Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

ELECTRONIC SUPPLEMENTARY INFORMATION

Graphene oxide–$Li^+@C_{60}$ donor-acceptor composite for photoenergy conversion

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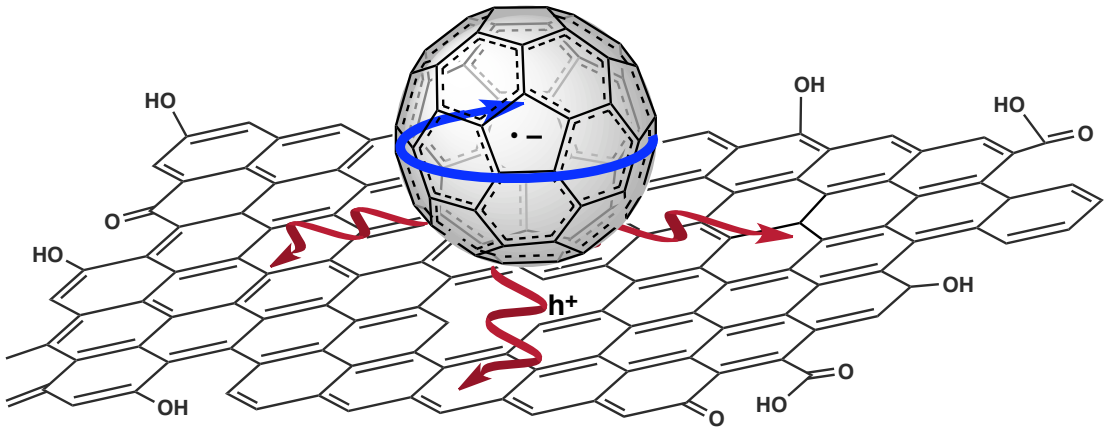

Fig. S1 Representation of the delocalization of radical anion of the fullerene on the π-sphere and the hole migration through the π-conjugations on an assumed portion of a GO surface proposed to occur after the photoinduced electron transfer from GO to fullerene.

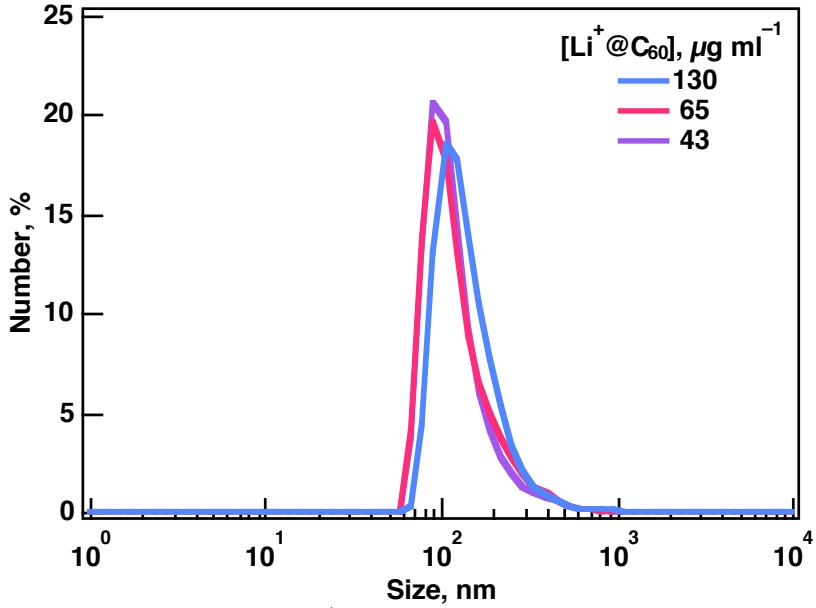

Fig. S2 Size distribution diagram of $Li^+@C_{60}$ at indicated concentrations in water.

