

## Supplementary Information

### **Well-dispersed FeNi nanoparticles embedded in N-doped carbon nanofibers membrane as self-supporting and binder-free anode for lithium-ions batteries**

Xiaoqiang Li <sup>a,b</sup>, Guangguang Guan <sup>c,d</sup>, Bingjie Cheng <sup>a</sup>, Xueke Zhang <sup>a</sup>, Kaiyin Zhang <sup>e</sup>, Jun Xiang <sup>a,\*</sup>

<sup>a</sup> School of Science, Jiangsu University of Science and Technology, Zhenjiang 212100, PR China

<sup>b</sup> Institute of Materials Science and Engineering, Beijing University of Technology, Beijing 100124, PR China

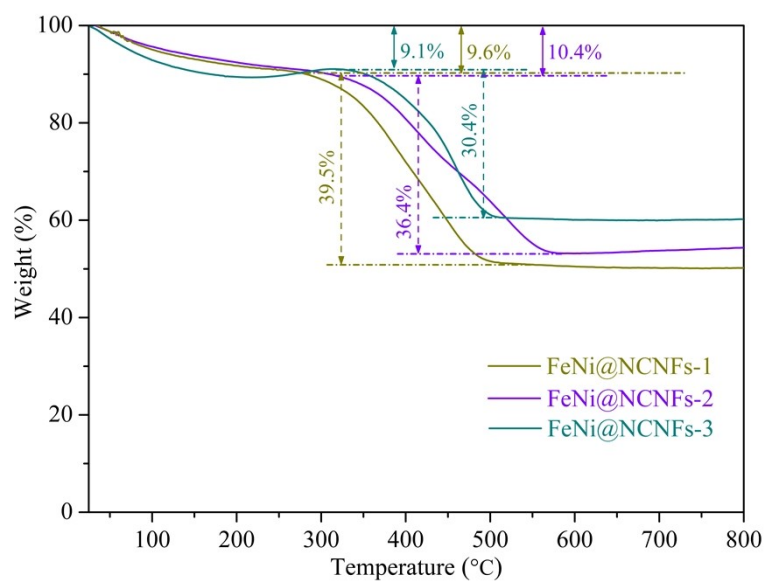
<sup>c</sup> Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang, 110016, PR China

<sup>d</sup> School of Materials Science and Engineering, University of Science and Technology of China, Shenyang, 110016, PR China

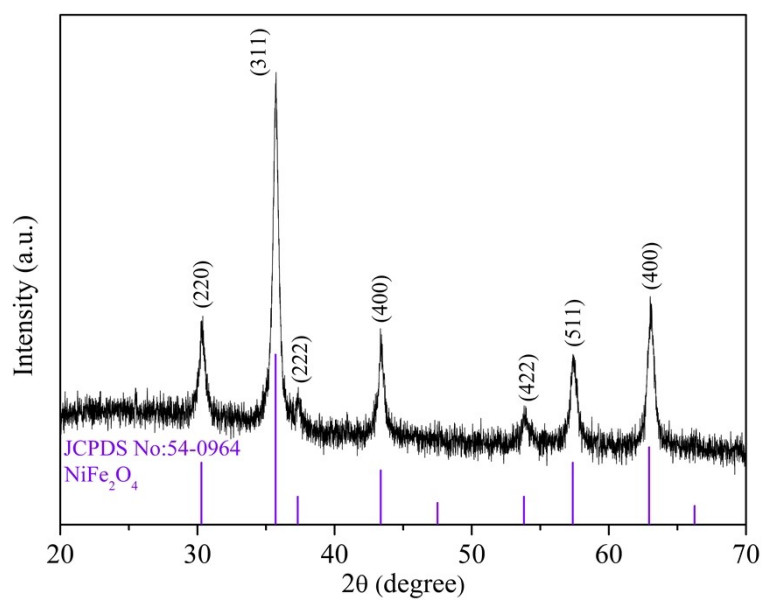
<sup>e</sup> College of mechanical and electrical engineering, Wuyi University, Wuyishan 354300, PR China

\* Corresponding author.

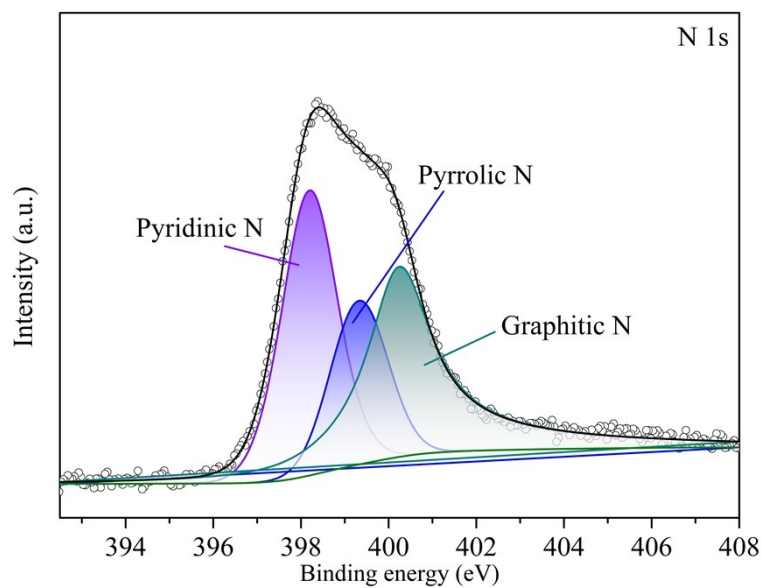
E-mail address: jxiang@just.edu.cn (J. Xiang).



