Supporting Information

Interfacial modulation achieving flexible anode of FeP/N-doped C@carbon cloth with robust structure for high areal capacity lithium storage

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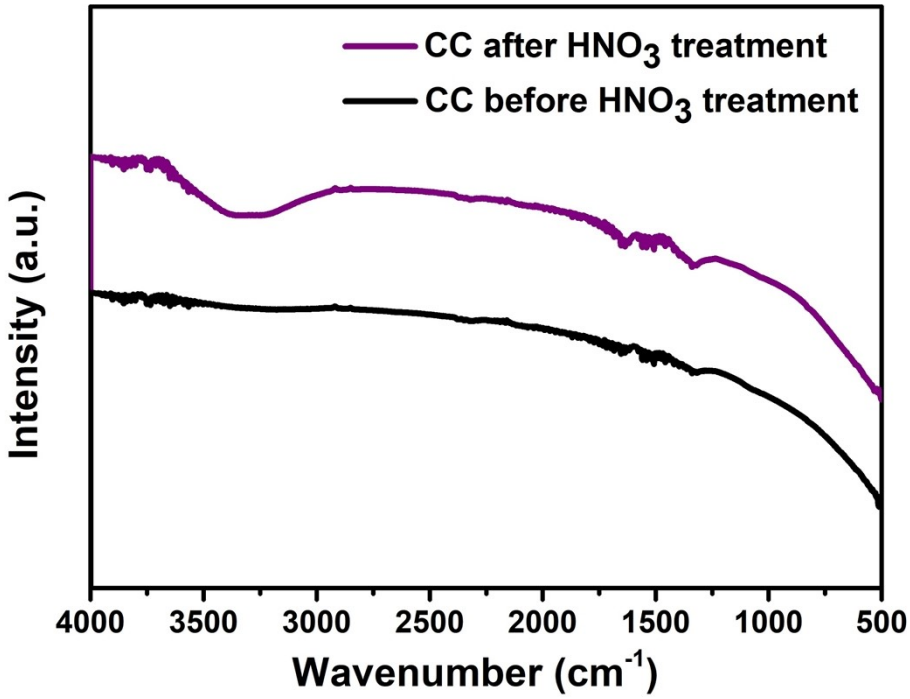

Figure S1. FTIR spectrogram of the CC before and after concentrated HNO_3 treatment.

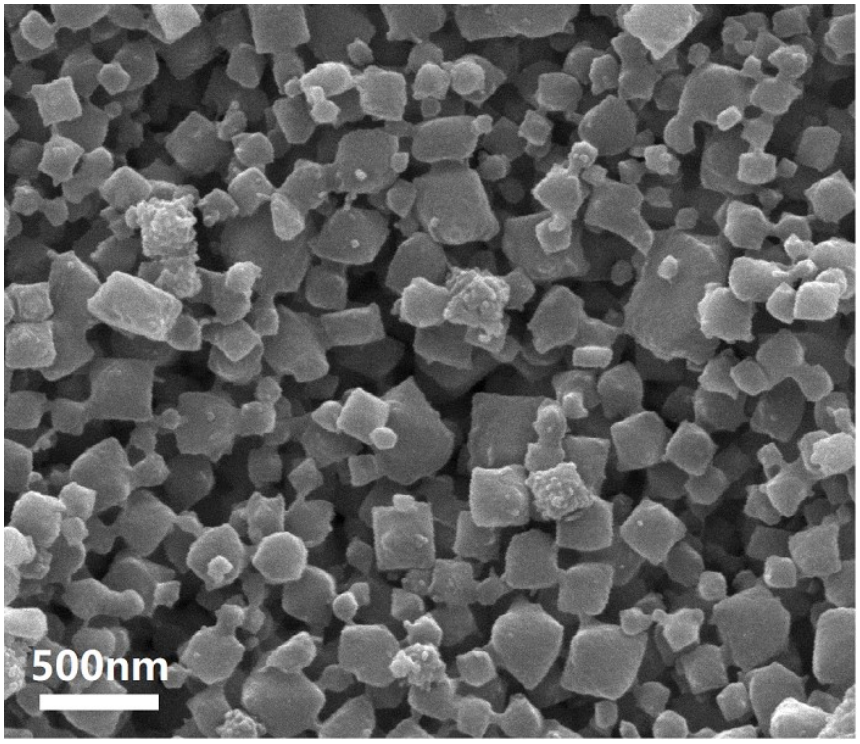

Figure S2. FESEM image of the NH_2-MIL-101(Fe) precursor.