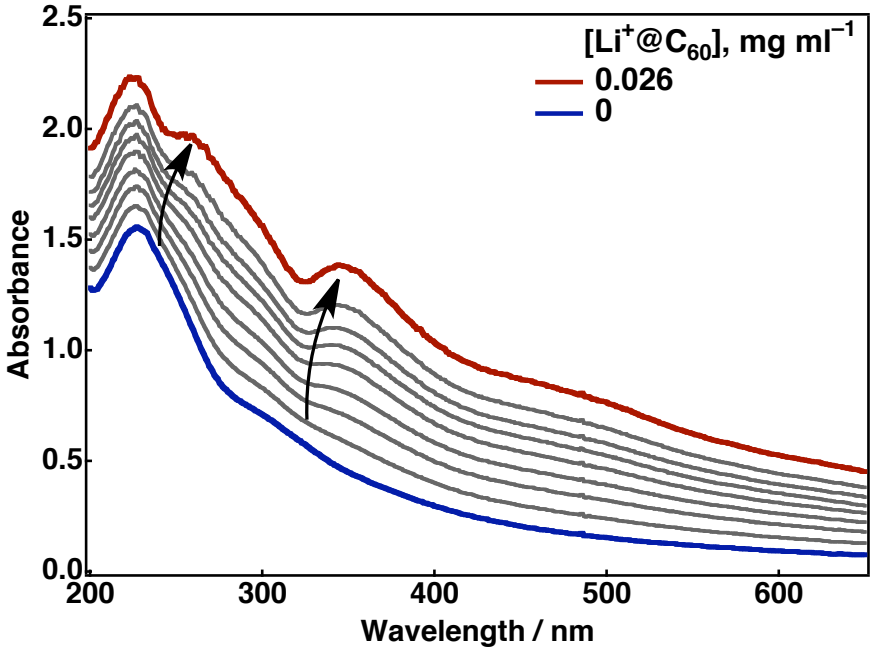

Fig. S3 Absorption spectral changes upon the titration of 0.018 mg ml–1 GO by $Li^{+}@C_{60}$ aqueous dispersion.

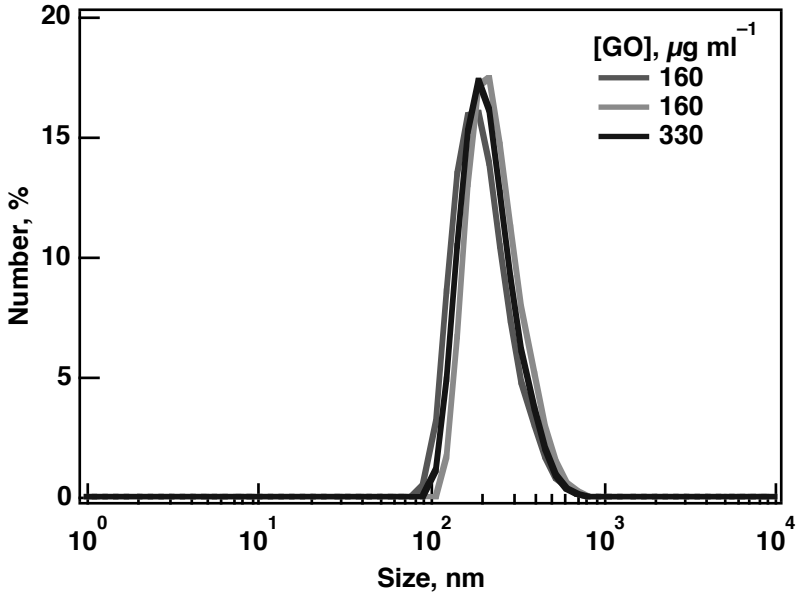

Fig. S4 Size distribution diagram of GO at indicated concentrations in water.

