frontiers

Supplementary Material

Nature-derived Cellulose-based Composite Separator for Sodium-ion Batteries

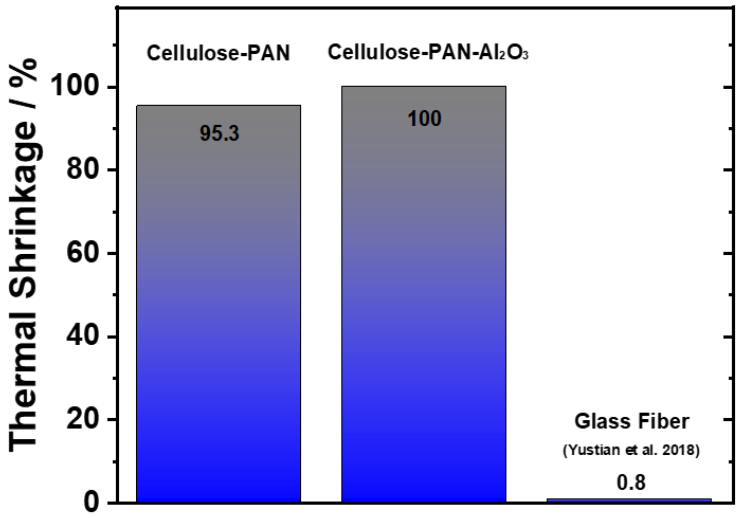
Jae Hyeon Jo[1,z], Chang-Heum Jo[1,z], Zhengfu Qiu[2], Hitoshi Yashiro[3], Liyi Shi[2], Zhuyi Wang[2], Shuai Yuan[2*] and Seung-Taek Myung[1*]

[1]*Department* of Nanotechnology and Advanced Materials Engineering & Sejong Battery Institute, Sejong University, Seoul, 05006 South Korea

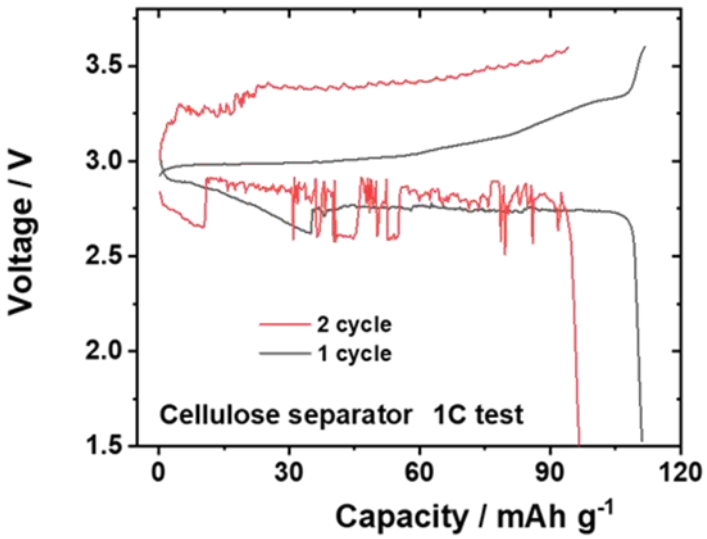
[2]Research Centre of Nanoscience and Nanotechnology, Shanghai University, Shanghai 200444, China

[3]Department of Chemistry and Bioengineering, Iwate University, Ueda 4-3-5, Morioka, Iwate 020-8551, Japan

