Supplementary Information

Laser-induced graphene functionalized cationic porphyrin: Fabrication, characterization, and intra-supramolecular electron transfer process

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Corel Draw Design

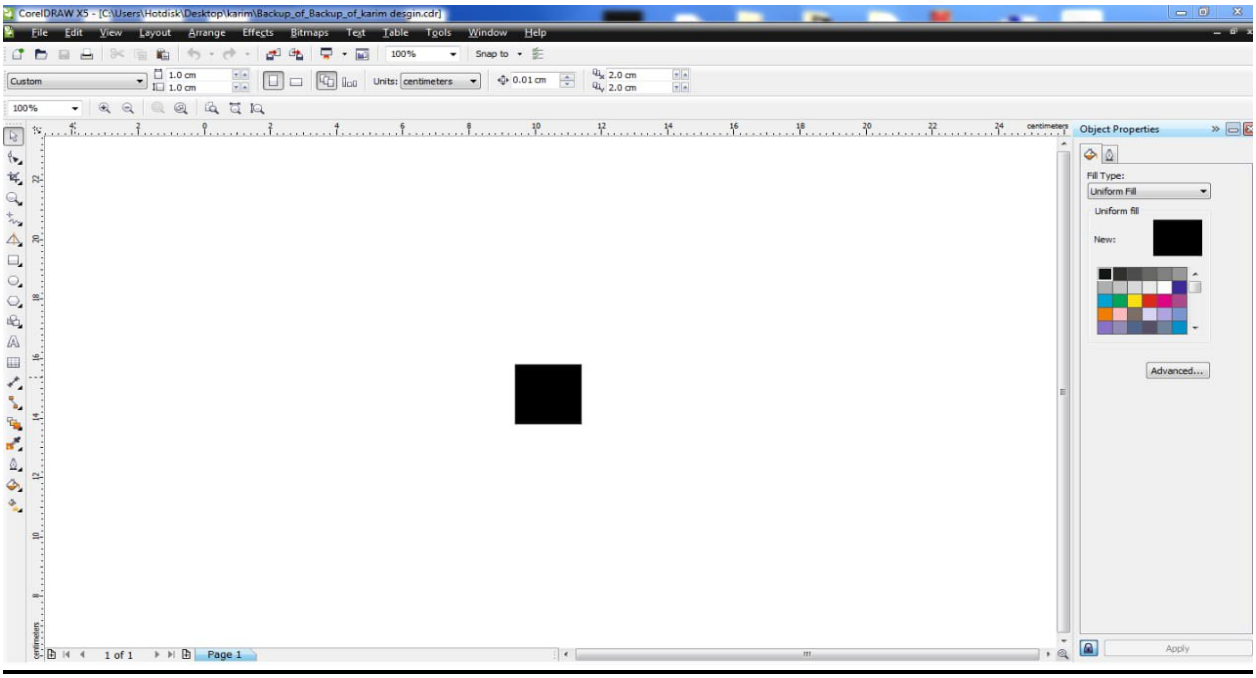

Fig. S1. Corel draws Design

XPS deconvolution of LIG

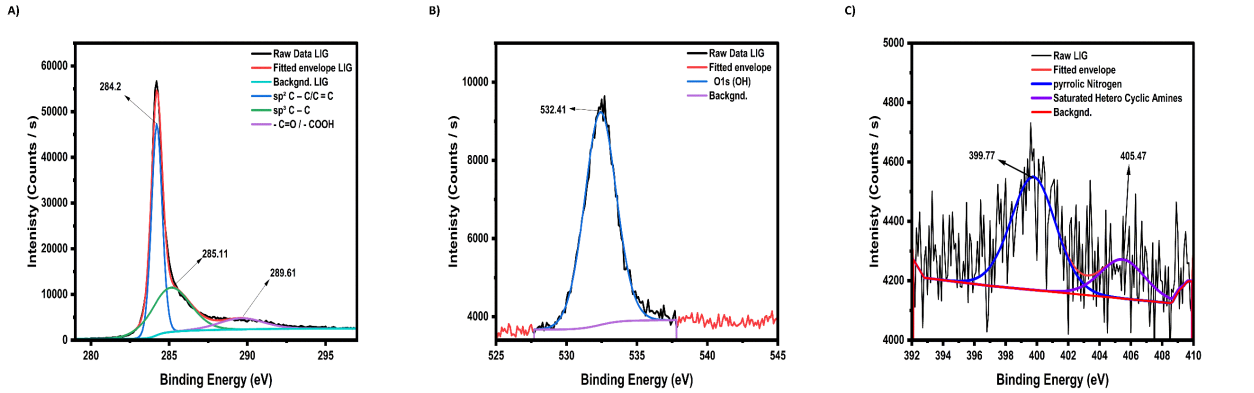

Fig. S2. XPS deconvolution (A) LIG Carbon deconvolution, (B) LIG Oxygen deconvolution, and (C) LIG Nitrogen deconvolution.

