Supporting Information

Laser Irradiation and Property Correlation in Double-Lasing Processes on Laser-Induced Graphene Electrodes

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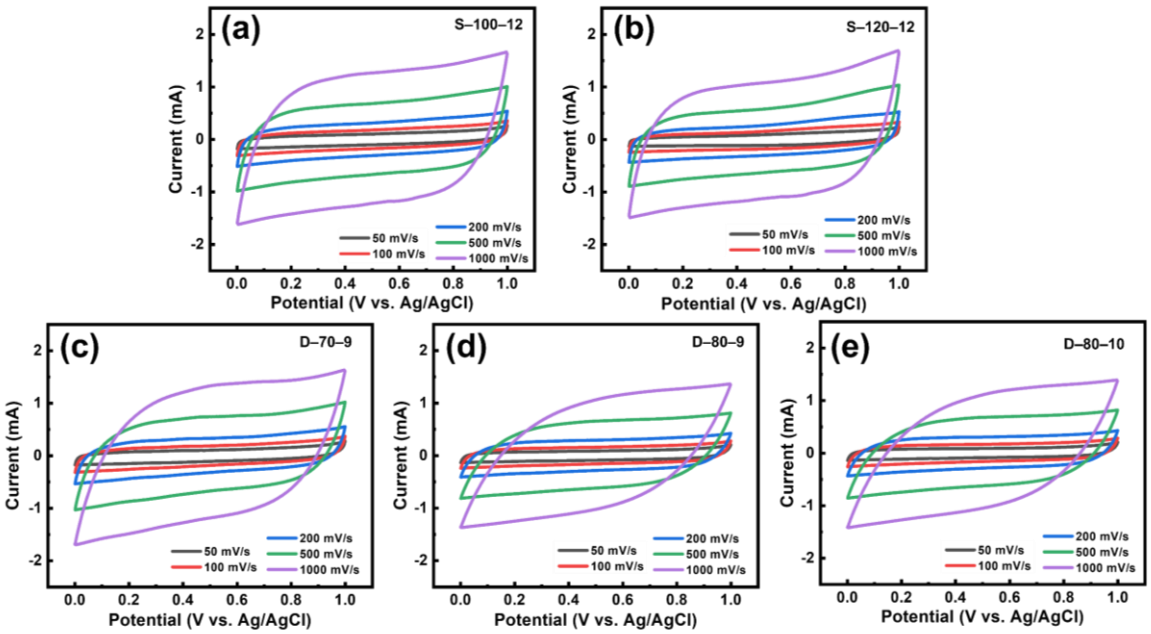


Figure S1. CVs of (a) S–100–12, (b) S–120–12, c) D–70–9, (d) D–80–9, and (e) D–80–10 in 1 M Na_2SO_4 at scan rates from 50 to 1000 mV/s.

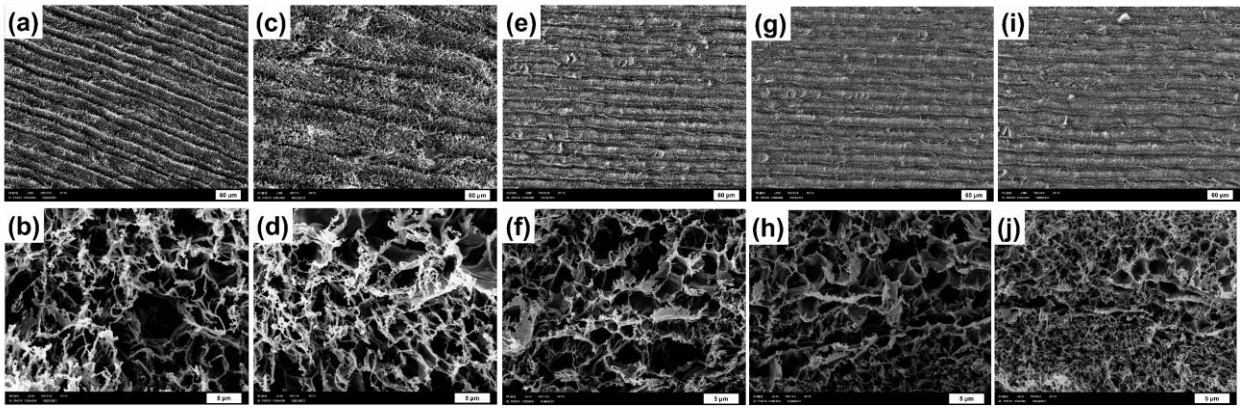


Figure S2. SEM images of (a, b) S–100–12, (c, d) S–120–12, (e, f) D–70–9, (g, h) D–80–9, and (i, j) D–80–10.

