

Supporting Information

A Three-Dimensional MnO₂/Graphene hybrid as binder-free supercapacitor electrode

Chuanyin Xiong*, Tiehu Li, Muhammad Khan, Hao Li, Tingkai Zhao

School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an 710072,

PR China

* To whom correspondence should be addressed. Tel: 1-365-9196144

E-mail: xiongchuanyin@126.com

Table of Contents

Figure S1, Schematic illustration of electrodeposition of the MnO₂ nanowall arrays.

Figure S2, SEM image of MnO₂800.

Figure S3, The CV curve of electrodeposition of MnO₂700 nanowall arrays at different scan rates from 50 mV s⁻¹ to 400 mV s⁻¹.

Figure S4. The GCD curves of electrodeposition of MnO₂/GR700 nanowall arrays at current densities of 1, 1.5, 2, 2.5 and 3 A g⁻¹.

Figure S5. The CV curves of different quality of MnO₂/GR700 electrodes at various scan rates range of 50–400 mV s⁻¹.

Table S1 The related values of energy and power densities of MnO₂/GR700 electrode at different scan rates range of 10–500 mV s⁻¹.

* Corresponding author. Tel.: +86 029 88460337; fax: +86 029 88460337.

E-mail address: xiongchuanyin@126.com

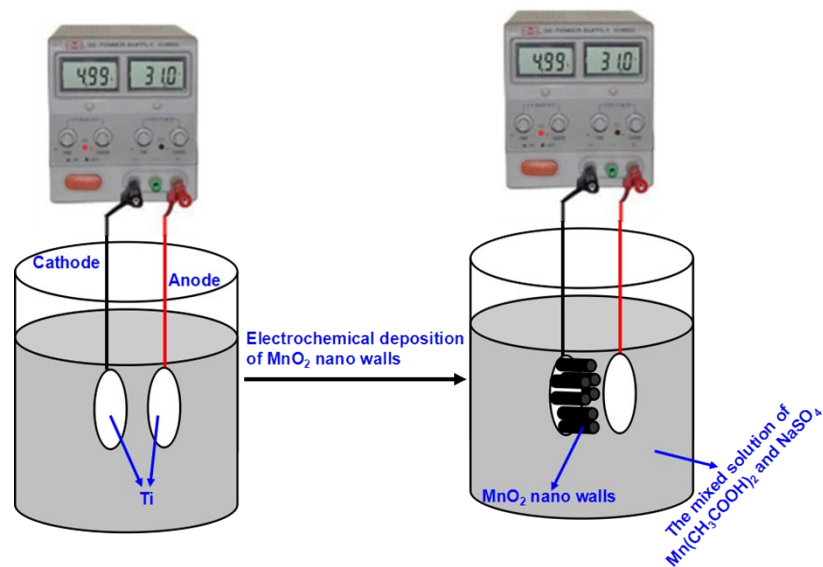


Figure S1. Schematic illustration of electrodeposition of the MnO₂ nanowall arrays.

