Electronic Supplementary Information (ESI)

In-situ synthesis of iron sulfide embedded porous carbon hollow spheres for sodium ion battery

Yuanzhong Tan, Ka-Wai Wong, Zhiling Zhang and Ka Ming Ng*

Department of Chemical and Biological Engineering, The Hong Kong University of Science and Technology, Hong Kong, China.

* Corresponding author; Email: kekmng@ust.hk; Fax: 852-23580054; Tel: 852-23587238

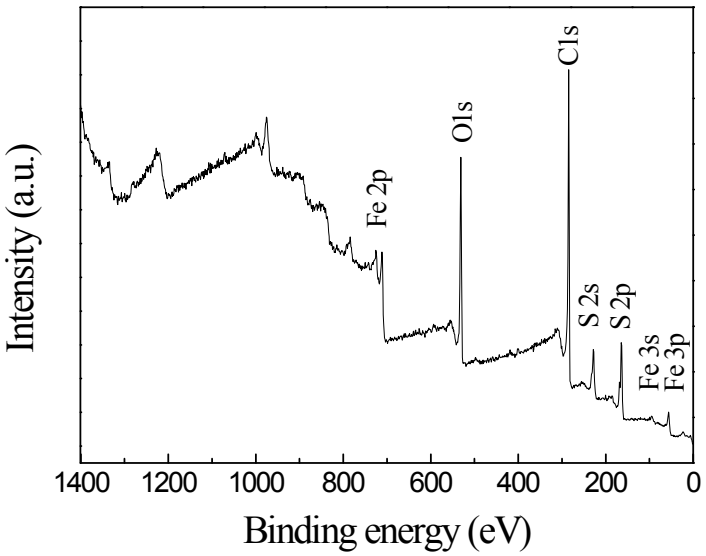

Fig. S1 XPS spectrum of FeS_x@CS.

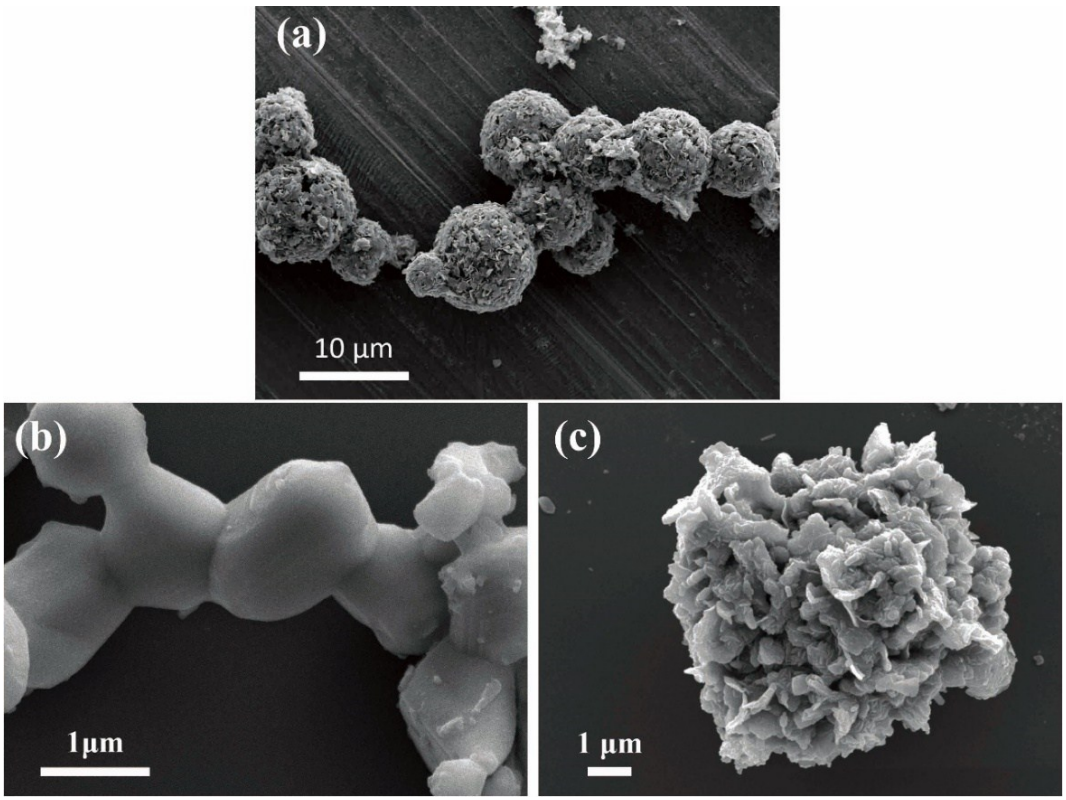

Fig. S2 SEM images of (a) FeS_x@CS, (b) FeS_x particles and (c) Carbon coated iron sulfide nanoparticles synthesized without adding PF-127.

