

Supporting Information

Structural Design Enabled a Hypotoxic $\text{Na}_{3.36}\text{FeV}(\text{PO}_4)_3$ Cathode With Ultra-fast and Ultra-long Sodium Storage

Li-Ming Zhang^a, Kuo Cao^a, Shuo Wang^a, Fei Chen^a, Jie-Min Dong^a, Nai-Qing Ren^a,
Yi-Xuan Li^a, Zhao-Yin Wen^b, Chun-Hua Chen^{a,*}

^aCAS Key Laboratory of Materials for Energy Conversions, Department of Materials
Science and Engineering & Collaborative Innovation Center of Suzhou Nano Science
and Technology, University of Science and Technology of China, Anhui Hefei 230026,
China

^bKey Laboratory of Energy Conversion Laboratory, Shanghai Institute of Ceramics,
Chinese Academy of Sciences, Shanghai 200050, China

E-mail: cchchen@ustc.edu.cn

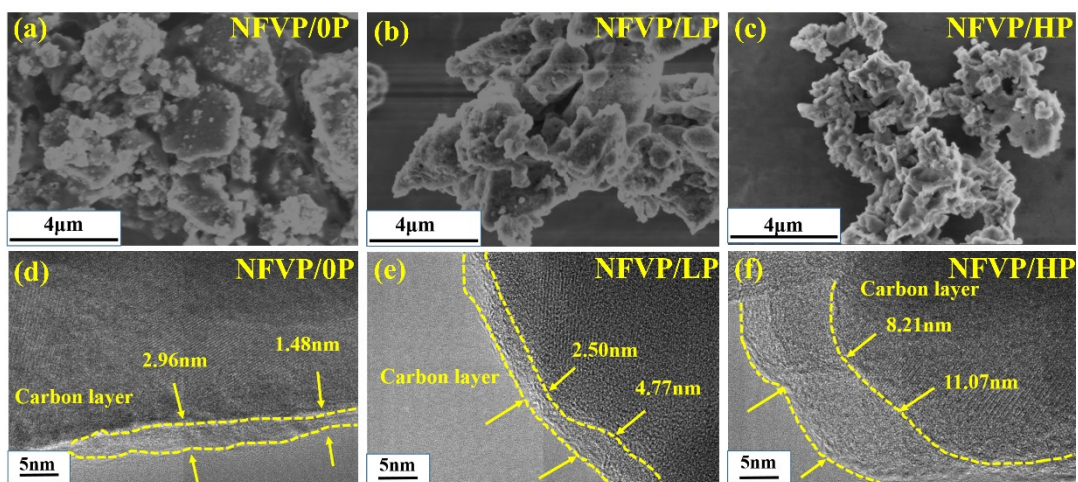


Figure S1 SEM and HRTEM images of NFVP/0P (a, d), NFVP/LP (b, e) and NFVP/HP (c, f).

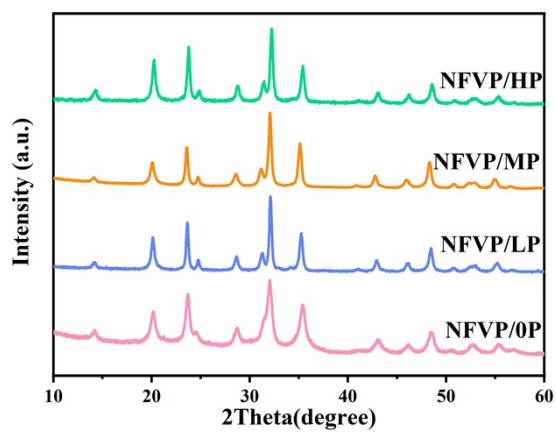


Figure S2 XRD of NFVP with different carbon content.

