Electronic Supplementary Information (ESI)

Electronic synergy to boost the performance of NiCoP-NWs@FeCoP-NSs anodes for flexible lithium-ion batteries

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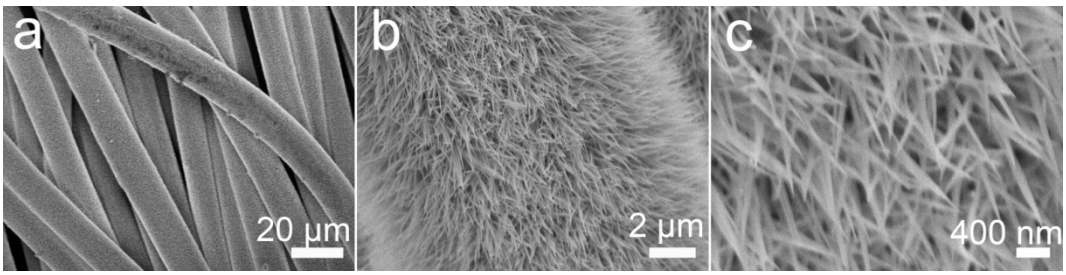

Fig. S1 SEM images of the NiCo-NWs/CC.

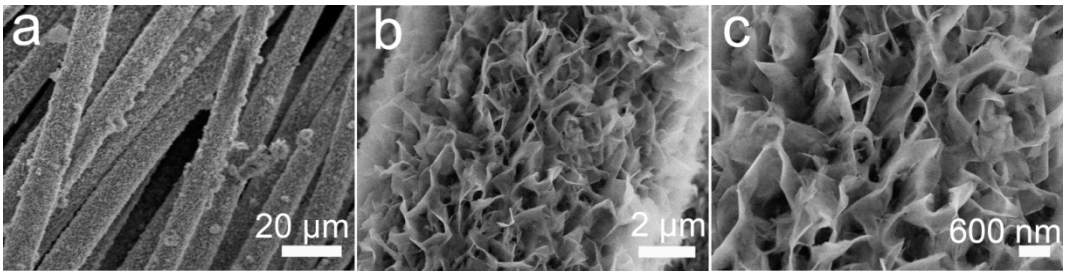

Fig. S2 SEM images of the FeCo-NSs/CC

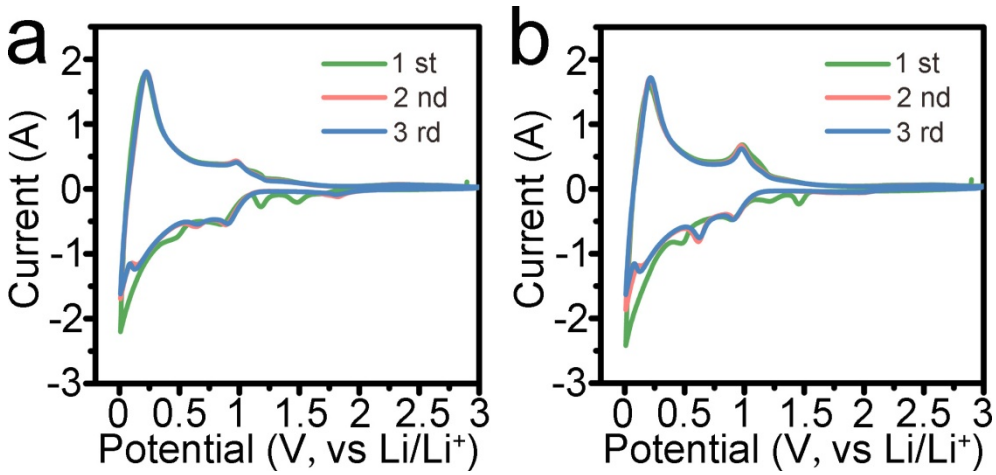

Fig. S3 CV curves of the (a) NiCoP-NWs/CC and (b) FeCoP-NSs/CC electrodes.

