

Supplementary Information

Electrochemically Exfoliated Graphene as a Novel Microwave Susceptor: the Ultrafast Microwave-assisted Synthesis of Carbon-coated Silicon-graphene Film as Lithium-ion Battery Anode

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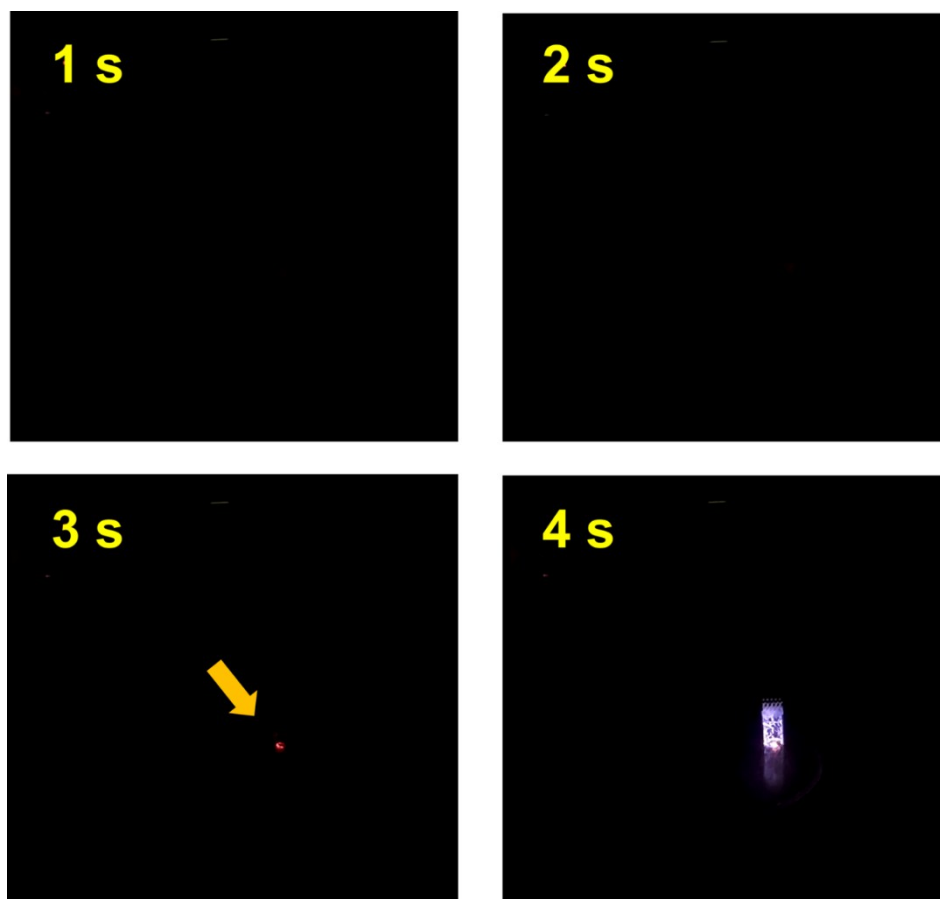


Fig. S1 Digital photo images of a microwave irradiation process for pSi-EG. The yellow arrow indicates a red light emission.

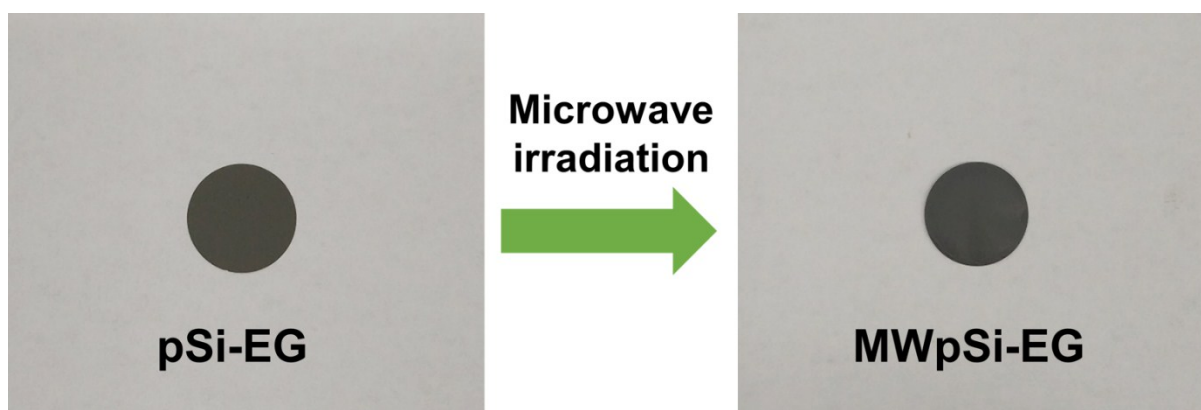


Fig. S2 Digital photo image of pSi-EG and MWpSi-EG.