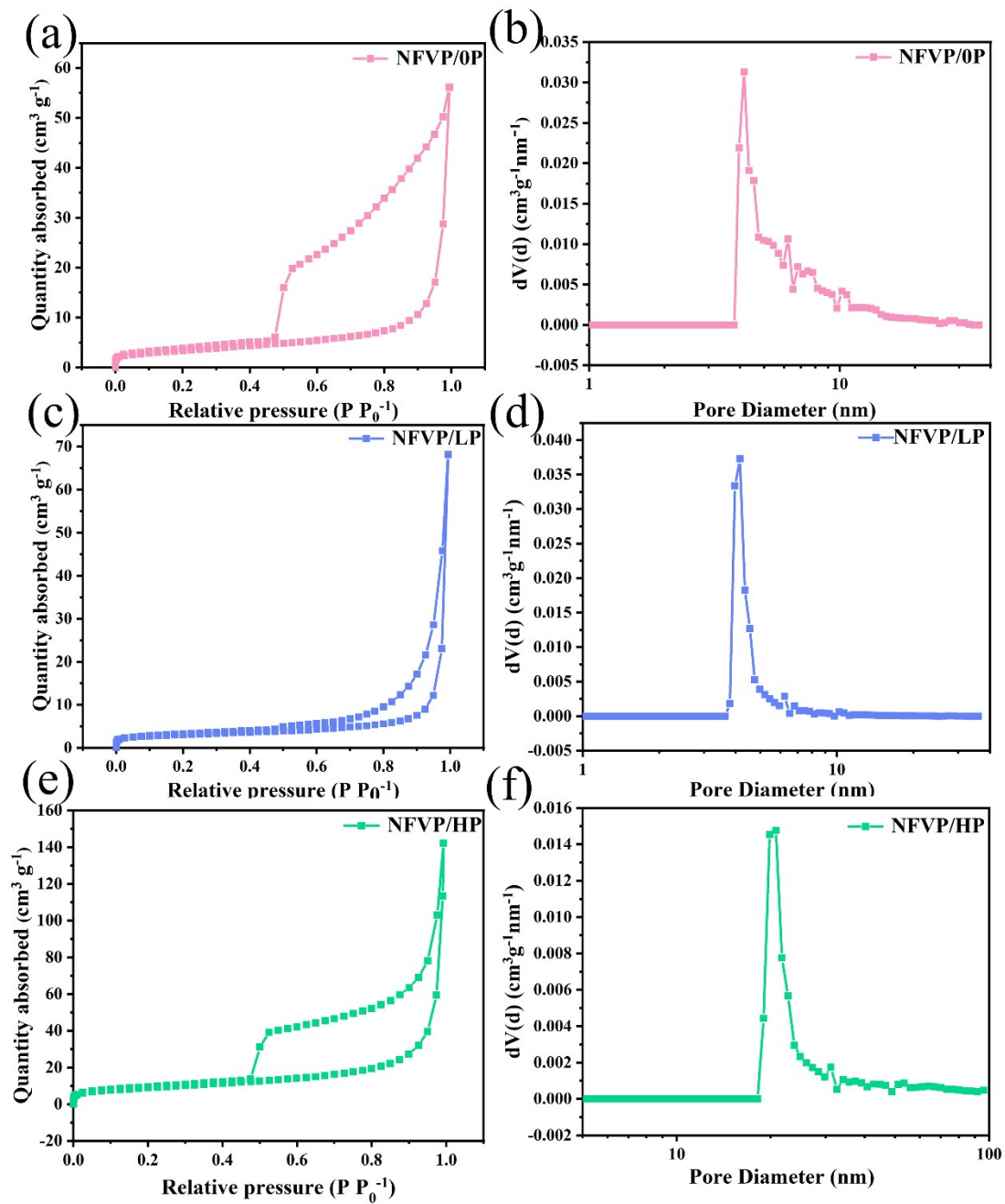


Figure S3 Nitrogen adsorption/desorption isotherms of NFVP/0P (a), NFVP/LP (c), NFVP/HP (d) and pore size distribution of NFVP/0P (b), NFVP/LP (d), NFVP/HP (f).

