Supporting information

Double-shelled support and confined void strategy for improving lithium storage properties of SnO_2/C anode materials for lithium-ion batteries

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Comparing the TEM images of SiO_2@PR@SiO_2 and PR@SnO_2@PS, it can be clearly seen that SnO_2 coating, polysaccharides coating and SiO_2 template removal are achieved simultaneously during hydrothermal treatment.

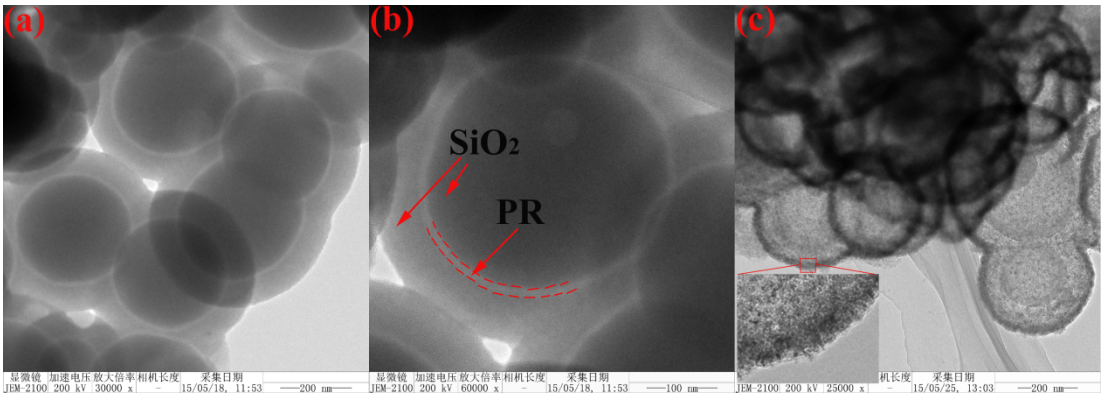

Figure S1. TEM images of SiO_2@PR@SiO_2 (a, b) and PR@SnO_2@PS (c).

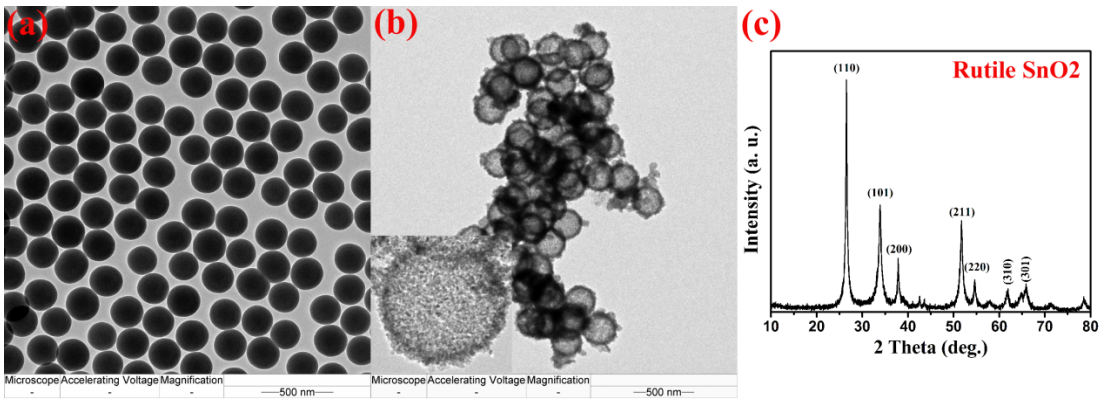

Figure S2. TEM images of SiO_2 templates (a) and SnO_2 HS (b). XRD patterns of SnO_2 HS (c)

