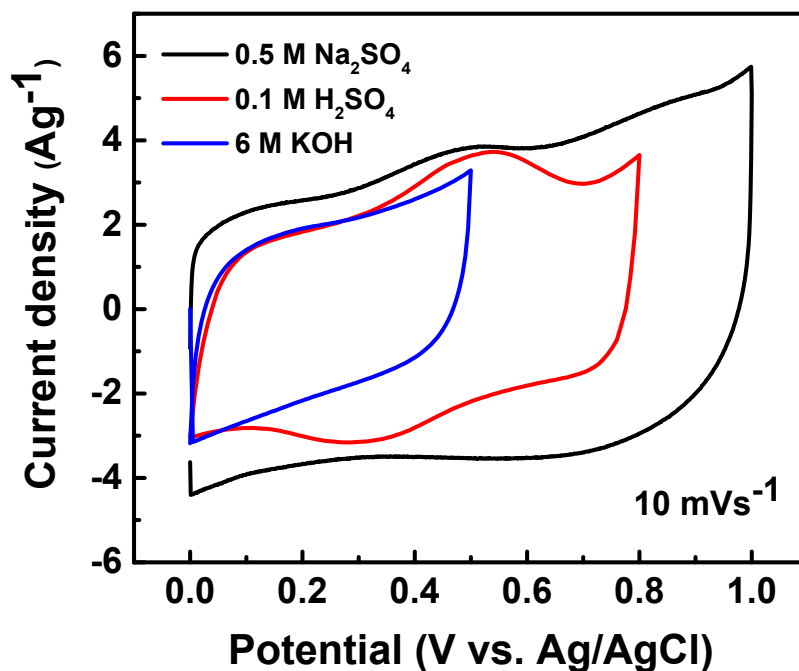


Fig. S3. Cyclic voltammograms recorded at a scan rate of 10 mVs^{-1} , for Mn_2O_3 nanobead fiber electrodes in different electrolytes.

Table S1. Comparison of electrochemical properties of the Mn_2O_3 Nanofibers with other MnO_x based composite structures.

Electrode material	Electrolyte	Potential window (V)	Specific capacitance (Fg^{-1})	Current Density	Reference
Carboxylated-graphene- Mn_2O_3 (G-COOMn) nanocomposites	1M Na_2SO_4	0.7	~ 300	50 mA cm^{-2}	1
Hybrid MnO_x films with additions of	1M Na_2SO_4	0.9	340.3	25 mVs^{-1}	2

multiwalled
carbon nanotubes

Porous Mn ₂ O ₃ nanocubics	0.5M Na ₂ SO ₄	0.8	191.1	0.1 Ag ⁻¹	3
MnO _x /carbon nanofibers composites	0.5M Na ₂ SO ₄	1.0	174.8		4
MnO _x /carbon nanofibers composites	0.5M Na ₂ SO ₄	1.0	211	0.25 Ag ⁻¹	5
Porous honeycomb manganese oxide@carbon fibers (HMO@CFs)	1M Na ₂ SO ₄	1.0	295.24	0.1 Ag ⁻¹	6
α - MnO ₂ nanowires @Ni _{1-x} Mn _x O _y nanoflak es core-shell nanostructures.	0.5M Na ₂ SO ₄	0.8	657	0.25 Ag ⁻¹	7
K _{0.26} MnO ₂ nanoflake assemblies	2M KCl	2.0 (Asymmetric Supercapacitor)	81.7	2.0 Ag ⁻¹	8
Mn ₂ O ₃ Nanofibers	0.5M Na ₂ SO ₄	1.0	358	0.5 Ag ⁻¹	Present work

References:

1. K.-W. Park, *Journal of Materials Chemistry A*, 2014, 2, 4292-4298.
2. C. K. Lin, C. H. Wu, C. Y. Tsai, C. Y. Chen and S. C. Wang, *Surface and Coatings Technology*, 2010, 205, 1595-1598.
3. W. Li, J. Shao, Q. Liu, X. Liu, X. Zhou and J. Hu, *Electrochimica Acta*, 2015, 157, 108-114.
4. X. Zhao, Y. Du, Y. Li and Q. Zhang, *Ceramics International*, 2015, 41, 7402-7410.
5. Y. Du, X. Zhao, Z. Huang, Y. Li and Q. Zhang, *RSC Advances*, 2014, 4, 39087-39094.

6. D. Zhang, Y. Zhang, Y. Luo and P. K. Chu, *Nano Energy*, 2015, 13, 47-57.
7. H.-Y. Wang, F.-X. Xiao, L. Yu, B. Liu and X. W. Lou, *Small*, 2014, 10, 3181-3186.
8. Q. Li, X. Sun, K. Lozano and Y. Mao, *RSC Advances*, 2013, 3, 24886-24890.