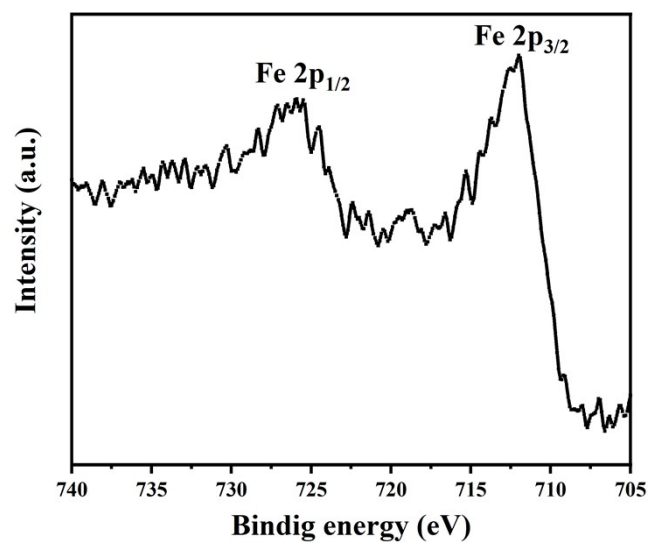


Figure S4 XPS survey spectrum of Fe 2p.

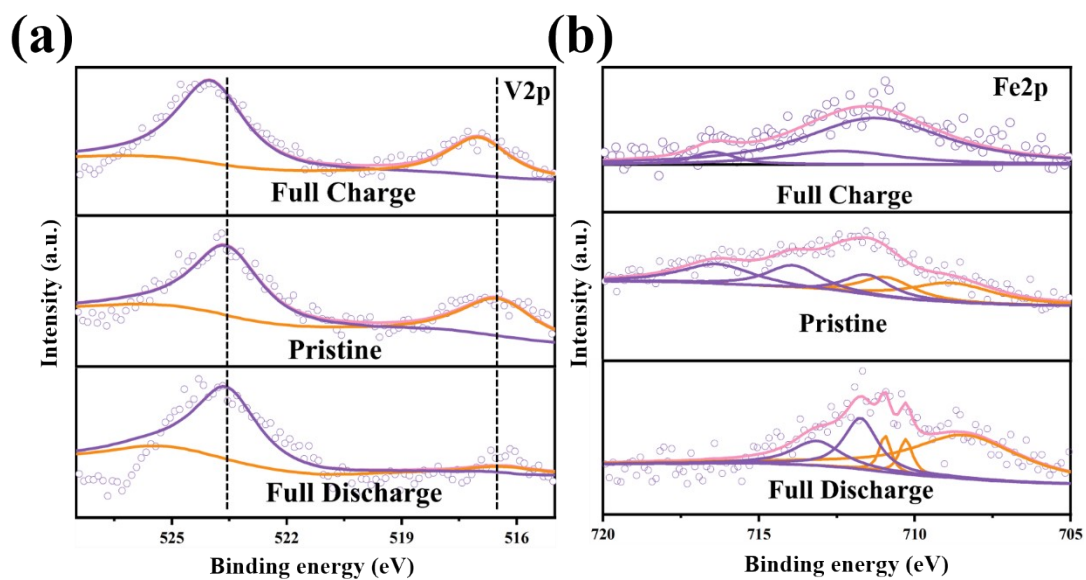


Fig. S5 V2p (a) and Fe2p (b) core levels for raw sample and fully charged and discharged electrodes.

