Electronic Supplementary Information (ESI)

Controllable Synthesis of Mn_3O_4 Nanodots@Nitrogen-Doped Graphene and Its Application for High Energy Density Supercapacitors

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Supporting Figures

Table S1 The reaction conditions of synthesizing Mn_3O_4 NDs@NG composites with different Mn_3O_4 mass loading.

Sample	Mn_3O_4 NDs@NG-0.25	Mn_3O_4 NDs@NG-0.4	Mn_3O_4 NDs@NG-0.5	Mn_3O_4 NDs@NG-0.6	Mn_3O_4 NDs@NG-0.75	Mn_3O_4 NDs@NG-1
m[$Mn_2(CO)_5$] (mg)	10	16	20	24	30	40
The volume of $Mn_2(CO)_5$/DMF solution (mL)	10					
m[GO] (mg)	40					
The volume of GO and DMF (mL)	20					
m[$Mn_2(CO)_{10}$]:m[GO]	0.25:1	0.4:1	0.5:1	0.6:1	0.75:1	1:1
The volume of octylamine (mL)	0.25					

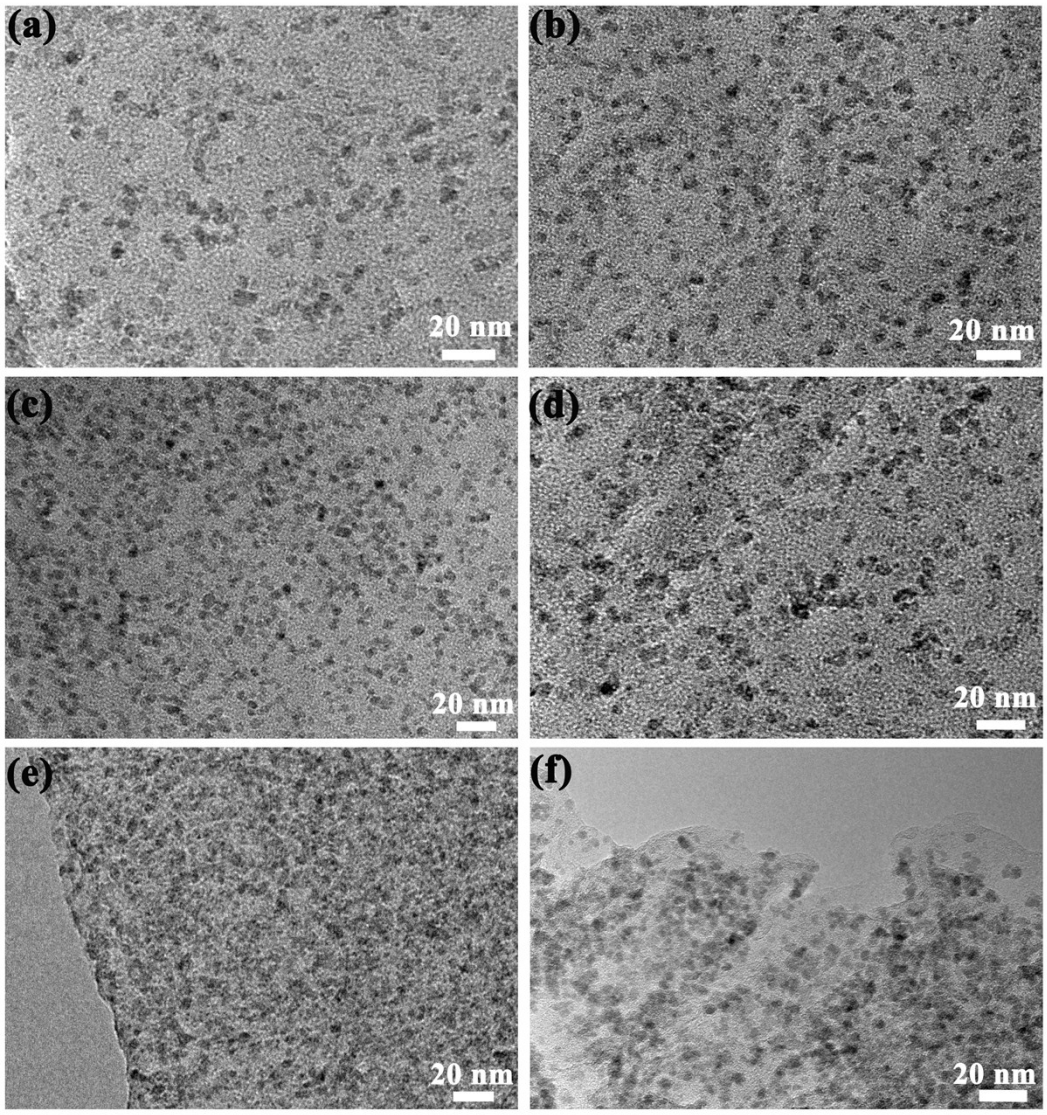

Figure S1 TEM images of the (a) Mn_3O_4 NDs@NG-0.25, (b) Mn_3O_4 NDs@NG-0.4, (c) Mn_3O_4 NDs@NG-0.5, (d) Mn_3O_4 NDs@NG-0.6, (e) Mn_3O_4 NDs@NG-0.75, (f) Mn_3O_4 NDs@NG-1.

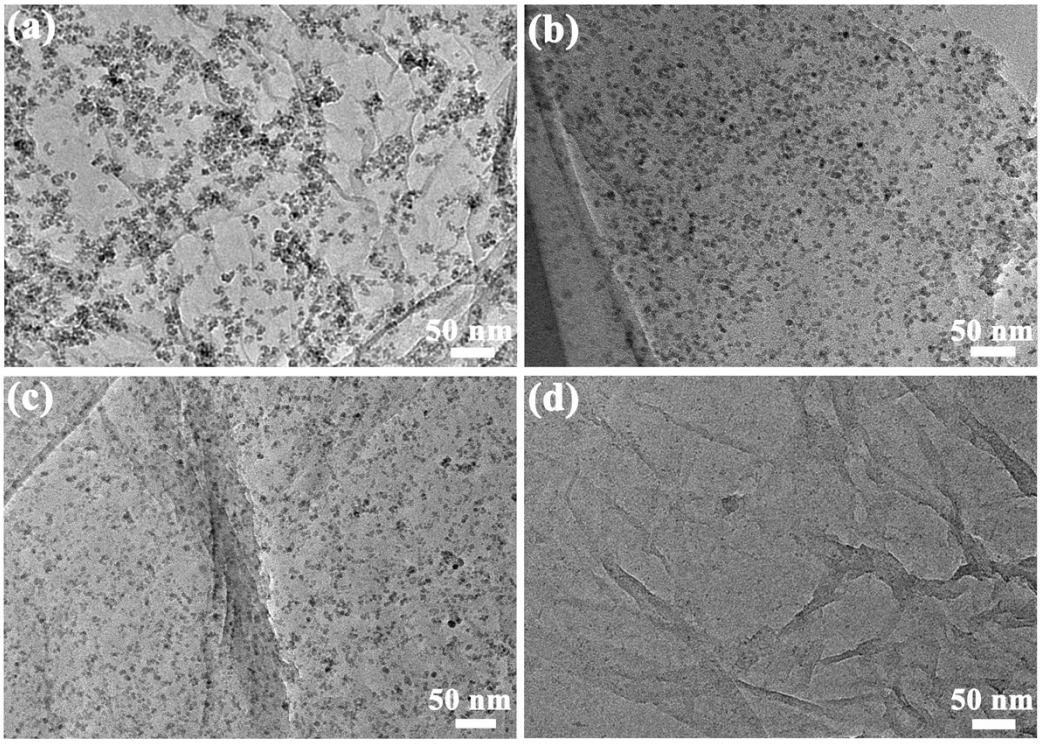

Figure S2 The TEM images of Mn_3O_4 NDs@NG-0.5 composite prepared by adding different volume of octylamine: (a) 1 mL; (b) 0.5 mL; (c) 0.25 mL and (d) 0.05 mL.

