

Supporting Information

3D Printed rGO/CNT Microlattice Aerogel for Dendrite-free Na Metal Anode

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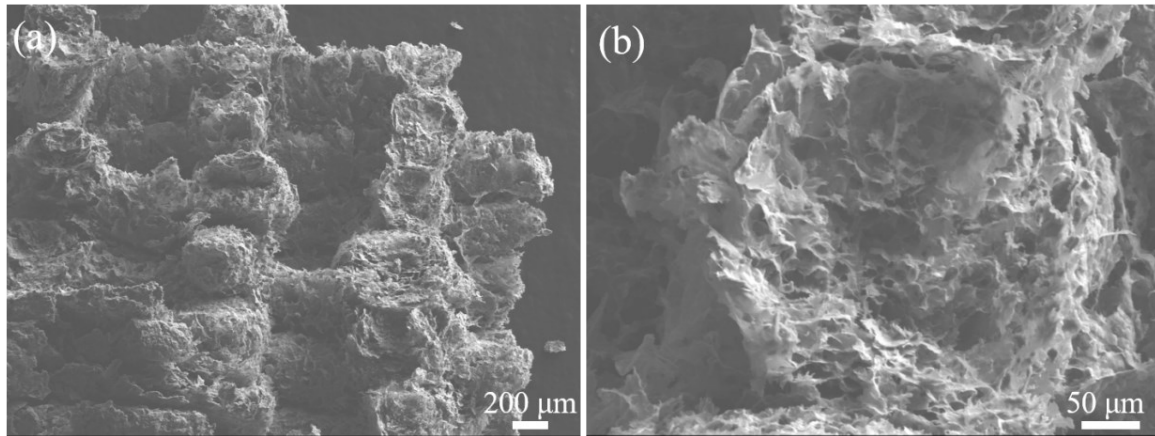


Fig. S1. SEM images of cross section of the 3D printed rGO/CNT microlattice aerogel with (a) low and (b) high magnifications.

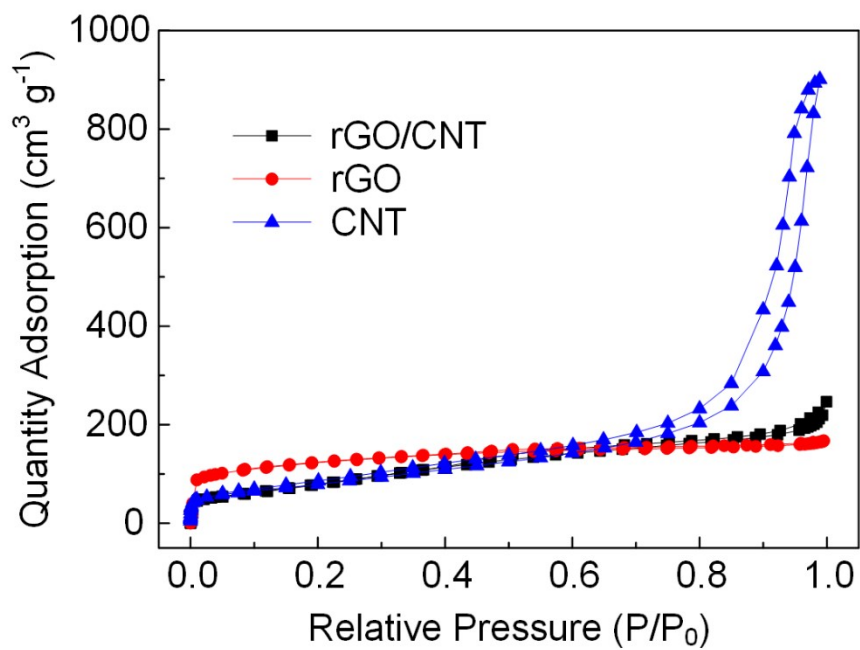


Fig. S2. Nitrogen adsorption–desorption isotherms at 77 K to measure the surface area of CNT, rGO and rGO/CNT nanocomposites.

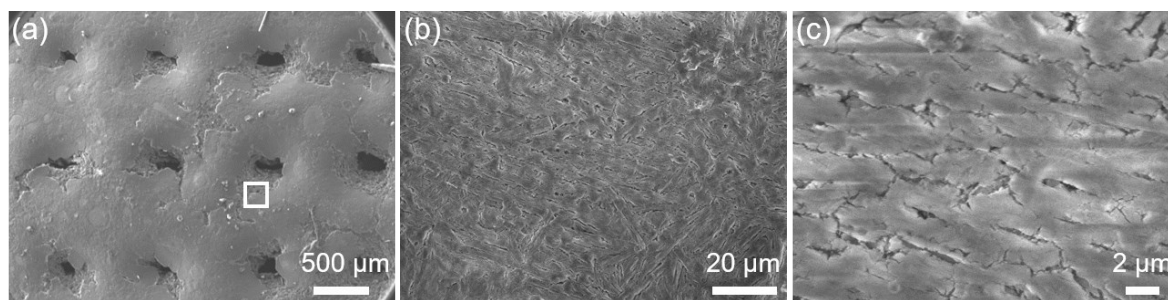


Fig. S3. SEM images with (a) low, (b) middle and (c) high magnifications of 3D Na@rGO/CNT electrode after deposited with a capacity of 5 mAh cm^{-2} at 0.5 mA cm^{-2}

