Supporting information

Honeycomb-Like 3D Carbon Skeletons with Embedded Phosphorus-Rich Phosphide Nanoparticles as Advanced Anodes for Lithium-Ion Batteries

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Figure S1. Optical photos of FeP_2 NPs@CK sample.

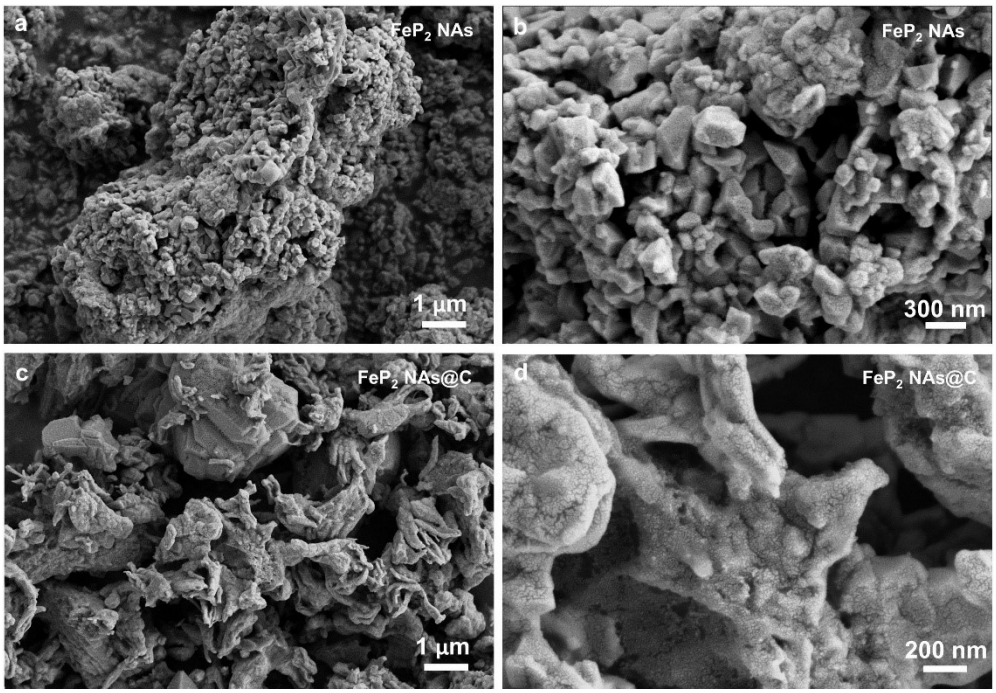


Figure S2. SEM images of (a, b) FeP_2 NAs and (c, d) FeP_2 NAs@C.

