Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supplementary Information

Fibrous All-in-One Monolith Electrodes with a Biological Gluing Layer and Membrane Shell for Weavable Lithium-Ion Batteries

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KEYWORDS: high capacity; textile battery; biological glue; in-line coating; lithium-ion battery

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Supporting Figures: Figs. S1 to S8

Captions for Movies S1 to S4

Other Supplementary Materials for this manuscript include the following:

Movie S1 to S4.

Supporting Figures

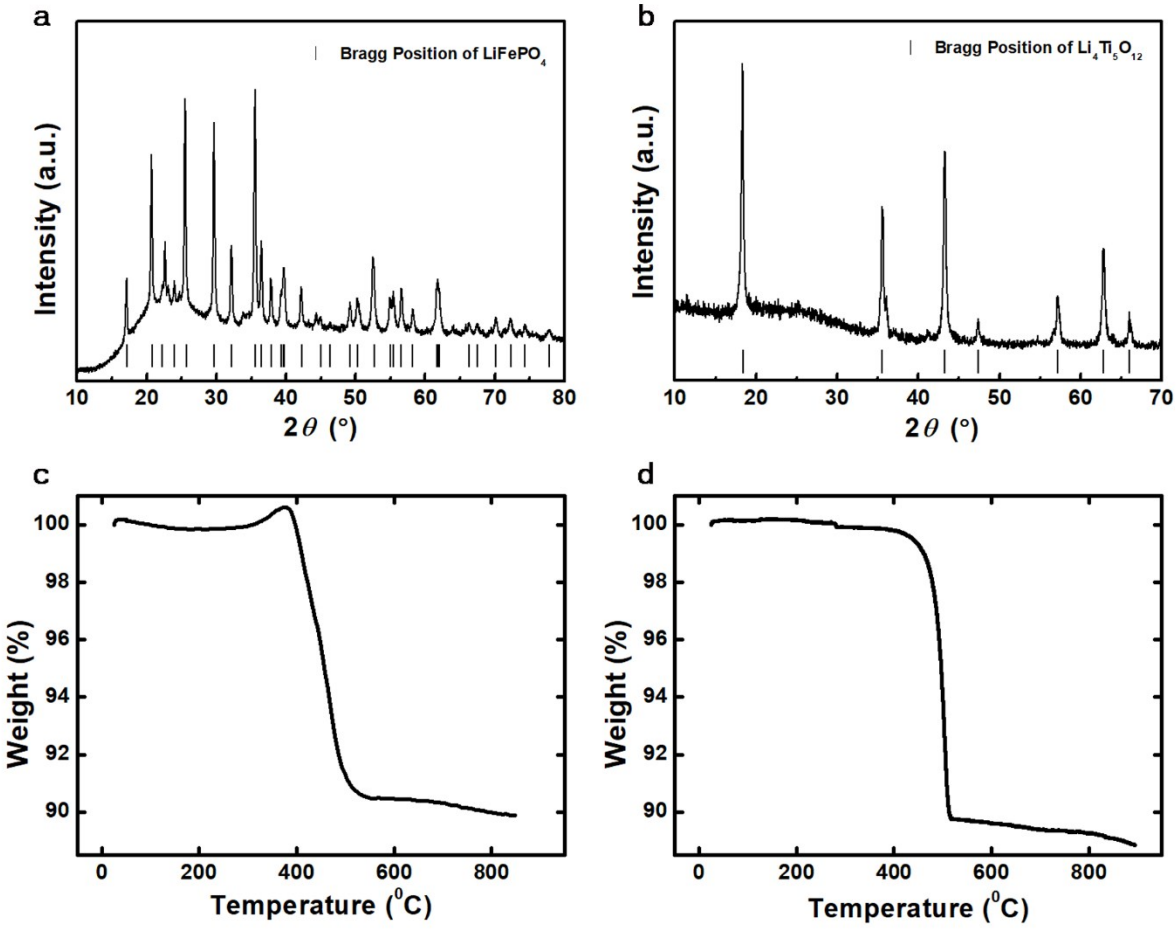

Figure S1. XRD results of (a) LFP/C-rGO and (b) LTO/rGO. TGA curves of (c) LFP/C-rGO and (d) LTO/rGO.

