

Supporting Information for

Ultra-Stable and Durable Piezoelectric Nanogenerator with All-Weather Service Capability based on N-Doped 4H-SiC Nanohole Arrays

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Supplementary Figures

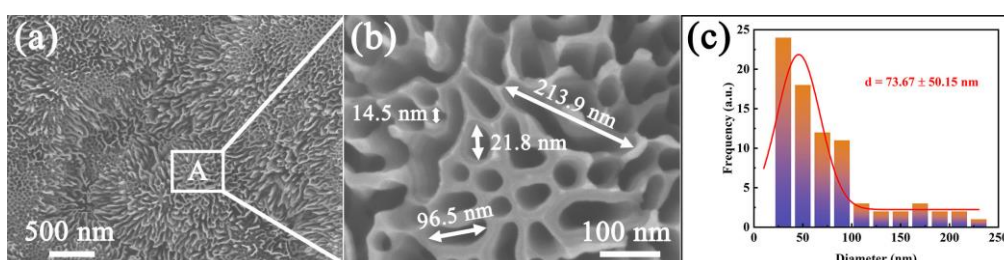


Fig. S1 (a, b) SEM images of NHAs. (c) The diameter distribution of N doped 4H-SiC NHAs

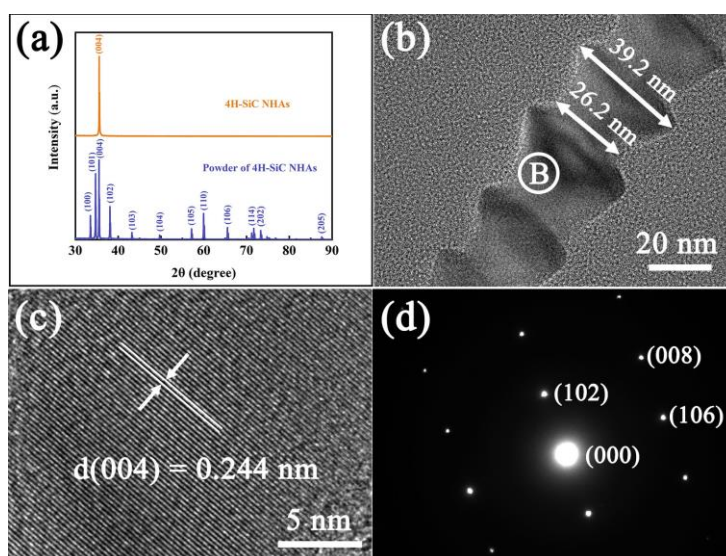


Fig. S2 (a) XRD results of NHAs and their powder. (b) TEM images of NHAs. (c) HRTEM image and (d) SAED patterns of the selected area B in (b)