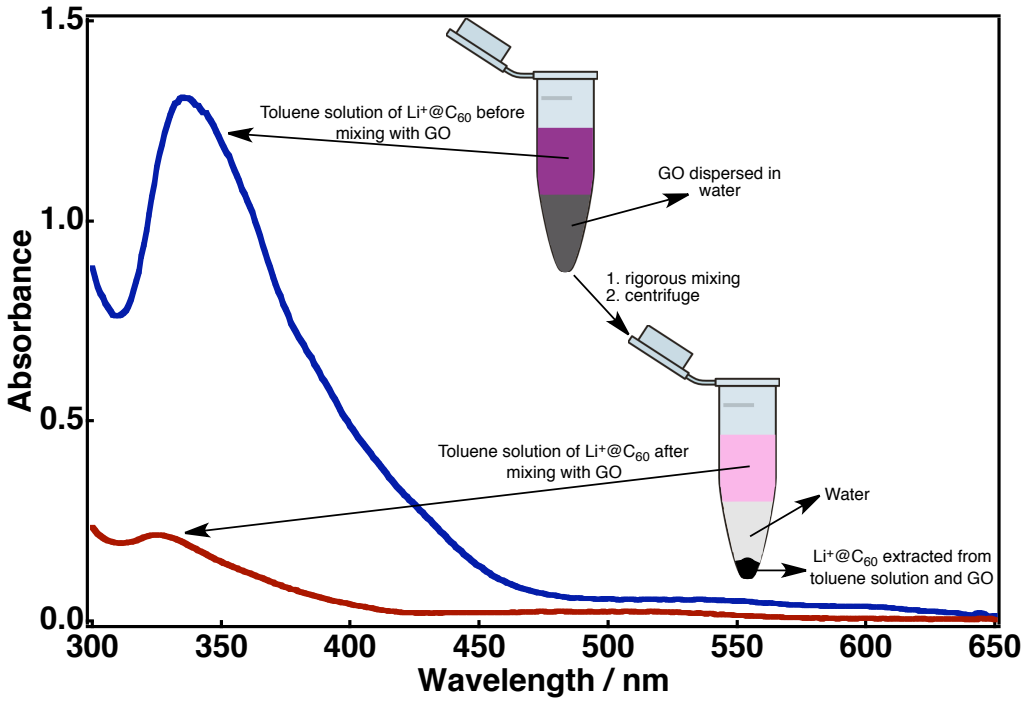

Fig. S5 Absorption spectra of toluene solution of 0.036 mM $Li^{+}@C_{60}$ before and after mixing with GO aqueous dispersion. The inset describes the mixing process.