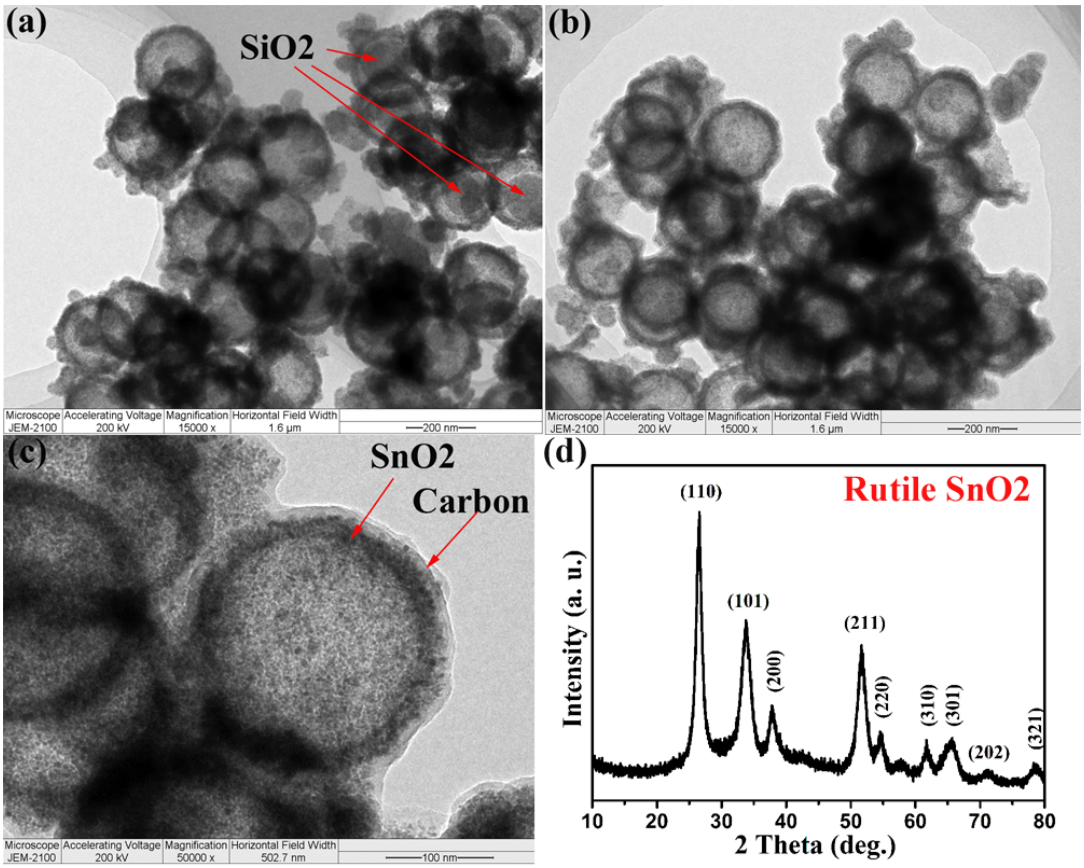

Figure S3. TEM images of SnO_2@SSC-24 (a) and SnO_2@SSC (hydrothermal treatment for 48 h) (b, c). XRD patterns of SnO_2@SSC HS (d).