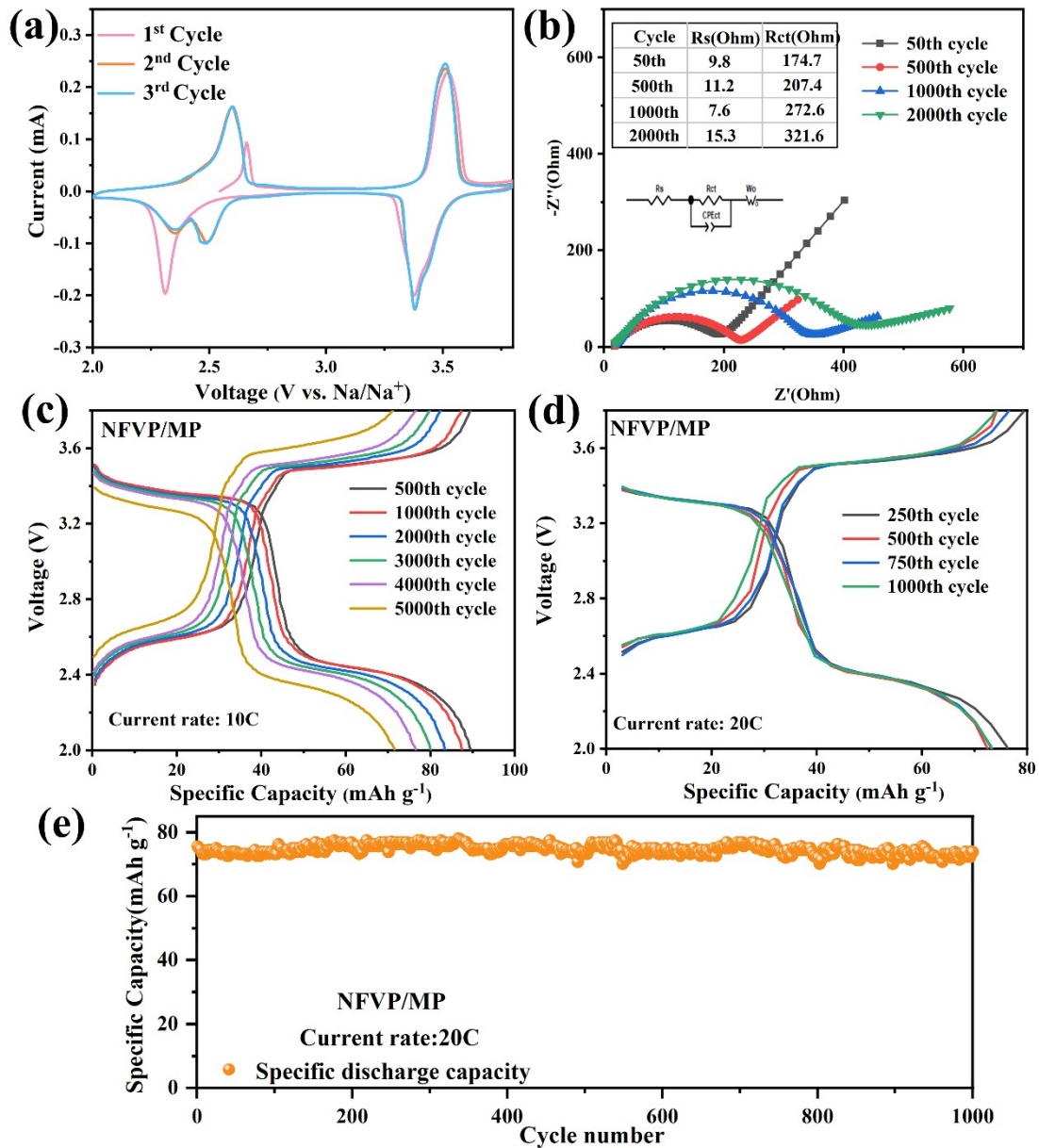


Figure S6 The electrochemical performance of Na/NFVP half-cells: CV curves at 0.1 mV s⁻¹ (a), EIS spectra after different cycles (b), charge-discharge curves at different cycles at 10C (c) and 20C(d), cycling performance at 20C (e).

