Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information

Sb_2O_3 nanoparticles anchored in N-doped graphene nanoribbons anode for sodium-ion batteries

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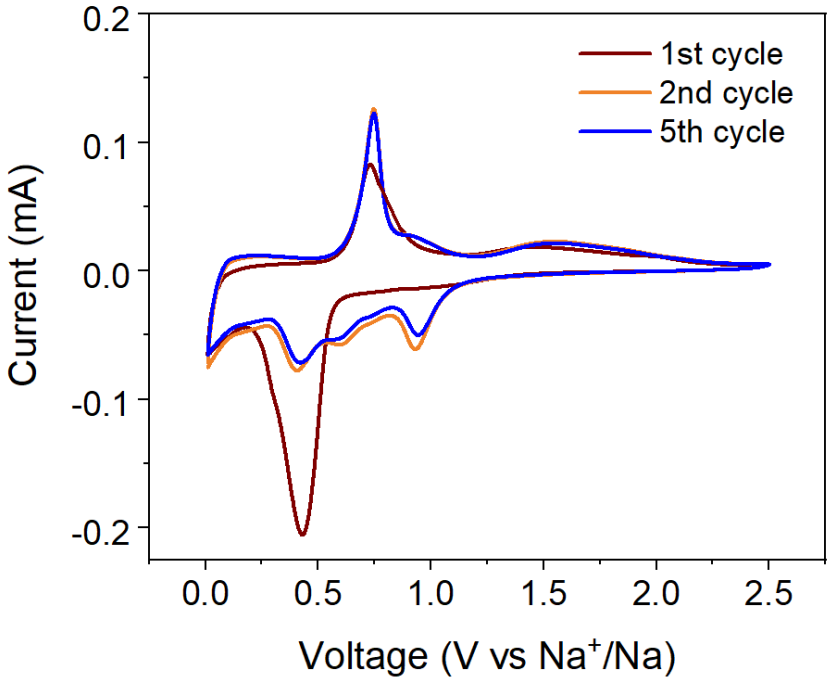

Figure S1. Cyclic voltammograms of 1st, 2nd and 5 cycles at a scan rate of 0.1 mV s^{-1} for control anode.

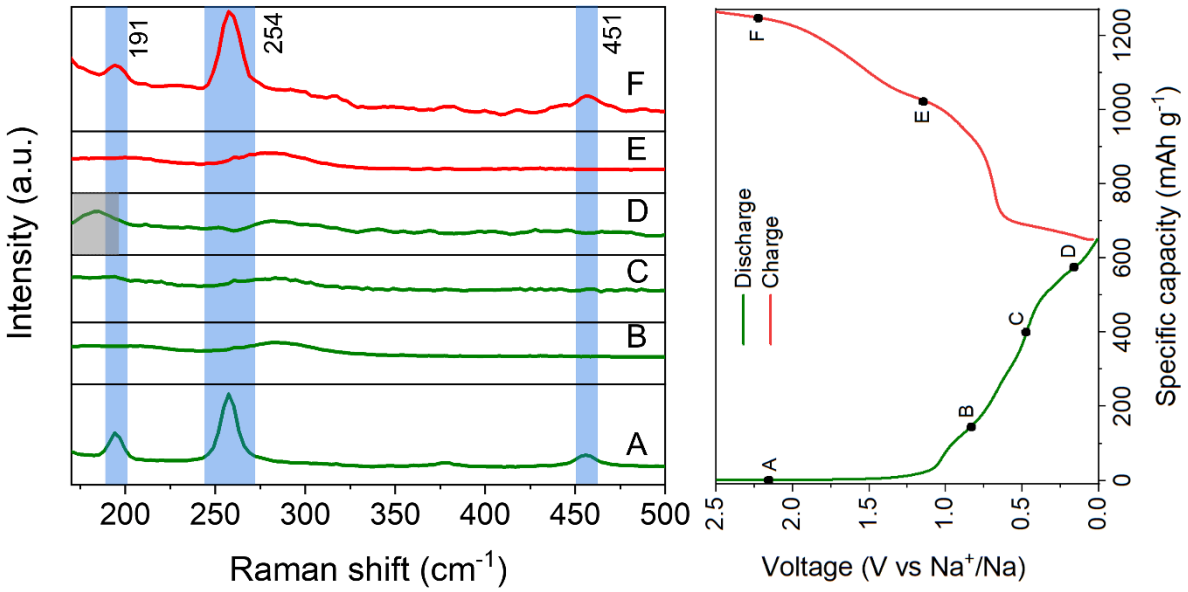

Figure S2. *Ex situ* Raman spectra of Sb_2O_3/GNR electrodes during sodiation/desodiation processes at selected potentials, including the discharge/charge profiles at 10 mA g^{-1} between 0 and 2.5 V. (A: discharged to 2.2 V, B: discharged to 0.8 V, C: discharged to 0.5 V, D: discharged to 0.2 V, E: charged to 1.2 V, and F: charged to 2.2 V).