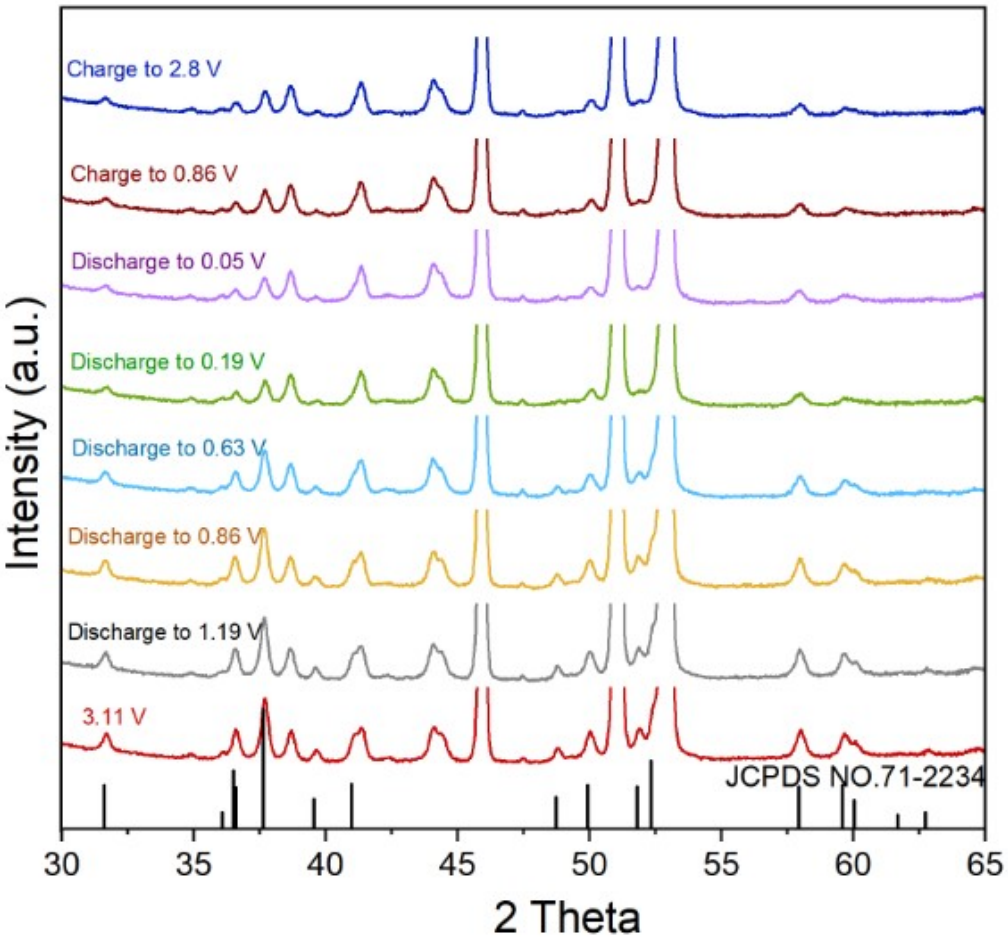


Figure S3. In situ XRD of the FeP_2 NPs@CK electrode in the first discharge/charge cycle.