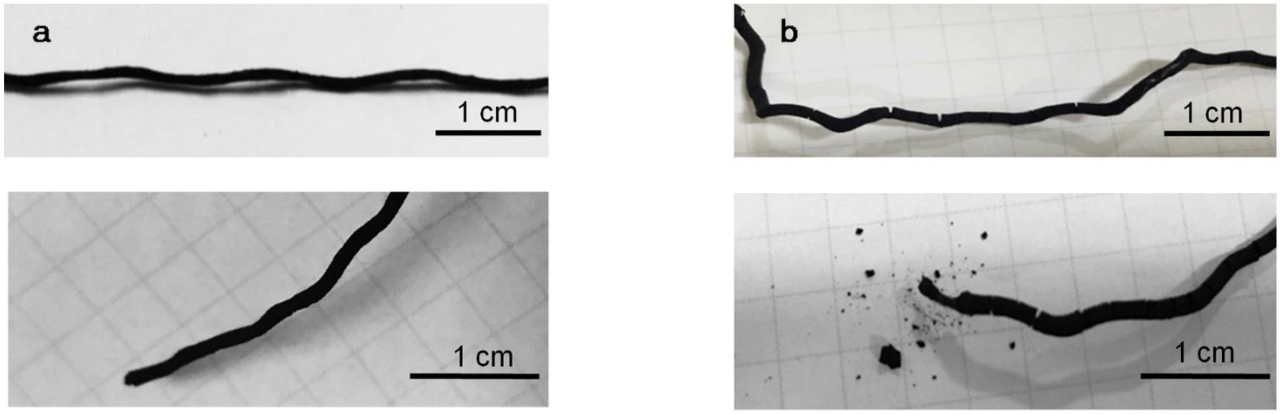

Figure S2. Coating quality of active materials on carbon fiber with active materials. (a) LFP/C-rGO and (b) commercial LFP.

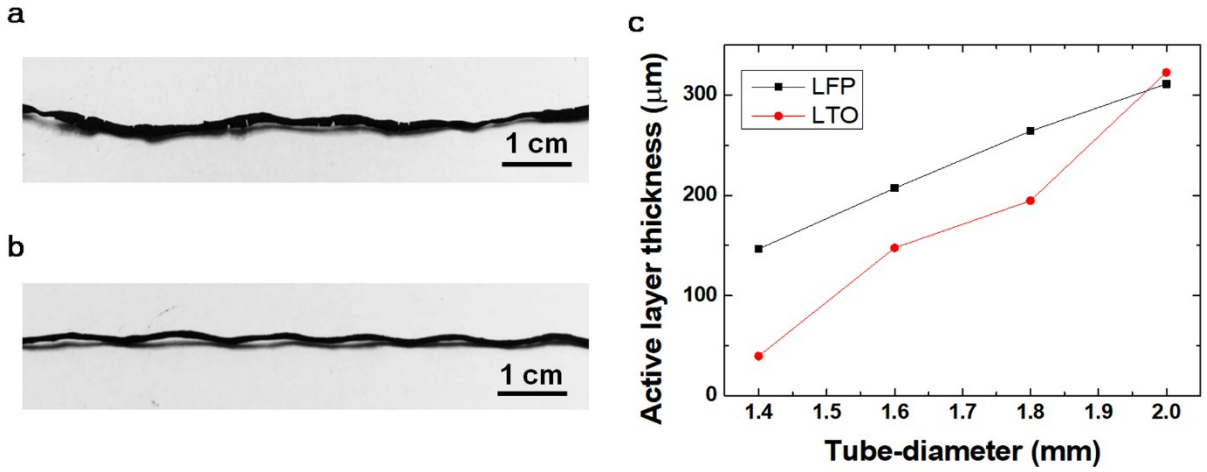

Figure S3. Morphology of active materials on carbon fiber coated by (a) dip-coating and (b) die-coating method. (c) Thickness of active layer by varying tube-diameter in die-coating process.