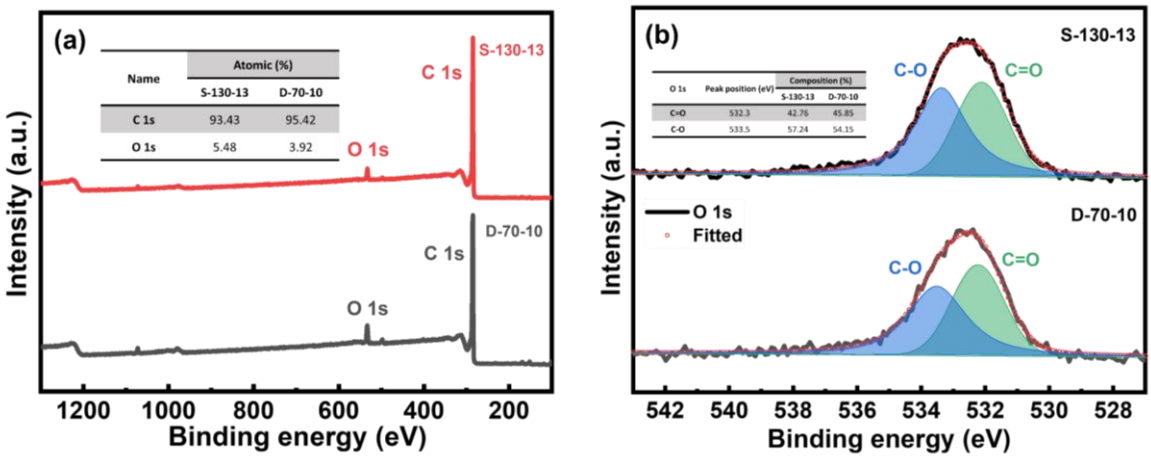


Figure S3. (a) XPS survey spectra of S–130–13 and D–70–10. The inset summarizes the atomic composition of C 1s and O 1s for S–130–13 and D–70–10. (b) Deconvoluted O 1s XPS spectra of S–130–13 and D–70–10. The inset summarizes the detailed atomic composition of O 1s for S–130–13 and D–70–10.

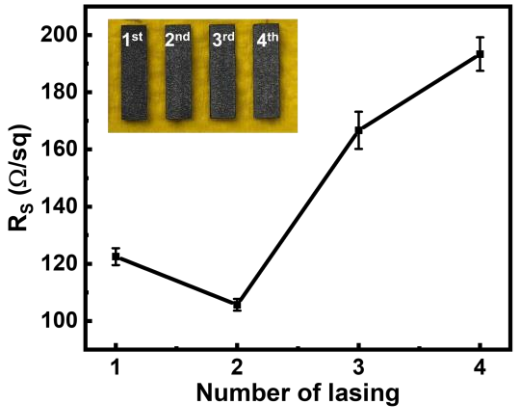


Figure S4. Sheet resistance (R_S) of LIG as a function of the number of lasing processes. The inset is an optical image of LIG obtained after different numbers of lasing processes.

Table S1. Summary of C_A values from the present study and the previously reported literature.

Sample	Substrate	Specific capacitance (C_A, mF/cm^2)	Electrolyte	Scan rate (mV/s)	Reference
LIG–MSCs	PI film	>4	1 M H_2SO_4	20	[1]
LIG/PDMS	PI film	0.65	PVP/NaCl	50	[2]
LSG–P24	Lignin	15.4	PVA/H_2SO_4	10	[3]
Laser–sculptured carbide	PI film	2	PVA/LiTFSI	100	[4]
MOF–199@ZIF–67	Quartz	2.5	1 M H_2SO_4	1000	[5]
LIG–MSCs	PI film	1.7	BMIMPF6–PVDF–HFP	5	[6]
LIG–MSC	PI foil	1.75	[EMIM][OTf]	5	[7]
LIG–HfO_2	PI film	2.8	PVA/H_2SO_4	40	[8]
LIG–MSCs	PI film	7.12	PVA/H_2SO_4	5	[9]
S–130–13	PI film	2.76 ± 0.30	1 M Na_2SO_4	50	This work
D–70–9	PI film	2.86 ± 0.22	1 M Na_2SO_4	50	This work

Table S2. Summary of I_D/I_G and I_{2D}/I_G values from the present study and the previously reported literature.

Substrate (Sample)	I_D/I_G	I_{2D}/I_G	Reference
PI film	0.44	0.88	[1]
PI/PDMS	0.72	N.A.	[10]
Paper	0.88	0.53	[11]
Paper	0.93	0.84	[12]
Chromatography paper	0.62	1.28	[13]
PI film	N.A.	0.36	[14]
PI film (S–130–13)	1.29	0.33	This work
PI film (D–70–10)	0.92	0.74	This work

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