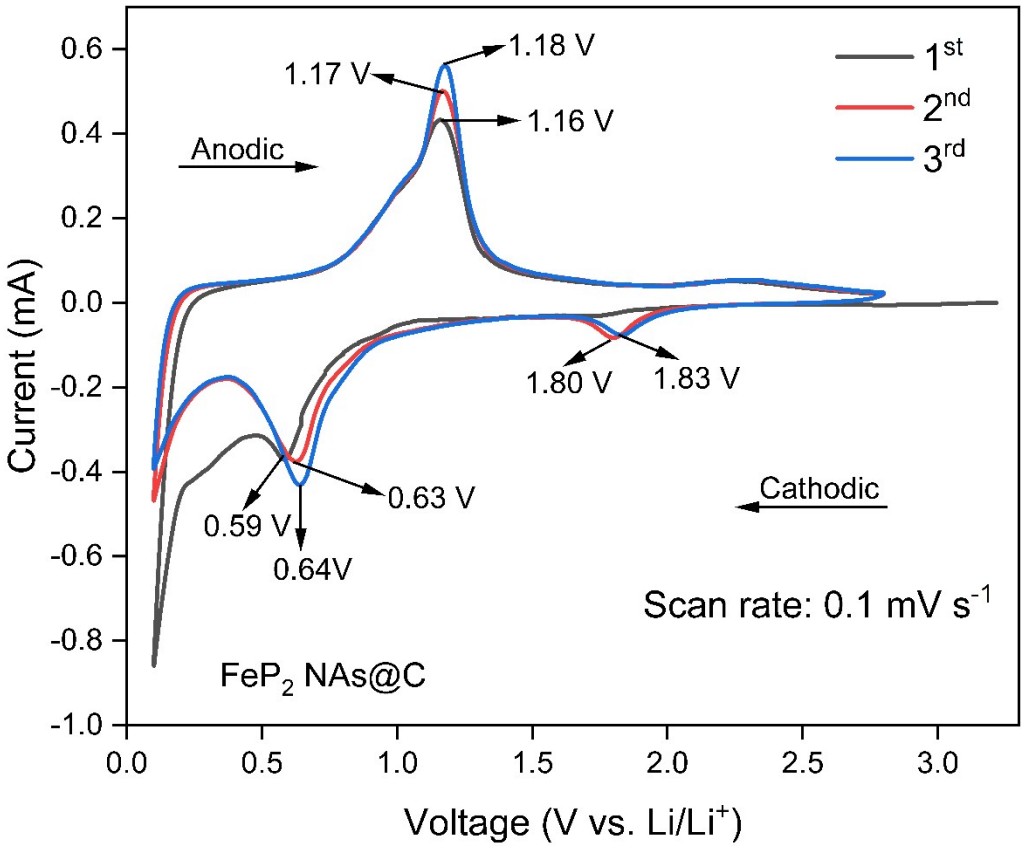


Figure S4. The initial cyclic voltammetry curves of FeP_2 NAs at a scan rate of 0.1 mV s^{-1}.

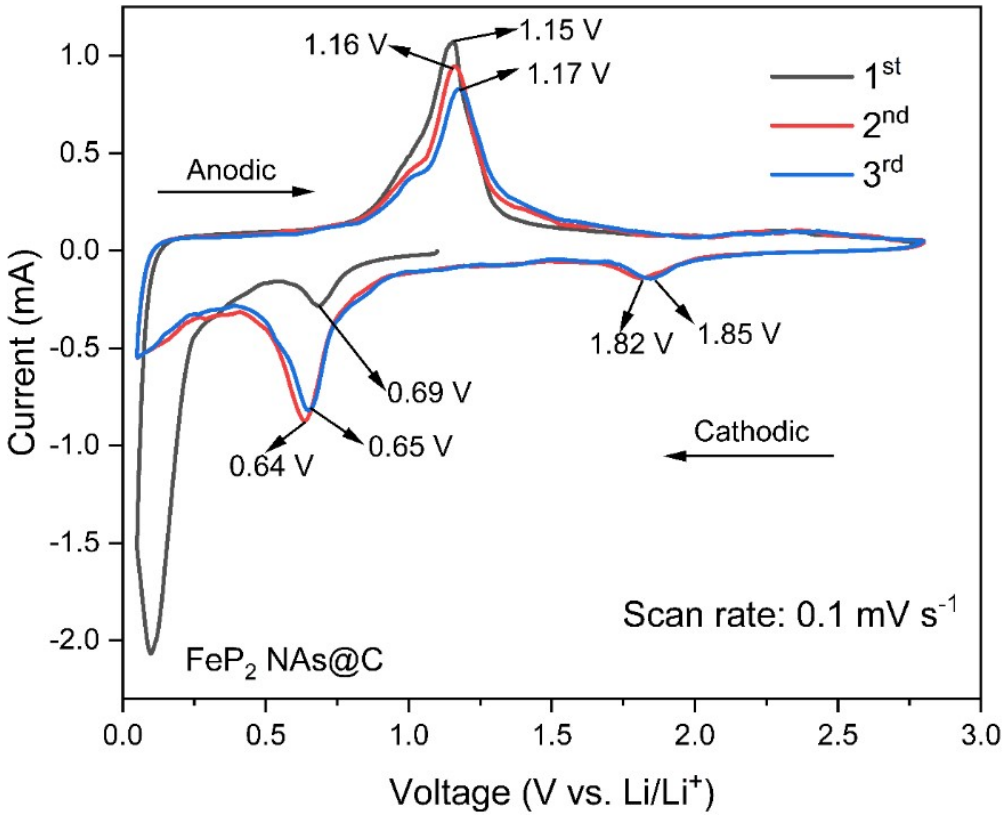
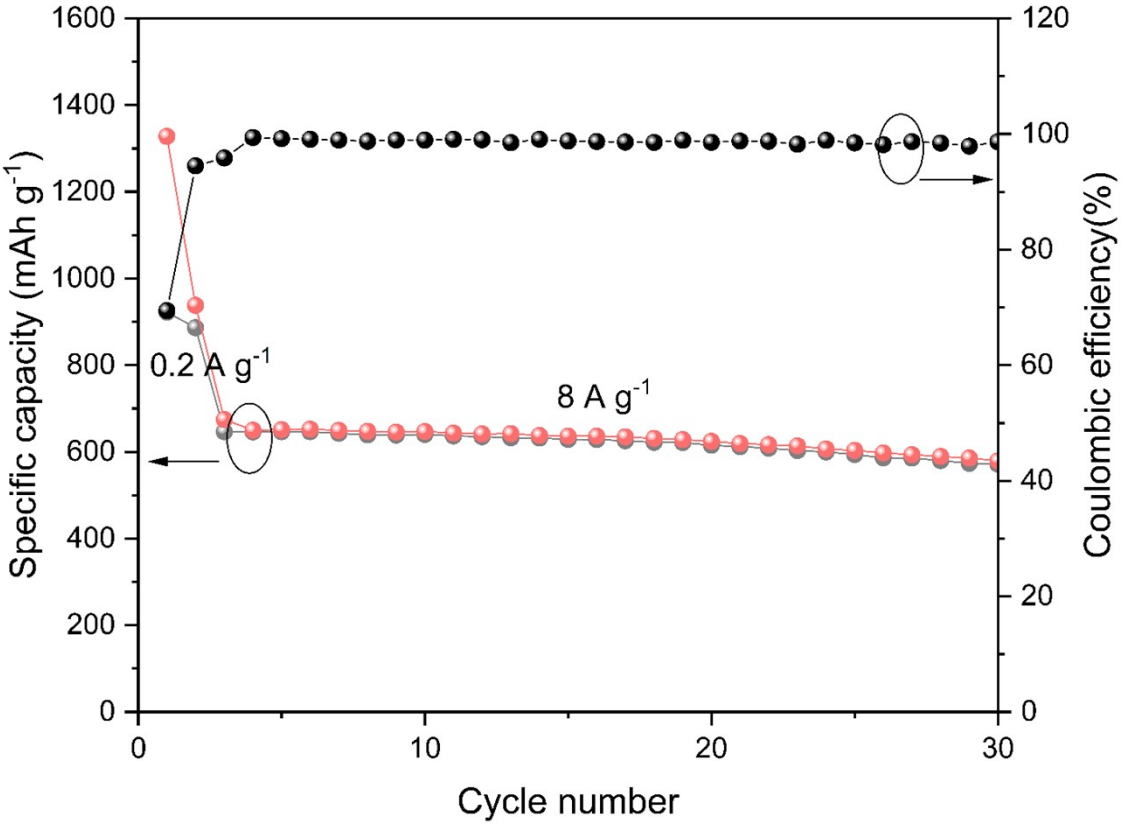