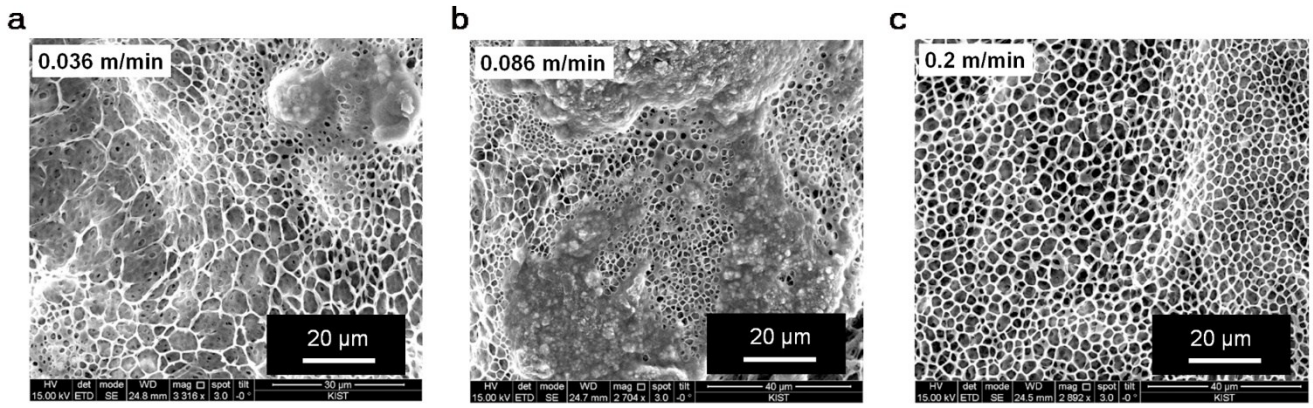

Figure S4. Morphology of porous PVDF membrane deposited on the active layer of the fiber with different coating velocity.

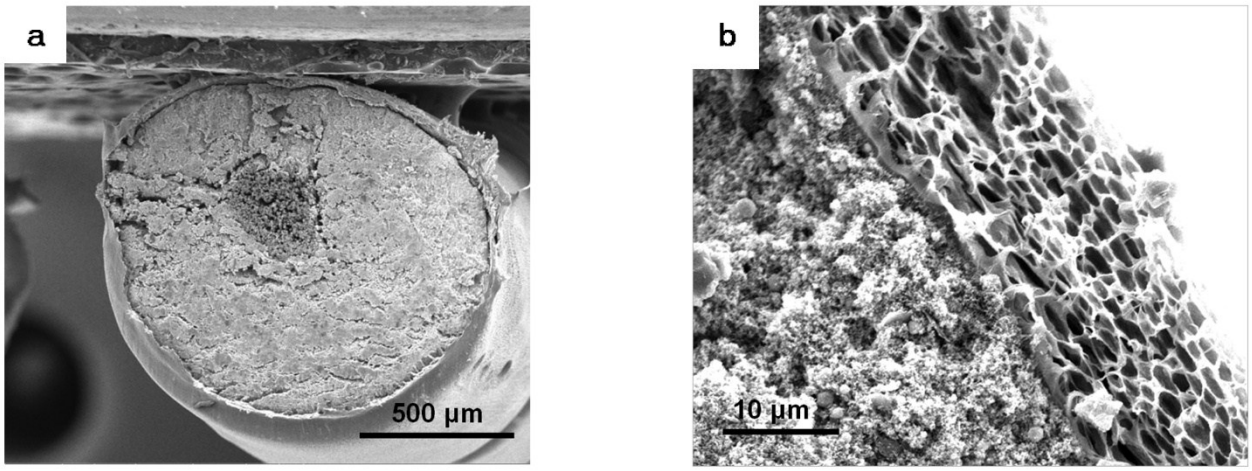

Figure S5. Cross-section SEM images showing (a) structure of all-in-one electrode thread and (b) outer porous membrane layer.