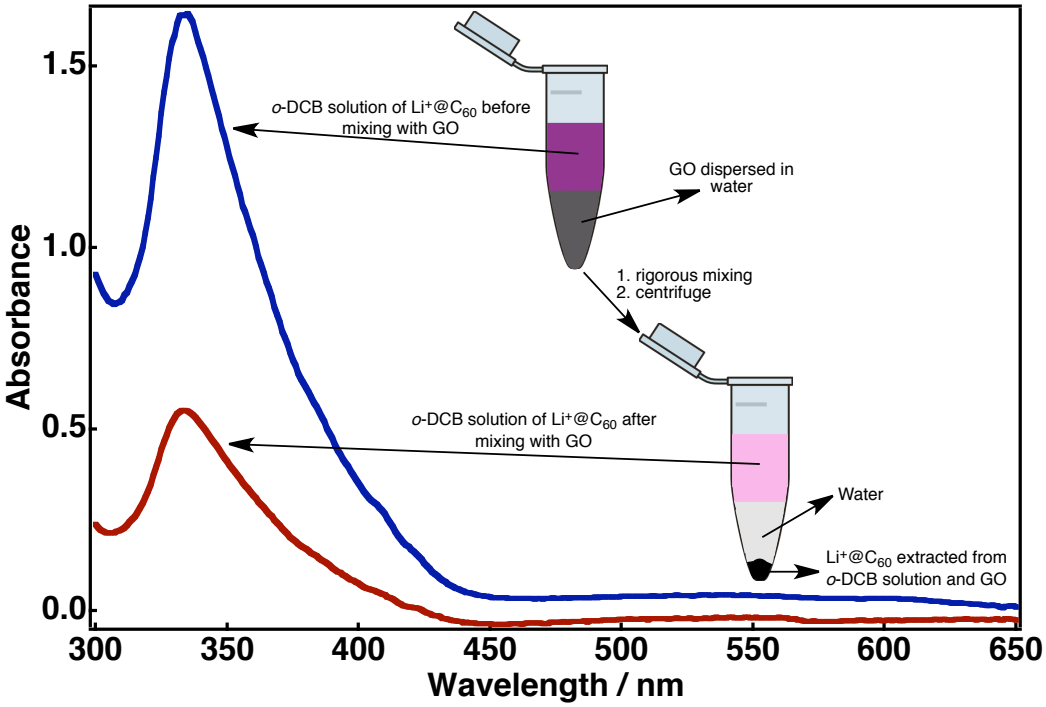

Fig. S6 Absorption spectra of *o*-DCB solution of 0.036 mM $Li^{+}@C_{60}$ before and after mixing with GO aqueous dispersion. The inset describes the mixing process.

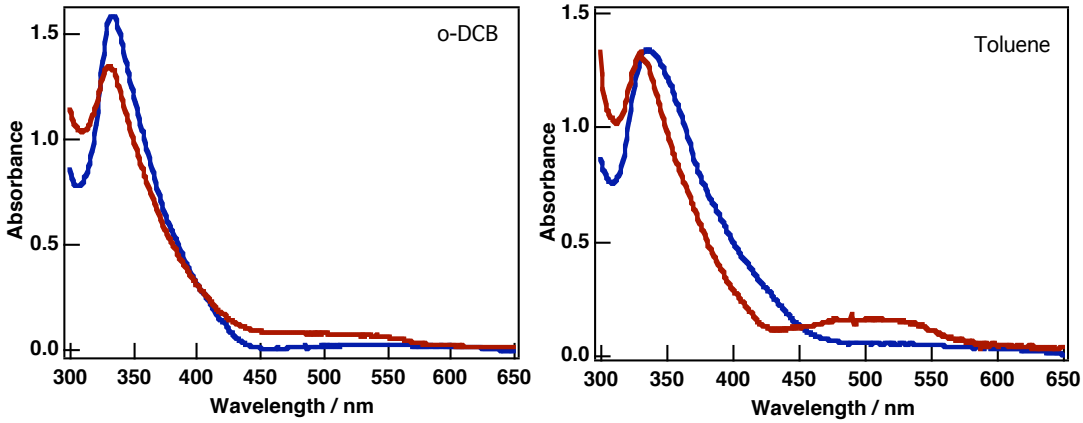

Fig. S7 Absorption spectra of *o*-DCB solution of 0.036 mM $Li^{+}@C_{60}$ before and after mixing with only water.

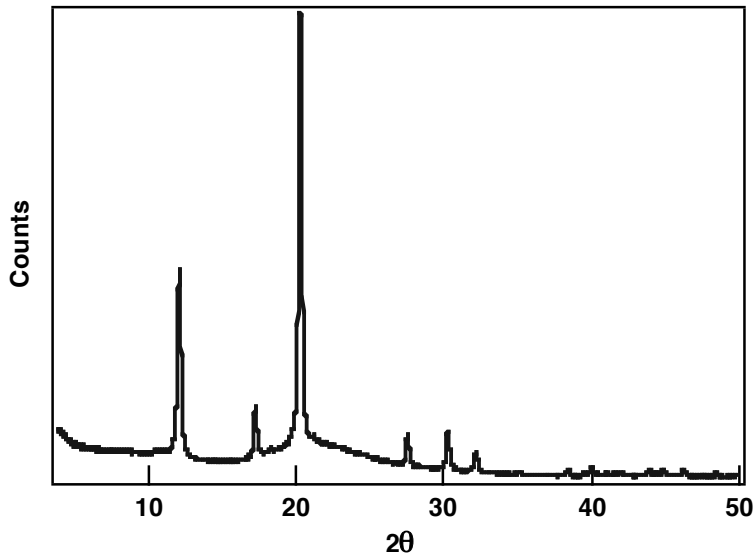

Fig. S8 Powder X-ray diffraction patterns of dried $Li^{+}@C_{60}$ nanoparticles obtained from dispersion in water.