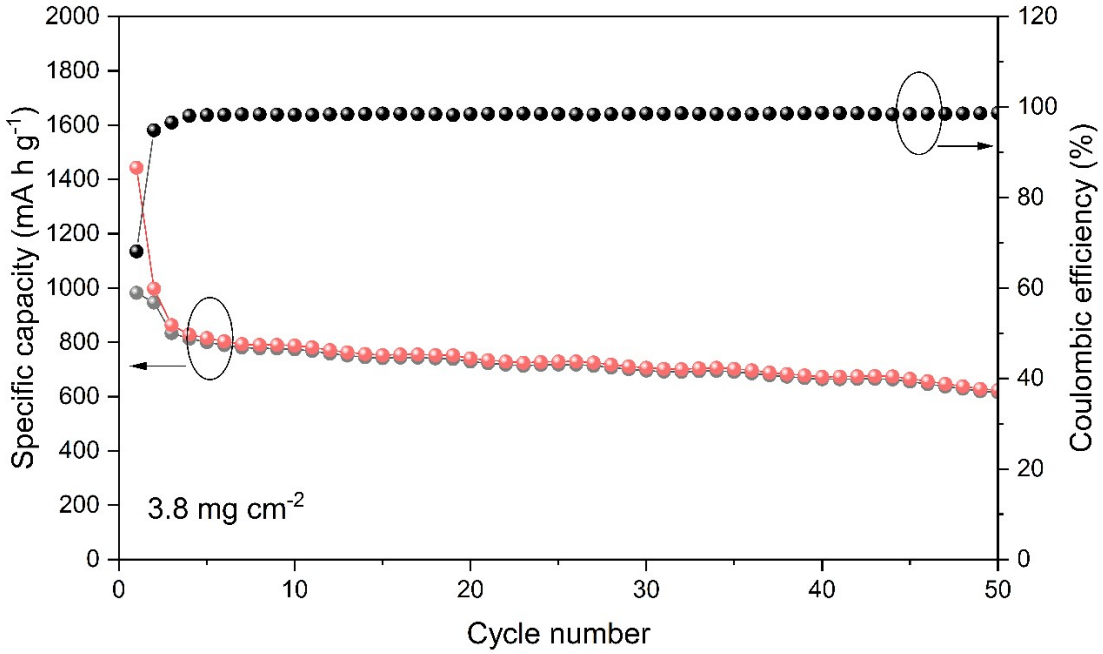
Figure S5. The initial cyclic voltammetry curves of FeP_2 NAs@C at a scan rate of 0.1 mV s^{-1}.

