Phase-separation induced hollow/porous carbon nanofibers containing in-situ generated ultrafine SnO$_x$ as anode materials for lithium-ion batteries

Yuan Liu$^{a,c}$, Xiaodong Yan$^b$, Jinle Lan$^c$, Yunhua Yu$^{c,*}$, Xiaoping Yang$^c$, Yuanhua Lin$^{a,*}$

$^a$School of Materials Science and Engineering, State Key Lab of New Ceramics and Fine Processing, Tsinghua University, Beijing 100084, China

$^b$Department of Chemistry, University of Missouri – Kansas City, Kansas City, Missouri 64110, USA

$^c$State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology, Beijing 100029, China

* Corresponding author. Tel. /Fax: +8610-6442-7698/2084

E-mail address: yuyh@mail.buct.edu.cn

E-mail address: linyh@mail.tsinghua.edu.cn
Fig. S1 (a) SEM and (b) TEM images of SnO$_x$/SiO$_2$/CNFs.

Fig. S2 TEM image of SnO$_x$/CNFs.
**Fig. S3** CV curves of the first three cycles of the SnO$_x$/H-CNFs electrode.

**Fig. S4** SEM images of the (a) SnO$_x$/CNFs, (b) SnO$_x$/W-CNFs and (c) SnO$_x$/H-CNFs electrodes after 100 cycles.
Fig. S5 Nyquist plots of the SnO$_x$/CNFs, SnO$_x$/W-CNFs and SnO$_x$/H-CNFs electrodes after 100 cycles.