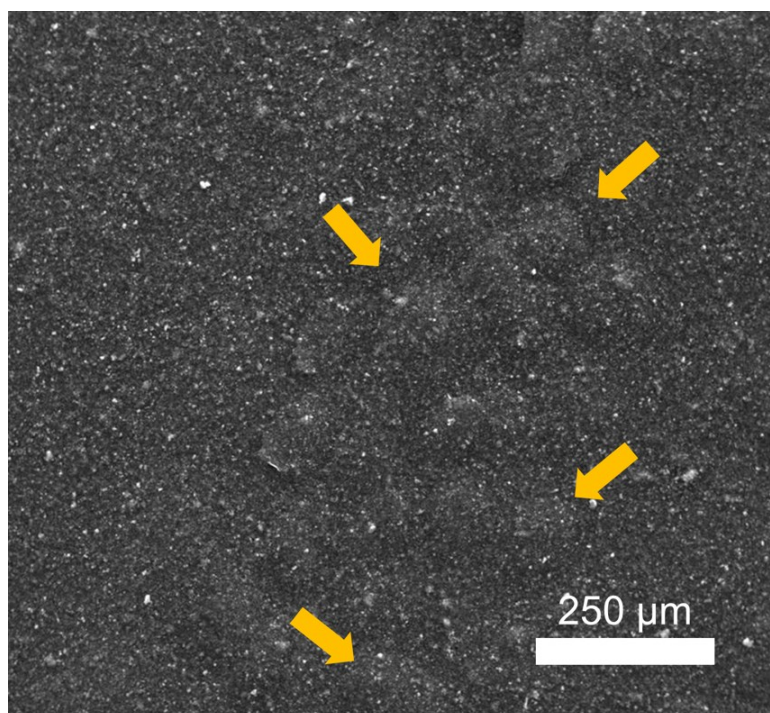


Fig. S3 SEM image of the surface of MWpSi-EG with low magnification. The yellow arrows indicate micro-sized bumps.

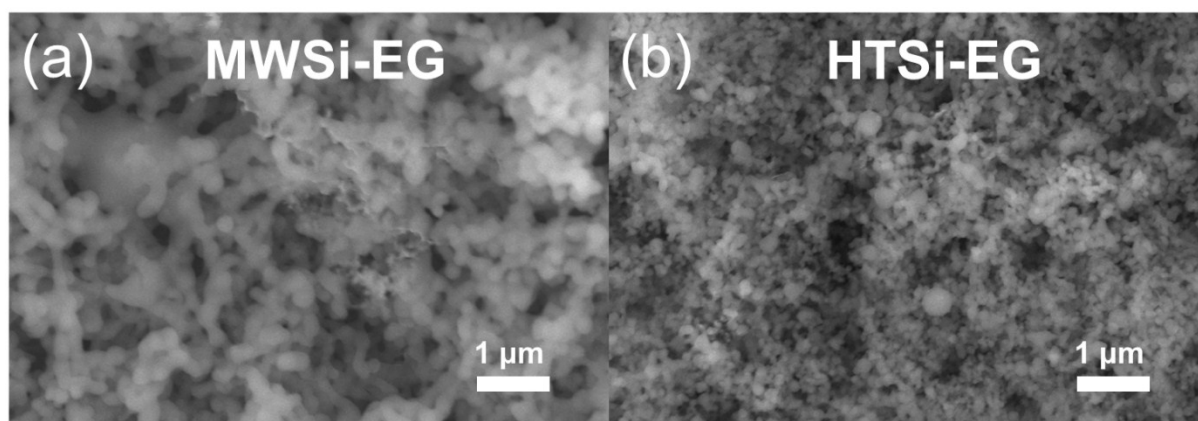


Fig. S4 SEM image of the exposed surface of (a) MWSi-EG and (b) HTSi-EG.

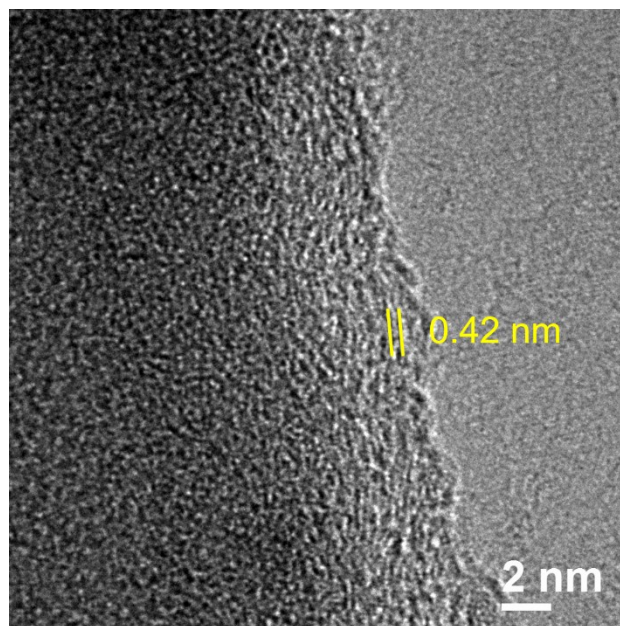


Fig. S5 HR-TEM image of HTpSi-EG.