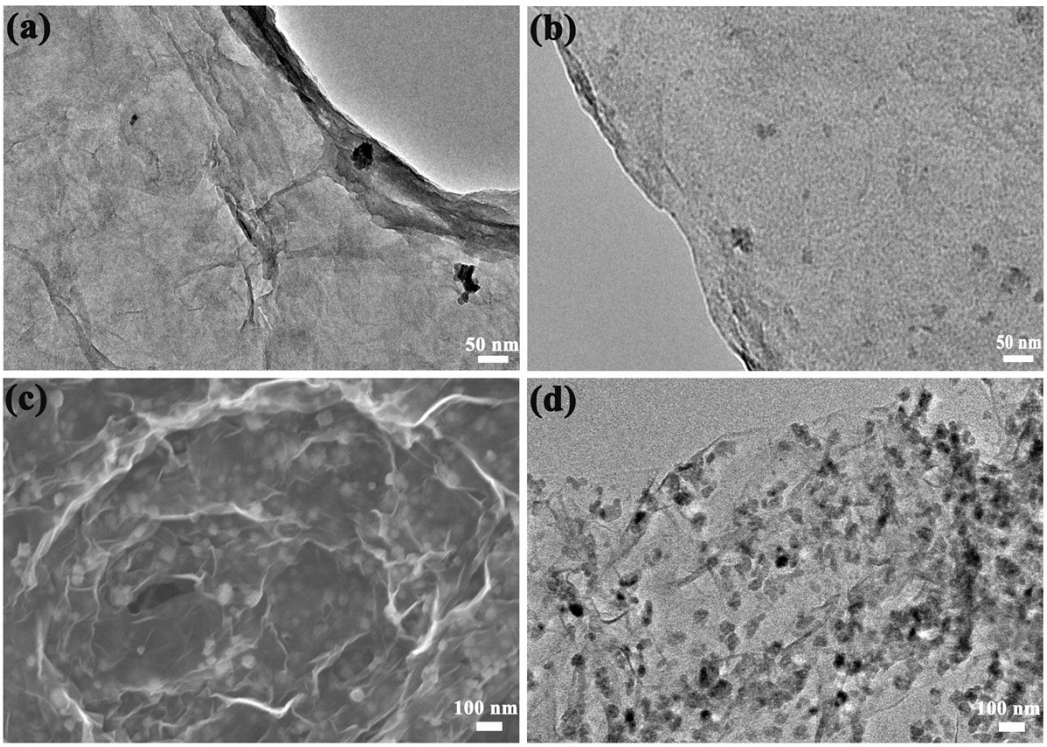

Figure S3 The TEM images of (a) Mn_3O_4 NDs@NG-Cl and (b) Mn_3O_4 NDs@NG-CO; (c) FESEM and (d) TEM of Mn_3O_4 @NG composite.

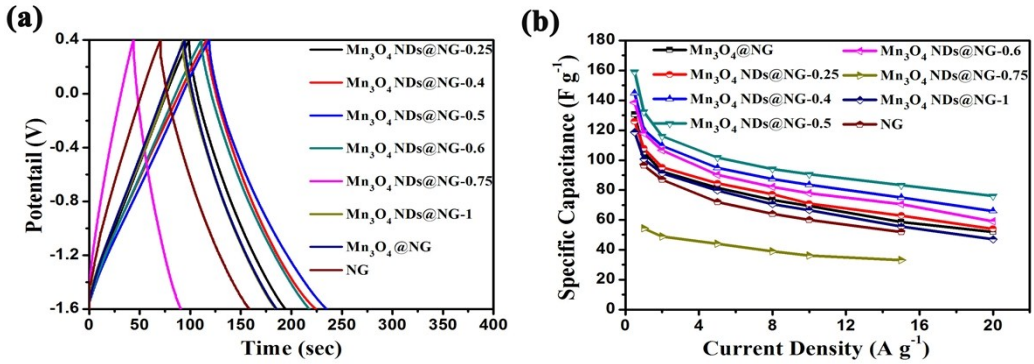

Figure S4 Electrochemical properties of NG, Mn_3O_4@NG and different proportions of Mn_3O_4 NDs@NG composites in $EMIMBF_4$ electrolyte: (a) GCD curves at 2 A g^{-1}; (b) Specific capacitances at different current densities.

