

## Supplementary Information

### Enhanced electrochemical properties of $\text{LiFePO}_4$ by Mo-substitution and graphitic carbon-coating via a facile and fast microwave-assisted solid-state reaction

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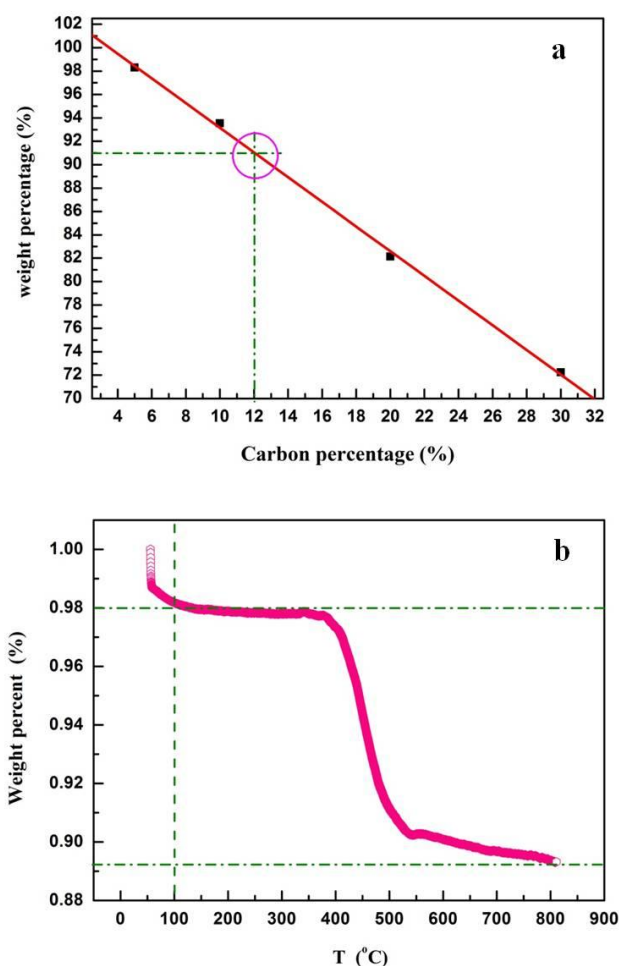
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Considering the oxidation of iron at high temperature in air, a calibration curve is needed to accurately evaluate the carbon content in Mo-doped  $\text{LiFePO}_4/\text{C}$  samples. In order to obtain the calibration curve, TGA was carried out on  $\text{LiFePO}_4/\text{C}$  mixtures with certain known  $\text{LiFePO}_4/\text{C}$  ratios (carbon ratios of 5, 10, 20 and 30%, respectively), with the carbon obtained by pyrolyzing citric acid under the same conditions. The calculated calibration curve is shown in Fig. S1(a). Then, TGA was conducted on the as-prepared Mo doped  $\text{LiFePO}_4/\text{C}$  nanocomposites. The percentage value of the mass loss was taken from the TGA curve (Fig. S1(b)) and can be

converted into the real content of carbon in the  $\text{LiFePO}_4/\text{C}$  nanocomposite according to the calibration curve. It can be seen from Fig. S1(b) that the weight loss below  $100^\circ\text{C}$  drops sharply from 100% at the starting temperature to about 98%, corresponding to the removal of moisture from the sample. Therefore, the real weight loss due to carbon burn-off for the Mo-doped  $\text{LiFePO}_4/\text{C}$  is about 9%. According to the calibration curve, we can work out that the carbon content in the Mo-doped  $\text{LiFePO}_4/\text{C}$  is about 12%.



**Fig. S1(a)** Calibration curve for weight percentage with respect to carbon percentage,

(b) TGA curve for the Mo-doped  $\text{LiFePO}_4/\text{C}$  material in air.