

Supporting Information

Self-supporting Flexible Paper-based Electrode Reinforced by Gradient Network Structure

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Table S1 Material addition ratio of LFP copying electrode

Electrode name	Material added mass/mg						
	WPF	FWF	BNF	CNF	CNT	LFP	SDBS
WPF20	500	-	-	-	500	2500	15
FWF20	-	500	-	-	500	2500	15
BNF20	-	-	500	-	500	2500	15
FWF10-BNF10	-	250	250	-	500	2500	15
FWF15-BNF5	-	375	125	-	500	2500	15
FWF17-BNF3	-	425	75	-	500	2500	15
FWF19-CNF1	-	475	-	25	500	2500	15
FWF18-CNF2	-	450	-	50	500	2500	15
FWF15-CNF5	-	375	-	125	500	2500	15

X-ray diffraction (XRD) analysis

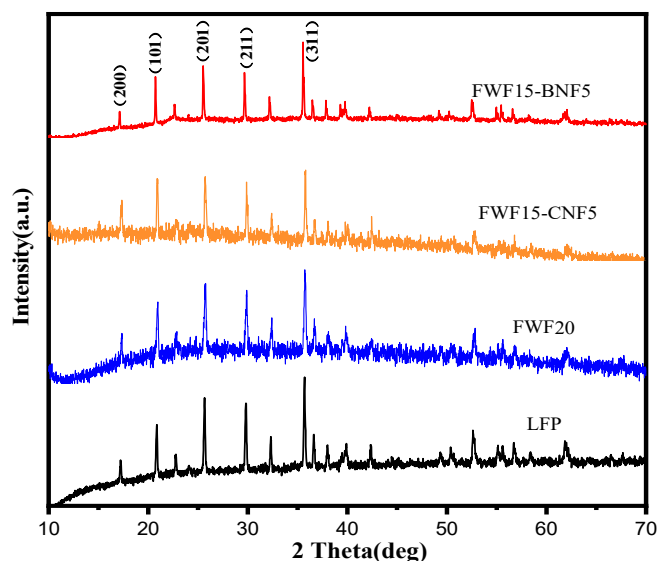


Figure S1. The XRD of paper-based electrodes and LFP

The optimized paper-based electrode materials of FWF15-BNF5, FWF15-CNF5, FWF20 and the active material LFP were compared and analyzed by XRD, to judge the influence of different fiber components and papermaking process on the crystal structure of the active material LFP. As can be seen from Figure S1, the XRD patterns of the paper-based electrode with BNF or CNF and the paper-based electrode without nano-cellulose unchanged and are consistent with those of LFP. Five characteristic peaks of LFP appear in all paper-based electrode materials, and the corresponding crystal plane indices are (200), (101), (201), (211), and (311) turn.

Table S2 List of acronyms

List of acronyms	Acronym
Wood pulp fiber	WPF
Filamentied wood fiber	FWF
Lithium iron phosphate (LiFePO ₄)	LFP
Multi-walled carbon nanotubes	MWCNT
Sodium dodecylbenzene sulfonate(C ₁₂ H ₂₅ SO ₄ Na)	SDBS
X-ray diffraction	XRD
Electrochemical impedance spectroscopy	EIS