

Interconnected 3D fluorinated graphene host enabling ultrastable lithium metal anode

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Table S1 EDS element analysis result of FG-150

Element	C	O	F
Atomic%	84.3	12.6	3.1

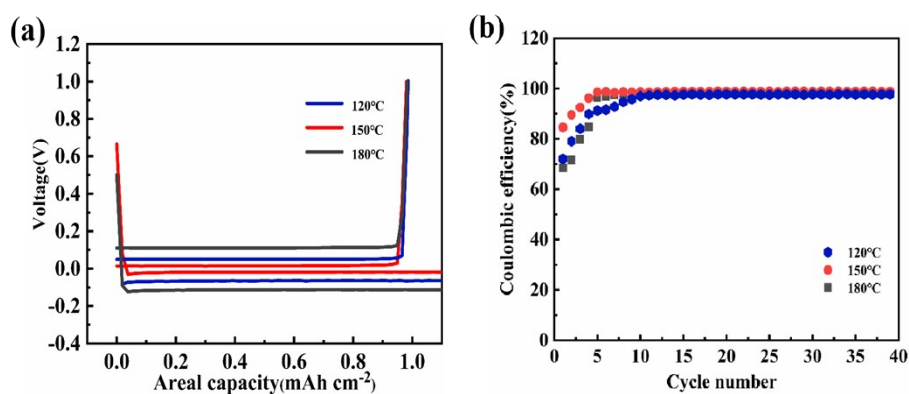


Figure S1 Electrochemical characterization of FG (a). The first-cycle constant current charge-discharge curve of the current collector under different temperature conditions; (b) Coulomb efficiency diagram of the first cycle of the current collector under different temperature conditions.

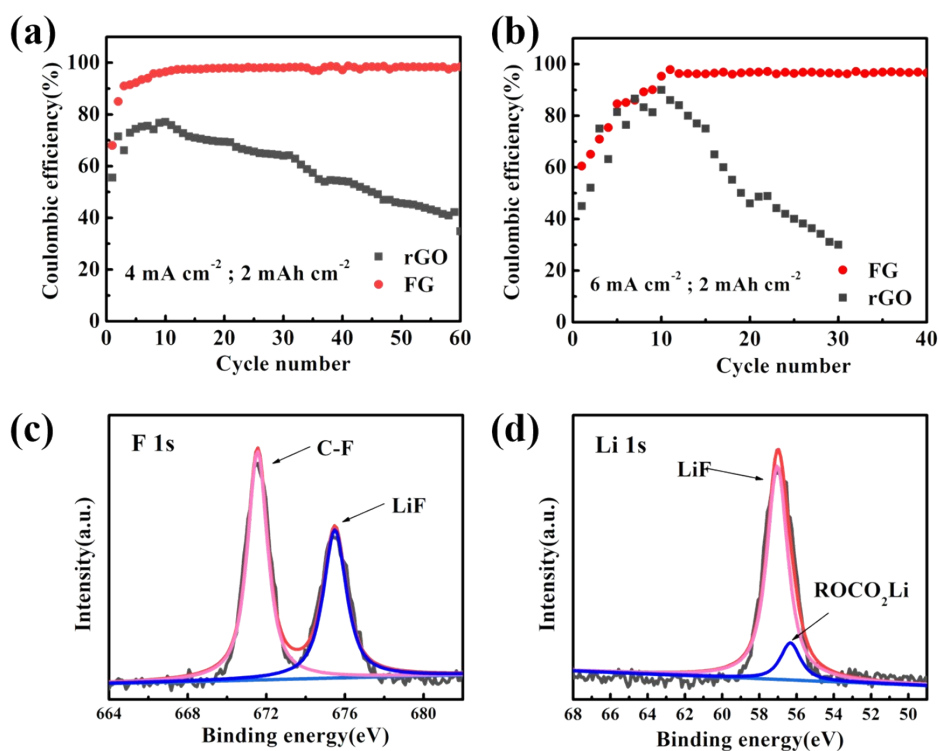


Figure S2 Comparison of Coulomb efficiency of FG@Cu and the comparative electrode are at current density of 4 mA cm^{-2} (a) and 6 mA cm^{-2} (b) with cycle capacity of 2 mAh cm^{-2} . The XPS spectra of F 1s (c) and Li 1s (d) of the SEI layer from the FG@Cu electrode after Li stripping.