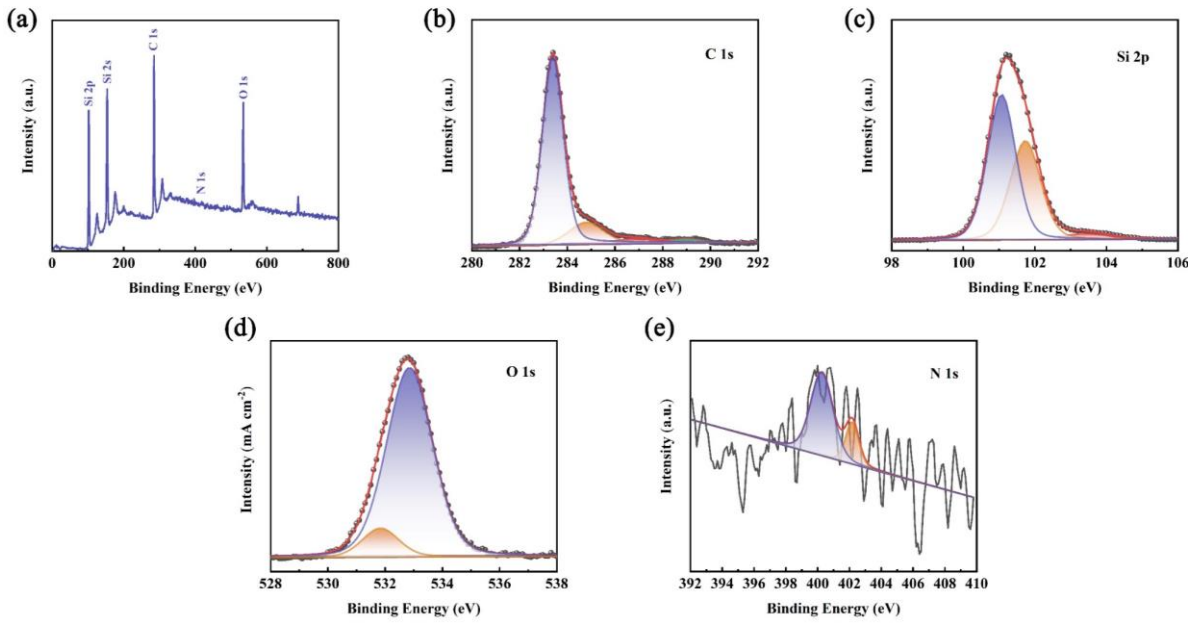


Fig. S3 (a) Full XPS spectrum of NHAs. Fine XPS spectrum of different elements: (b) C 1s; (c) Si 2p; (d) O 1s; (e) N 1s

