Electronic Supplementary Material (ESI) for Nanoscale.

Supporting information

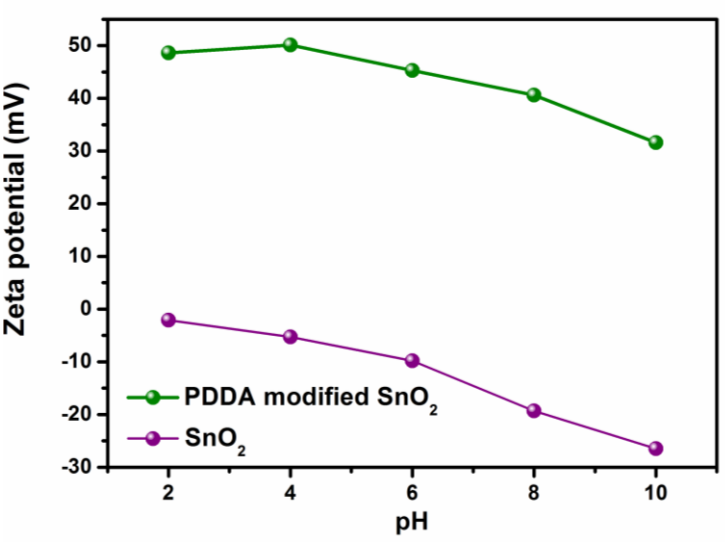

Fig. S1 Zeta potential of SnO_2 and PDDA modified SnO_2 in solution at different pH values