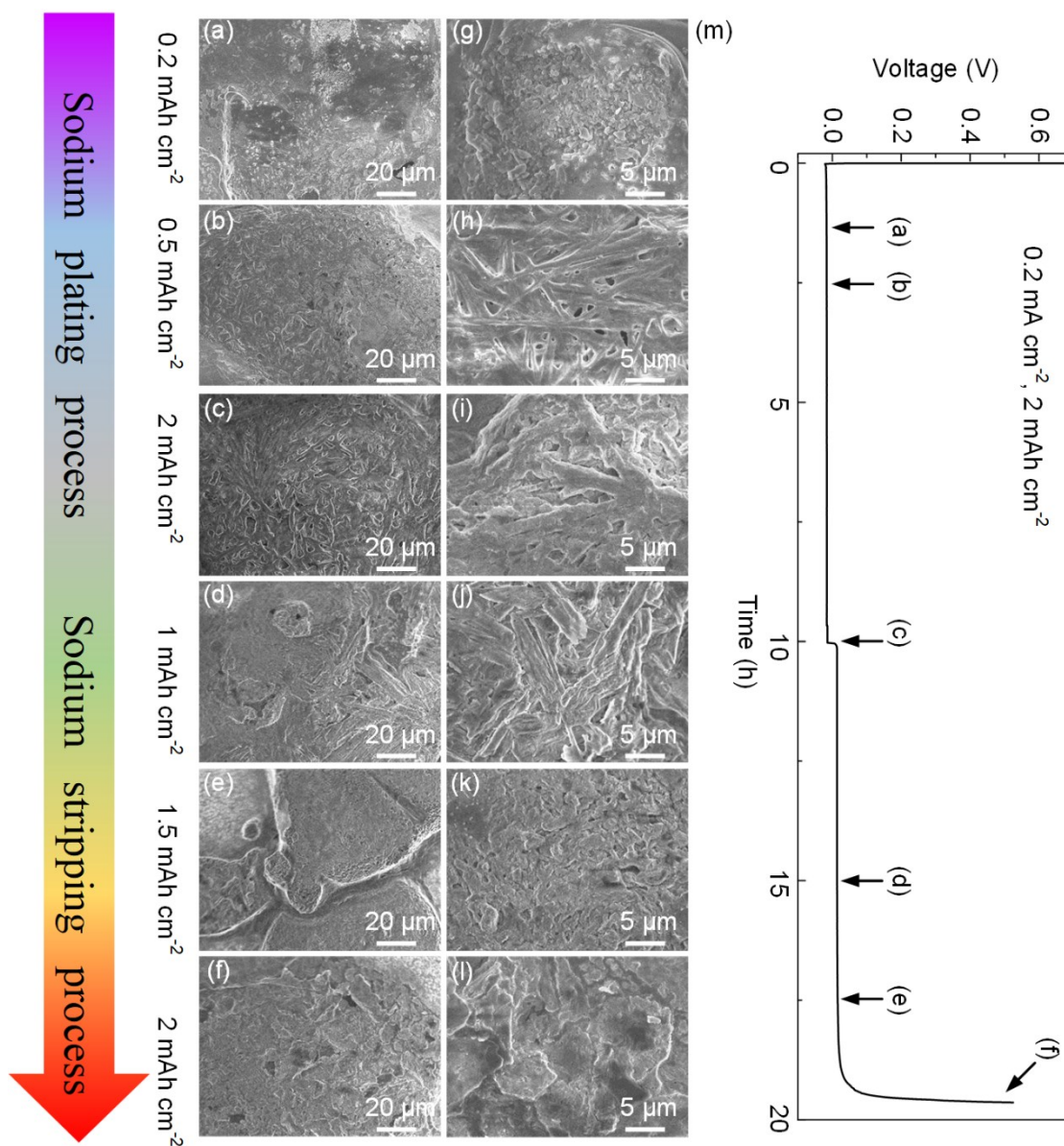


Fig. S4. Morphological evolution of Na metal plating and stripping on planar Cu. SEM images of planar Cu electrode after plated at a capacity of (a, g) 0.2 mAh cm^{-2} (b, h) 0.5 mAh cm^{-2} and (c, i) 2 mAh cm^{-2} , and then stripped (d, j) 1 mAh cm^{-2} , (e, k) 1.5 mAh cm^{-2} and (f, l) 2 mAh cm^{-2} at a current density of 0.2 mA cm^{-2} . (m) The corresponding plating/stripping curve at a current density of 0.2 mA cm^{-2} with a capacity of 2 mAh cm^{-2} .

