

Supporting Information

Three-dimensional surface layer and composite aphroid
layer constructed by facile rolling method for high-
performance Li metal anode

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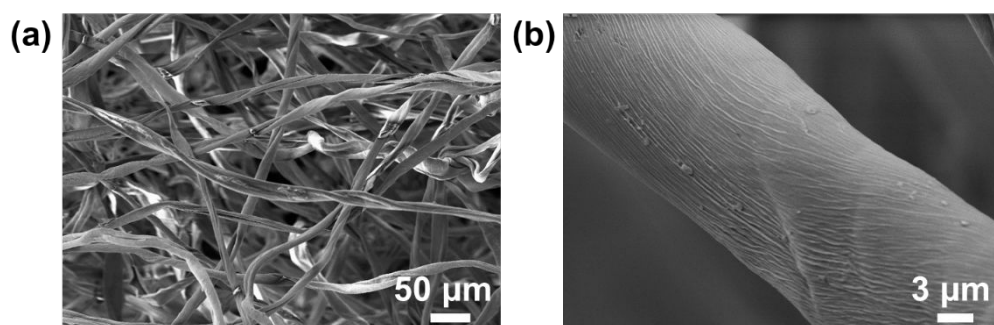


Figure S1. The SEM images of the commercial degreasing cotton.

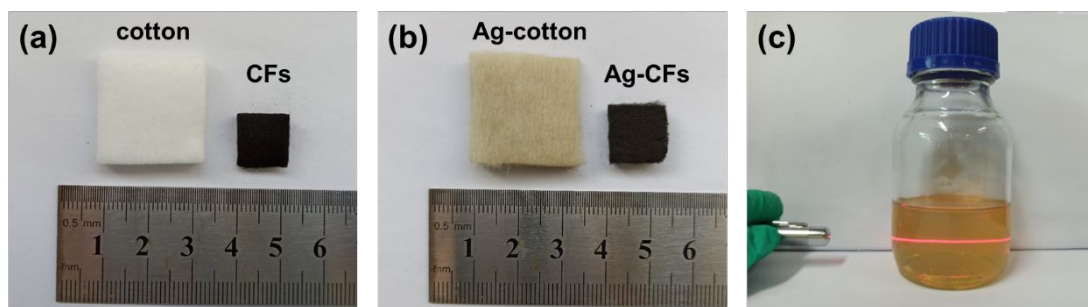


Figure S2. Photographs of (a) the cotton and as-prepared CFs, (b) the cotton impregnated with the Ag solution (Ag-cotton) and as-prepared Ag-CFs, (c) as-prepared Ag solution.

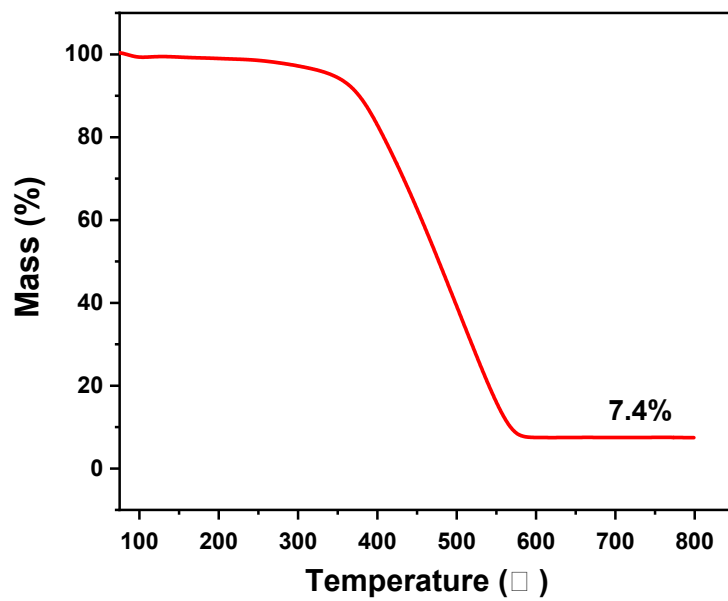


Figure S3. Thermogravimetric analysis (TGA) curve of the Ag-CFs.

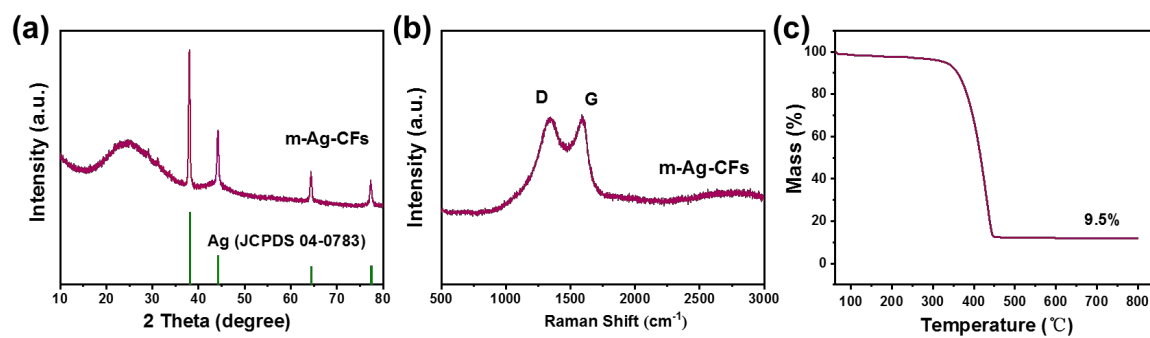


Figure S4. (a) XRD patterns, (b) Raman spectra and (c) TGA curve of the m-Ag-CFs.