Table 1: Summarization of the Elemental composition of Carbon in LIG.

Name	Peak BE	FWHM eV	Area (P) CPS. eV	Atomic %
C1s	284.21	0.8	40133.86	50.28
C1s Scan A	285.11	2.92	30719.55	38.51
C1s Scan B	289.61	3.37	8917.53	11.21

Table 2: Summarization of the Elemental composition of Oxygen in LIG.

Name	Peak BE	FWHM eV	Area (P) CPS. eV	Atomic %
O1s	532.41	2.66	15661.98	100

Table 3: Summarization of the Elemental composition of Nitrogen in LIG.

Name	Peak BE	FWHM eV	Area (P) CPS. eV	Atomic %
N1s	399.77	3.37	1388	74.24
N1s Scan A	405.47	3.37	479.7	25.76

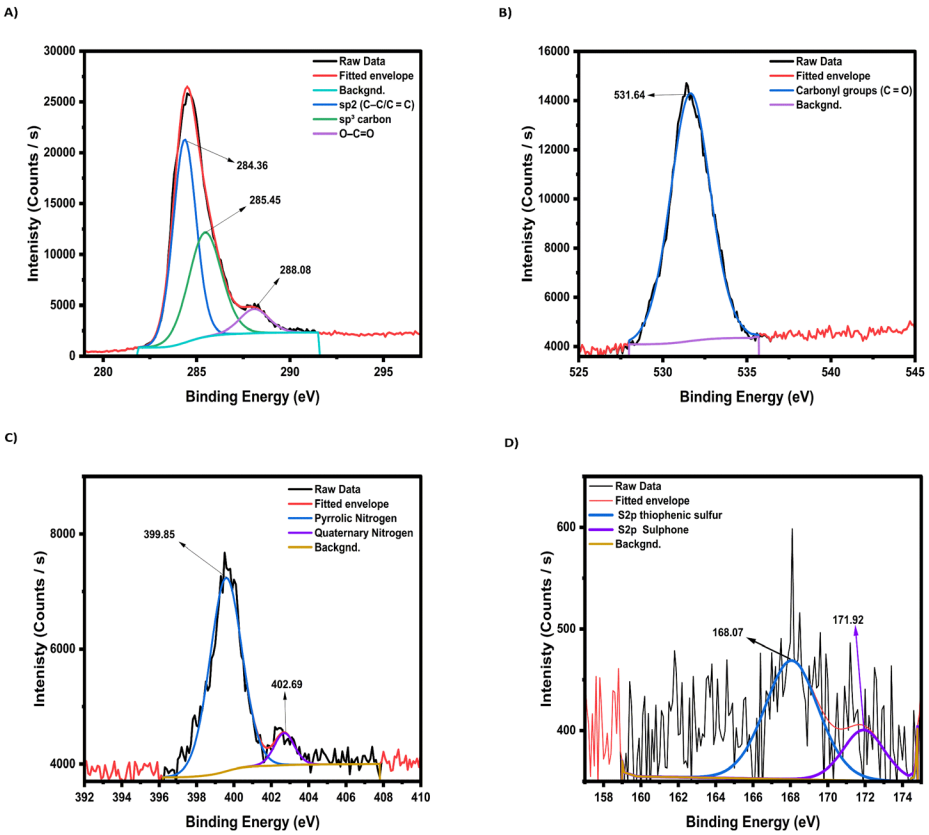

Fig. S3. XPS deconvolution (A) LIG@TTMAPP Carbon deconvolution, (B) LIG@TTMAPP Oxygen deconvolution, (C) LIG@TTMAPP Nitrogen deconvolution, and (C) LIG@TTMAPP Sulphur deconvolution.

Table 4. Summarization of the Elemental composition of Carbon in LIG@TTMAPP.

Name	Peak BE	FWHM eV	Area (P) CPS. eV	Atomic %
C1s	284.36	1.44	31273.1	53.07
C1s Scan A	285.45	2.06	22907.35	38.9
C1s Scan B	288.08	1.83	4715.16	8.02

Table 5. Summarization of the Elemental composition of Oxygen in LIG@TTMAPP.

Name	Peak BE	FWHM eV	Area (P) CPS. eV	Atomic %
O1s	531.64	2.81	30534.64	100

Table 6. Summarization of the Elemental composition of Nitrogen in LIG@TTMAPP.

