Supporting information

Synergistic Effect of 1D Bismuth Nanowires/2D Graphene Composites for High Performance Flexible Anodes in Sodium-ion Batteries

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Fig. S1. XPS spectra (a), high resolution N 1s spectra (b) and high-resolution O 1s spectra of the BNW@G film.

Fig. S2. TGA and DSC analysis of the BNW@G film.

Fig. S3. SEM image of the cross section of the BNW@G film.
Fig. S4. The CV curves of the BNW electrode at 0.1 mV s\(^{-1}\).

Fig. S5. The discharge/charge curves of the BNW electrode in NIBs at 1 A g\(^{-1}\).
Fig. S6. SEM image of the BNW anode after 50 cycles at 0.1 A g⁻¹.

Fig. S7. Schematically illustration of the morphology evolution of the BNW electrode.
Fig. S8. SEM image of the BNW@G film after 50 cycles at 0.1 A g$^{-1}$.

Fig. S9. High-magnification image (a) and the corresponding element mapping (Bi, Na, C, O and N) (b-f) of the BNW@G film after 50 cycles at 0.1 A g$^{-1}$.
Fig. S10. Schematically illustration of the morphology evolution of the flexible BNW@G film electrode.

Fig. S11. SEM image of the cross section of the BNW@G film after 50 cycles at 0.1 A g\(^{-1}\).
Fig. S12. High-magnification image (a) and the corresponding element mapping (Bi, Na, C, O and N) (b-f) of the cross section of the BNW@G film after 50 cycles at 0.1 A g\textsuperscript{–1}.

Fig. S13. Calculation of the diffusion coefficient. Schematic of the calculation of the diffusion coefficient using the GITT technique.
**Fig. S14.** XRD pattern of the BNW@G electrode in the in-situ XRD test devices.

**Fig. S15.** The discharge/charge curves of the NVP@G electrode under activation in NIBs at 0.1 A g⁻¹.