

Supporting Information

Effect of Hatch Spacing on Laser-Induced Graphene: Structural Tuning and Supercapacitor Performance

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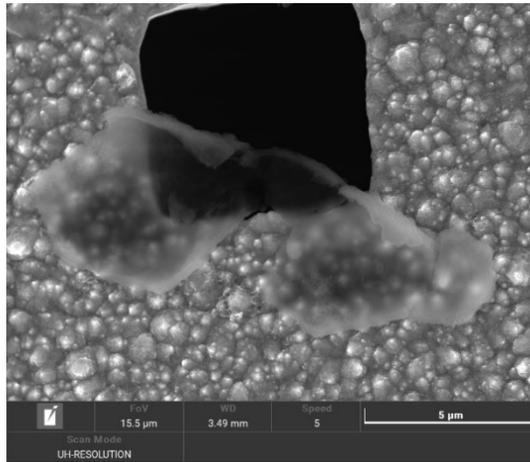


Figure S1 STEM image of the LIG flakes dissolved in ethanol.

Table S1 Comparative ratio of intensities of the three samples, allowing the estimation the disorder-to-order degree and the quality of the generated graphene

Sample	I_D/I_G	I_{2D}/I_G
S#1	0.444 ± 0.023	0.640 ± 0.055
S#2	0.324 ± 0.014	0.612 ± 0.040
S#3	0.586 ± 0.060	0.622 ± 0.052

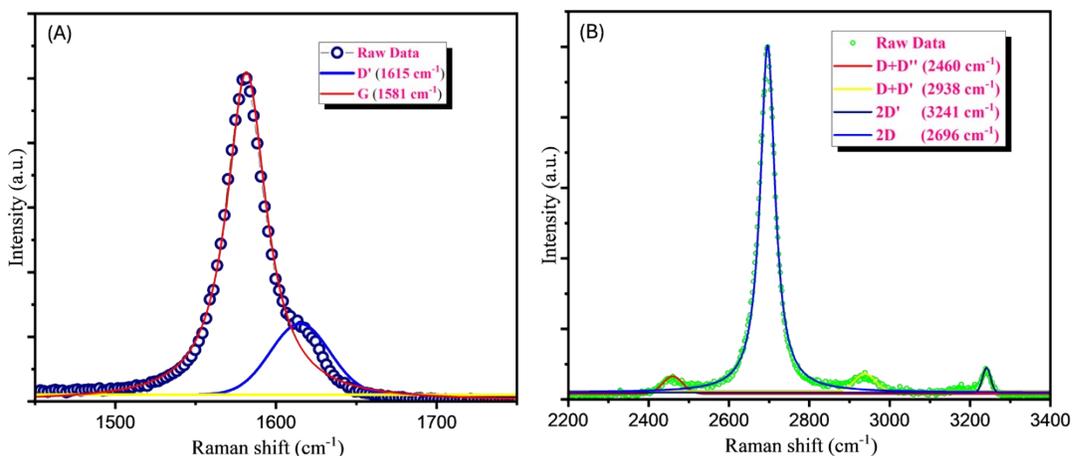


Figure S2 The Lorentzian line fitting of the G peak in Raman spectrum of S#2 showing the minor defect-originated peak D' (A) and of the 2D peak to calculate the FWHM (B).

Table S2 XPS results comparing the atomic percentage of elements in pristine PI before laser-treatment and in the three LIG samples produced with varying line spacing. The elemental composition of the raw PI was obtained from the literature. ¹

Sample	C (At. %)	O (At. %)	N (At. %)
Raw PI	78	17	5
S#1	96.64	3.36	NA
S#2	96.52	3.48	NA
S#3	96.72	3.28	NA