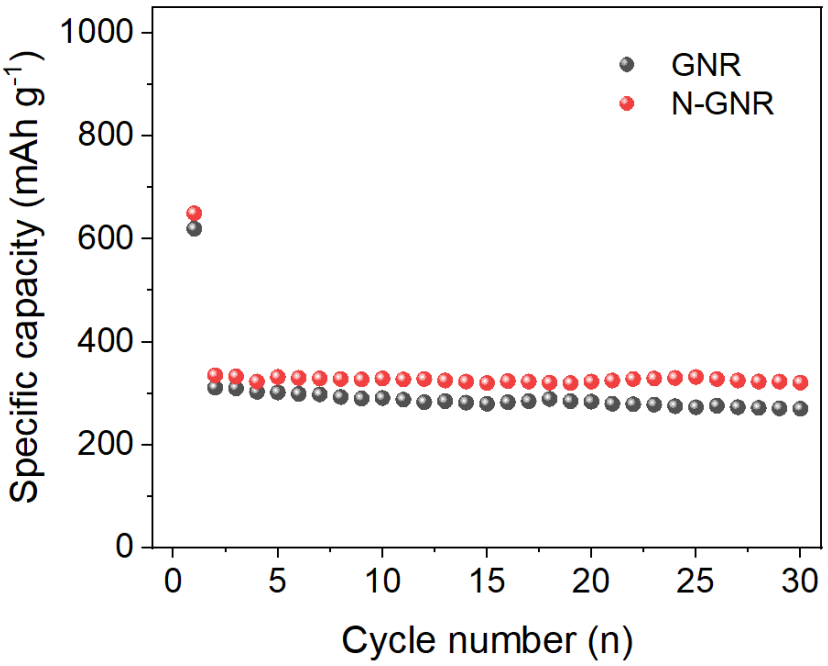

Figure S3. Cycling performance of GNR and N-GNR after 30 cycles at a current density of 0.1 A g^{-1}.

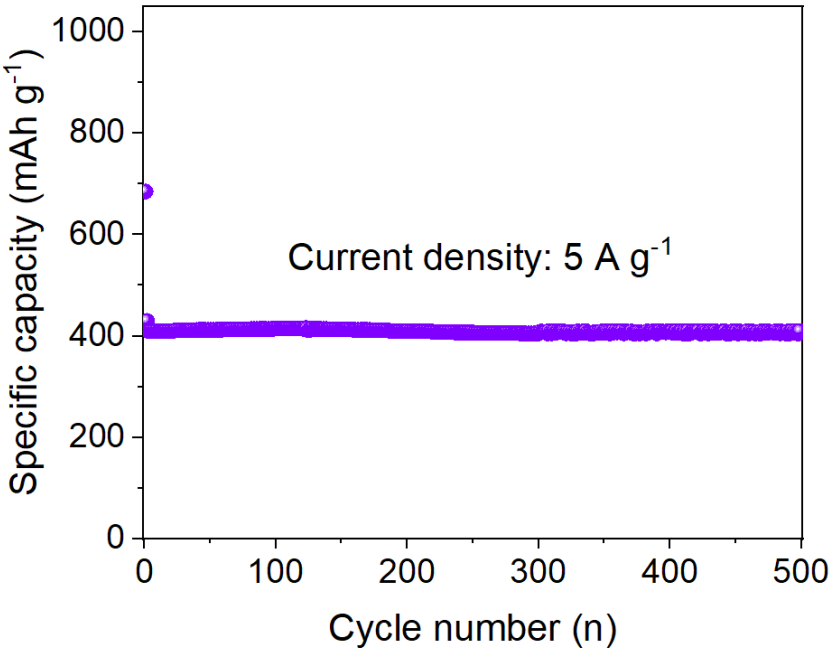

Figure S4. Long-term cycling stability of Sb_2O_3/N-GNR anode at a current density of 5 A g^{-1}.

Table S1. Comparison of the Na storage performance of Sb_2O_3/N-GNR with previously reported composites based on Sb_2O_3 and nitrogen-doped carbon nanostructures.

Anode	Current density (A g^{-1})	Specific capacity (mAhg^{-1})	Reference
Sb/Sb_2O_3@NCNFs	0.1	527.3 after 100 cycles	1
$Sb@Sb_2O_3$@N-3DCHs	0.1	507.9 after 100 cycles	2
SbO_2/Sb_2O_3@NC	0.1	622 after 100 cycles	3
Sb_2O_3/N-GNR	0.1	658 after 100 cycles	This work

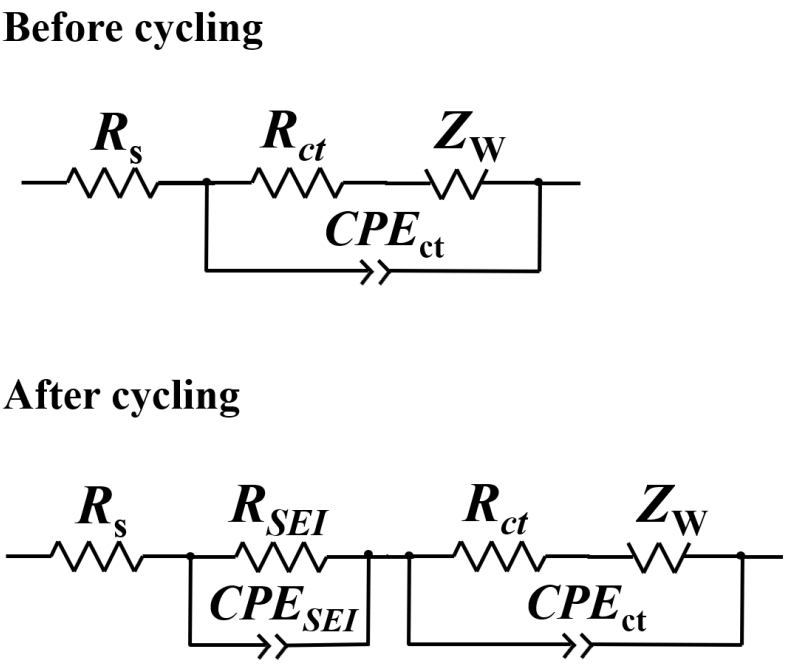

Figure S5. Equivalent circuits of Nyquist plots analysis for Sb_2O_3/N-GNR and control anodes before and after 100 cycles.

References

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