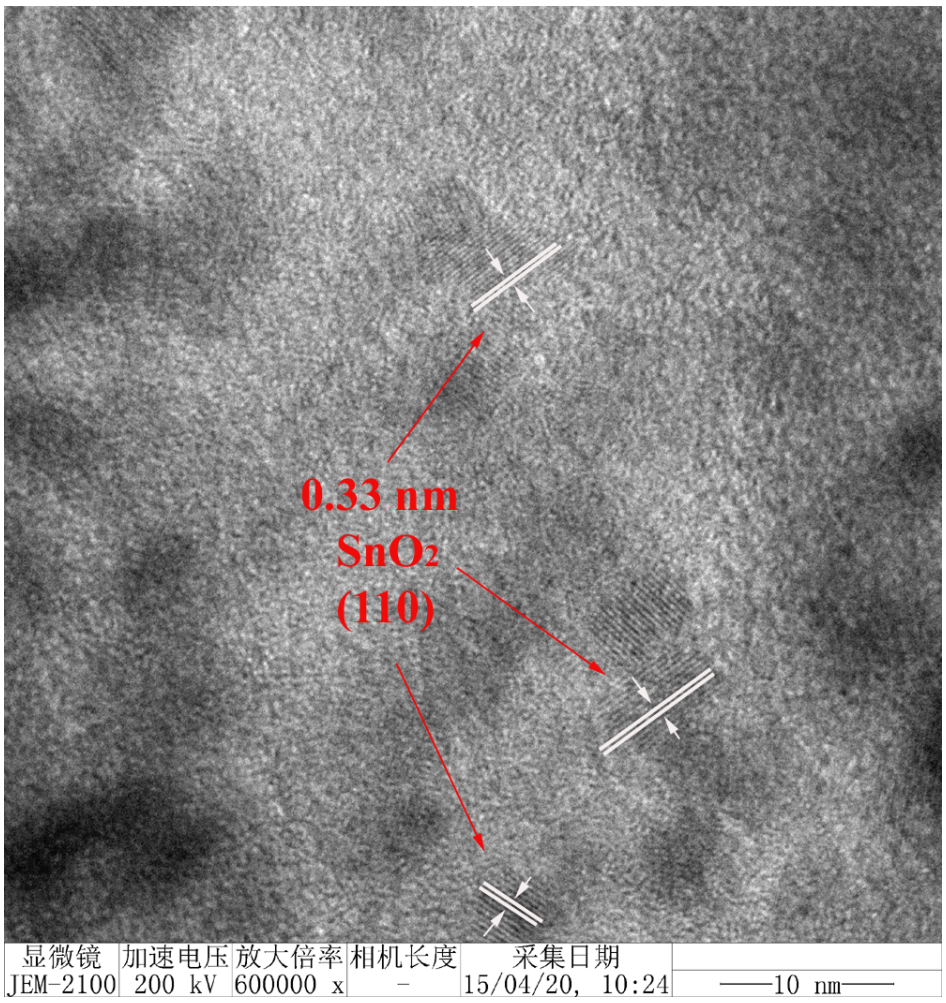

Figure S4. The HRTEM image of outer shell of SnO_2@DSC

Table S1. Comparison of our product SnO_2@DSC with SnO_2/C-based anode materials reported in other literatures.

SnO_2/C-based anode materials	Potential cutoff (V)	Current density (mAg^{-1})	Cycles	Capacity ($mAhg^{-1}$)	Reference
SnO_2@DSC	3-0.01	200	500	838.2	This work
Sn/SnO_2/AMCMB	2.2-0	100	50	451	1
Double shelled hollow SnO_2/P	2.5-0.01	200	430	711.9	2
SnO_2@OMC	3-0.01	100	60	769	3
SnO_2/CNTs-30	1.5-0.01	100	300	430	4
SnO_2/C-10	2.5-0.01	100	70	720	5
SnO_2@C nanocluster	2.5-0.01	100	200	1215	6
SnO_2-HNS/G	3-0.005	500	300	696	7
SnO_2/GAs	3-0.05	50	50	760	8
SnO_2-CMK-5	3-0.01	178	30	598	9
Carbon-coated SnO_2 nanotubes	2-0.01	100	50	400	10
SnO_2/C	2.5-0.05	300	350	653	11
CNTs@SnO_2@C	2-0.01	100	65	462.5	12
SnO_2 HPNFs	3-0.01	100	50	583	13
SnO_2 HPNTs	3-0.01	100	50	645	13
SWNTS@SnO_2@PPy	3-0.05	150	100	823	14
SnO_2/Graphene	1.5-0.005	100	20	433	15
SnO_2 NSs-graphene	1.2-0.01	400	50	518	16
SnO_2 NPs in CNTs	2.5-0.005	50	50	560	17
SnO_2/SWCNHs	3-0.05	500	180	530	18
SnO_2@C nanochains	2-0.005	300	100	646	19
SnO_2/mesoporous carbon	2-0.01	100	50	473	20
SnO_2@C yolk–shell	3-0	100	100	630	21
RHC–SnO_2–C	2-0.05	50	80	525	22
Dense SnO_2/C	3-0	100	50	630	23
SnO_2 on PANI@RGO	3-0.001	0.2C	50	573.6	24
SnO_2 nanorods/GS	3-0	300	50	574.6	25
SnO_2/GNS	2-0.05	50	30	570	26
MWCNT/SnO_2	3-0	156	100	420	27
SnO_2-80@CMK-5	3-0.005	400	100	1004	28
SnO_2/graphene	2-0.005	0.2 C	100	550	29
SnO_2 NSs-array film	1.2-0.01	391	50	674.9	30
Reduced GO/SnO_2	3-0.01	100	200	718	31
SnO_2@C/graphene	3-0.01	100	50	1015	32
SnO_2/C hollow spheres	2-0.005	100	50	473	33
SnO_2/ PEDOT:PSS together with rGO	3-0.005	80	160	980	34

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