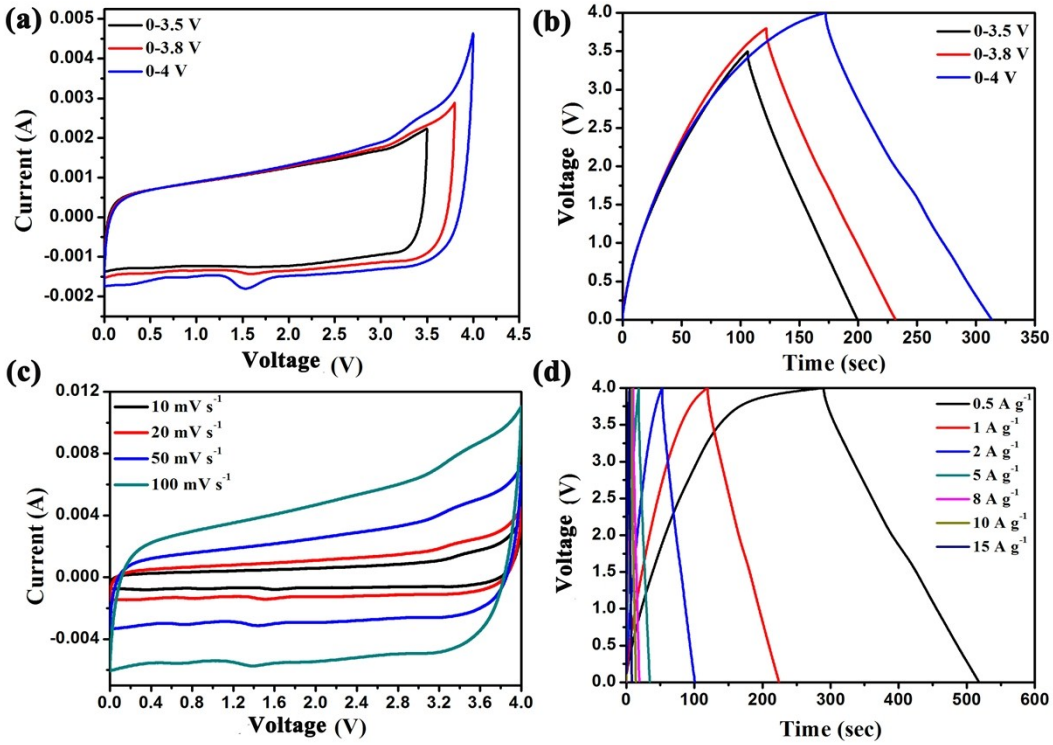

Figure S5 Electrochemical properties of Mn_3O_4 NDs@NG-based SC: (a) CV curves in different voltage range at 20 mV s^{-1}; (b) GCD curves in different voltage range at 1A g^{-1}; Electrochemical properties of Mn_3O_4@NG-based SC: (c) CV curves at different scan rates; (d) GCD curves at different current densities;