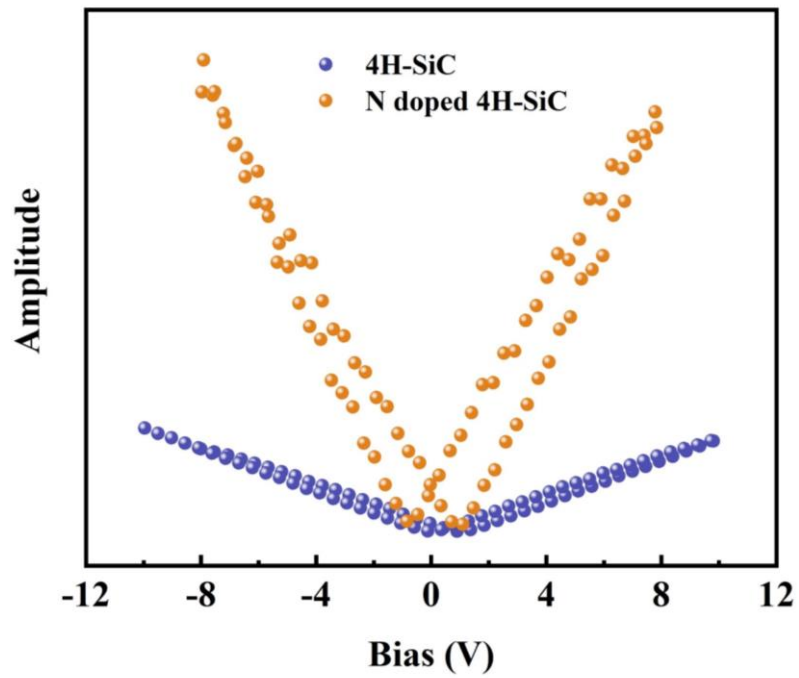


Fig. S4 PFM amplitude-voltage butterfly curve of 4H-SiC and N doped 4H-SiC

Nano-Micro Letters

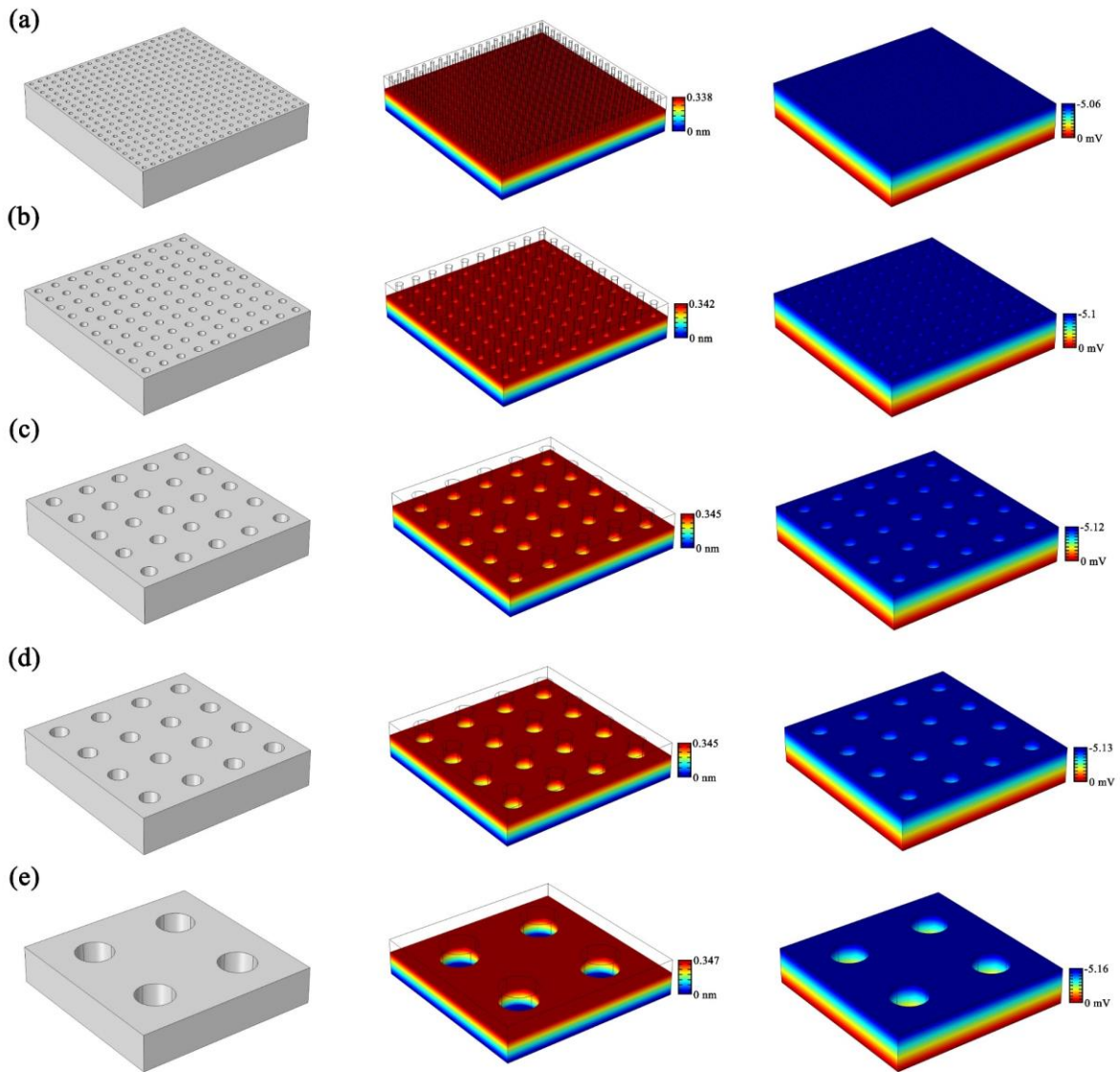


Fig. S5 Distribution of D and V of the units with different diameter: (a) 20 nm; (b) 40 nm; (c) 80 nm; (d) 100 nm; (e) 200 nm