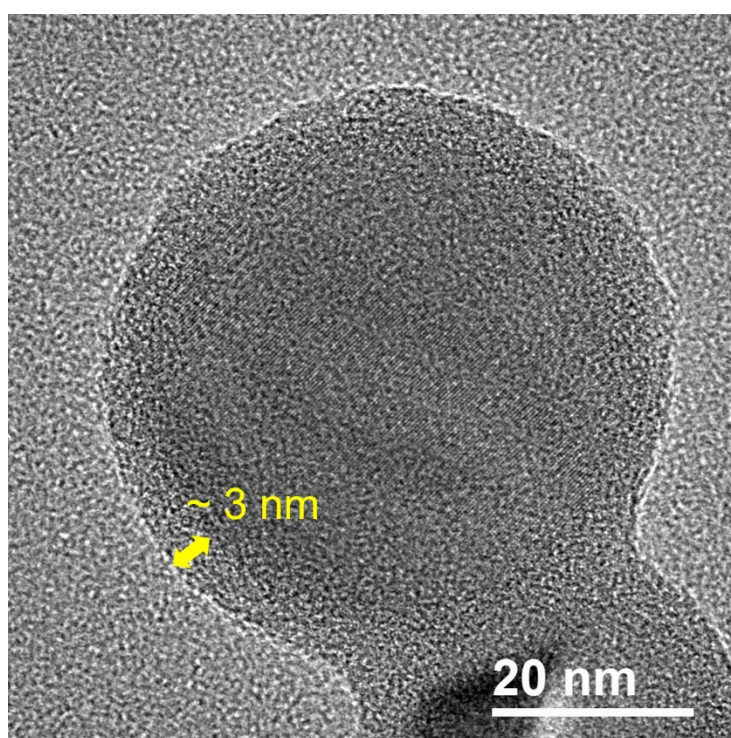


Fig. S6 HR-TEM image of bare silicon nanoparticle with a native oxide layer.

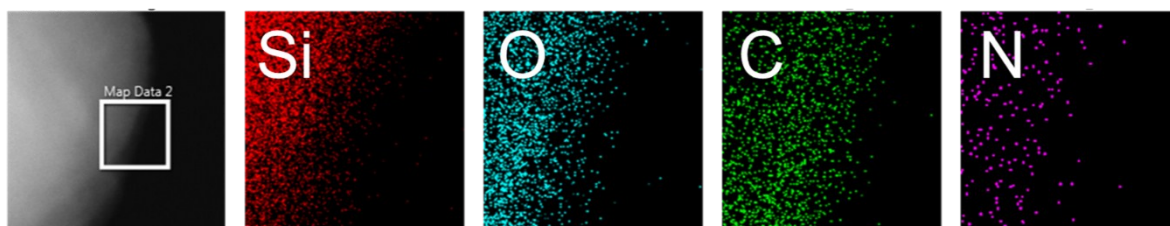


Fig. S7 EDS analysis images of MWpSi-EG with the element mapping of silicon, oxygen, carbon and nitrogen.

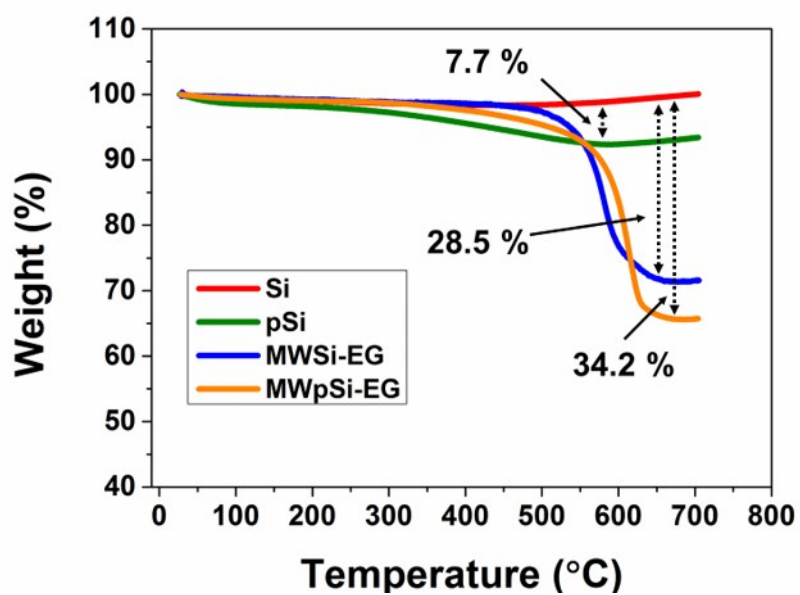


Fig. S8 TGA data of Si, pSi, MWSi-EG and MWpSi-EG.