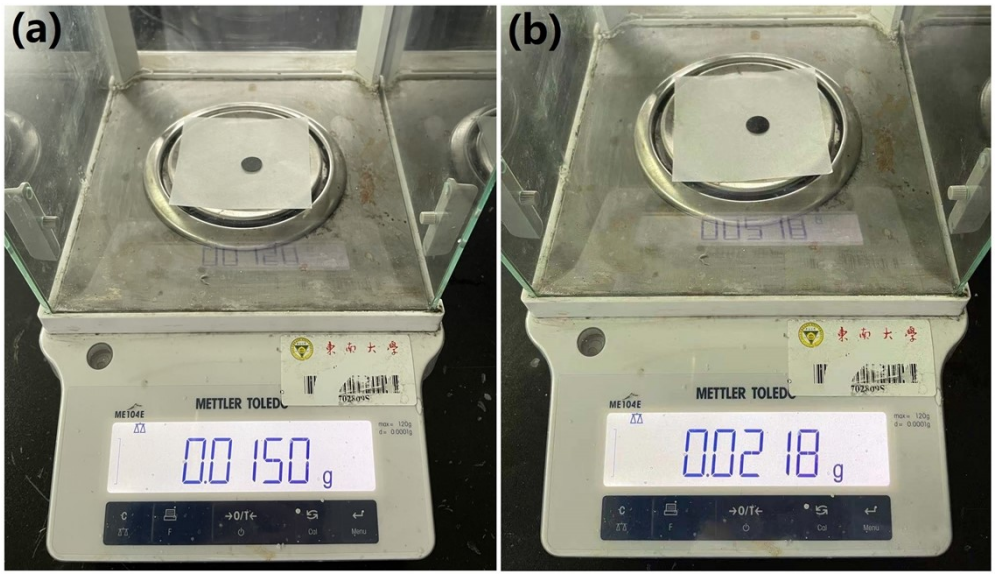

Figure S3. The mass of (a) CC and (b) FeP/NC@CC.

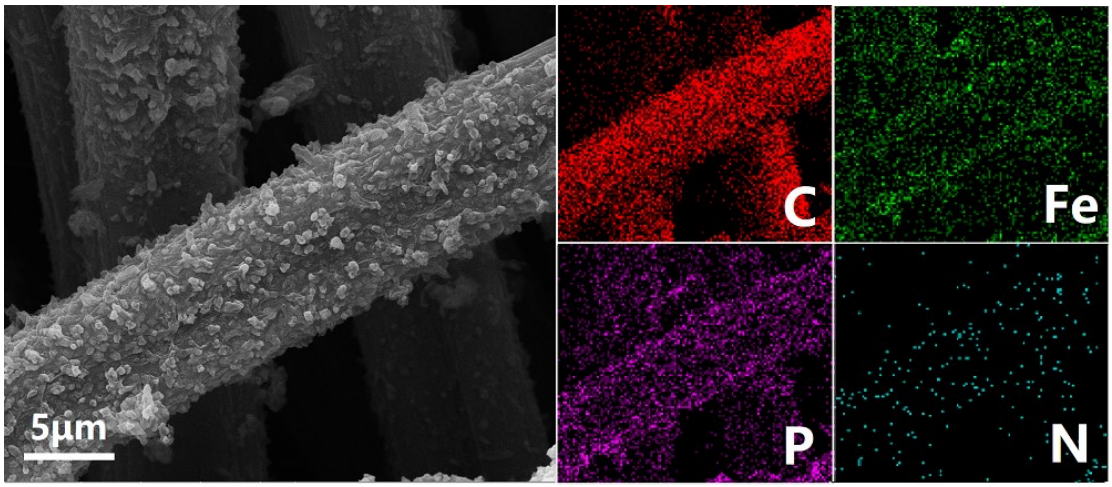

Figure S4. FESEM image and the corresponding EDX elemental mapping images of FeP/NC@CC.

