Supporting Information

An Economic and Scalable Approach to Synthesize High Power LiFePO₄/C

Nanocomposites from Nano-FePO₄ Precipitated from an Impinging Jet Reactor

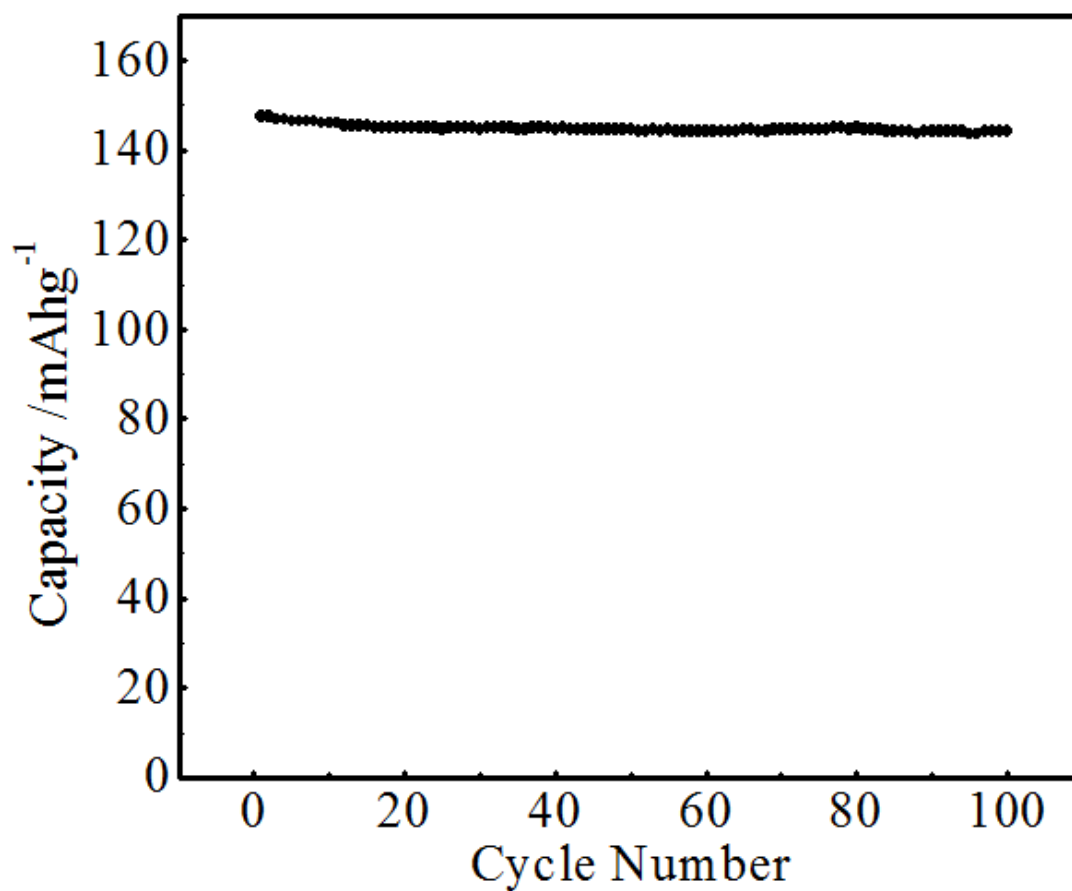Peng Yan, Lei Lu, Xiao-min Liu[*], Yin Cao, Zhi-peng Zhang, Hui Yang[*] and Xiao-dong Shen