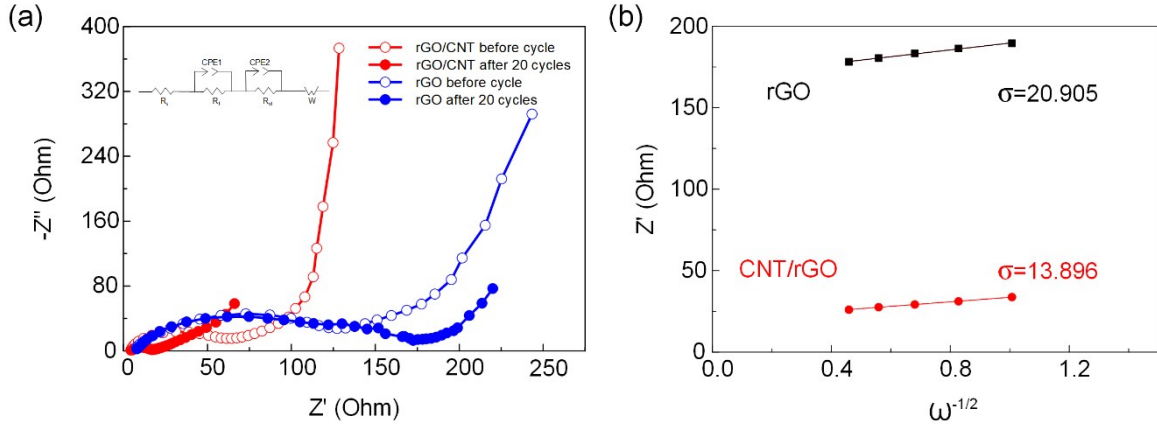


Fig. S5. (a) EIS spectra and corresponding fittings of the rGO/CNT and rGO sodium metal hosts before cycle and after 20th cycle. Inset is the equivalent circuit. R_s , R_f , R_{ct} , CPE and W are the current collector and electrolyte resistance, SEI layer resistance, charge transfer resistance, constant phase element-related double-layered capacitor and Warburg impedance related to the sodium ion diffusion, respectively. (b) Relationship between Z' and $\omega^{-1/2}$ in the low-frequency region of EIS (after 20 cycles) to fit the Warburg factor σ from EIS curves to calculate the diffusion coefficient.

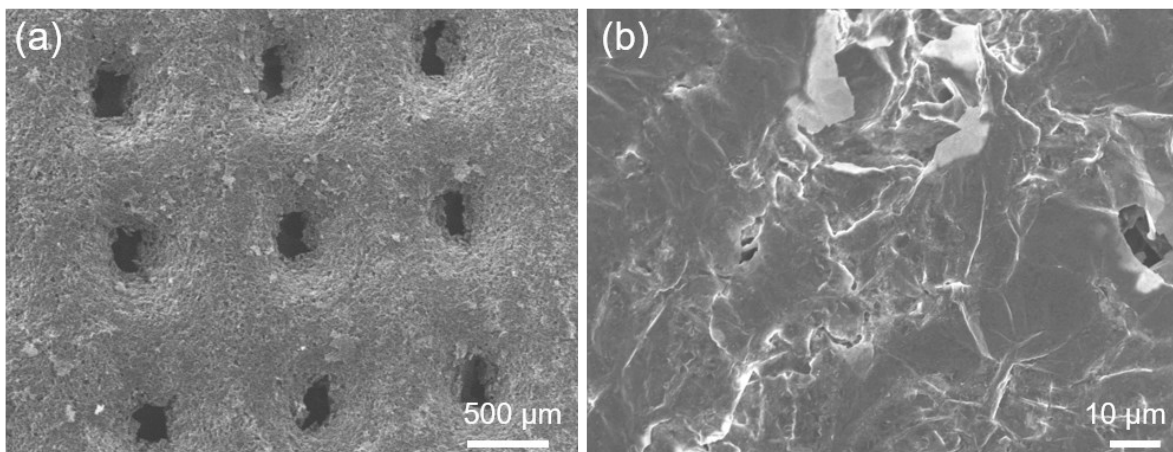


Fig. S6. The SEM images with (a) low and (b) high magnifications of the 3D Na@rGO/CNT microlattice electrode after 50 cycles at a current density of 2 mA cm^{-2} with a capacity limitation of 1 mAh cm^{-2} .