Name	Peak BE	FWHM eV	Area (P) CPS. eV	Atomic %
N1s	399.58	2.03	7382.21	90.52
N1s Scan A	402.69	1.27	771.62	9.48

Table 7. Summarization of the Elemental composition of Sulphur in LIG@TTMAPP.

Name	Peak BE	FWHM eV	Area (P) CPS. eV	Atomic %
S2p	168.07	3.37	425.82	75.09
S2p Scan A	171.92	2.62	140.93	24.91

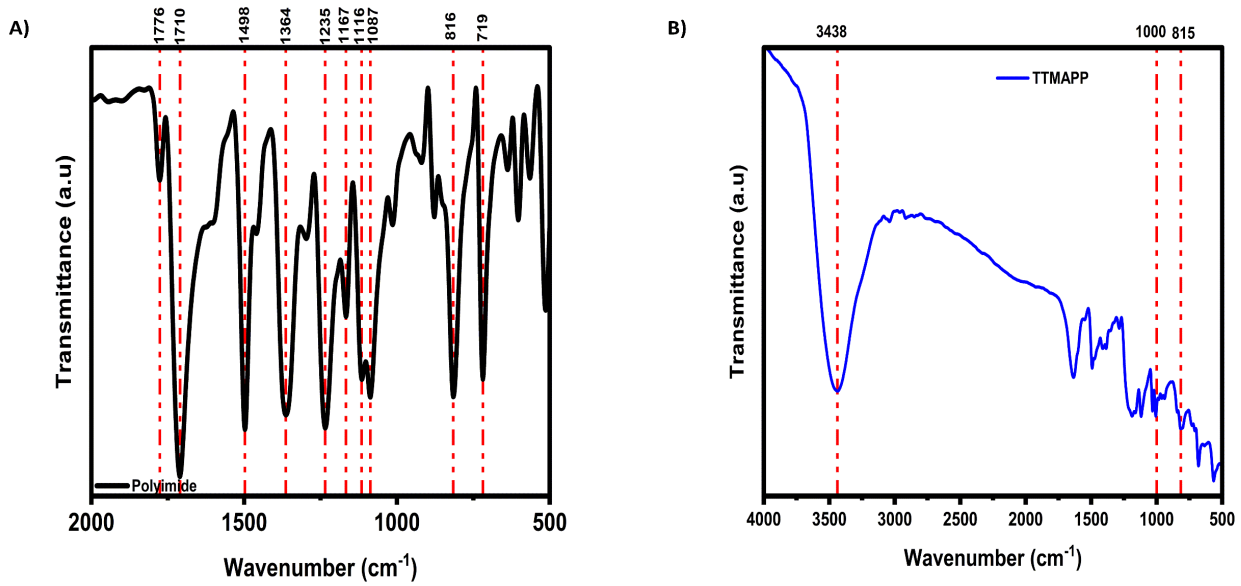

Fig. S4. (A) FTIR Spectrum of polyimide from 500 to 2000 cm-1, (B) FTIR Spectrum of TTMAPP.