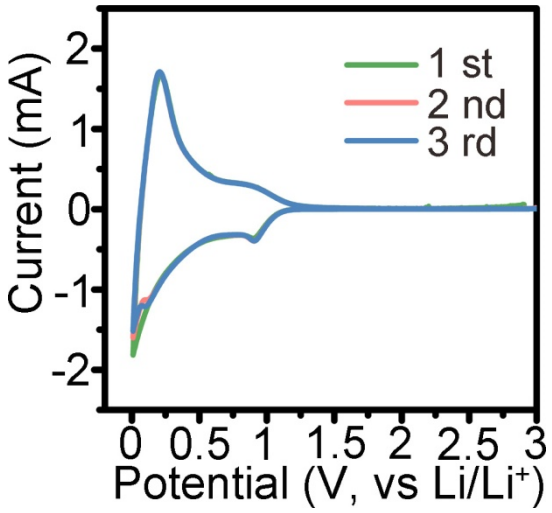

Fig. S4 CV curves of the pure CC.

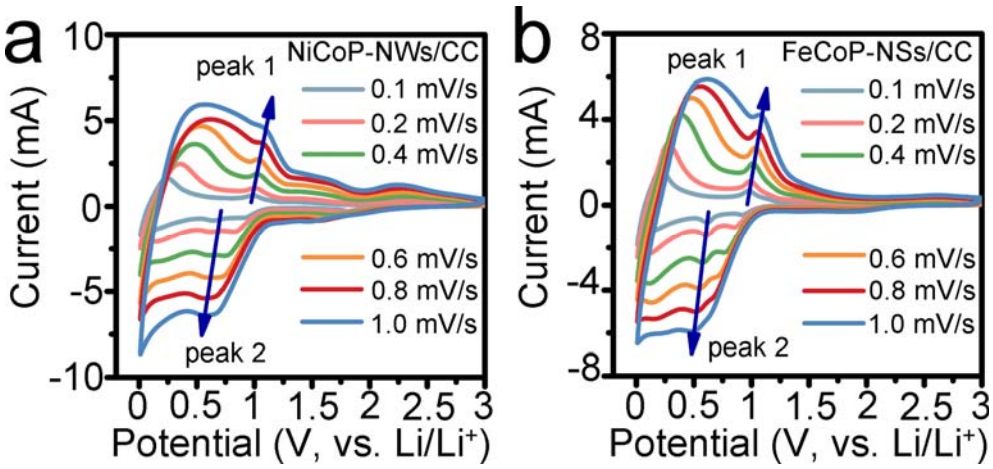

Fig. S5 CV curves of NiCoP-NWs and FeCoP-NSs/CC at different scan rates.