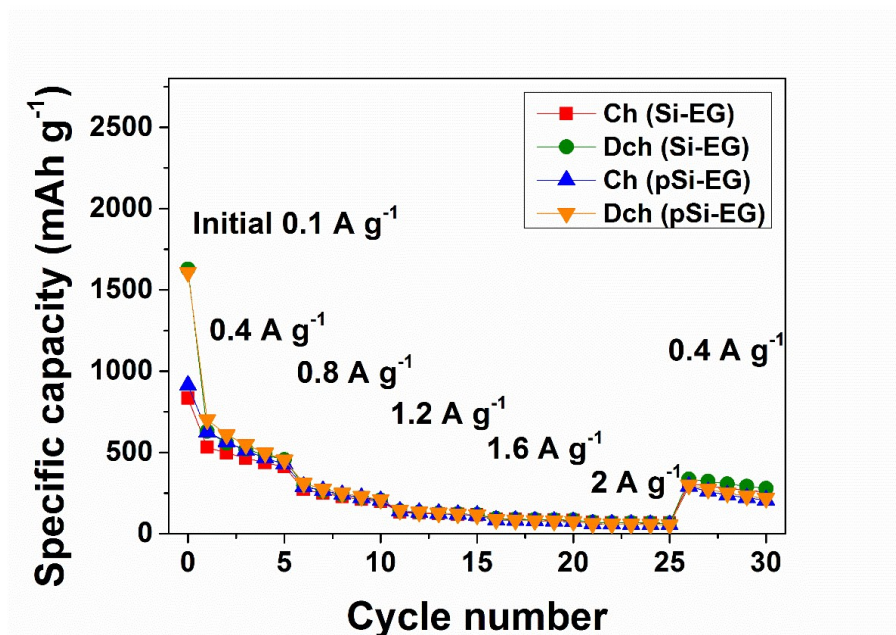


Fig. S9 Rate performance of Si-EG and pSi-EG at various current densities.

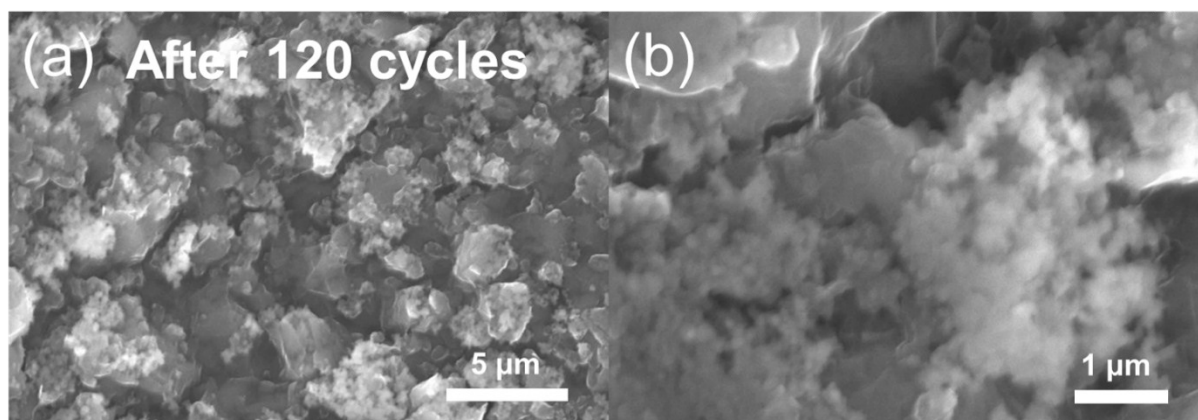


Fig. S10 SEM images of MWpSi-EG after 120 cycles at 1.0 A g⁻¹ with (a) low and (b) high magnification.

	MWSi-EG	MWpSi-EG
Mass (mg)	0.803 ± 0.023	0.793 ± 0.005
Thickness (μm)	27.83 ± 0.76	25.16 ± 0.28
Density (kg m^{-3})	303.7 ± 12.0	331.8 ± 4.2
Electrical conductivity (S cm^{-1})	13.17 ± 0.25	19.83 ± 0.38

Table. S1 Physical properties of MWSi-EG and MWpSi-EG.