Energy dispersive X-ray Characterization

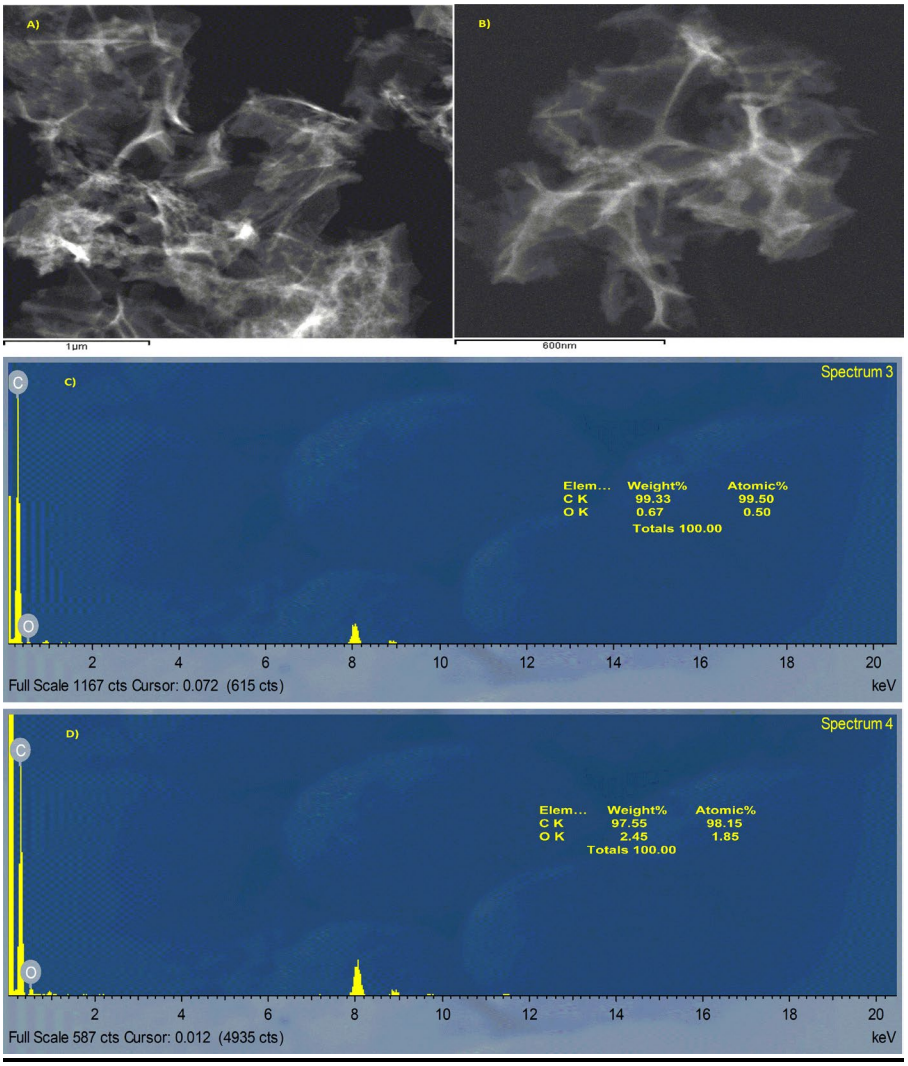

Fig. S5. Energy dispersive X-ray images of (A) and (C) LIG, (B), and (D) LIG@TTMAPP composite.

Table 8. Summarization of the Elemental change before and after functionlization.

Material	Element	Weight %	Atomic %
LIG	Carbon	99.3	99.5
LIG	Oxygen	0.67	0.50
LIG@TTMAPP	Carbon	97.55	98.15
LIG@TTMAPP	Oxygen	2.45	1.85