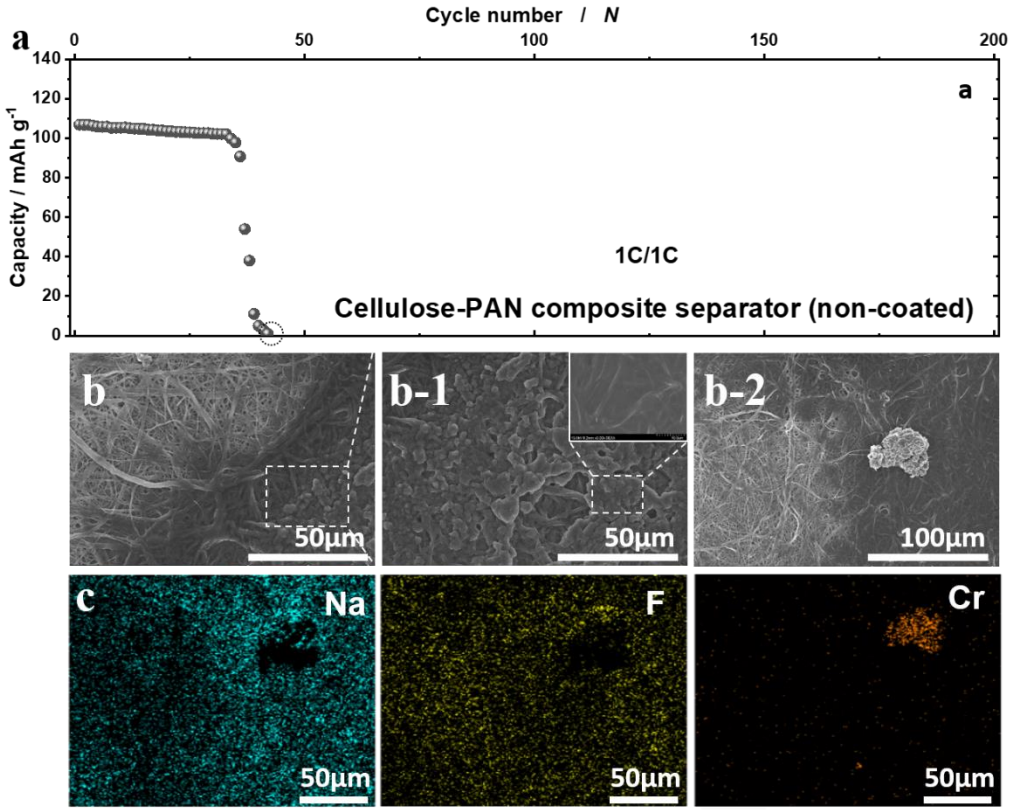
*** Correspondence:**
Shuai Yuan
s.yuan@shu.edu.cn
Seung-Taek Myung
smyung@sejong.ac.kr



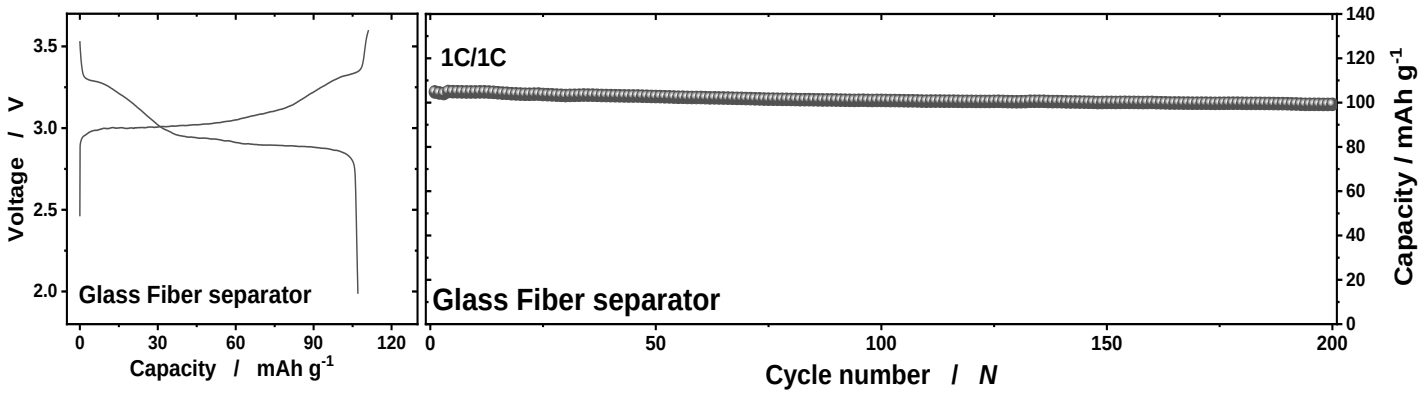
Supplementary Figure 1. Thermal shrinkage rate for Cellulose-PAN, Cellulose-PAN-Al_2O_3 and Glass Fiber (300 ^oC for 0.5h)



Supplementary Figure 2. Initial charge and discharge curves of C-$NaCrO_2$ cell using cellulose separator.



Supplementary Figure 3. (a) Cycling performance of C-$NaCrO_2$ using uncoated cellulose–PAN composite separator. (b) SEM images of surface of cycled uncoated cellulose–PAN composite separator and (c) EDX mapping images for (b-2).



Supplementary Figure 4. (a) charge and discharge curves of C-$NaCrO_2$/Na cells using glass fiber separator; (b) cycling performance at rates of 1C.