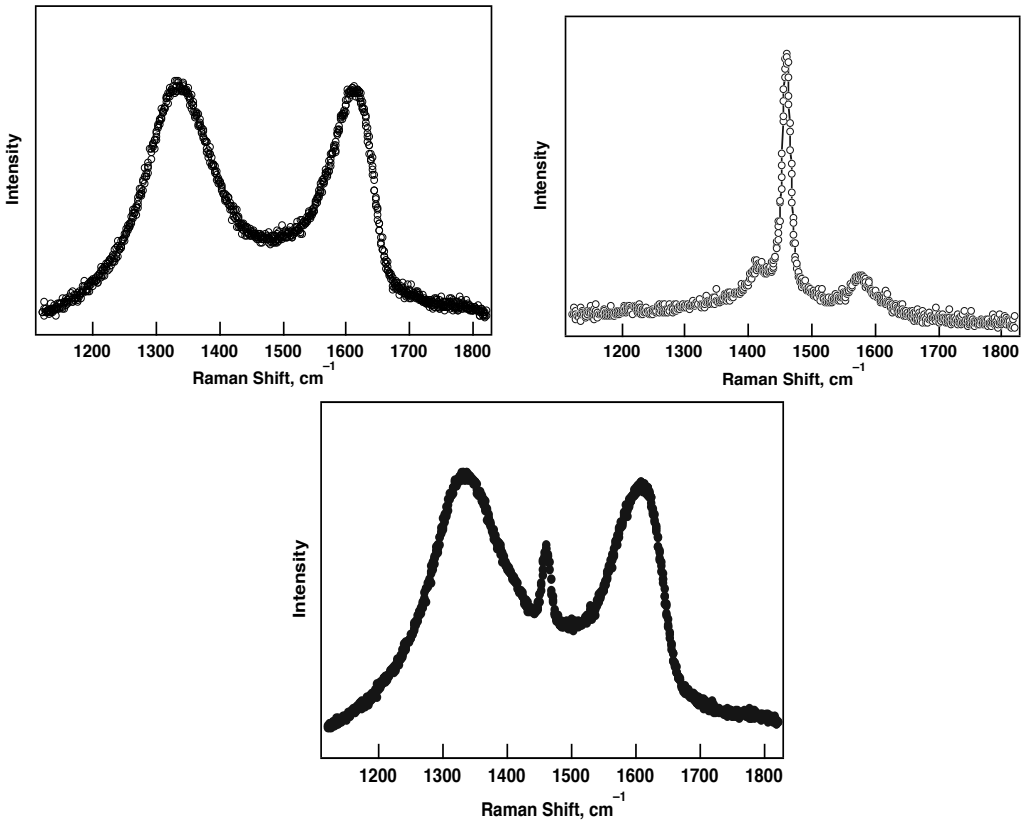

Fig. S9 Raman spectra of GO (top left), $Li^+@C_{60}$ (top right), and GO–$Li^+@C_{60}$ composite (bottom).