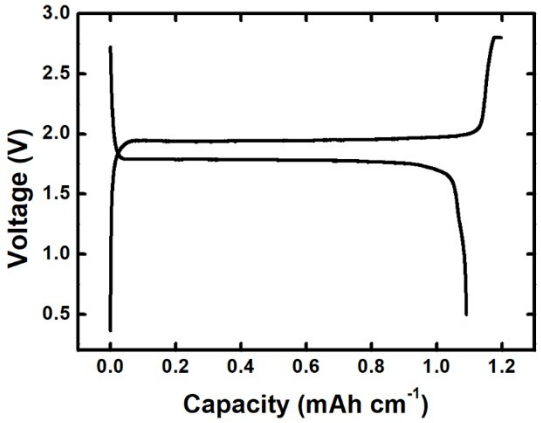

Figure S6. Charge-discharge curves of fiber full battery with a battery yarn twisted with a cathode and anode threads. The length of the full fiber battery is 4 cm.

Figure S7. Bending radius for the repeated bending test.

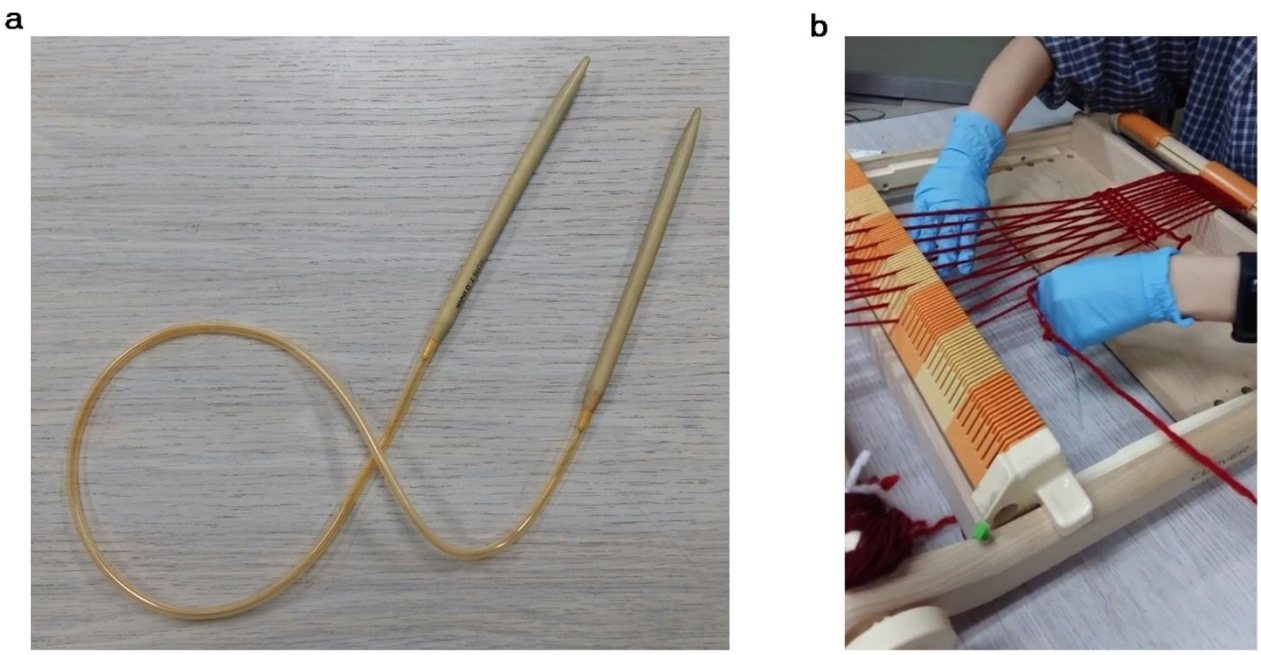

Figure S8. Knitting needles and a weaving loom used in this study.

Captions for Movies S1 to S4

Movie S1. Twist weaving of electrode threads

Movie S2. Movie of bending test at a bending diameter of 12.66 mm for 1000 cycles.

Movie S3. Knitting of the fiber battery connected to regular knitting wools.

Movie S4. Weaving process of the fiber battery connected to regular knitting wools using a small household loom.