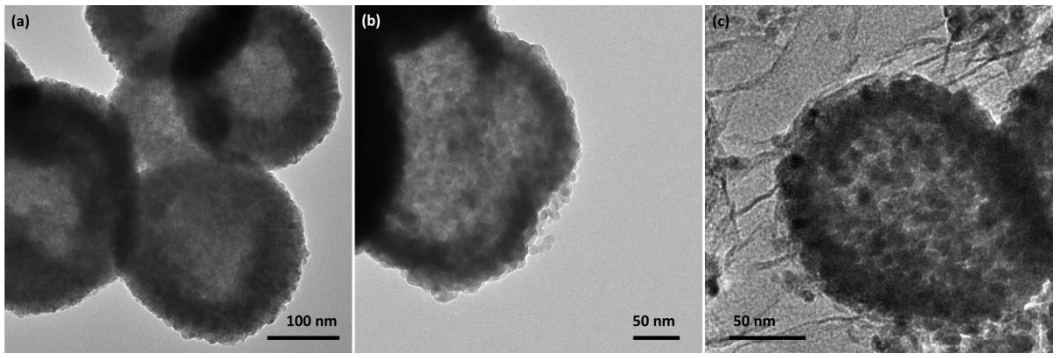

Fig. S2 TEM images of (a) SnO_2, (b) SnO_2/C and (c) SnO_{2-x}/N-rGO

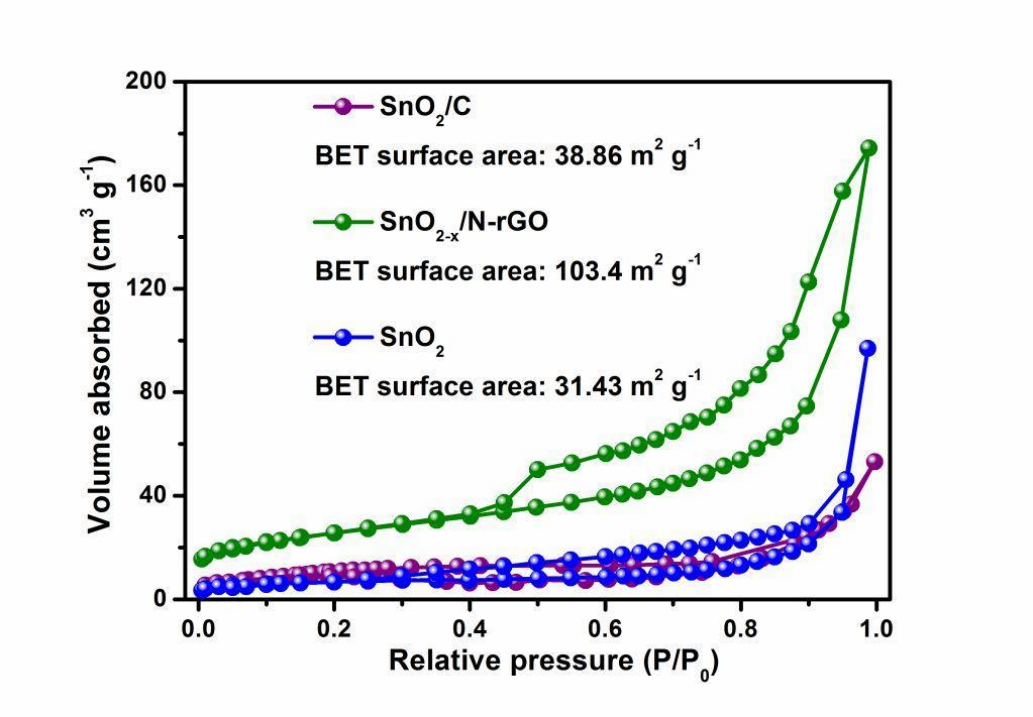

Fig. S3 N_2 adsorption/desorption isotherms of the SnO_2, SnO_2/C and SnO_{2-x}/N-rGO