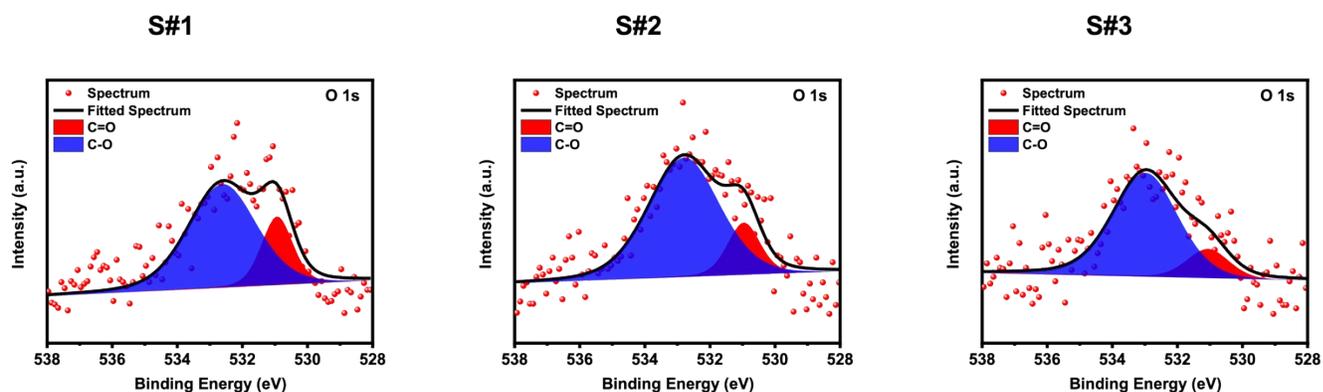


Figure S3 High resolution O 1s spectra of the three samples, with the deconvolution showing the type of O species existing in the LIG samples.

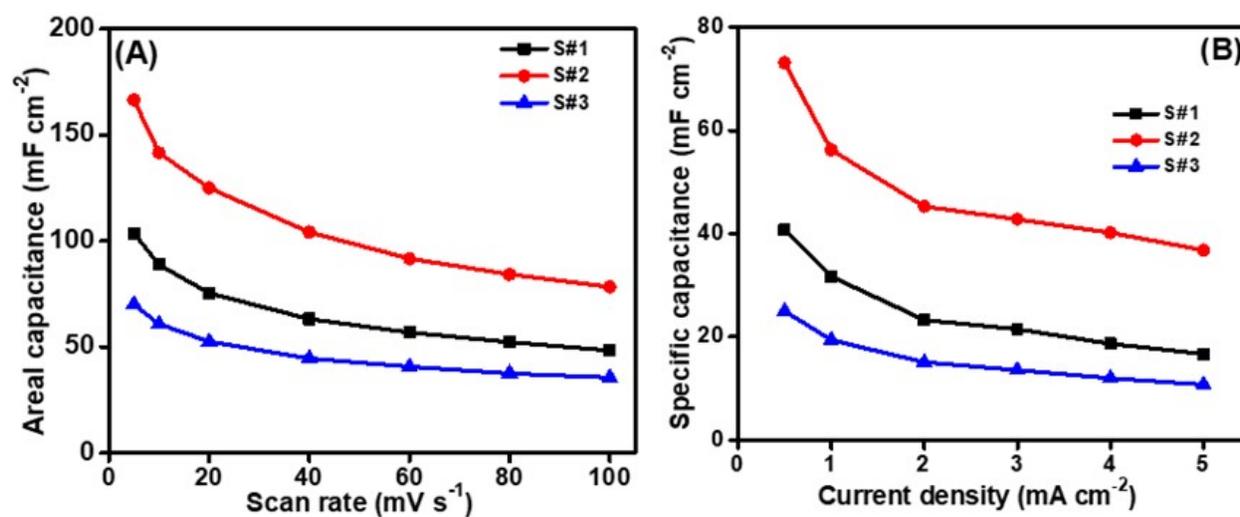


Figure S4 Comparison of areal-specific capacitance at different scan rates (A) and specific capacitance at different current densities for all the prepared samples (B).