Table S2 the content of chemical bonds in the sample of FG-150

Ascription	C-C	C-CF	C-O	C-F semi-ionic	C-F covalent	CF ₂	C-CF ₂
Content (%)	56.0	14.2	9.3	6.8	6.1	5.0	2.5

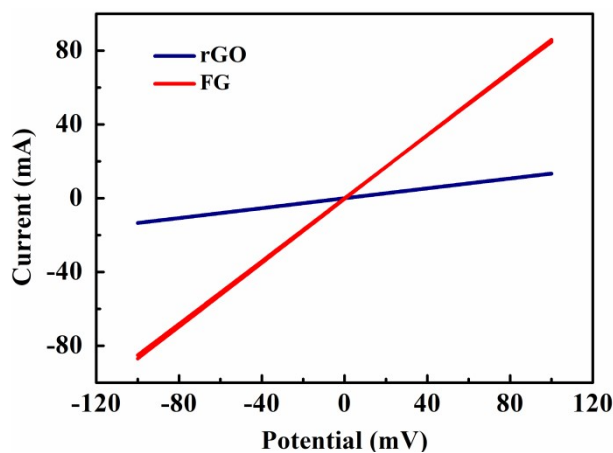


Figure S3 The electrical conductivity of rGO and FG-150

$$\sigma = \frac{l}{Rs}$$

R is the electrical resistance, s is the cross-sectional area, and l is the length of the material. After calculation, the volume electrical conductivity of FG-150 is 1.11 S/m and rGO is 0.17 S/m.

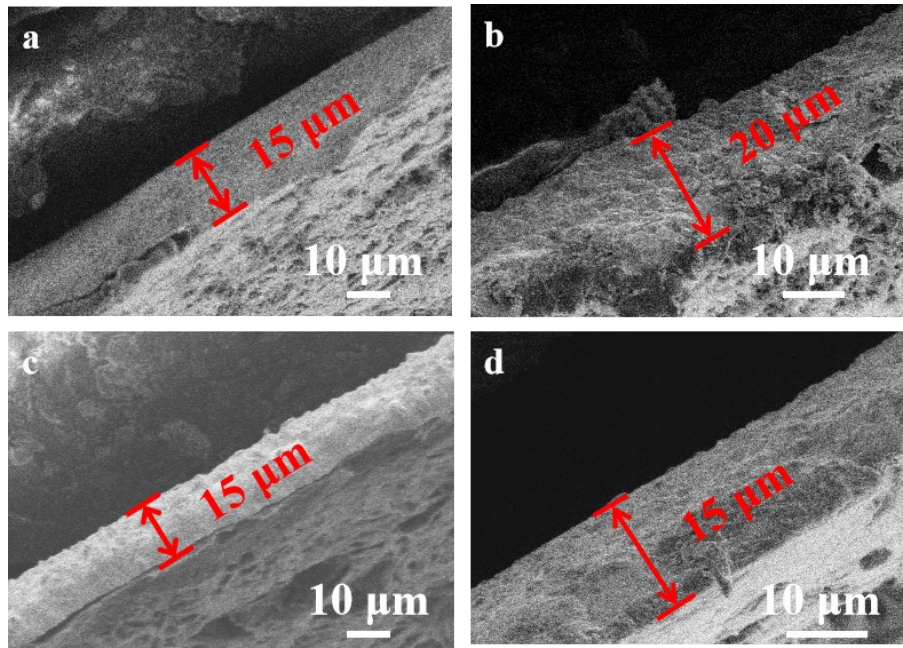


Figure S4 SEM images of the cross-section of rGO@Cu electrode (a) before and (b) after 100 cycles; SEM images of the cross-section of FG@Cu electrode (c) before and (d) after 100 cycles.