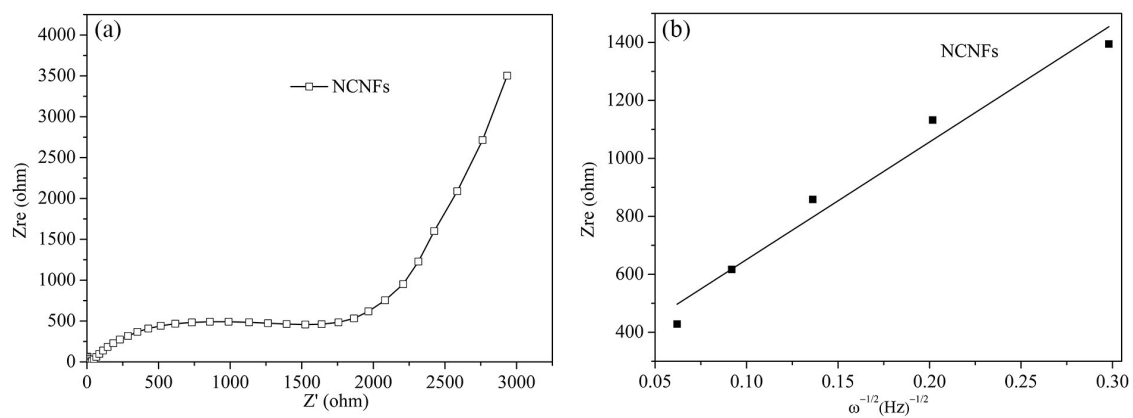
**Fig. S1.** TG curves of FeNi@NCNFs-1, FeNi@NCNFs-2 and FeNi@NCNFs-3.



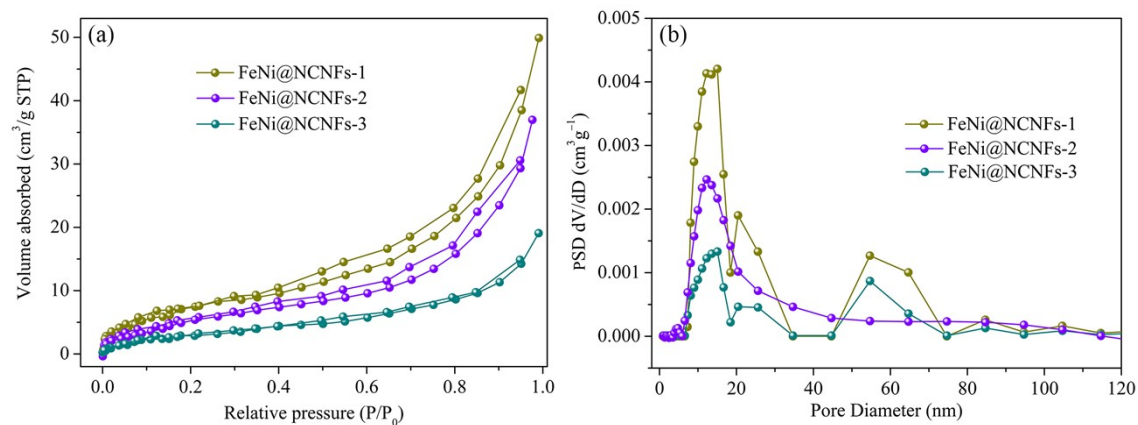
**Fig. S2.** XRD pattern of the residue after TG test of FeNi@NCNFs-2.



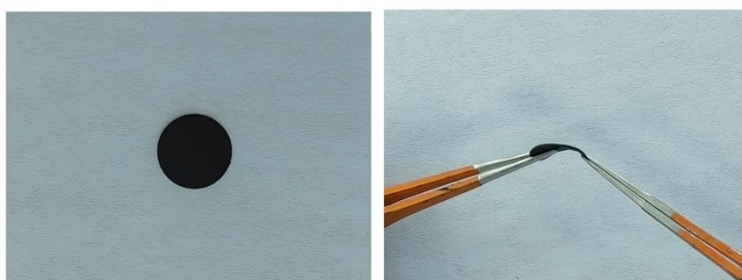
**Fig. S3.** High-resolution XPS spectra of N 1s.



**Fig. S4.** (a) Impedance spectra and (b)  $Z_{re}$  (real part of impedance) vs.  $\omega^{-1/2}$  plot in the frequency range for the NCNFs electrode.



**Fig. S5.** (a) Nitrogen adsorption-desorption isotherms and (b) pore size distributions of FeNi@NCNFs-1, FeNi@NCNFs-2 and FeNi@NCNFs-3.



**Fig. S6.** Digital photo and bending test.