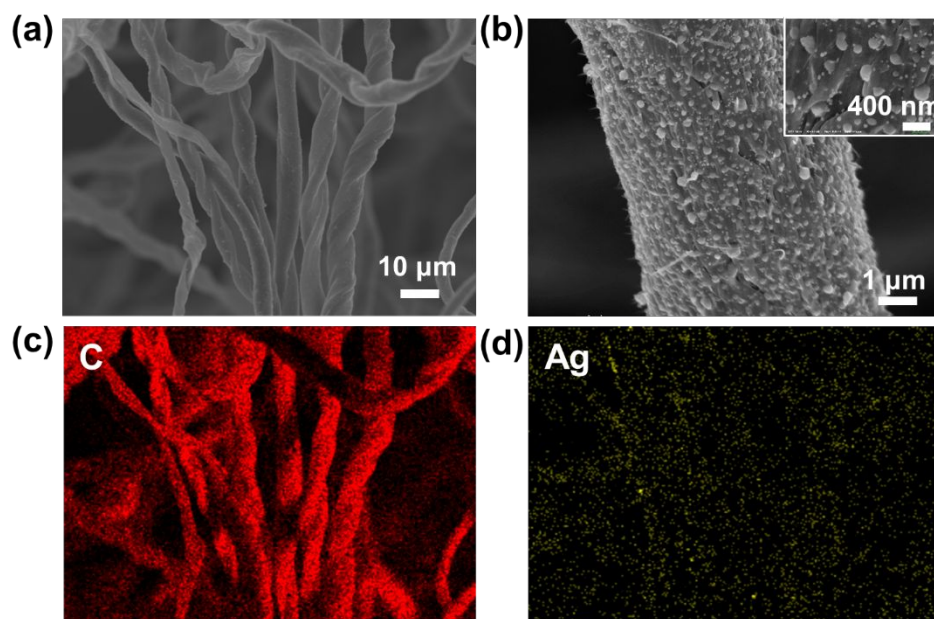


Figure S5. (a, b) The FESEM images at different magnifications and (c, d) the corresponding EDS mappings of m-Ag-CFs.