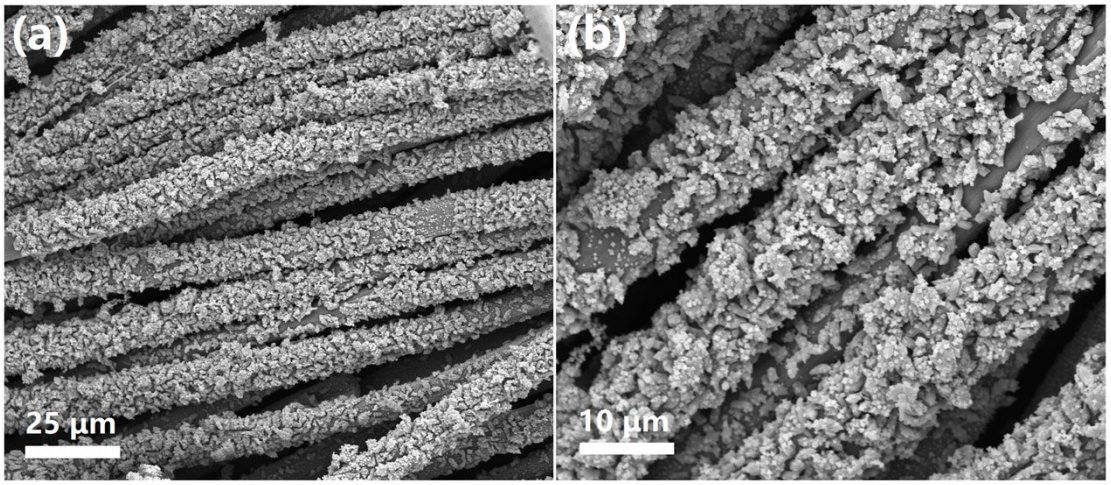

Figure S5. FESEM images of the FeP/NC@CC using CC without acid treatment.

