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Fullpaper

Supplementary Information

In-situ Grown Graphene Encapsulated Germanium Nanowires for Superior Lithium-ion Storage Properties

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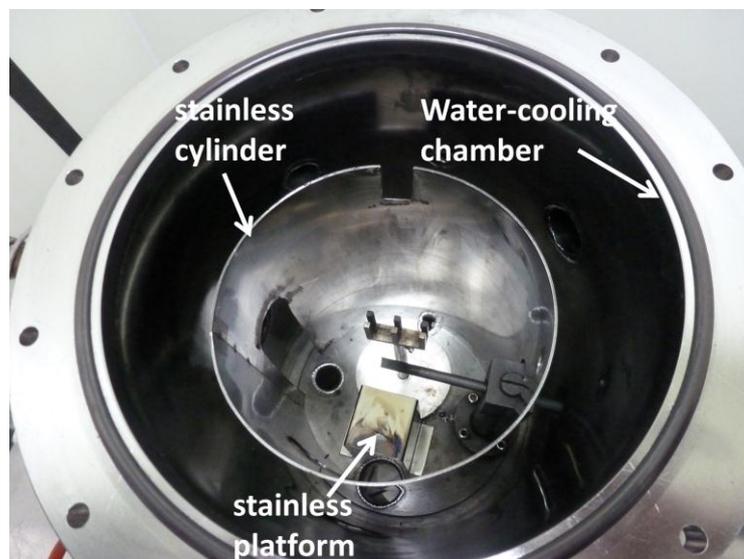


Fig. S1 Photograph of the experimental setup and the Ge@G sample is collected on the stainless platform.

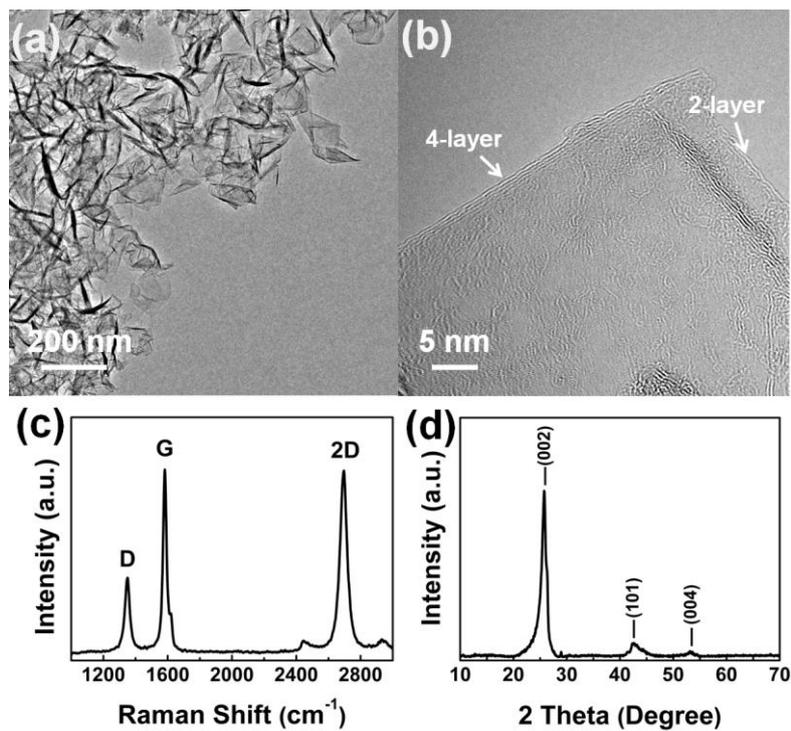


Fig. S2 (a) TEM image of pure graphene sheets (GS) synthesized by arc-discharge method. (b) HRTEM image showing the edge of multi-layered GS consisting of two and four layers. (c, d) Raman spectrum (c) and XRD pattern (d) of GS.

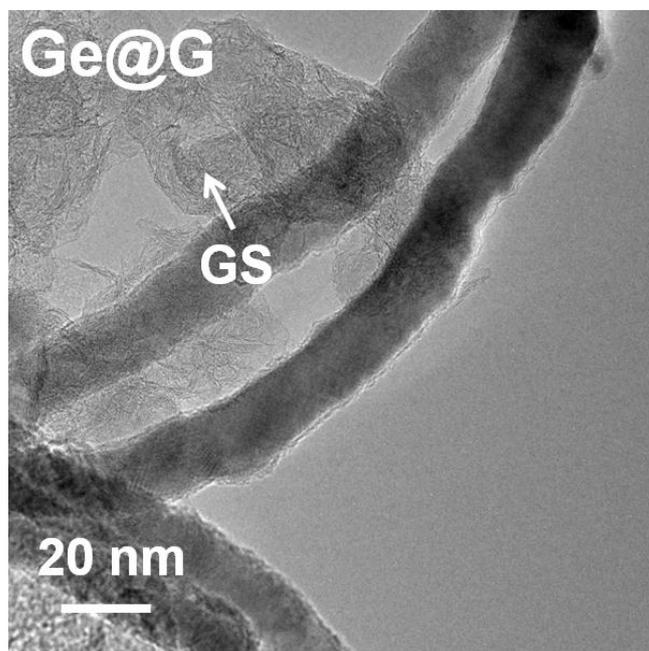


Fig. S3 TEM image of Ge@G synthesized by arc-discharge method, GS can be found attached on the core-shell nanowires.

