

**Table S1** The mass of HNTs before and after HCl treatment.

HCl concentration (M)	Mass before HCl treatment (g)	Mass after HCl treatment (g)	Mass reduction rate (%)
0.4	1.30	1.13	13%
0.8	1.30	0.99	24%
1.2	1.30	0.83	36%
4	1.30	0.60	54%
6	1.30	0.60	54%
8	1.30	0.60	54%

**Table S2** The loading of  $\text{LiFePO}_4$  in each cell assembled with PP and PP/HNTs composite separators.

Samples	Loading in rate performance ( $\text{mg cm}^{-2}$ )	Loading in cycling performance ( $\text{mg cm}^{-2}$ )
PP	3.91	3.96
PP/HNTs-0 M	3.91	4.20
PP/HNTs-0.4 M	4.65	4.45
PP/HNTs-0.8 M	3.85	3.84
PP/HNTs-1.2 M	3.72	3.86
PP/HNTs-4 M	3.84	3.65