HR-TEM Images

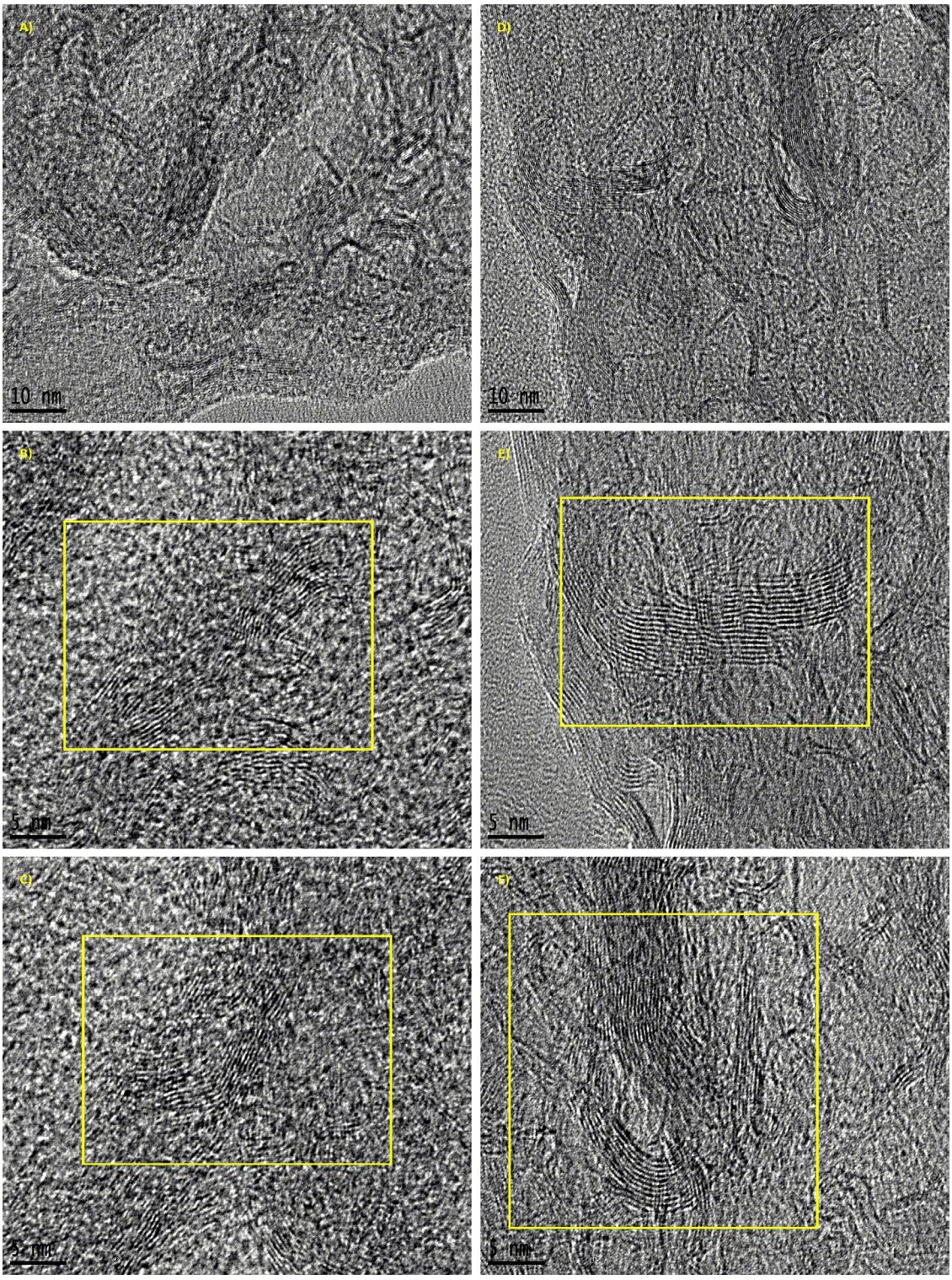

Fig. S6. HR-TEM Images with different Magnification of (A-B-C) LIG, and (D-E-F) LIG@TTMAPP.

Zeta Potential

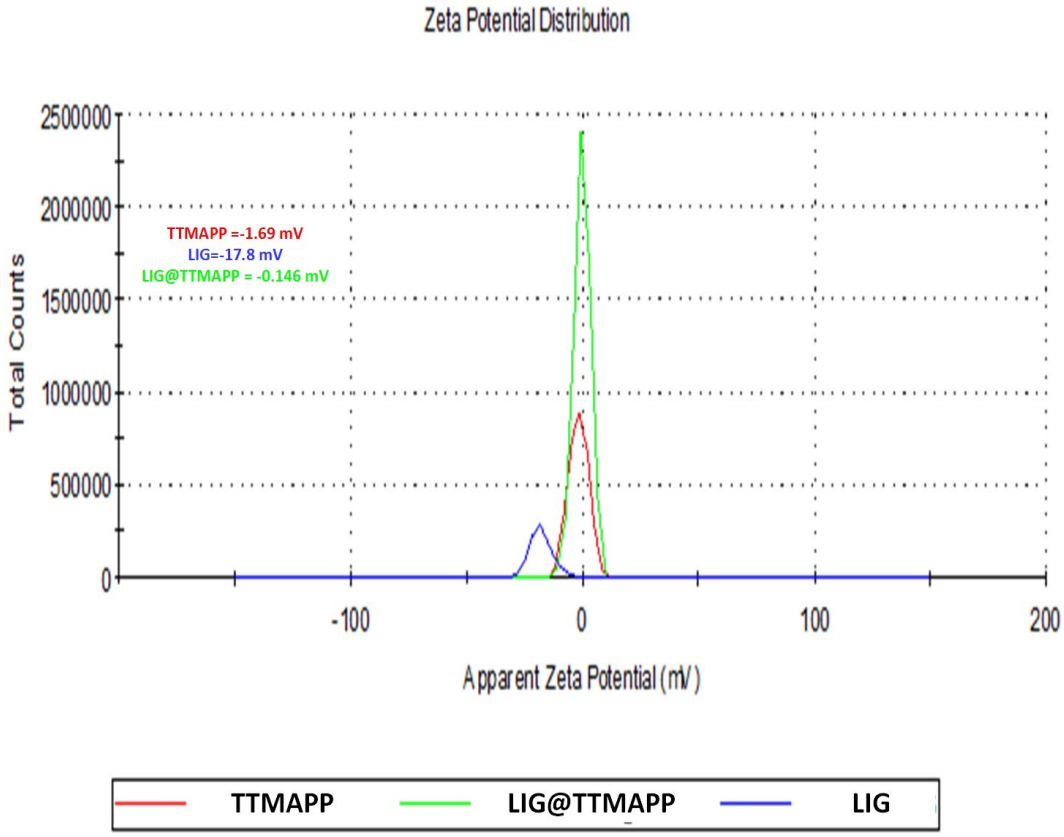

Fig. S7. Zeta Potential Distribution for TTMAPP, LIG, LIG@TTMAPP.