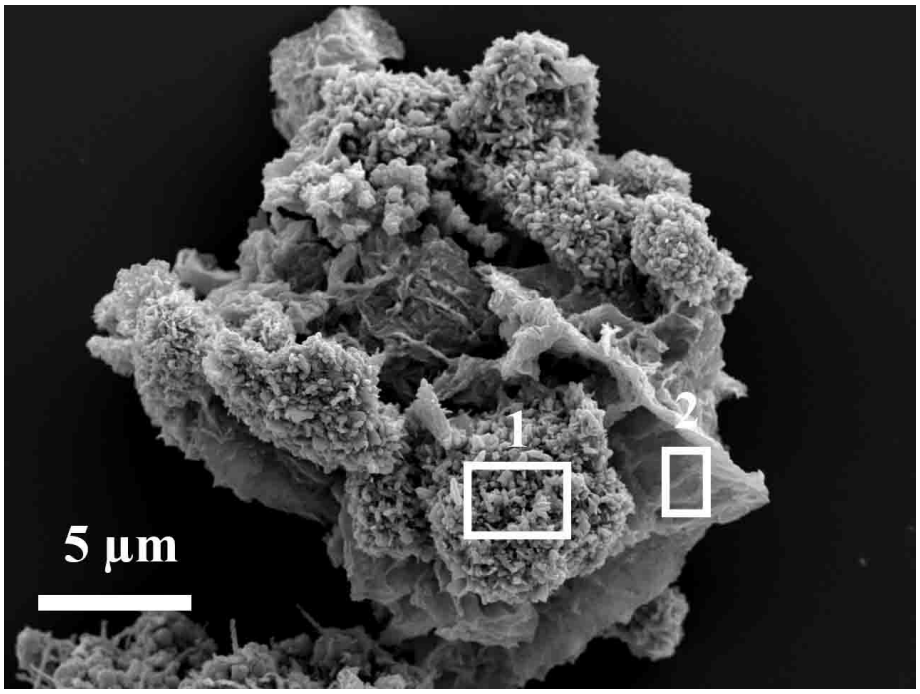

Fig. S3 SEM image of product when NaG was replaced by glucose.

Table. S1 Elemental analysis of selective areas in Fig. S3

Element	Spectrum 1		Spectrum 2	
	Apparent Concentration	Wt%	Apparent Concentration	Wt%
C	0.19	19.47	0.20	23.59
O	0.65	7.66	0.58	13.05
S	2.51	26.75	0.37	8.94
Fe	3.83	46.12	2.48	54.42

The nanofibers found on the surface of FeS_x electrode after 5 charge-discharge cycles were investigated with SEM EDX elemental analysis. As shown in Table S2, the observation of Si and O indicated such nanofibers were glass fibers ripped down from the separator, which was glass-fiber filter paper.

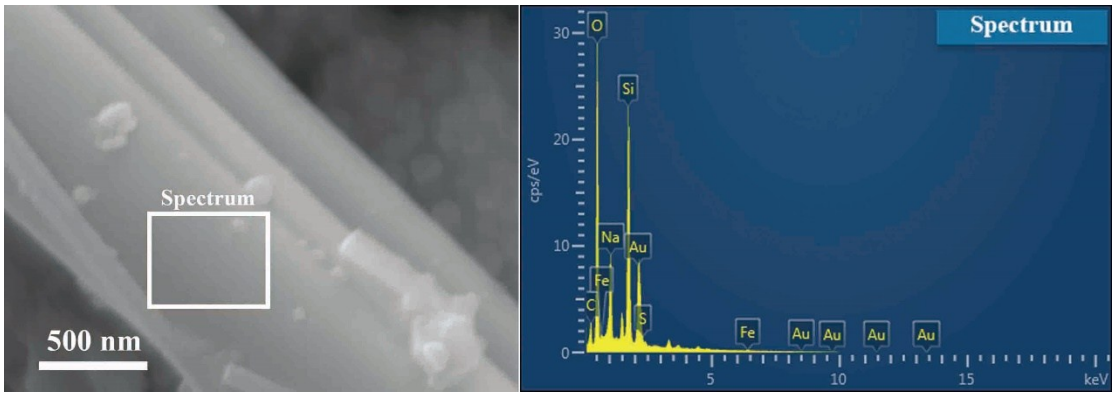

Fig. S4 SEM EDS elemental analysis of selective area of nanofibers observed on the surface of FeS_x electrode after 5 cycles.

Table. S2 Elemental analysis of selective area of nanofibers observed on the surface of FeS_x electrode after 5 cycles.

Element	Apparent Concentration	Wt%	Atomic %
C	0.24	11.77	20.50
O	5.32	37.49	49.01
Na	1.31	10.28	9.35
Si	1.66	15.47	11.52
S	0.11	1.19	0.77
Fe	1.89	22.28	8.34
Cu	0.07	1.52	0.50