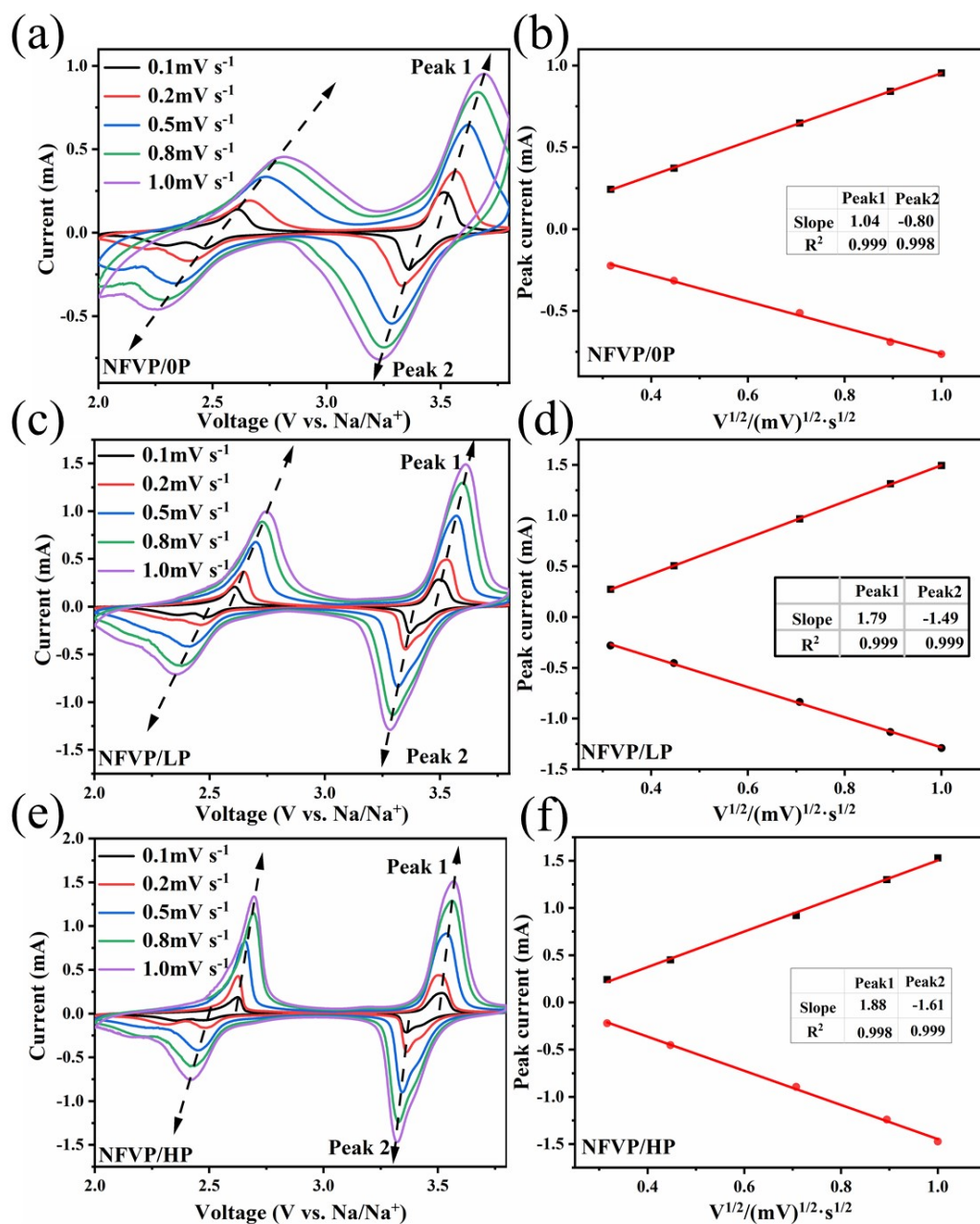


Figure S7 CV curves of NFVP/OP, NFVP/LP and NFVP/HP at various sweep rates (a, c, e) and the relationships of NFVP/OP, NFVP/LP and NFVP/HP between the I_p and $v^{1/2}$ (b, d, f).

