# Designed stabilized covalent interfacial coupling of $Li_3V_2(PO_4)_3$ with carbon framework for boosting lithium storage kinetics

Donglei Guo[a], Mengmeng Yang[a], Mengke Yang[a], Taixin Yang[a], Guobin Hu[b], Huigen Liu[b], Guilong Liu[a], Naiteng Wu[a], Aimiao Qin[b,*] and Xianming Liu[a,*]

[a] Key Laboratory of Function-oriented Porous Materials, College of Chemistry and Chemical Engineering, Luoyang Normal University, Luoyang, 471934, P. R. China.
*Email: myclxm@163.com

[b] Key Laboratory of New Processing Technology for Nonferrous Metal & Materials, Ministry of Education/Guangxi Key Laboratory of Optical and Electronic Materials and Devices, Guilin University of Technology, Guilin 541004, China
*Email: 2005032@glut.edu.cn

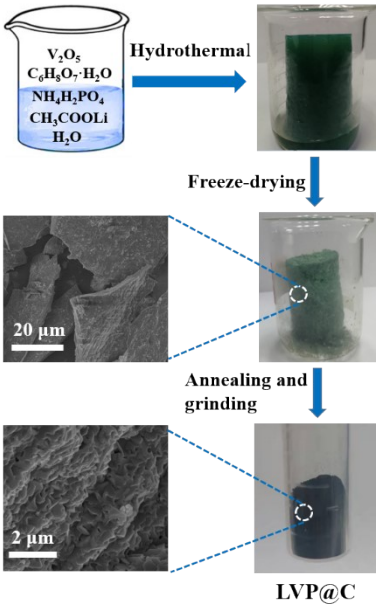


**Fig. S1** Digital photographs and FESEM images of hydrothermal synthesis materials and LVP@C.

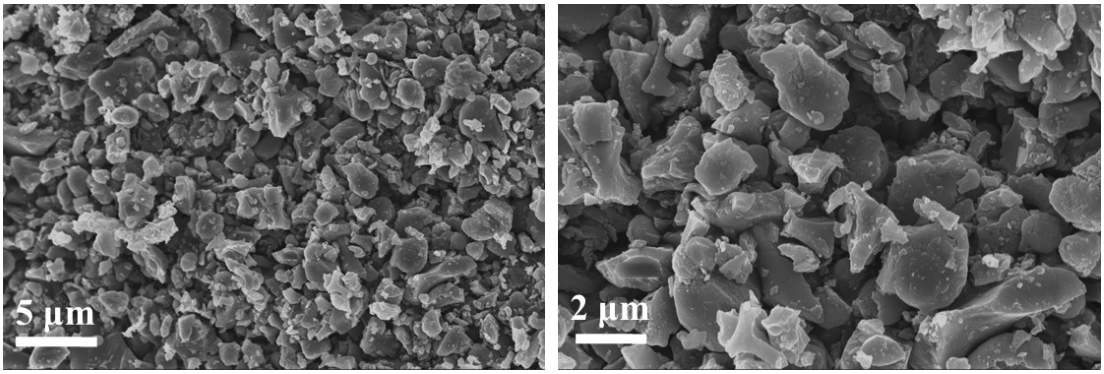


**Fig. S2** FESEM images of LVP@Glu.

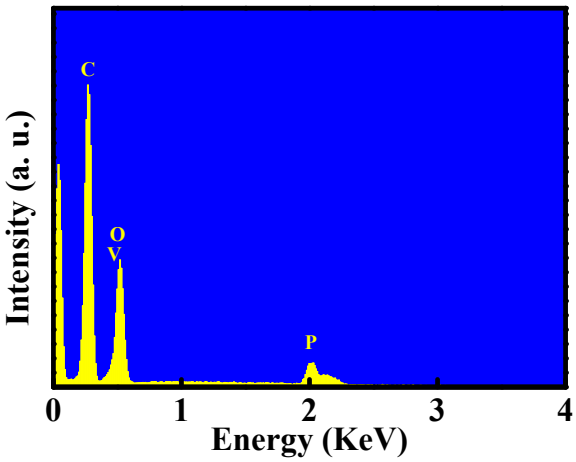


**Fig. S3** EDS spectrum of LVP@C.

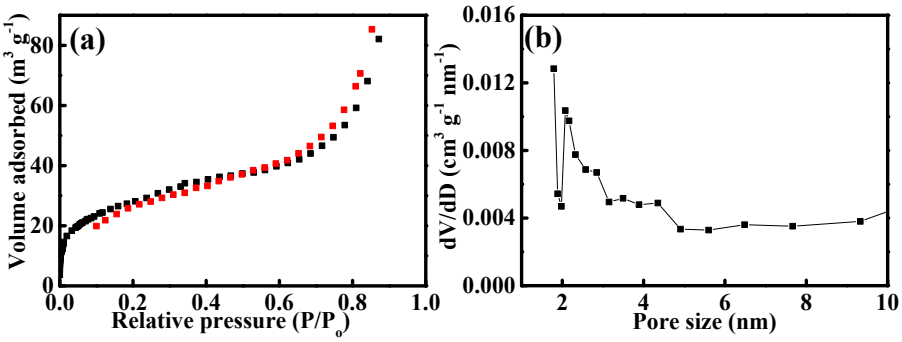


**Fig. S4** $N_2$ adsorption-desorption isotherm (a) and pore size distribution (b) of LVP@C according to the NLDFT model.