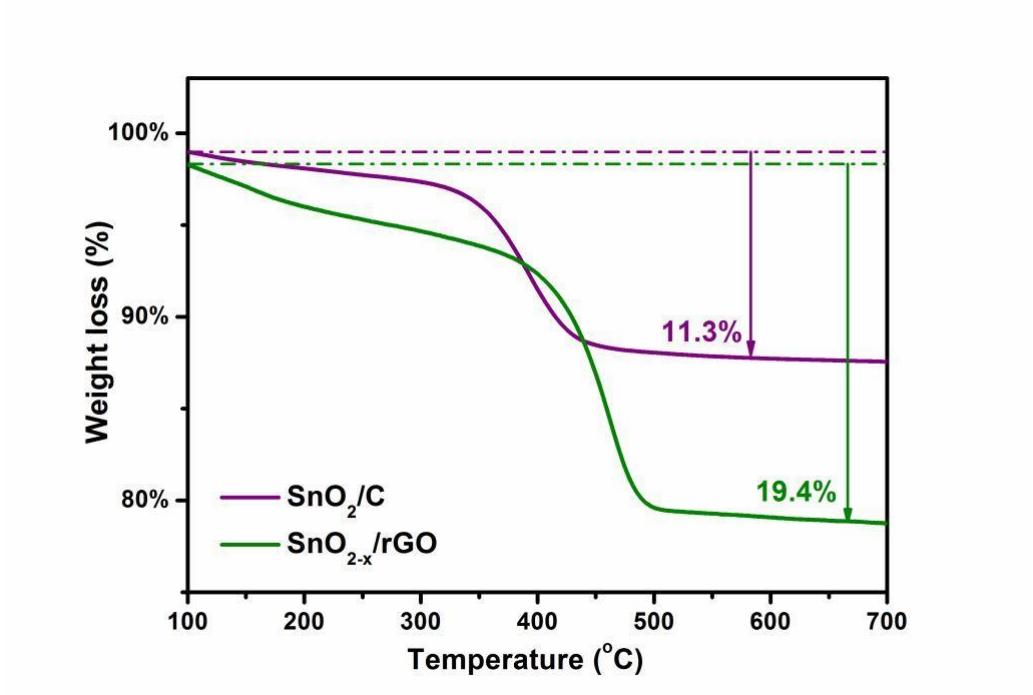

Fig. S4 TG curves of SnO_2/C and SnO_{2-x}/N-rGO samples

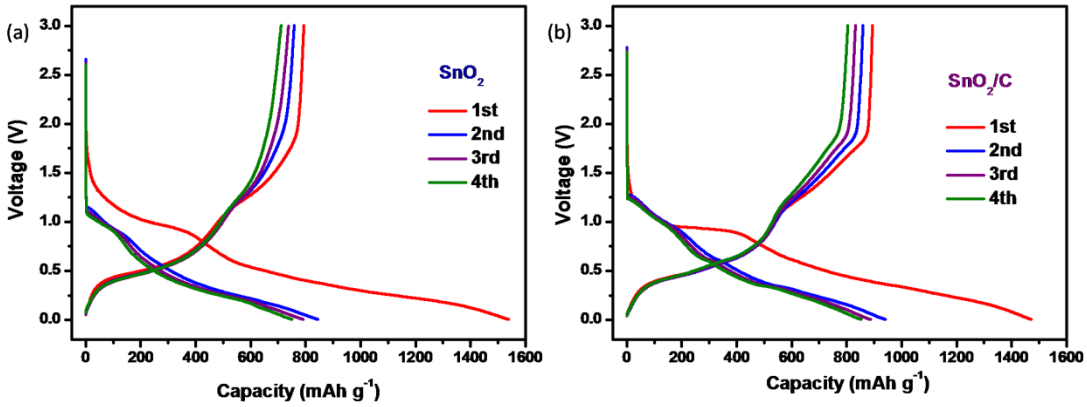

Fig. S5 The first four discharge-charge curves of (a) SnO_2 and (b) SnO_2/C electrode at a current density of 0.1 A g^{-1}

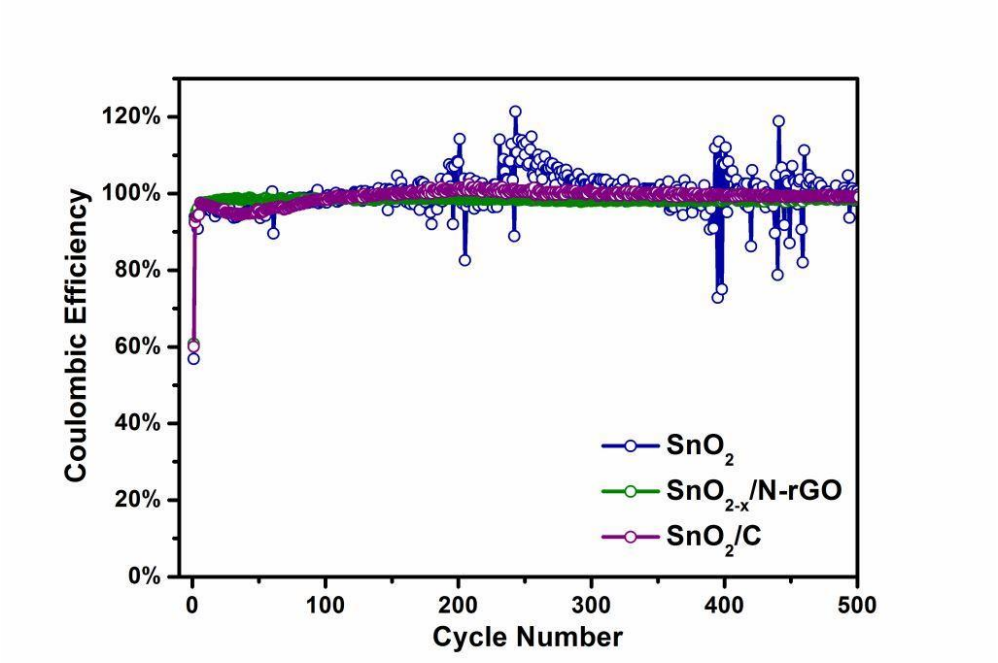

Fig. S6 Coulombic efficiency curves of as-prepared SnO_2 samples under 0.5 A g^{-1}

Table S1 Cyclic performance comparison of as-prepared SnO_2/rGO with previous work about SnO_2/graphene-based anode materials