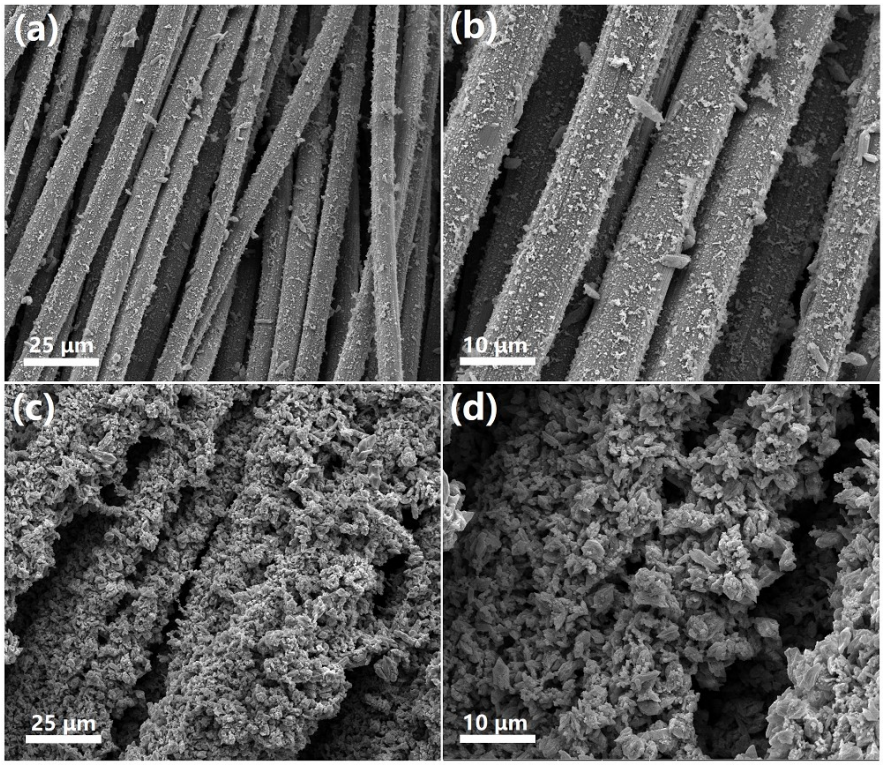

Figure S6. FESEM images of (a, b) FeP/NC@CC-1 and (c, d) FeP/NC@CC-2.

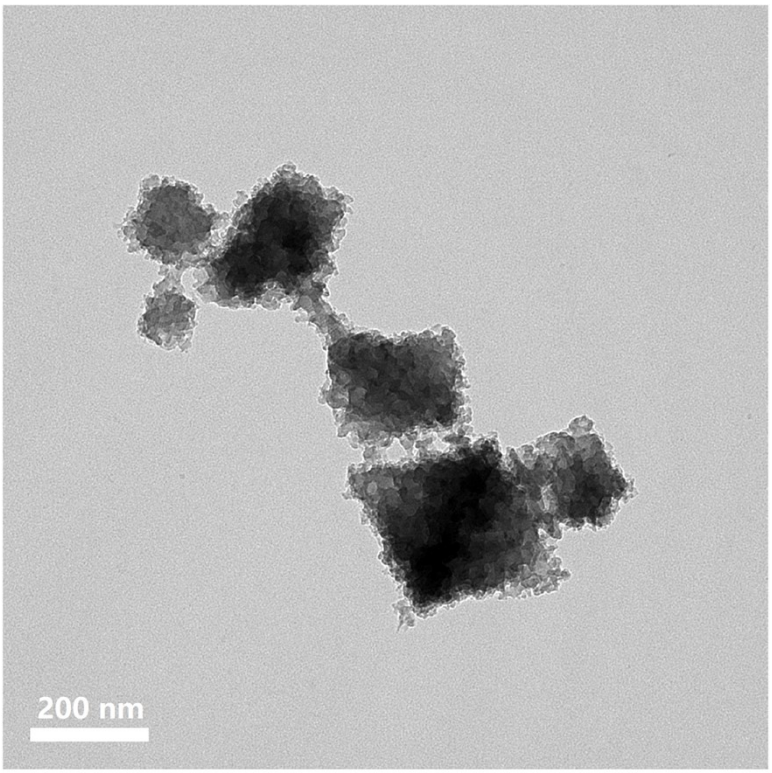

Figure S7. TEM image of the NH_2-MIL-101(Fe) precursor.