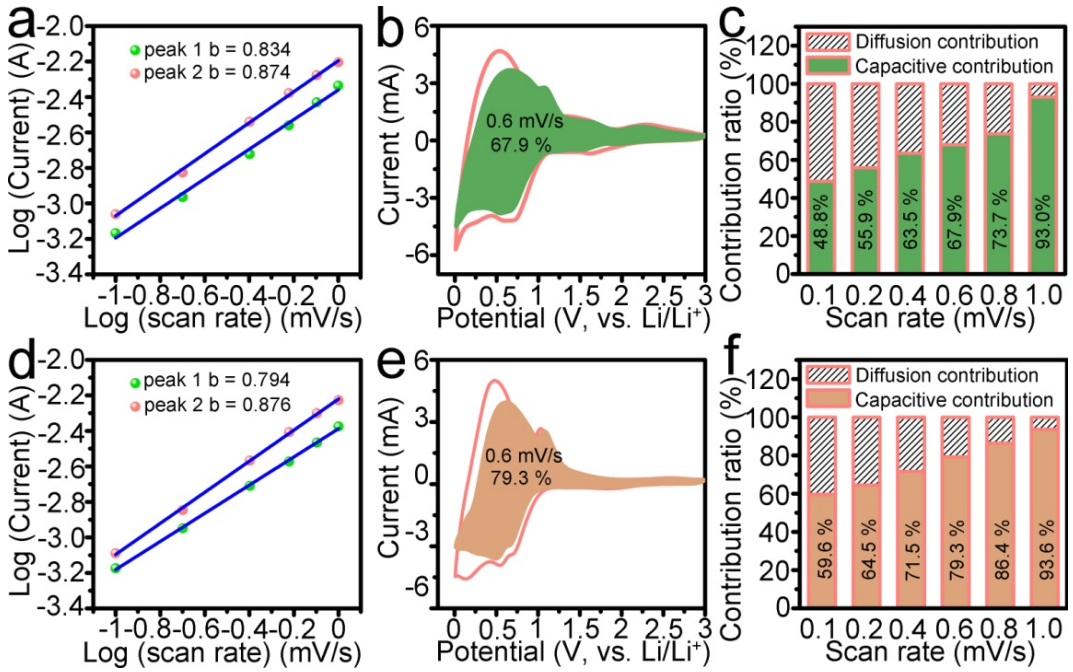

Fig. S6 The relationship between log *i* and log *v*, and the value of b for (a) NiCoP-NWs/CC, and (d) FeCoP-NSs/CC. The capacitive contribution at 0.6 mV/s for (b) NiCoP-NWs/CC, and (e) FeCoP-NSs/CC; the diffusion contribution and capacitive contribution at different scan rates for (c) NiCoP-NWs/CC, and (f) FeCoP-NSs/CC.

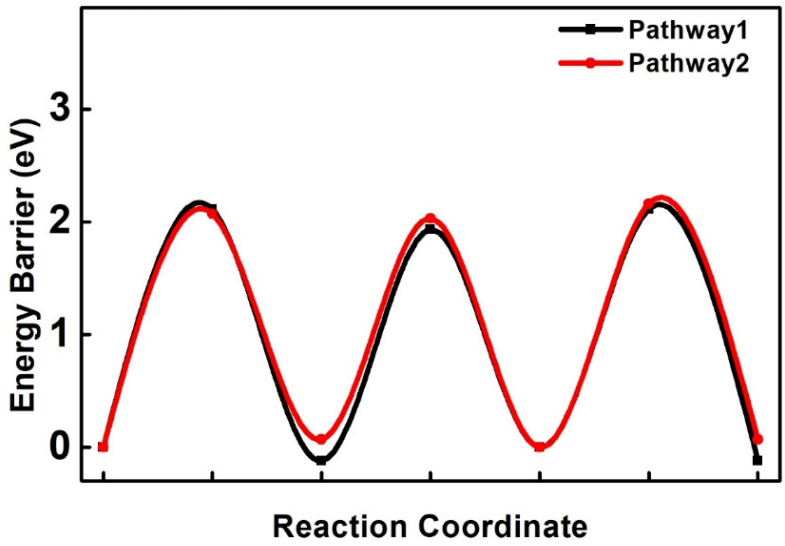

Fig. S7 The energy profiles for different diffusion channels of Li^+ in FeCoP-NSs.

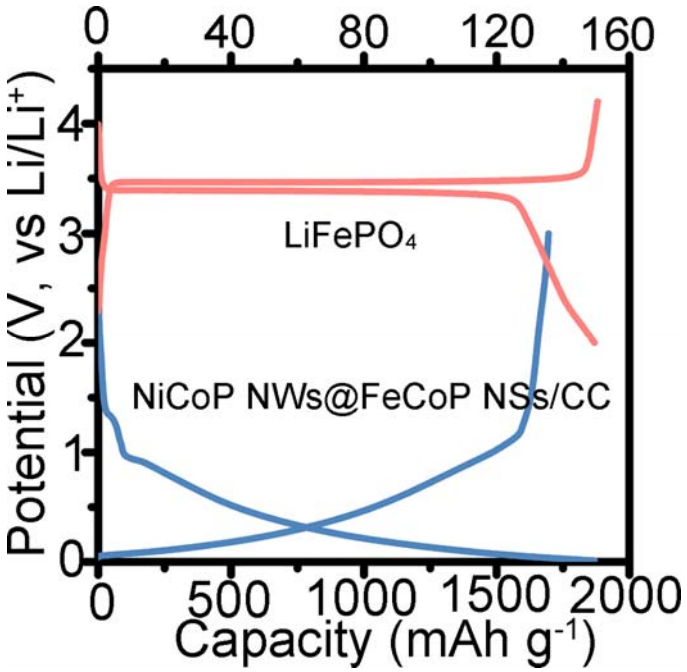

Fig. S8 The charge/discharge profiles of the NiCoP-NWs@FeCoP-NSs/CC anode and $LiFePO_4$ cathode at the current density of 0.1 A g^{-1}.