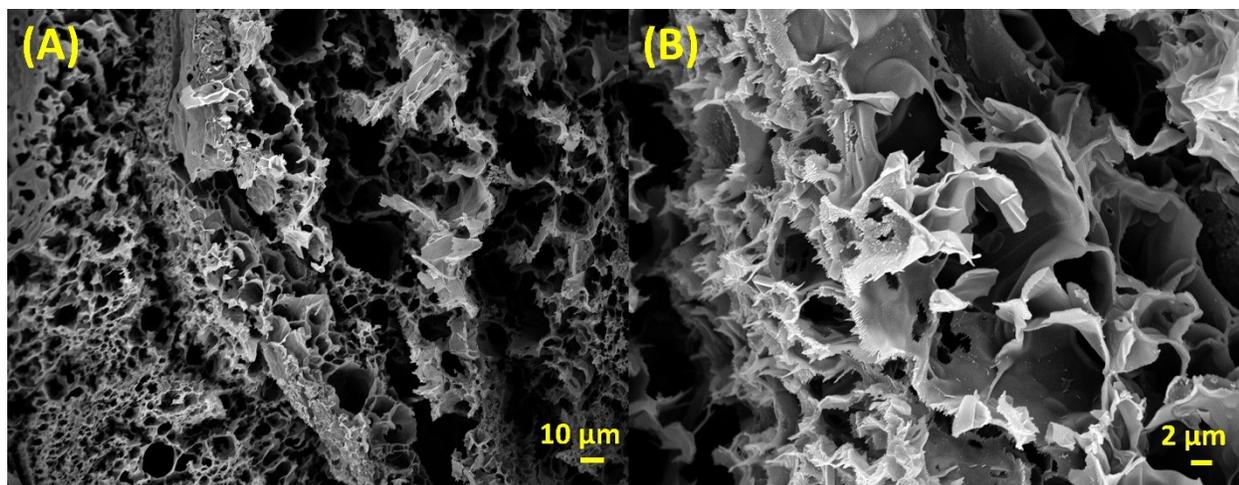


Figure S5 SEM images of S#2 after 5000 GCD cycles.

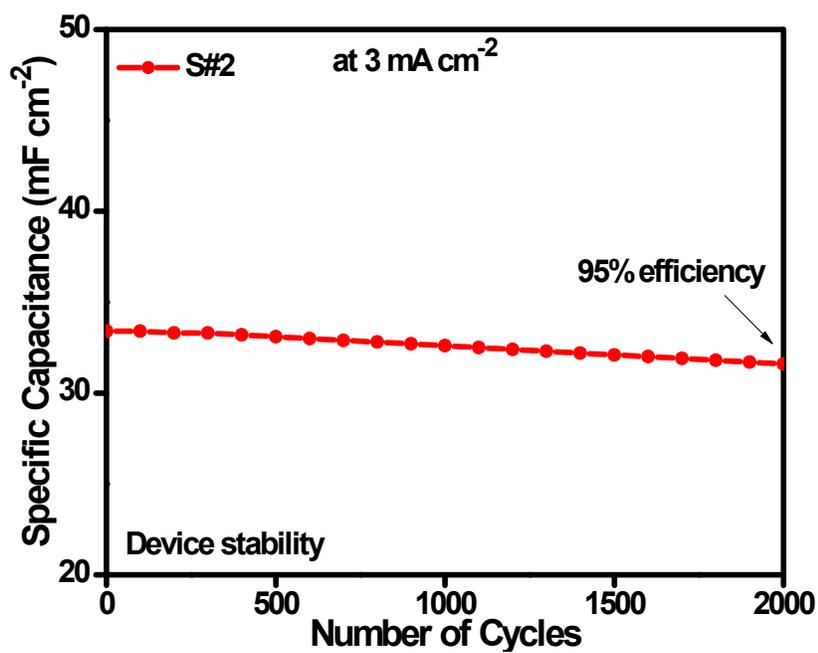


Figure S6 Stability curve of the flexible symmetric supercapacitor device constructed using S#2.

References

- (1) Meddeb, A. B.; Ounaies, Z.; Lanagan, M. Enhancement of Electrical Properties of Polyimide Films by Plasma Treatment. *Chem. Phys. Lett.* 2016, 649, 111–114. <https://doi.org/10.1016/J.CPLETT.2016.02.037>.