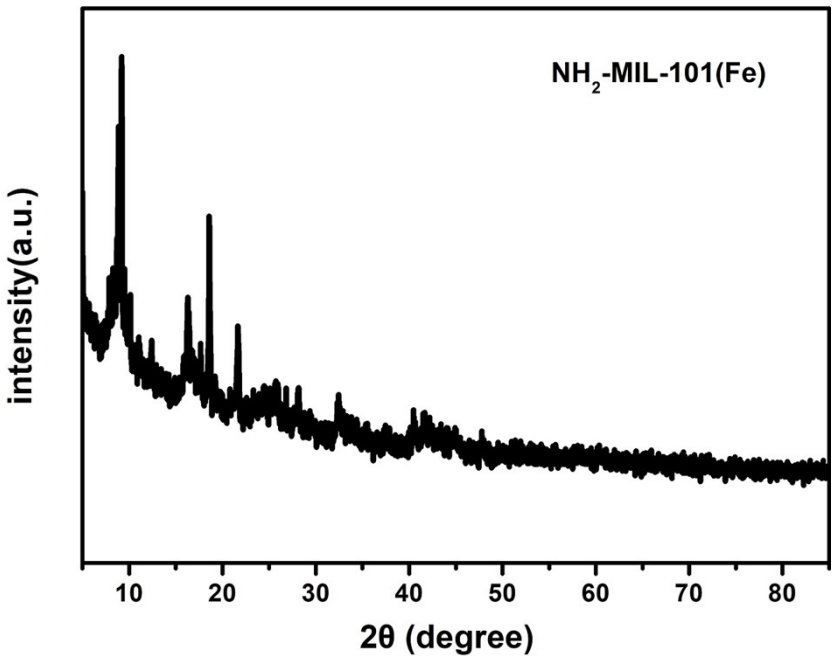

Figure S8. XRD pattern of the NH_2-MIL-101(Fe).

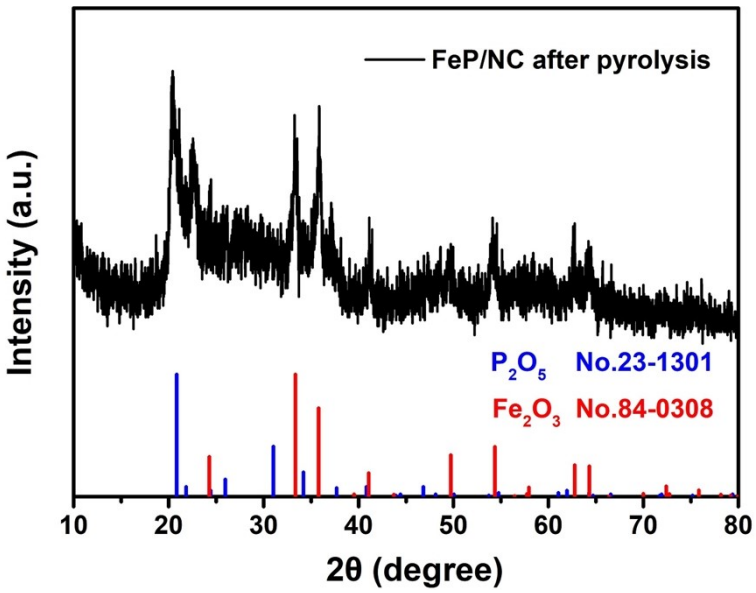

Figure S9. XRD pattern of the FeP/NC after calcination.

The XRD result indicates that the calcination products of FeP/NC are Fe_2O_3 and P_2O_5, which is consistent with previous reports.[1-3] According to study, the mass of pure FeP will increase by 26% after calcination, while the mass loss of FeP/NC is caused by the consumption of NC.[2,3] Therefore, we set the total mass of FeP/NC as 1, and the mass of FeP as x. After calcination, the NC was removed, the products are Fe_2O_3 and P_2O_5 with a mass of $1.26x$. According to TGA result (**Figure 3c**), the mass of products is 1-32.2%, that is, $1.26x$ = 1-32.2%, x = 0.538.

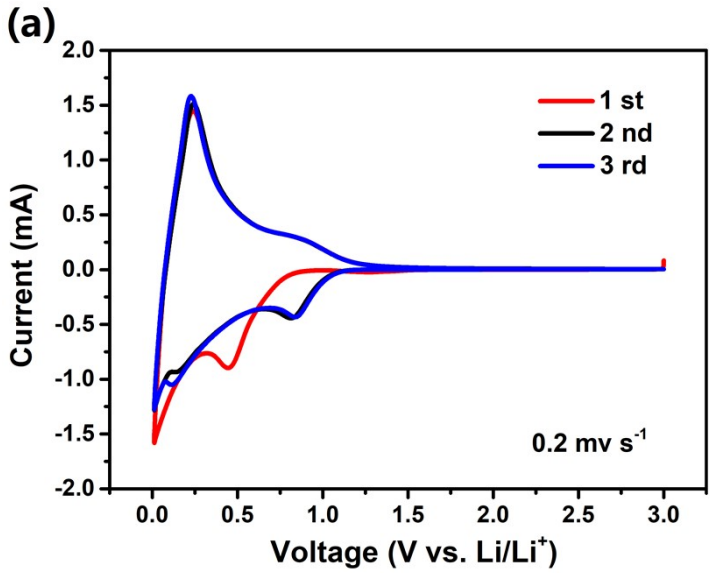

Figure S10. CV curves of pristine CC at the 0.2 mV s^{-1}.