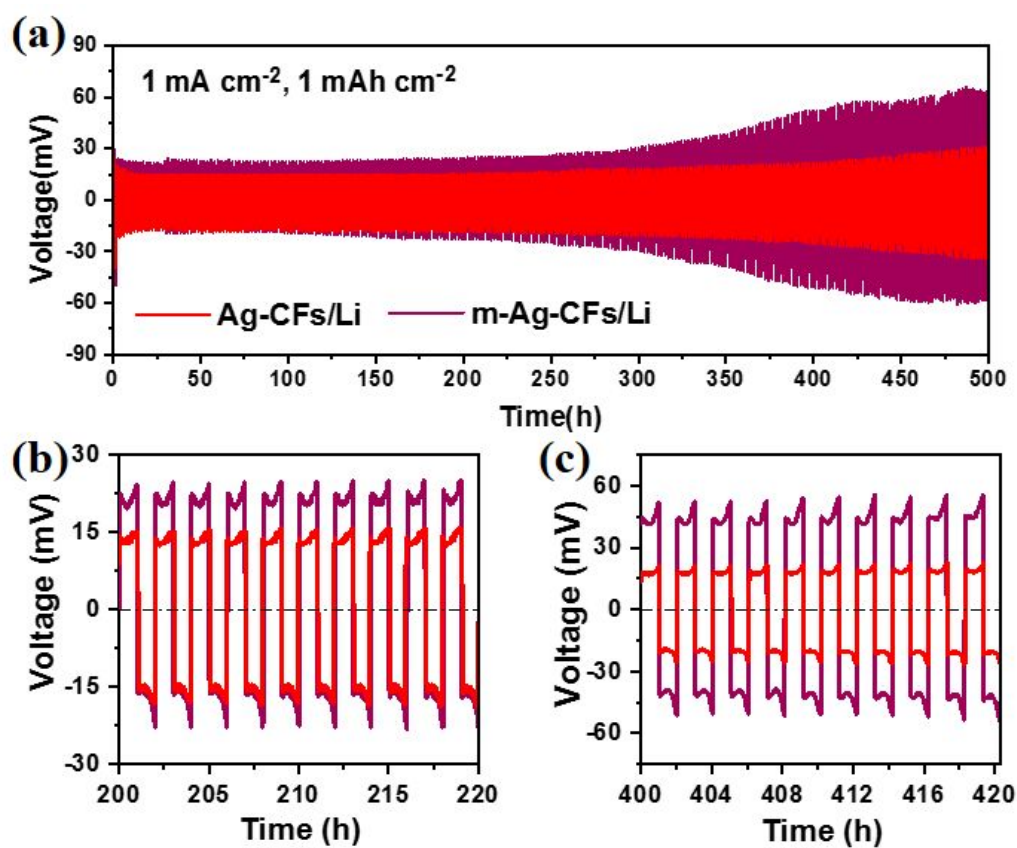


Figure S6. (a) Voltage-time profiles of Ag-CFs/Li and m-Ag-CFs/Li in symmetric cells with ether-based electrolyte (1 M LiTFSI in 1:1 v/v DOL/DME) at 1.0 mA cm⁻² and capacity of 1.0 mAh cm⁻². (b, c) The local magnification of (a) at 200–220 h and at 400–420 h, respectively.

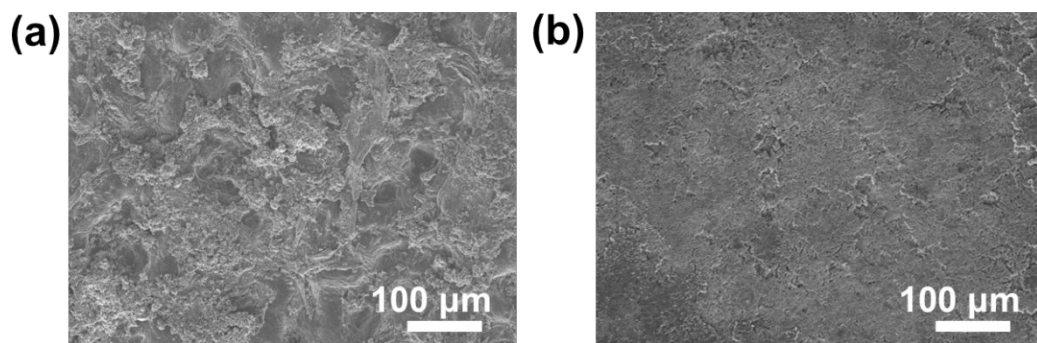


Figure S7. The surface FESEM images of (a) bare Li anode and (b) Ag-CFs/Li composite anode after cycling for 500 h.

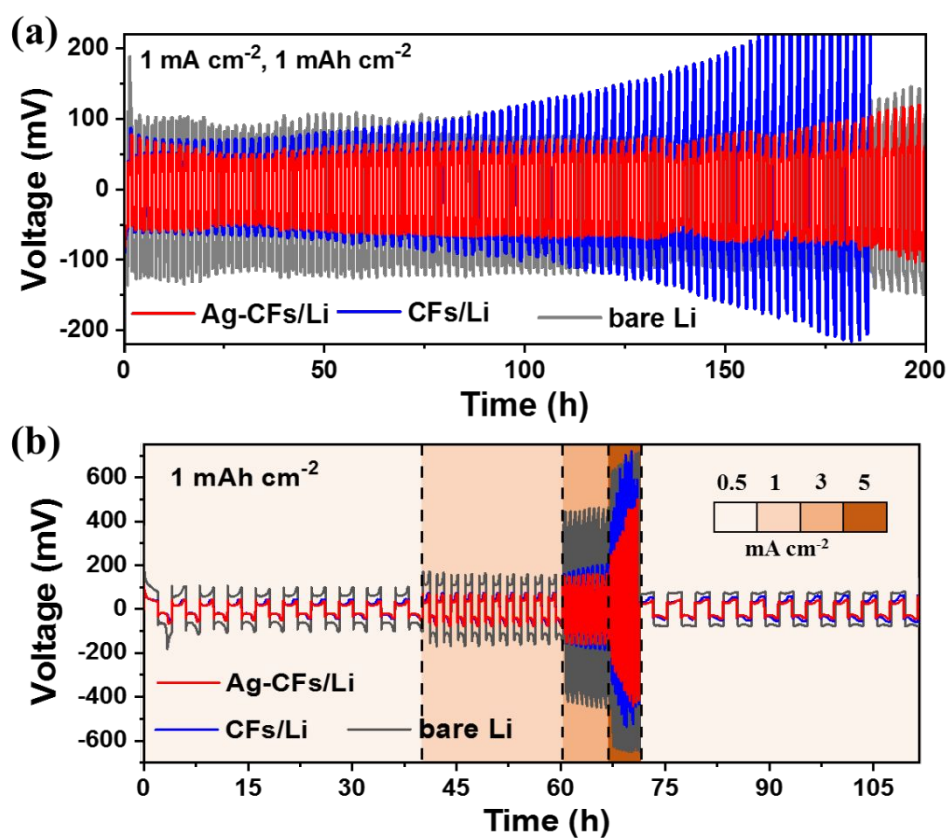


Figure S8. (a) Voltage-time profiles and (b) rate capabilities of Ag-CFs/Li, CFs/Li and bare Li in symmetric cells with carbonate electrolyte (1 M LiPF_6 in 1:1 v/v EC/DEC).