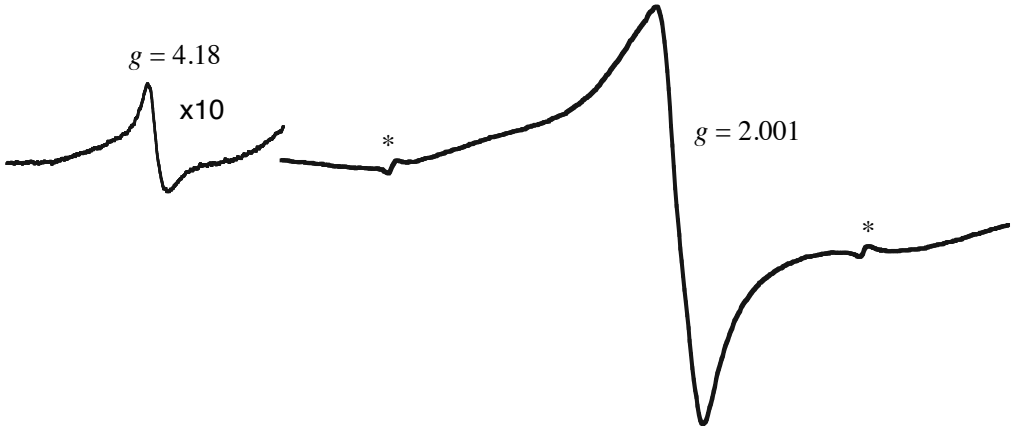

Fig. S10 EPR spectra of GO–$Li^+@C_{60}$ composite in water showing the triplet signal of $Li^+@C_{60}$ and the radical ion pair with corresponding *g* values at 4 K observed after photoirradiation.

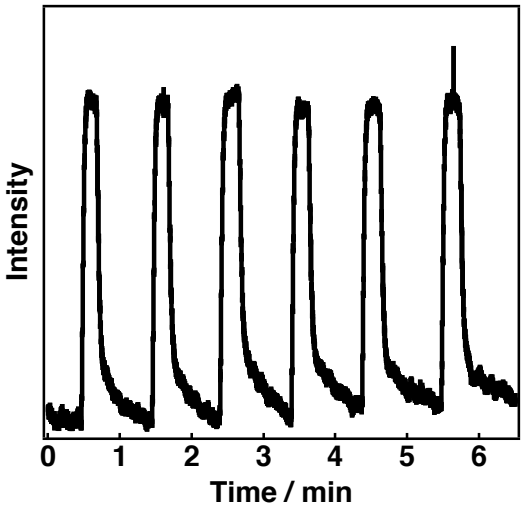

Fig. S11 On-off switching of EPR signal intensity by switching of photoirradiation at 77 K.

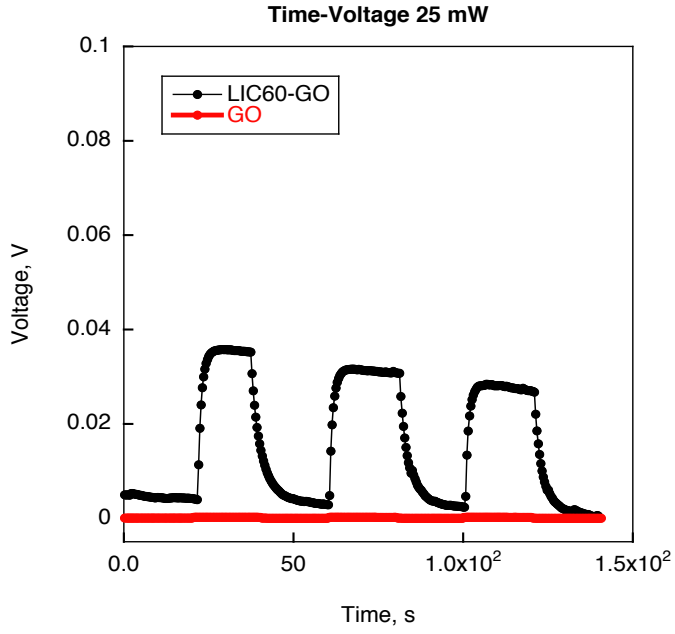

Fig. S12 Photocurrent (left) and photovoltage (right) responses of OTE/SnO_2–$(GO)_n$ and OTE/SnO_2–$(GO–Li^+@C_{60})_n$. Electrolyte: 0.5 M LiI and 0.01 M I_2 in MeCN–PhCN (3 : 1 v/v).