Supporting Information

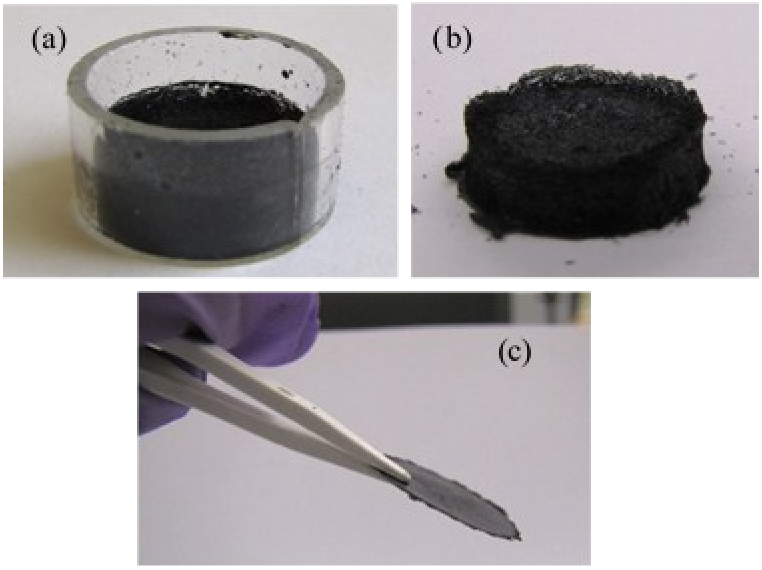

Fig. S1 Digital images of V_2O_5-CNT cryogel. (a) V_2O_5-CNT cryogel in a container obtained by freeze-drying the V_2O_5-CNT gel; (b) Free-standing V_2O_5-CNT cryogel obtained by freeze-drying of the V_2O_5-CNT nanocomposite gel; (c) Free-standing V_2O_5-CNT film obtained after pressing the cryogel.