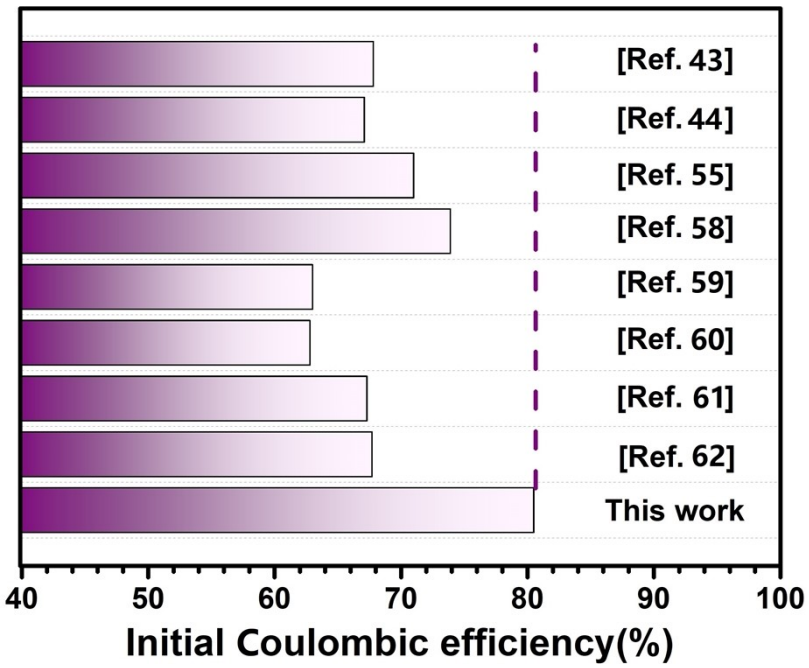

Figure S11. Comparison of the initial Coulombic efficiency of the FeP/NC@CC with those of other recently reported FeP-based electrodes.

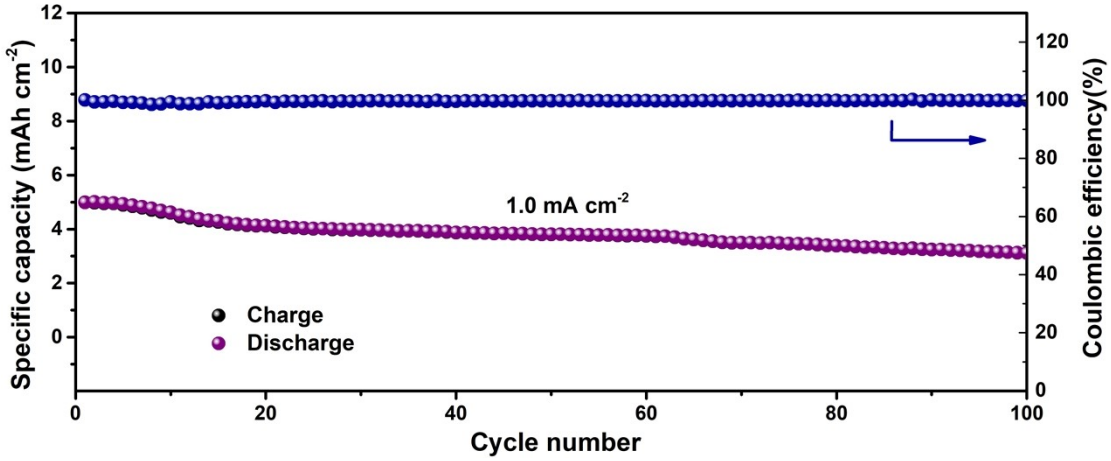

Figure S12. Cycling performance of FeP/NC@CC electrode at 1.0 mA cm^{-2}.

