## **Electronic Supplementary Information (ESI)**

## Enhanced ionic conductivity in halloysite nanotubes-poly (vinylidene fluoride) electrolytes for solid-state lithium-ion batteries

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Fig. S1 DSC curves of CPEs.

The percentage of crystallinity ( $\chi_c$ ) could be obtained according to the DSC curves (Fig. S1).  $\chi_c$  of CPEs was calculated using the following equation:

$$\chi_c = \frac{\Delta H_m}{\delta \Delta H_f^*} \times 100\%$$

where  $\Delta H_m$  is the melting enthalpy of PVDF in CPEs,  $\Delta H_f^*$  is the melting enthalpy of the 100% crystalline PVDF (104.5 J g<sup>-1</sup>)<sup>1</sup> and  $\delta$  is the weight percentage of PVDF in CPEs. In this work, the crystallinity of CPEs decreases gradually with the increase of the incorporation of HNTs, indicating that the addition of HNTs will increase the amorphous region of PVDF.



Fig. S2 Raman spectra of PVDF and CPEs.



Fig. S3 SEM images and the corresponding EDX mapping images of Al, Si and F in

(a) CPE-5 and (b) CPE-10.

[1] A. Qin, X. Li, X. Zhao, D. Liu and C. He, J. Membr. Sci., 2015, 480, 1.