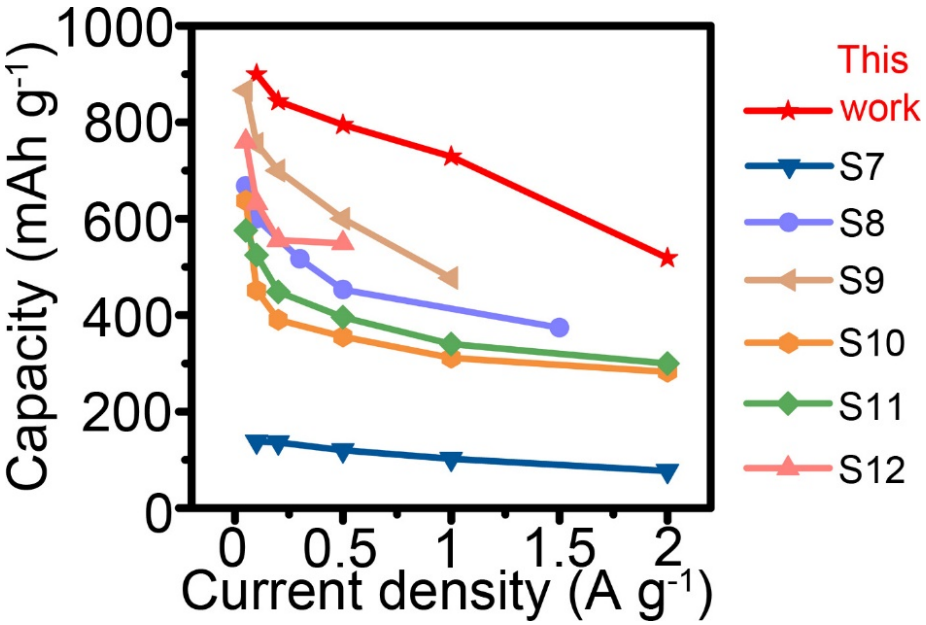

Fig. S9 Comparison of full-cell rate capability between $LiFePO_4$//NiCoP-NWs@FeCoP-NSs/CC and other reported previously.

Table S1: Electrochemical performances comparison between this work and previously reported transition metal phosphides in LIBs.

Materials	Current density ($A\ g^{-1}$)	Capacity/Cycles	Ref.
S-CoP	0.5	442.8/300th	S1
CoP@PNS-CNS	0.1	595.3/100th	S2
CoP@C⊂PCF/NCNTs	0.5	712.3/700th	53
Ni_2P/NG/Ni_2P	0.3	417/300th	S3
NiCoP/C	1	593.6/500th	S4
MOF-derived NiCoP	1	104/100th	23
Ni_2P/C	0.2	324/200th	44
Ni_2P@NPC	1	603/800th	S5
Ni_2P@NPCNFs	0.2	850/450th	S6
NiCoP-NWs@FeCoP-NSs/CC	**1**	**1172.6/300th**	**This work**

Table S2: Comparison of full-cell rate capability between $LiFePO_4$//NiCoP-NWs@FeCoP-NSs/CC and other reported previously.

Full cells	Rate performance								Ref.
	0.05	0.1	0.2	0.3	0.5	1	1.5	2	
Fe_3O_4@C//$LiFePO_4$		138	136		120	102		77	S7
$CoMn_2O_4$@MoO_3//$LiFePO_4$	668	600		517	453		374		S8
NiO/SnO_2@rGO//$LiCoO_2$	866	755	700		600	477			S9
Sb⊂CTHNs//$LiMn_2O_4$	637.4	451.3	390.3		355.7	311.6		283.2	S10
MnSe⊂3D CNM//$LiMn_2O_4$	575.5	524.6	448.5		395.8	340.1		299.7	S11
NSGS-8//$LiCoO_2$	757.9	632	555.7		548.5				S12
$LiFePO_4$//NiCoP-NWs@FeCoP-NSs/CC		**899.6**	**843.7**		**794.5**	**728.1**		**581.5**	**This work**

Movie S1: 5 minutes of video of a soft lithium-ion battery powering an LED light**.**

References

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