

Supplementary Information

**A New 3D Metallic Carbon Composed of Penta-Graphene Nanoribbons as a
High-Performance Anode Material for Sodium-Ion Batteries**

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We have calculated the electronic band structures of the stable Na-intercalated configurations with the chemical formula $\text{Na}_x\text{C}_{4.5}$ ($x = 0.125, 0.25, 0.375, 0.75,$ and 1) at the PBE level, as shown in Fig. S1. It is found that the electronic band structures of these configurations are similar to each other in their band dispersion, while the Fermi level moves up with the increase of Na concentration due to more valence electrons being introduced.

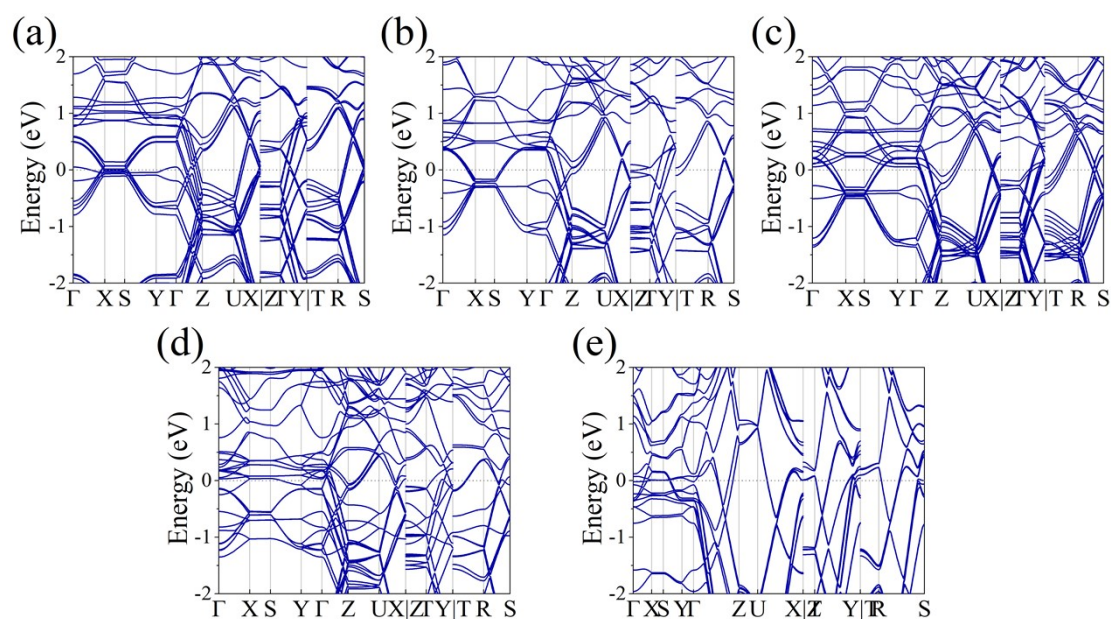


Fig. S1 Electronic band structure of the stable Na-intercalated configuration at Na concentration of (a) $x = 0.125$, (b) $x = 0.25$, (c) $x = 0.375$, (d) $x = 0.75$, and (e) $x = 1.0$.