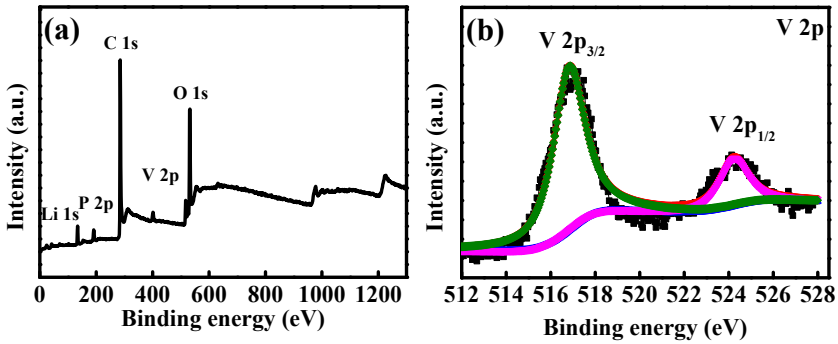


**Fig. S5** (a) XPS curve of survey spectrum of LVP@C; (b) The high-resolution spectrum of V 2p.

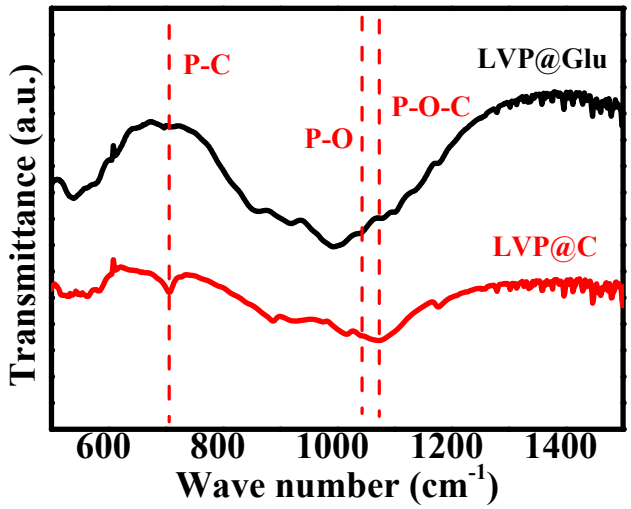


**Fig. S6** The FTIR spectra curves of LVP@C and LVP@Glu.

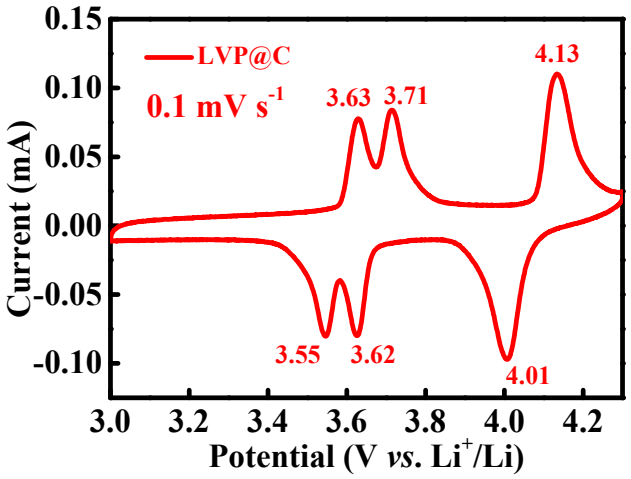


**Fig. S7** CV curves of LVP@C at a scan rate of 0.1 mV $s^{-1}$

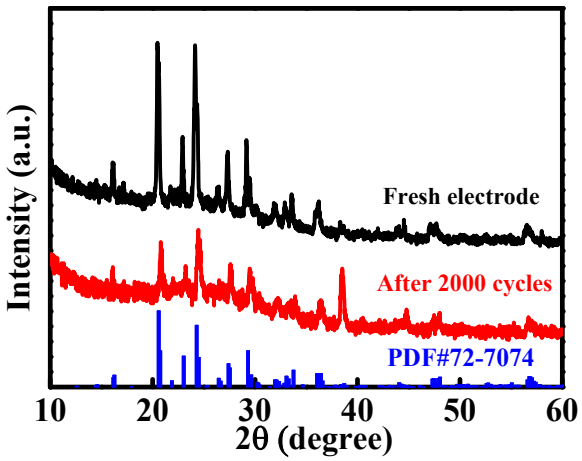


**Fig. S8** XRD patterns of LVP@C electrode (fresh and after 2000 cycles).