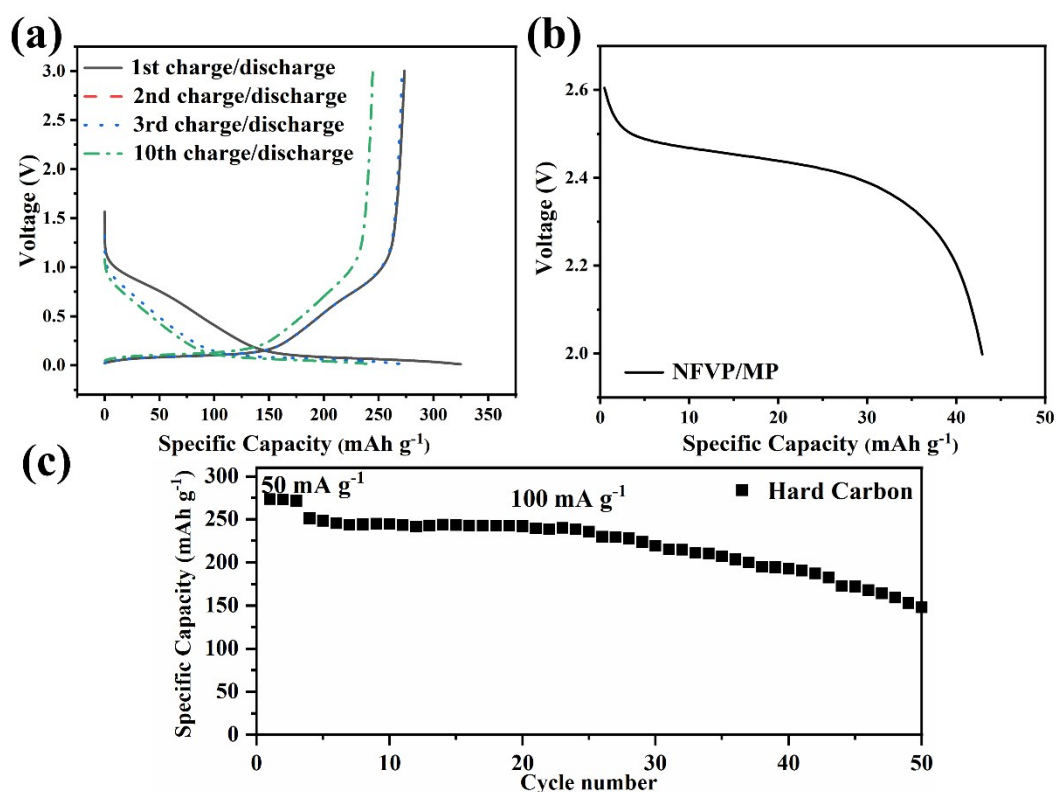


Figure S8 The charge/discharge profiles (a) and cycling performance of HC (c), the discharge profile of NFVP/MP (b).

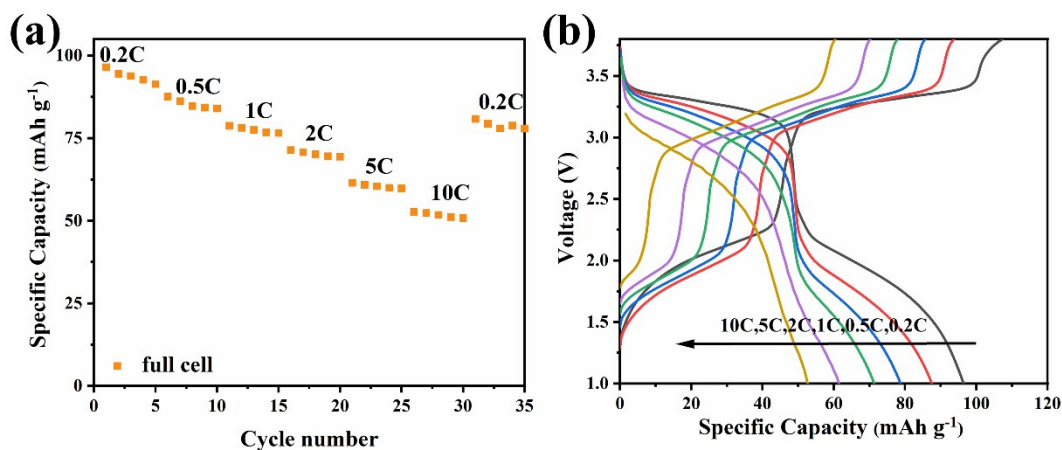


Figure S9 The NFVP/MP//HC full cell : rate performance (a) and initial charge-discharge profiles at various rates (b).

Table S1 The fitting parameter of Fe²⁺ and Fe³⁺ components in NFVP.

NFVP	Peak1 (eV)	Area (%)	Peak2 (eV)	Area (%)	Peak3 (eV)	Area (%)
Fe ²⁺	710.1	5.44	710.9	20.78	-	-
Fe ³⁺	711.9	28.25	712.7	20.93	713.8	23.3