Material	**Cycle number**	**Current density (A g^{-1})**	**Specific capacity retention (mAh g^{-1})**	**Reference**
SnO_2/rGO	500	1.0	552	*J. Mater. Chem. A*, 2017, 5, 4535-4542
SnO_2/graphene@C	100	0.1	820	*J. Mater. Chem. A*, 2016, 4, 362-367
SnO_2@graphene/ Pani	100	0.1	770	*ACS Appl. Mater. Interfaces*, 2015, 7, 2444-2451
SnO_2/rGO/C foam	100	0.13	717	*ChemElectroChem*, 2016, 3, 1063-1071
SnO_2/rGO	100	0.1	536	*Electrochimica Acta*, 2016, 207, 9-15
SnO_2 quantum dots@GO	100	0.1	1121	*Small*, 2016, 12, 588-594
SnO_2@polyaniline @graphene	100	1.0	560	*J. Power. Sources*, 2015, 290, 61-70
SnO_2/C/graphene sheets	100	0.2	830	*ACS Appl. Mater. Interfaces*, 2014, 6, 7434-7443
SnO_2@double graphene	120	0.08	591	*Nano Energy*, 2014, 3, 80-87
SnO_2/GO composite	200	0.1	800	*J. Mater. Chem. A*, 2013, 1, 7558-7562
SnO_2/graphene nanobelts	50	0.1	825	*ACS Nano*, 2013, 7, 6001-6006
SnO_2/graphene composite	200	0.1	830	*Adv. Mater.* 2013, 25, 3307-3312
Mesoporous SnO_2@graphene	50	0.078	848	*Adv. Funct. Mater.*, 2013, 23, 3570-3576
SnO_2 with oxygen vacancies wrapped in N-doped rGO	500	0.5	912	**Our work**

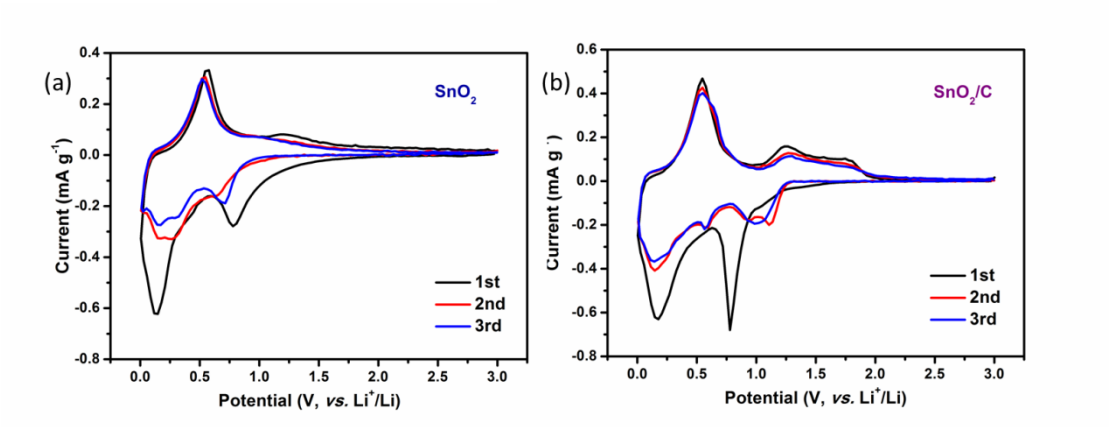

Fig. S7 CV curves of (a) SnO_2 and (b) SnO_2/C electrode in the voltage of 0.005 to 3.0 V at a scanning rate of 0.1 mV s^{-1}