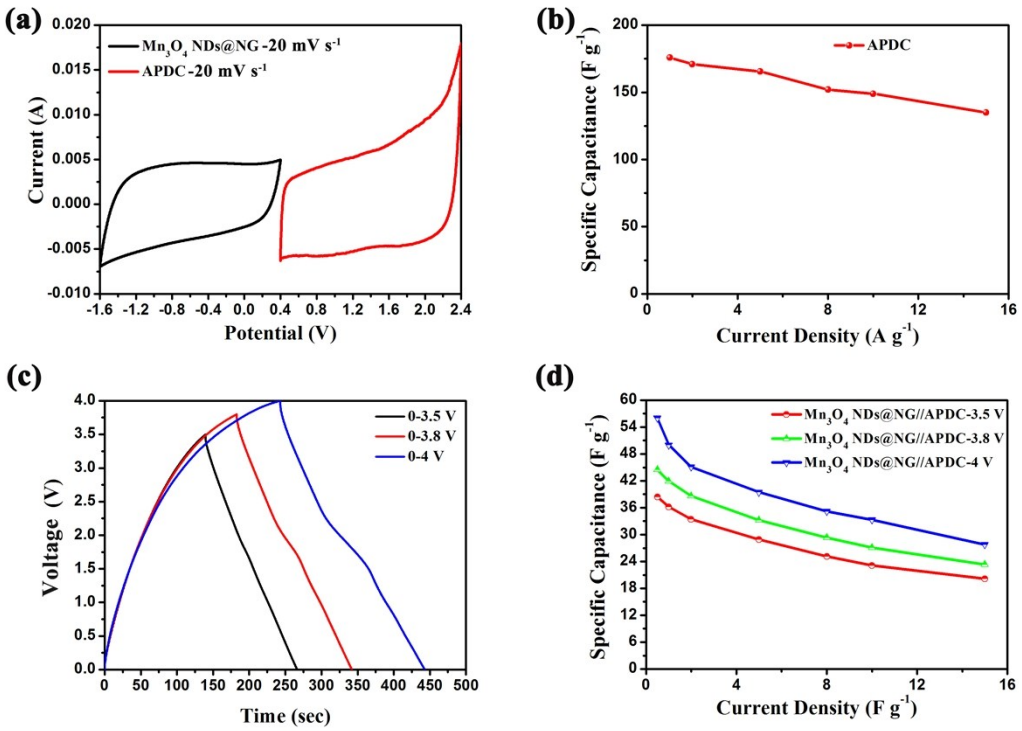

Figure S6 (a) The CV curves of Mn_3O_4 NDs@NG and APDC performed in a three-electrode cell in $EMIMBF_4$ electrolyte at 20 mV s^{-1}; (b) Specific capacitances of APDC at different current densities. Electrochemical properties of Mn_3O_4 NDs@NG//APDC ASC: (c) GCD curves in different voltage range at 1A g^{-1}; (d) Specific capacitances in different voltage range at different current densities.

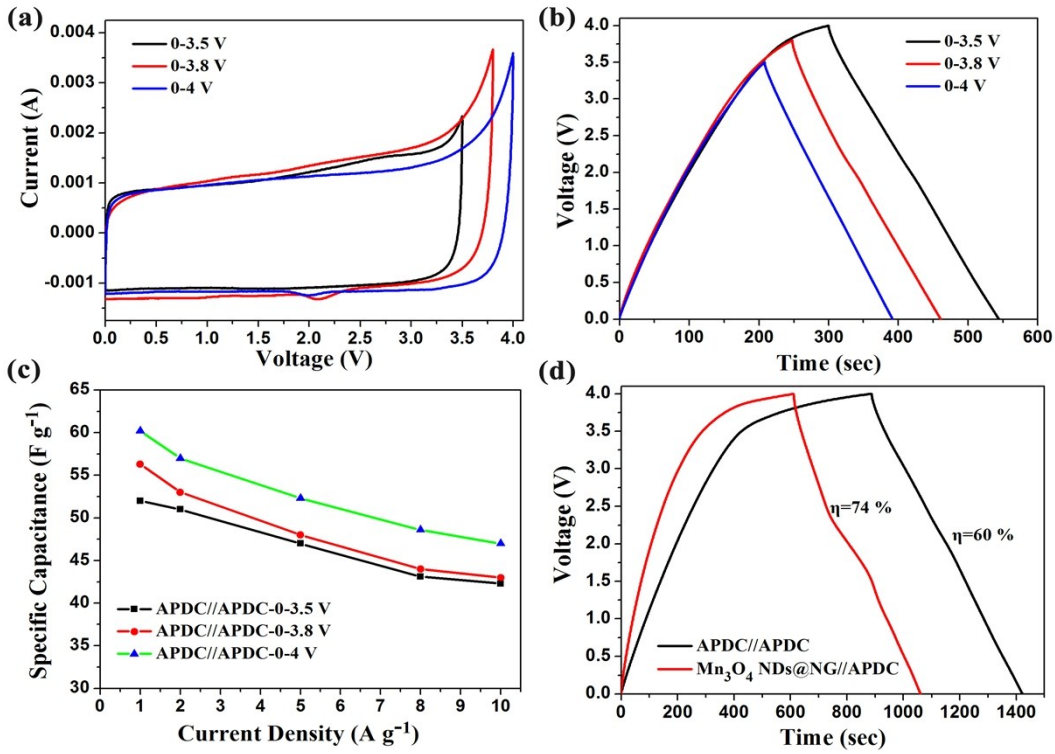

Figure S7 Electrochemical properties of APDC//APDC SC: (a) CV curves in different voltage range at 10 mV s^{-1}; (b) GCD curves in different voltage range at 1 A g^{-1}; (c) Specific capacitances in different voltage range at different current densities; (d) The GCD curves at 0.5 A g^{-1} of APDC//APDC and Mn_3O_4 NDs@NG//APDC ASC;