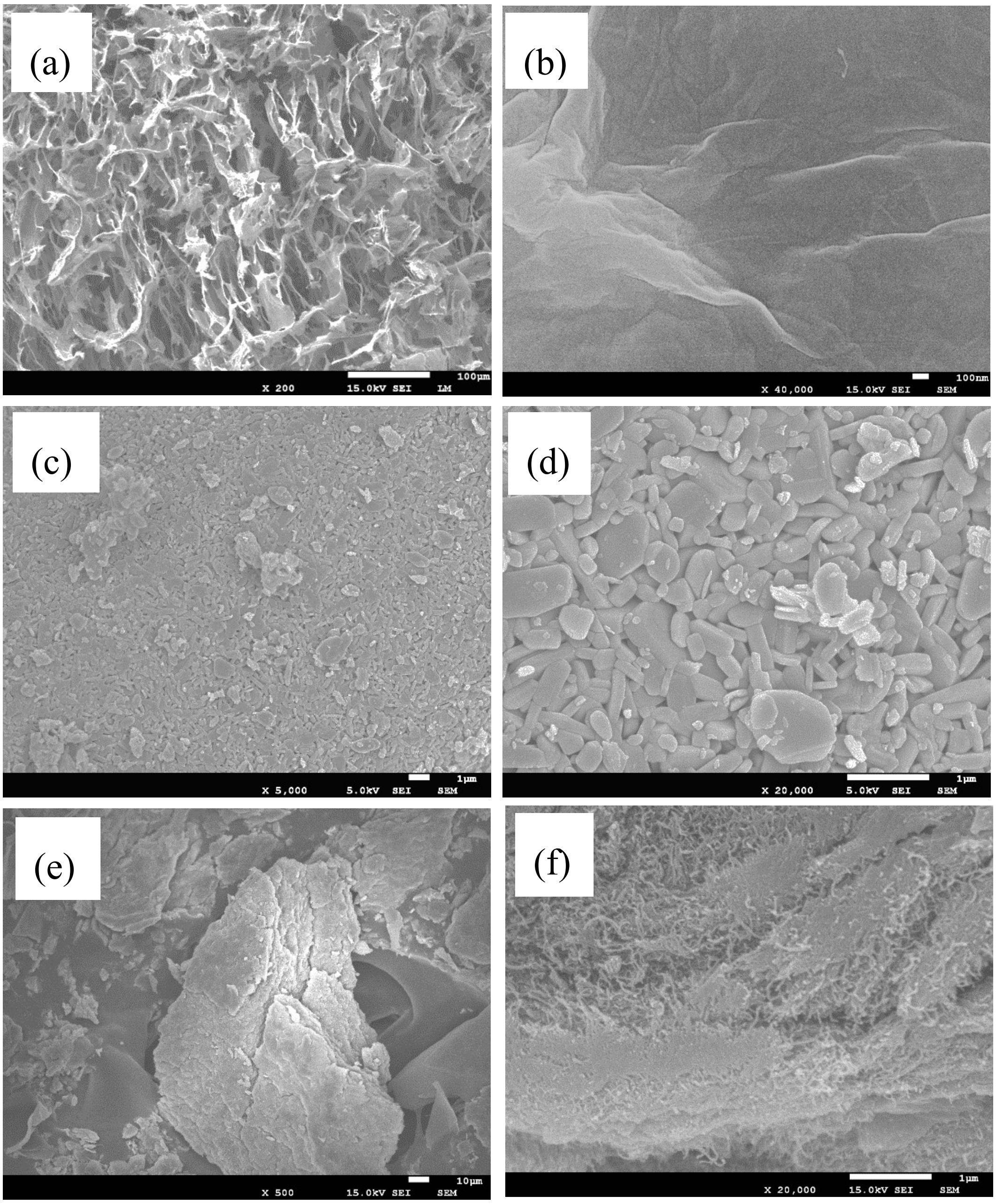

Fig. S2 SEM images of pure V_2O_5 nanosheets without CNT synthesized by ice-templating method (a, b); SEM images of the commercial V_2O_5 particles (c, d); SEM images of V_2O_5-CNT mixture synthesized without ice crystals as templates (e, f).

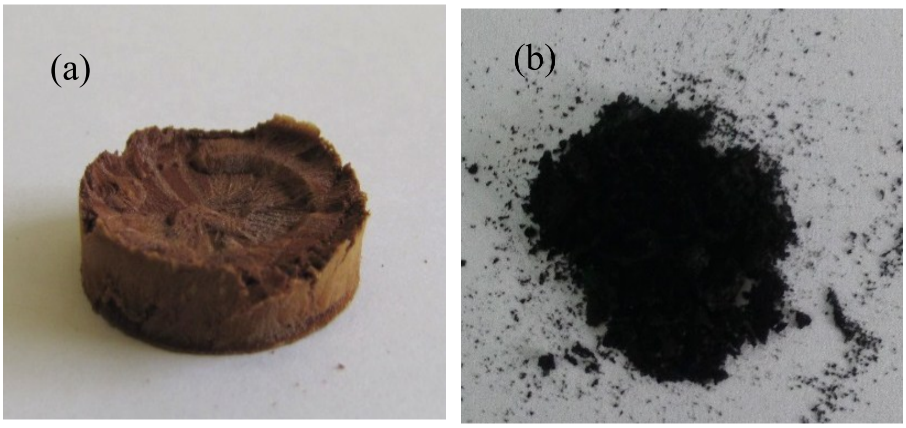

Fig. S3 Digital images of (a) Free-standing pure V_2O_5 cryogel and (b) fluffy CNT powders obtained after removing the ice templates by freeze-drying the CNT solution.