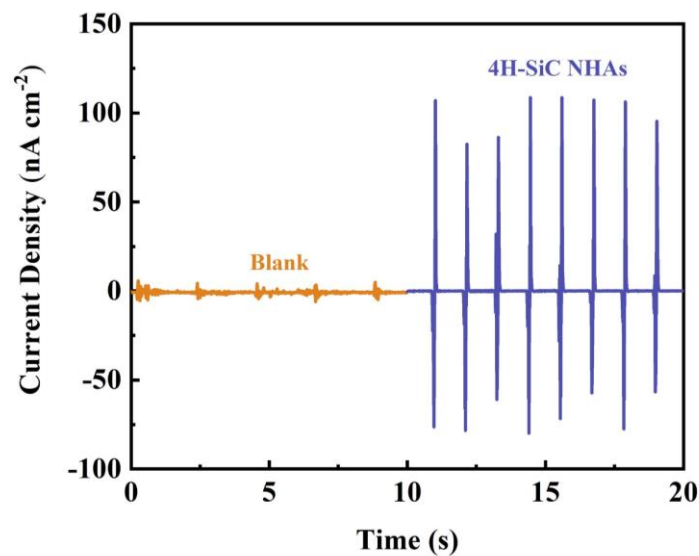


Fig. S6 Density of I_{sc} of PENG based on N doped 4H-SiC NHAs and the blank one

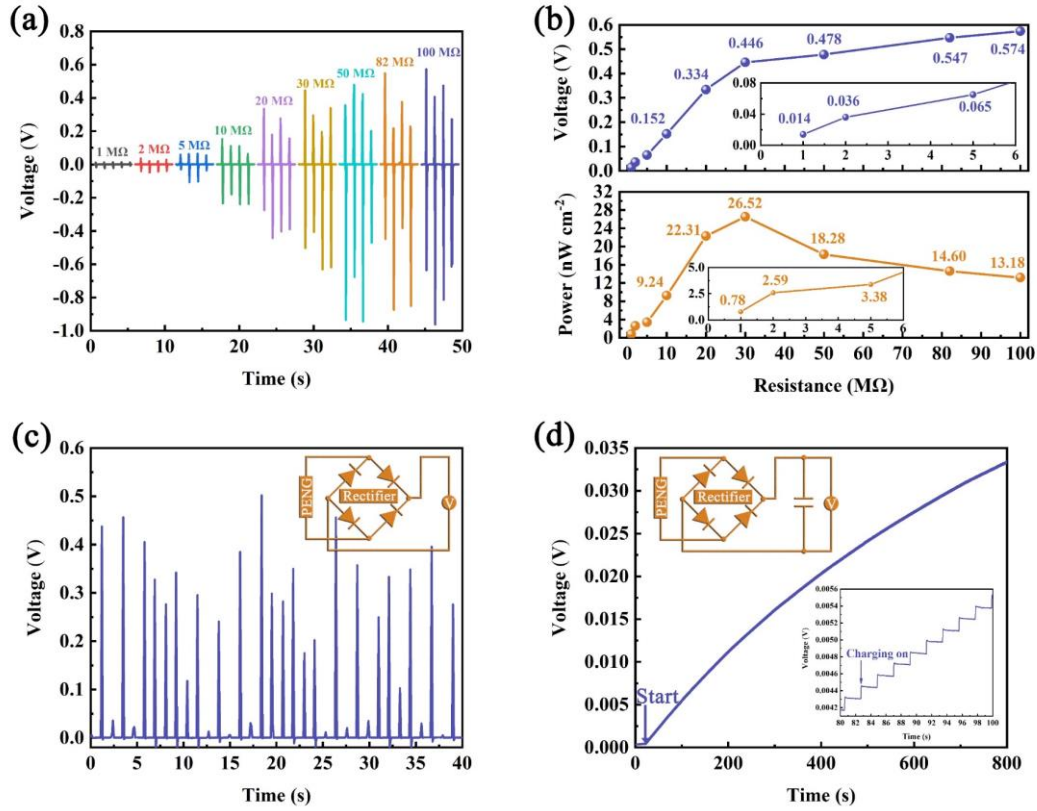


Fig. S7 (a) V_{oc} of PENG under resistive load varies from 1 MΩ to 100 MΩ. (b) The tendency of V_{oc} and power density of PENG under different resistances. (c) The voltage of PENG after bridge rectification. (d) The charging curve of 100 μF capacitor

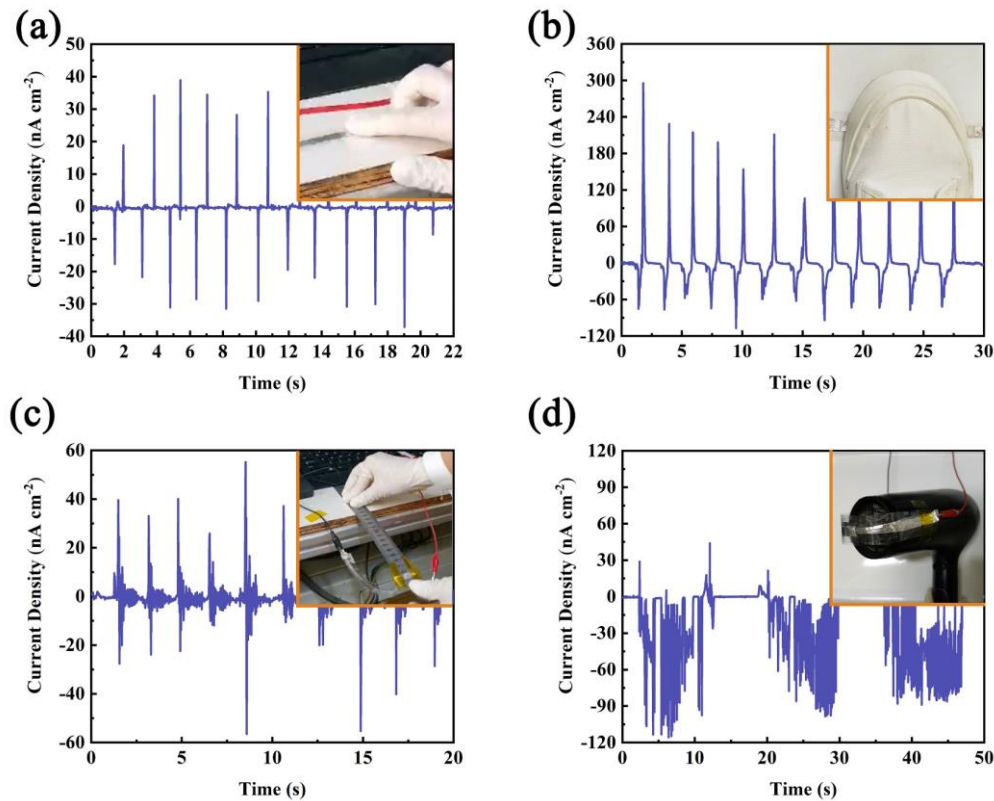


Fig. S8 Density of I_{sc} of PENG when stimulated in different ways: (a) finger tapping; (b) foot striking; (c) simulated cantilever beam; (d) simulated exhaust emission