College of Materials Science and Engineering, Nanjing University of Technology, Nanjing, Jiangsu, 210009,
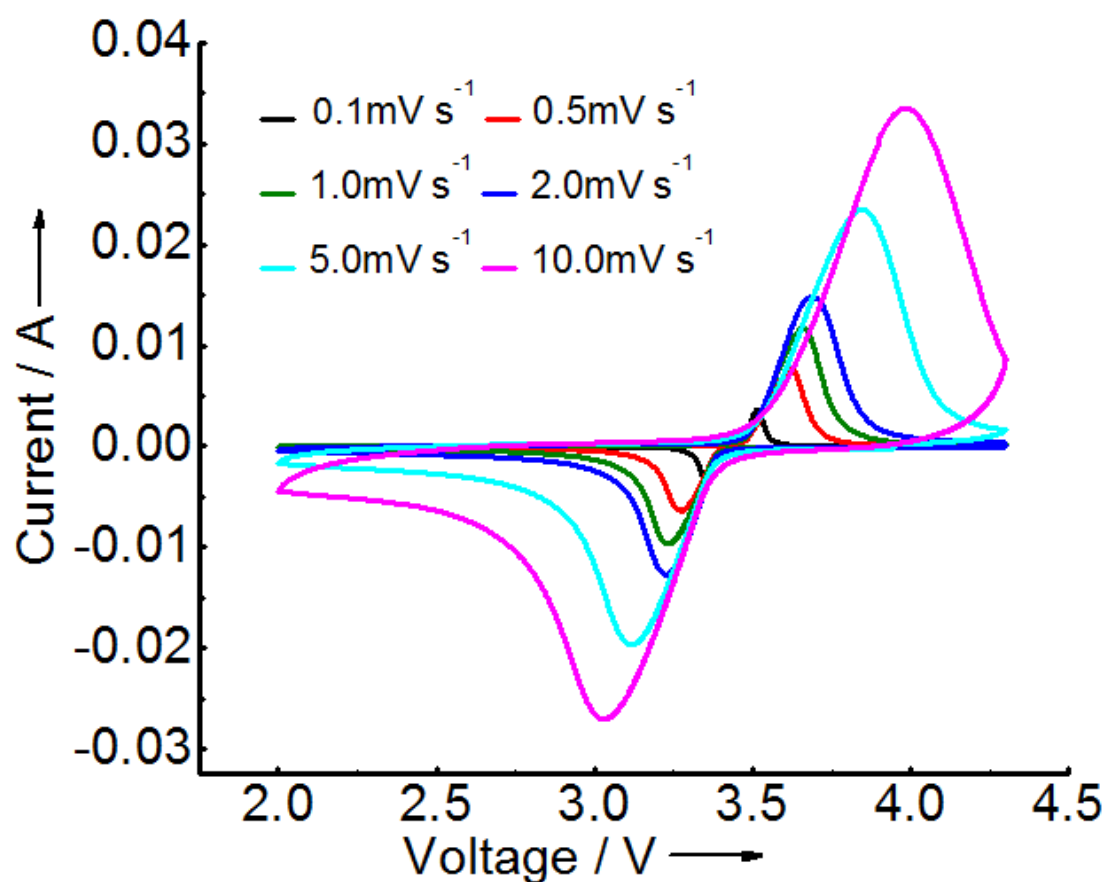
China

[*] Corresponding authors. *E-mail address*: liuxm@njut.edu.cn (Xiao-Min Liu); yanghui@njut.edu.cn (Hui Yang)

Fig. s1 The cycling profile of LFP/C composites resulting from the precursors containing 17% glucose tested at a current density of 10C.

Figure s2. Cyclic voltammetry tests at different scan rates in the potential window 2.0-4.3 V (vs. Li^+/Li)

The cyclic voltammetry curve scanned at 0.1 mVs^{-1} reveals redox peaks centering at 3.52 V and 3.35 V vs. Li^+/Li, corresponding to Li^+ extraction and insertion processes, respectively. With the increase of the scan rate, the anodic peak shifts to high potential while the cathodic peak shifts to low potential, accompanied by the increase of the peak currents (i_p). The cathodic peak currents slightly lower than the anodic peak currents suggests the slightly kinetics difference between Li^+ insertion and extraction.
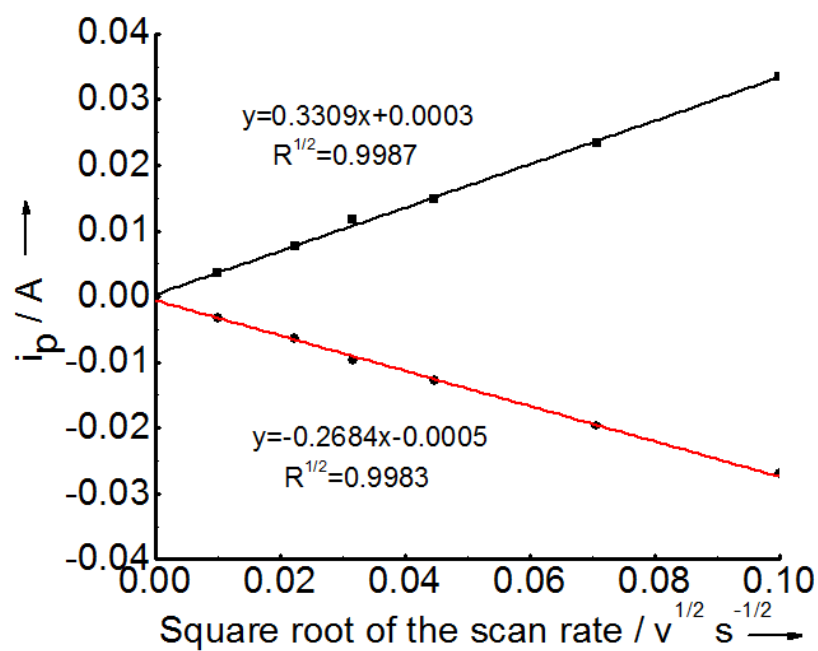
Figure s3. The half-order dependence of i_p on v

The half-order dependence of i_p on v suggests the reversible lithiation and delithiation processes are under semi-infinite diffusion control for the entire range of scan rates.[s5-s7] The diffusion coefficients calculated from the slope of i_p vs $v^{1/2}$ are 3.0×10^{-12} $cm^2 s^{-1}$ and 1.96×10^{-12} $cm^2 s^{-1}$ for delithiation and lithiation processes, respectively.