

## Supplementary Materials

### **Constructing core-double-shell structured Si@graphene@Al<sub>2</sub>O<sub>3</sub> composite for high-performance lithium-ion battery anode**

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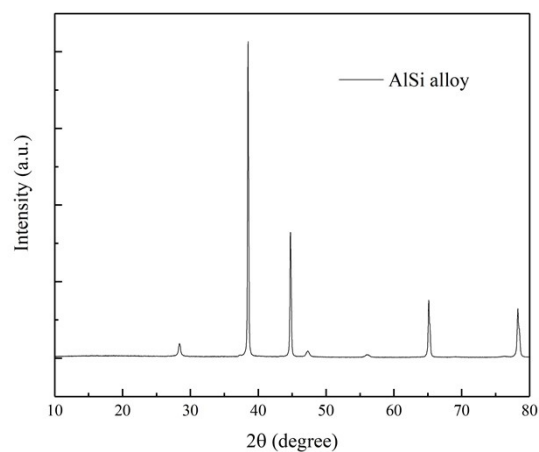


Fig. S1 XRD patterns of AlSi alloy

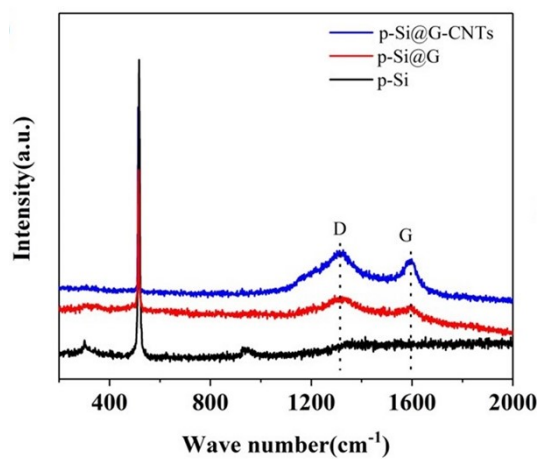


Fig. S2 Raman spectra of the p-Si, p-Si@G and p-Si@G-CNT electrode

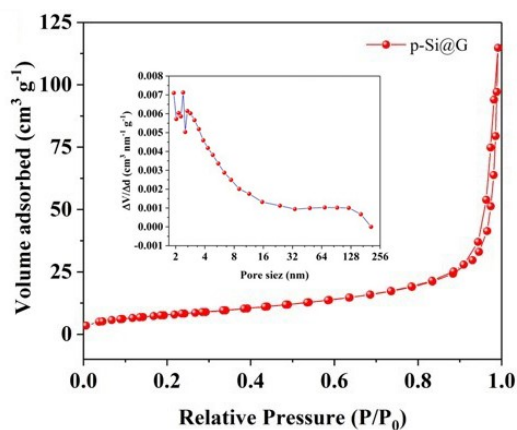


Fig. S3 Specific surface area of the p-Si@G composite. Inset is corresponding pore-size distribution.

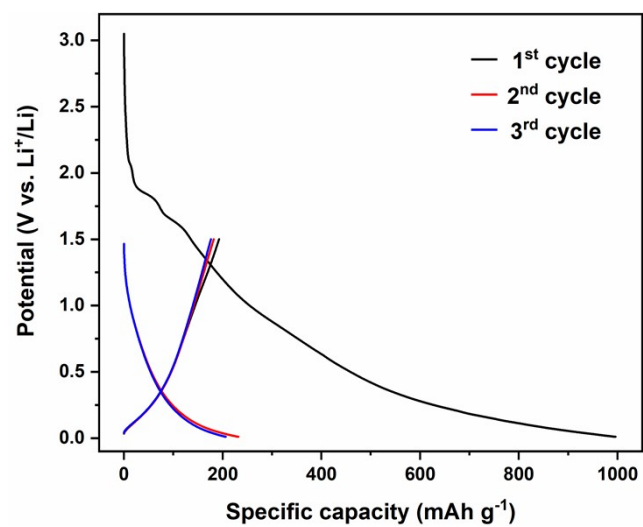


Fig. S4 The initial three charge-discharge profiles of the carbon nanotubes