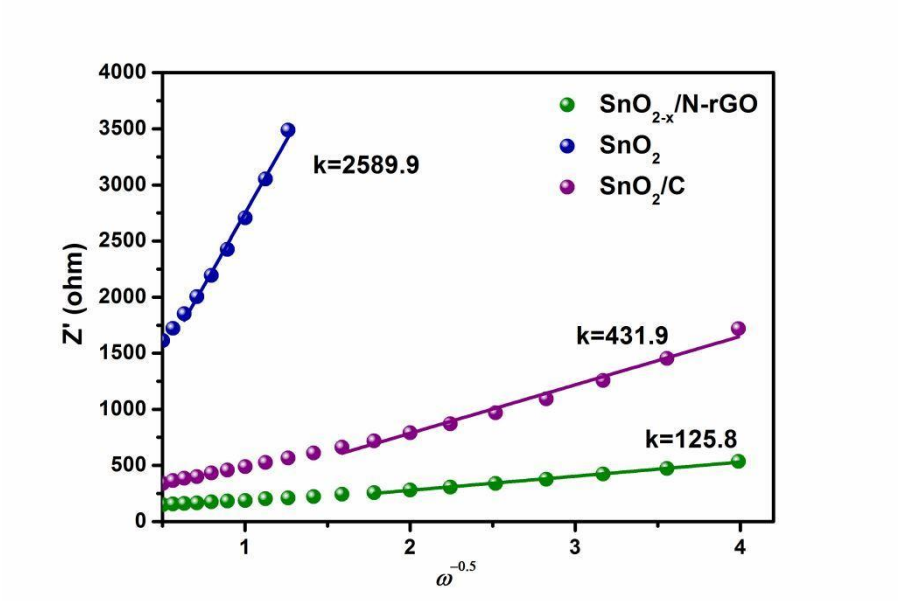

Fig. S8 The relationship between Z' and $\omega^{-0.5}$ of as-prepared SnO_2 samples

Table S2 The values of R_f, R_{ct} and D_{Li} calculated from the Nyquist plots

	R_s (Ω)	R_{ct} (Ω)	σ
SnO_2	20.3	534.4	2589.9
SnO_2/C	19.5	124.6	431.9
SnO_{2-x}/N-rGO	6.1	55.7	125.8

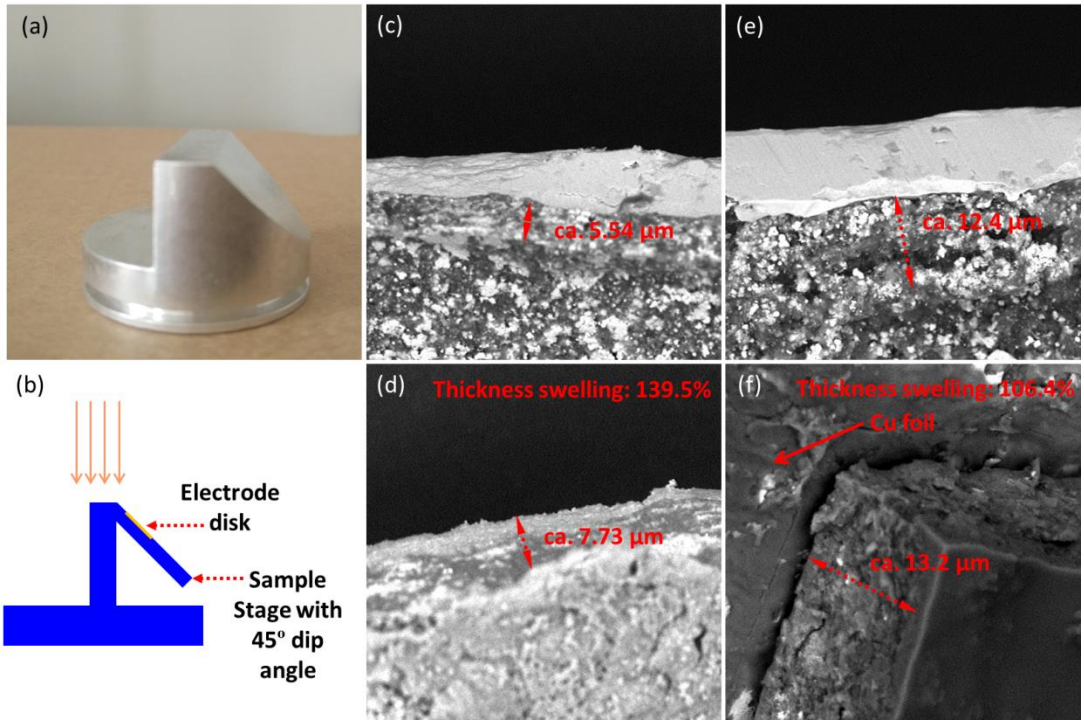

Fig. S9 (a) Photo of the sample stage; (b) working schematic of the sample stage with dip angle; SEM images of SnO_2 electrode disk (c) at initial status and (d) after cycles, and SnO_{2-x}/N-rGO electrode disk (c) at initial status and (f) after cycles.