Hollow carbon microtubes from kapok fiber: structural evolution and energy storage performance

Yufang Cao\textsuperscript{a,c}, Lijing Xie\textsuperscript{a,*}, Guohua Sun\textsuperscript{a}, Qing-Qiang Kong\textsuperscript{a}, Feng Li\textsuperscript{a}, Weiping Ma\textsuperscript{a}, Jing Shi\textsuperscript{d}, Dong Jiang\textsuperscript{a,*}, Chunxiang Lu\textsuperscript{b} and Cheng-Meng Chen\textsuperscript{a,*}

a. CAS Key Laboratory of Carbon Materials, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China. E-mail: ccm@sxicc.ac.cn, xielijing@sxicc.ac.cn, jdred@sxicc.ac.cn.
b. National Engineering Laboratory for Carbon Fiber Technology, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China.
c. University of Chinese Academy of Sciences, Beijing 100049, China.
d. Analytical Instrumentation Center, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, PR China

Electronic Supplementary Information (ESI) available: SEM and TEM images, BET, XPS spectra, XRD patterns, electrochemical capacitive performances, and tables. See DOI: 10.1039/x0xx00000x

Supporting information
As shown in Figure S2, we can find the content of Nitrogen and phosphorus is basically same inside and outside surface of tube wall, indicating the etching of \((\text{NH}_4)_2\text{HPO}_4\) also occurred on the surface both inner and outer wall.
Figure S3. The survey spectra of CKF, SKF and HCMT-650

Figure S4. The SEM image of electrode
As shown in Figure S5a, the large value of the first intersection with the real axis and semicircle signifies high transfer resistance in HCMT-650, which is related to the existence of numerous defects and heteroatom doping resulting in poor electric conductivity.