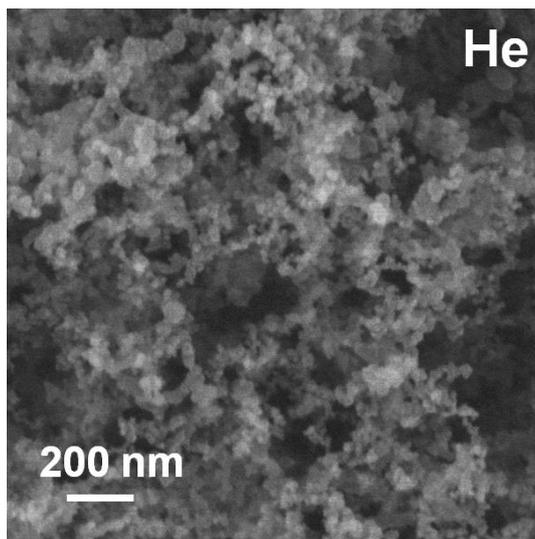


Fig. S4 SEM images of Ge-C composite synthesized by arc-discharge at He atmosphere.

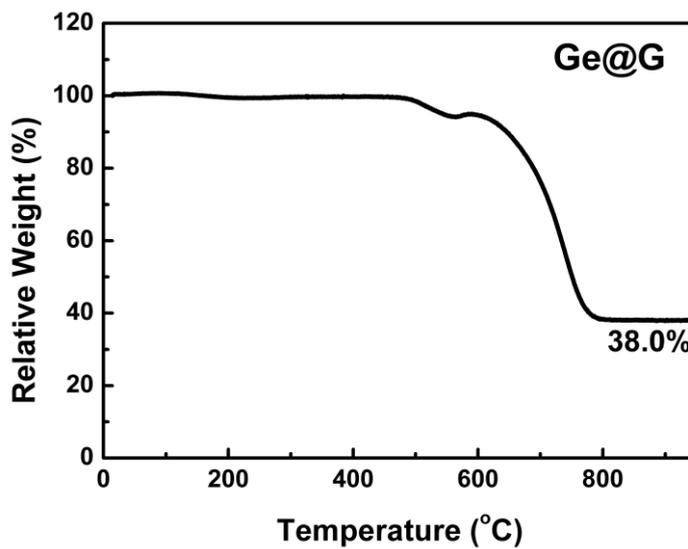


Fig. S5 Thermogravimetric analysis (TGA) of the Ge@G product. The content of Ge in the Ge@G sample estimated from the thermal analysis is ca. 26.4 wt%. (Note: Ge was oxidized into GeO₂). The analysis was taken in air with a heating rate of 10 °C min⁻¹.

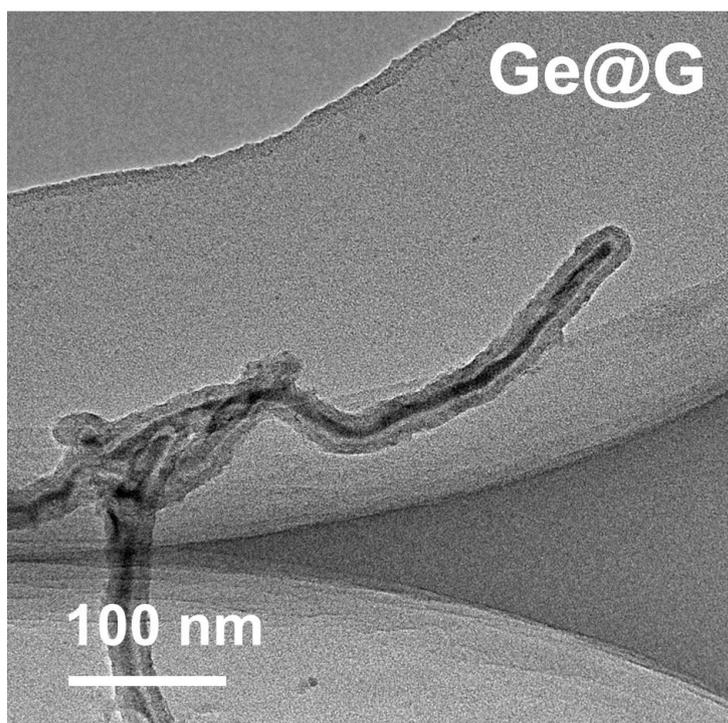


Fig. S6 TEM images of the Ge@G electrode after 50 cycles at 1 C. The wire-like structure can still be found in the electrode.