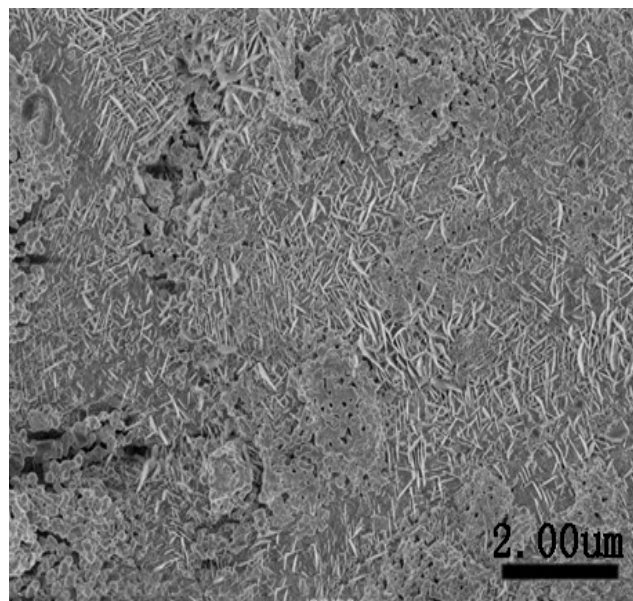


Figure S2. The SEM image of MnO₂800

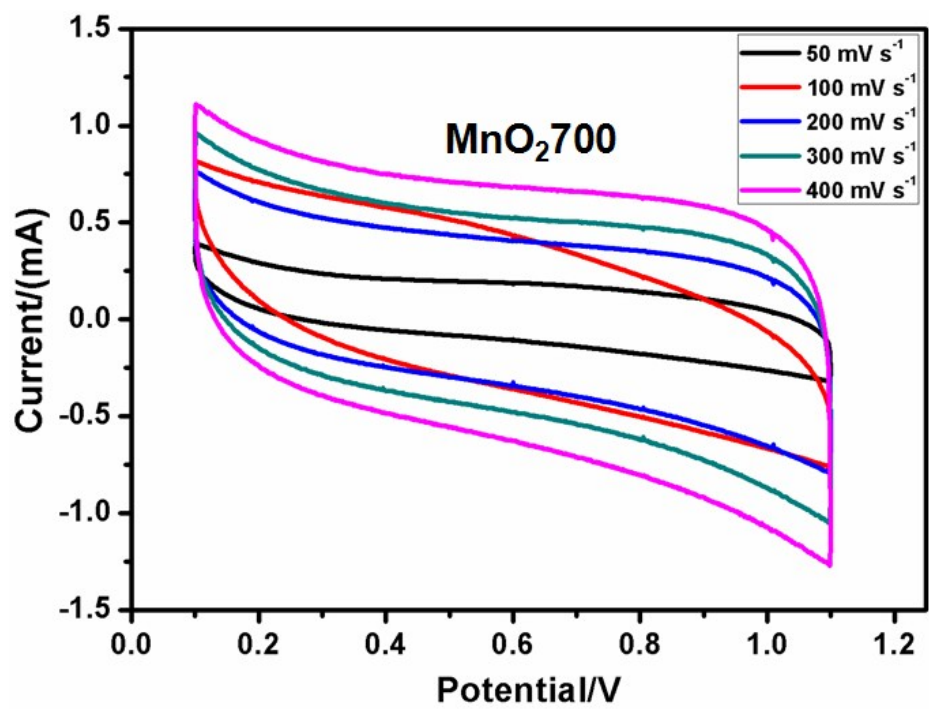


Figure S3. The CV profiles of electrodeposition of MnO₂700 nanowall arrays at different scan rates from 50 to 400 mV s⁻¹

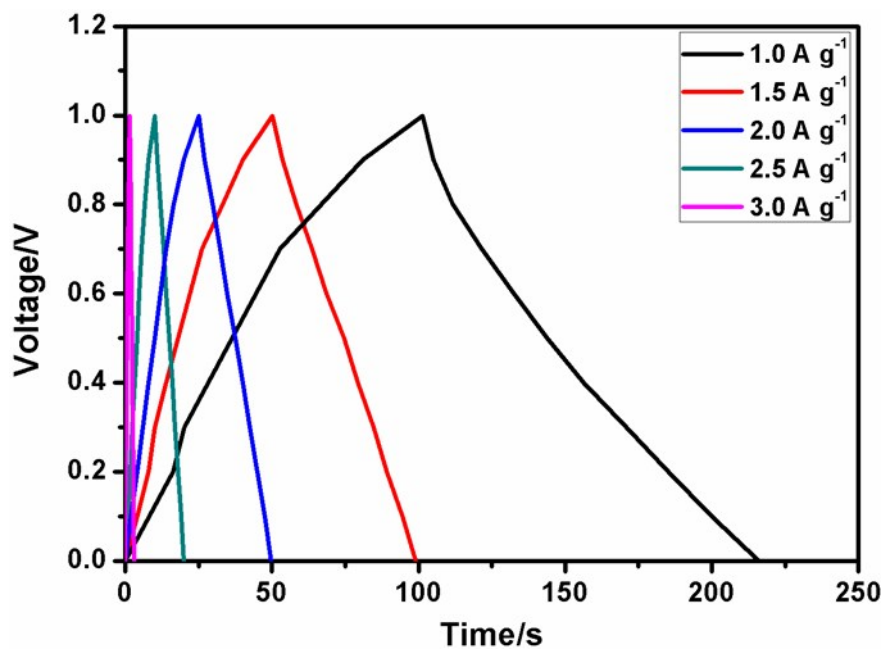


Figure S4. The GCD curves of electrodeposition of MnO₂/GR700 nanowall arrays at current densities of 1, 1.5, 2, 2.5 and 3 A g⁻¹

Table S1 The related values of energy and power densities of MnO₂/GR700 electrode at different scan rates range of 10 – 500 mV s⁻¹ with their corresponding to the order of the Fig. 5 from left to right.

Scan rates (mV s ⁻¹)	<i>P</i> (W kg ⁻¹)	<i>W</i> (Wh kg ⁻¹)
10	439	56.24
50	836	48.63
100	2734	36.89
200	7270	23.68
300	7961	14.19
400	8798	8.32
500	9657	6.23

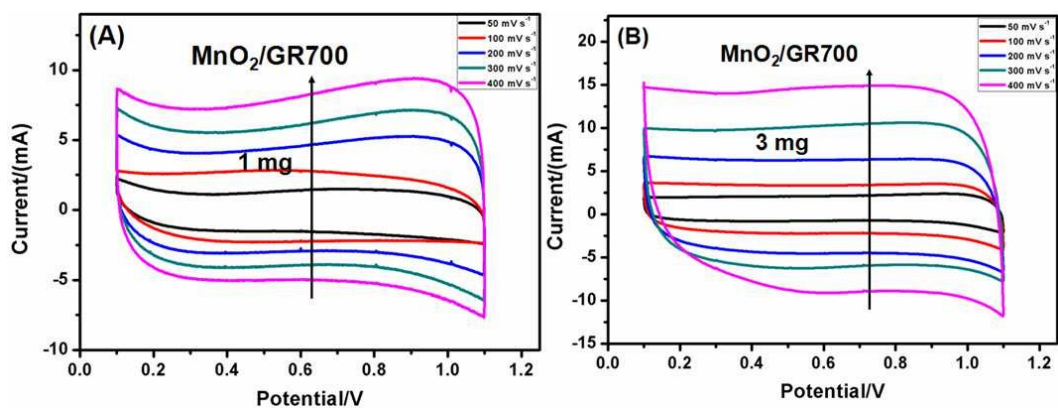


Figure S5. The CV curves of MnO₂/GR700 electrodes at various scan rates range of 50 – 400 mV s⁻¹ for large mass loading. The mass of (A) 1 mg; (B) 3 mg.