Table 1. Comparison of cycling and rate performance of previously reported iron phosphides for lithium ion batteries.

Samples	Specific capacity (mA h g^{-1})/ cycles/current density (A g^{-1})	Current density (A g^{-1})	Specific capacity (mA h g^{-1})	Ref.
FeP_2 NPs@CK	**771/100/0.5**	**0.05/0.1/0.2/0.5/1/2**	**1149/1023/927/842/783/724**	**This work**
	620/500/1			**This work**
FeP_2/C	435/100/0.137	0.137/0.342/0.685/1.37/3.42/6.85	590/510/440/380/330/240	1
FeP_2@CNTs	736.2/100/0.137	-	-	2
FeP/C	700/300/0.5	0.2/0.5/1/2/5	990/735/600/490/314	3
M-FeP@C	542/300/1	0.25/0.5/1/2/4/8	479/357/275/219/165/122	4
Fe_2P/C	573/300/0.2	0.1/0.2/0.5/2/5	727/627/556/500/365/	5
6h-FeP@NC-1	296.5/200/0.1	0.1/0.2/0.5/1/2/5/10/20	269.7/266.9/261.8/253.9/243.8/222.2/202.2/176.3	6
FeP@rGO-5	460/400/1	0.2/0.5/1/1.5/5	840/610/460/420/324	7
FeP@CNBs	476/400/0.5	0.1/0.2/0.5/1/2	608/563/490/441/380	8
H-FeP@C@GR	542/300/0.5	0.2/0.5/1/2/4/8	1030/876/755/657/577/482	9



Fugure S6. Cycling performance of FeP_2 NPs@CK at 8 A g^{-1}.



Fugure S7. Cycling performance of FeP_2 NPs@CK at 0.5 A g^{-1}.