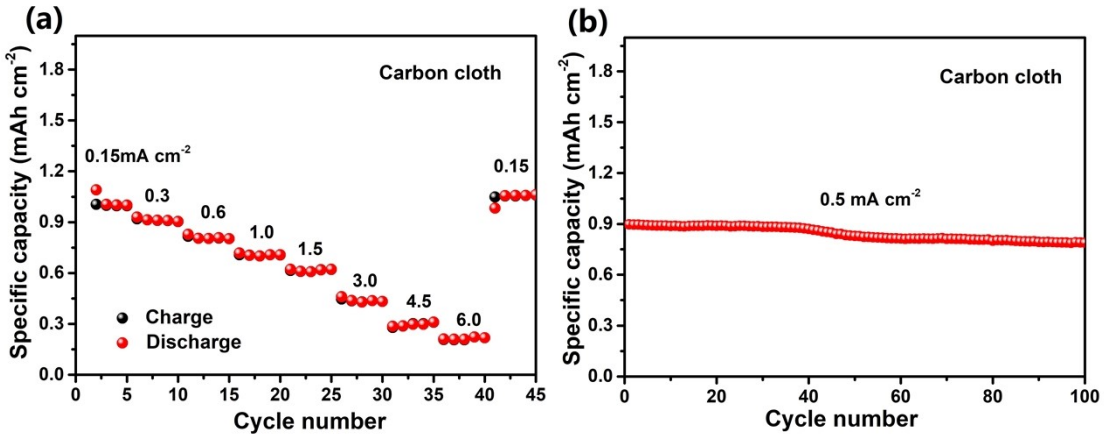

Figure S13. (a) The rate capability and (b) cycling performance of CC.

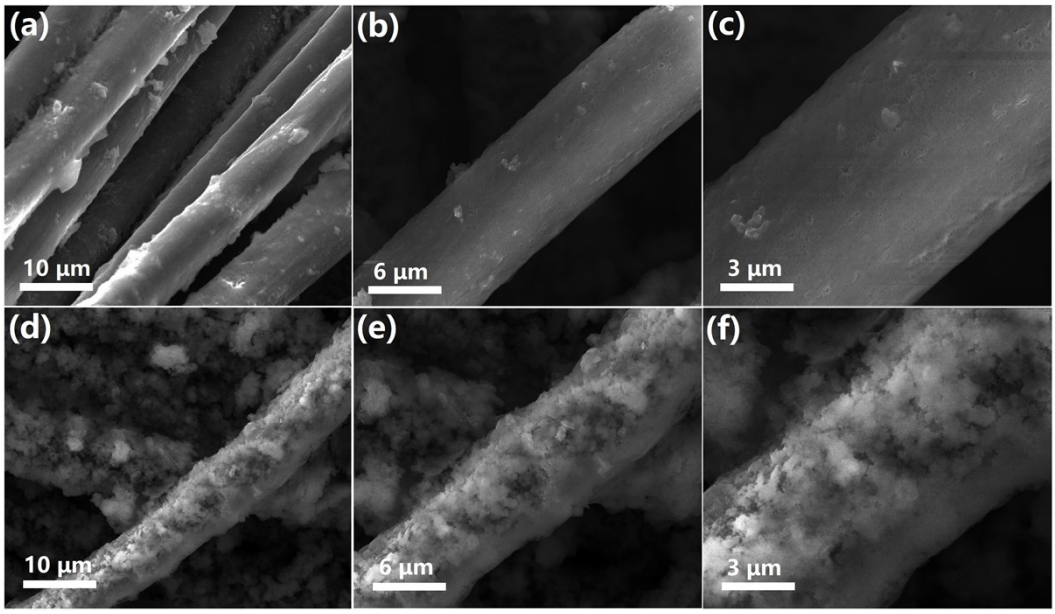

Figure S14. FESEM images of (a-c) FeP/NC@CC electrode and (d-f) FeP/NC@CC electrode using CC without acid treatment after 100 cycles.