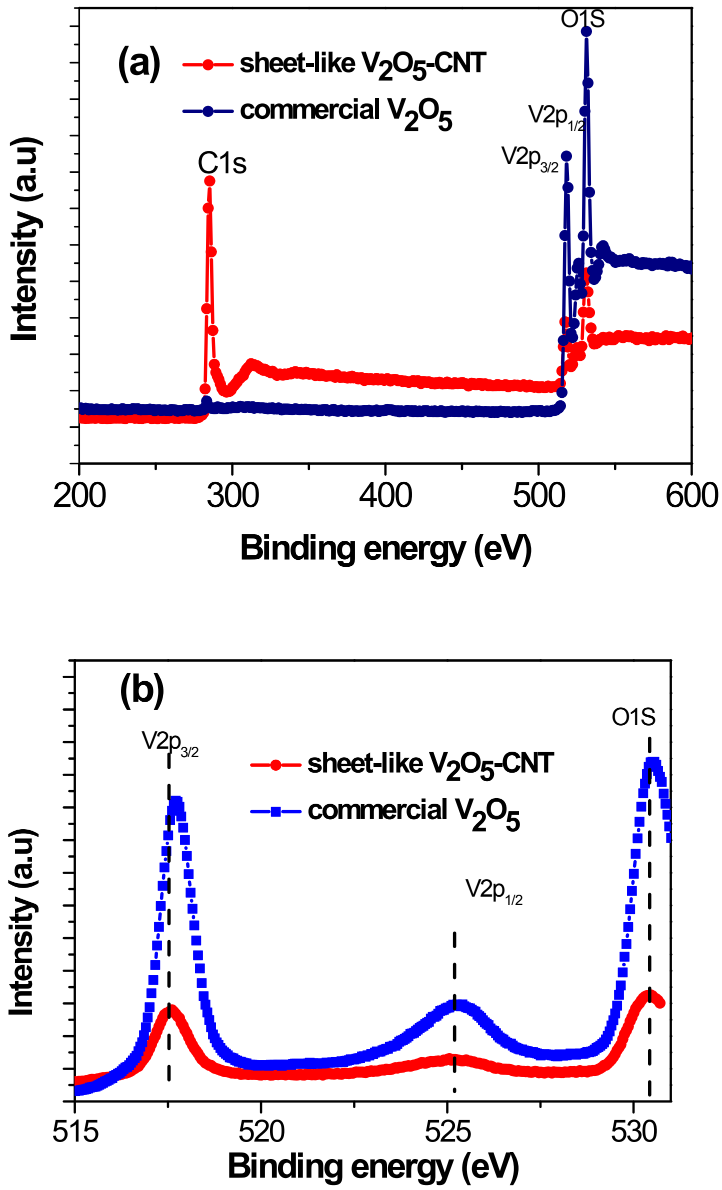

Fig. S4 XPS for sheet-like V_2O_5-CNT nanocomposite and commercial V_2O_5. (a) survey-scan and (b) High-resolution spectrum for O_{1s}, (c) V_{2p}.

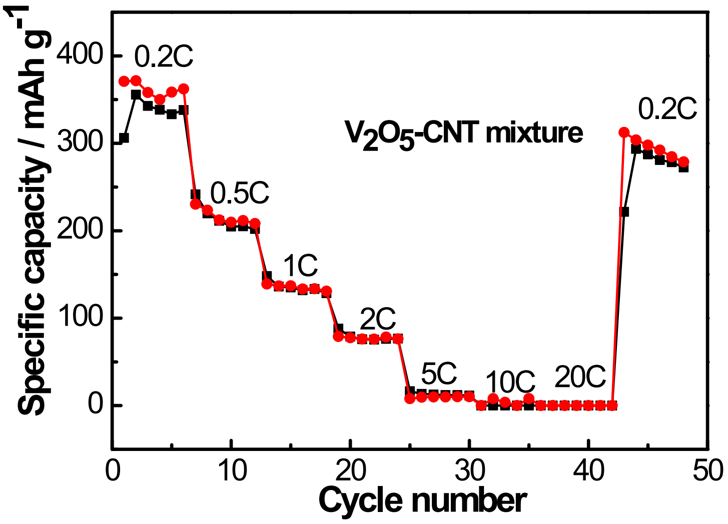

Fig. S5 the rate capabilities of the V_2O_5-CNT mixture synthesized without ice templates

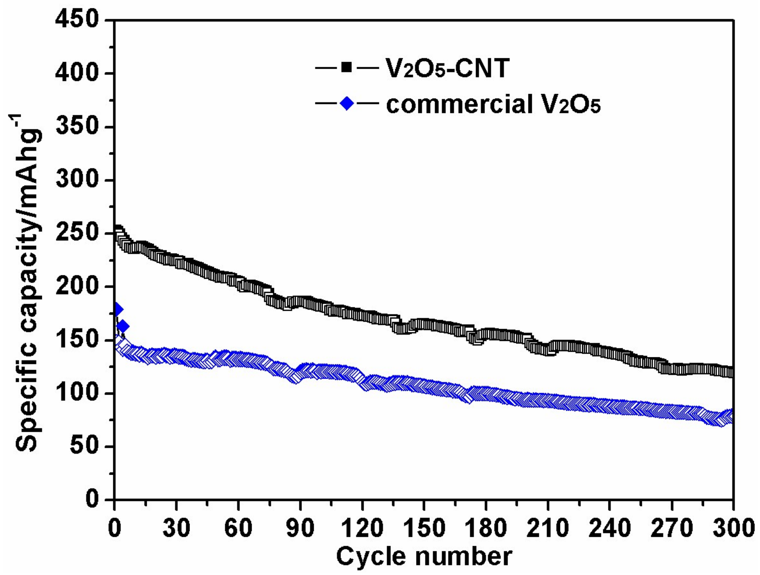

Fig. S6 The cycling performance of the sheet-like V_2O_5-CNT nanocomposite electrode and commercial V_2O_5 powder electrode at 2 C.

Table 1. Comparison of the performance of sheet-like V_2O_5-CNT nanocomposite and other reported results for V_2O_5 or V_2O_5-based materials.

Sample	Rate	Cycle times	Capacity retention	Fading Per cycle
V_2O_5 hollow microspheres**[1]**	1 C	50	89%	0.2%
V_2O_5/PPy**[2]**	0.025 C	200	80%	0.1%
V_2O_5 hollow microspheres**[3]**	1C	100	56%	0.35%
porous V_2O_5 spheres/rGO**[4]**	0.3 C	50	85%	0.3%
V_2O_5 nansheets/RGO**[5]**	2 C	120	52%	0.3%
2D V_2O_5 nansheets/CNT**[6]**	1 C	100	66%	0.34%
Leaf-like V_2O_5 nanosheets**[7]**	1.7C	100	78%	0.22%
Graphene Nanoribbon/ V_2O_5 **[8]**	0.1C	100	78%	0.22%
Graphene-modified nanostructured vanadium pentoxide**[9]**	1C	200	80%	0.13%
Porous Sheets-like V_2O_5-CNT composites (this work)	**5 C**	**300**	**71%**	**0.096%**

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