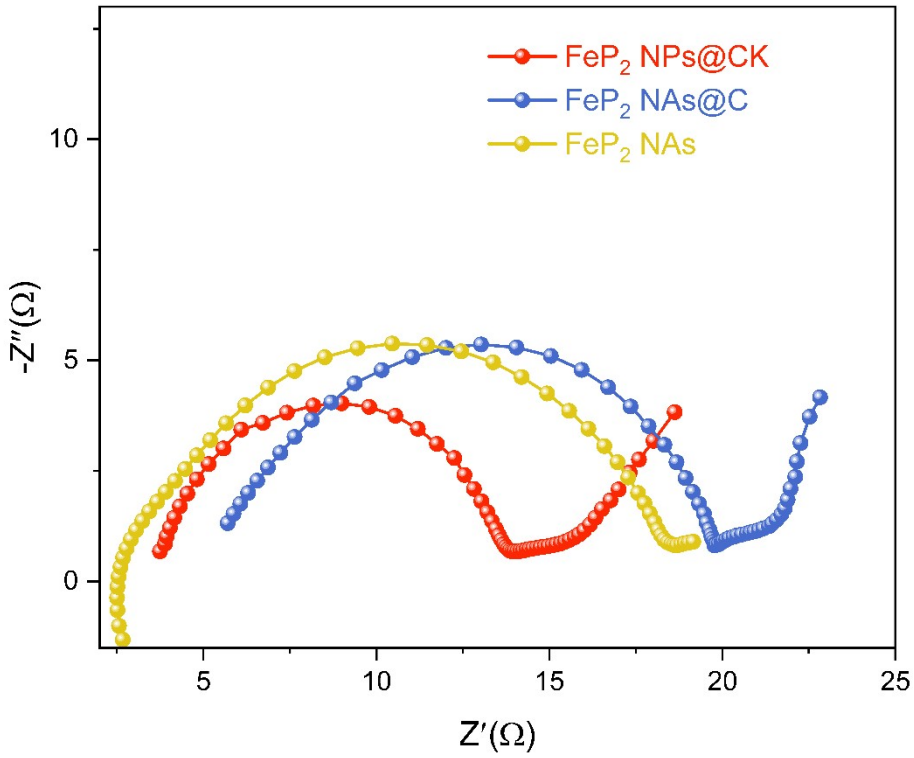


Figure S8. Electrochemical impedance spectra of the FeP_2 NPs@CK, FeP_2 NAs@C and FeP_2 NAs measured after the first discharging to 0.005 V.

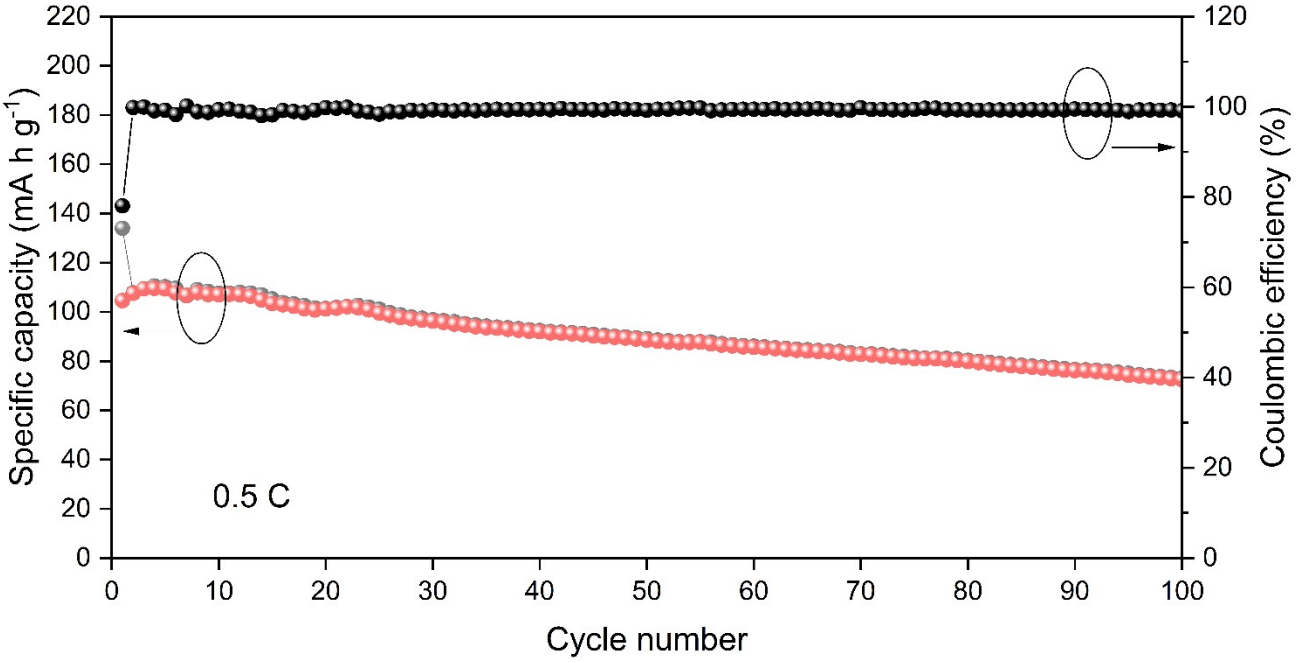


Figure S9. Cycling performance of FeP_2 NPs@CK||$LiFePO_4$ full cell at 0.5 C.

References

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