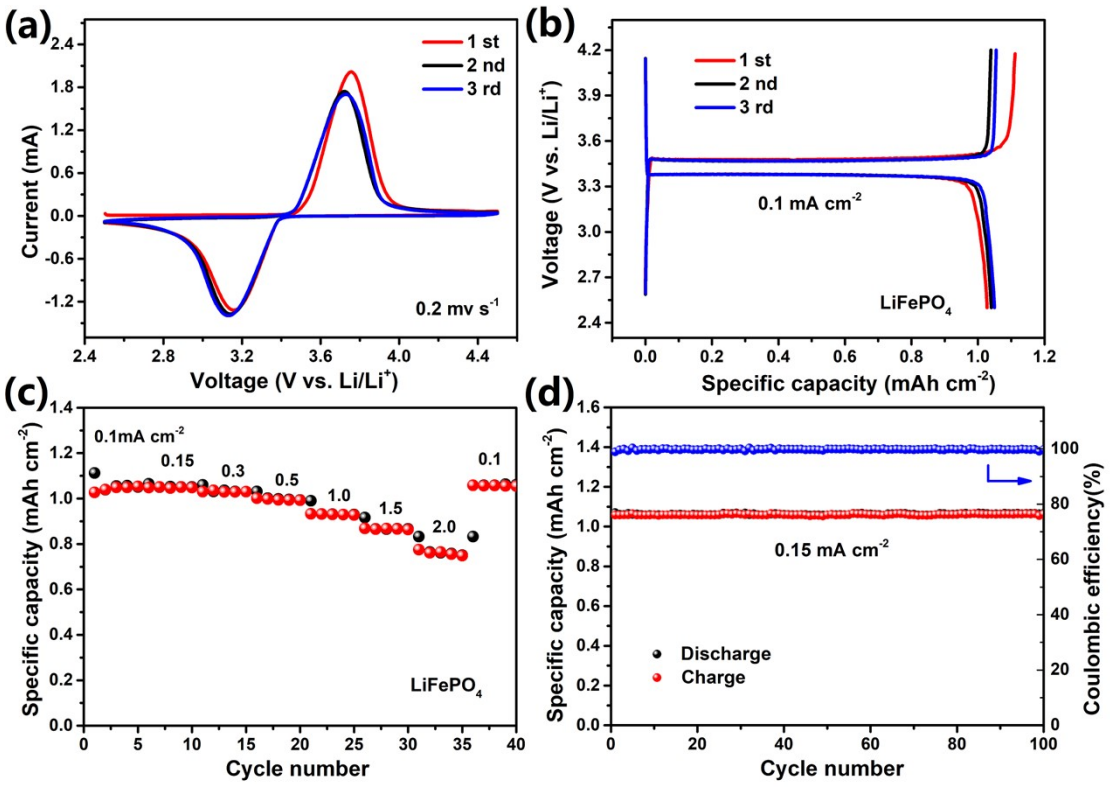

Figure S15. Electrochemical performance of the $LiFePO_4$ electrode. (a) CV curves at 0.2 mV s^{-1}, (b) galvanostatic charge/discharge curves at 0.1 mA cm^{-2}, (c) rate capability at different rates, (d) cycle performance at 0.15 mA cm^{-2}.

Figure S16. Digital photo of FeP/NC@CC//$LiFePO_4$ full cells to light red LEDs.

References:

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2 X. Wang, K. Chen, G. Wang, X. Liu, H. Wang, *Acs Nano*, 2017, **11**, 11602-11616.

3 P. Zhu, Z. Zhang, S. Hao, B. Zhang, P. Zhao, J. Yu, J. Cai, Y. Huang, Z. Yang, *Carbon*, 2018, **139**, 477-485.