Electronic Supplementary Information

Lithium ion storage ability, supercapacitor electrode performance, and photocatalytic performance of tungsten disulfide nanosheets

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SEM images of C-WS_2

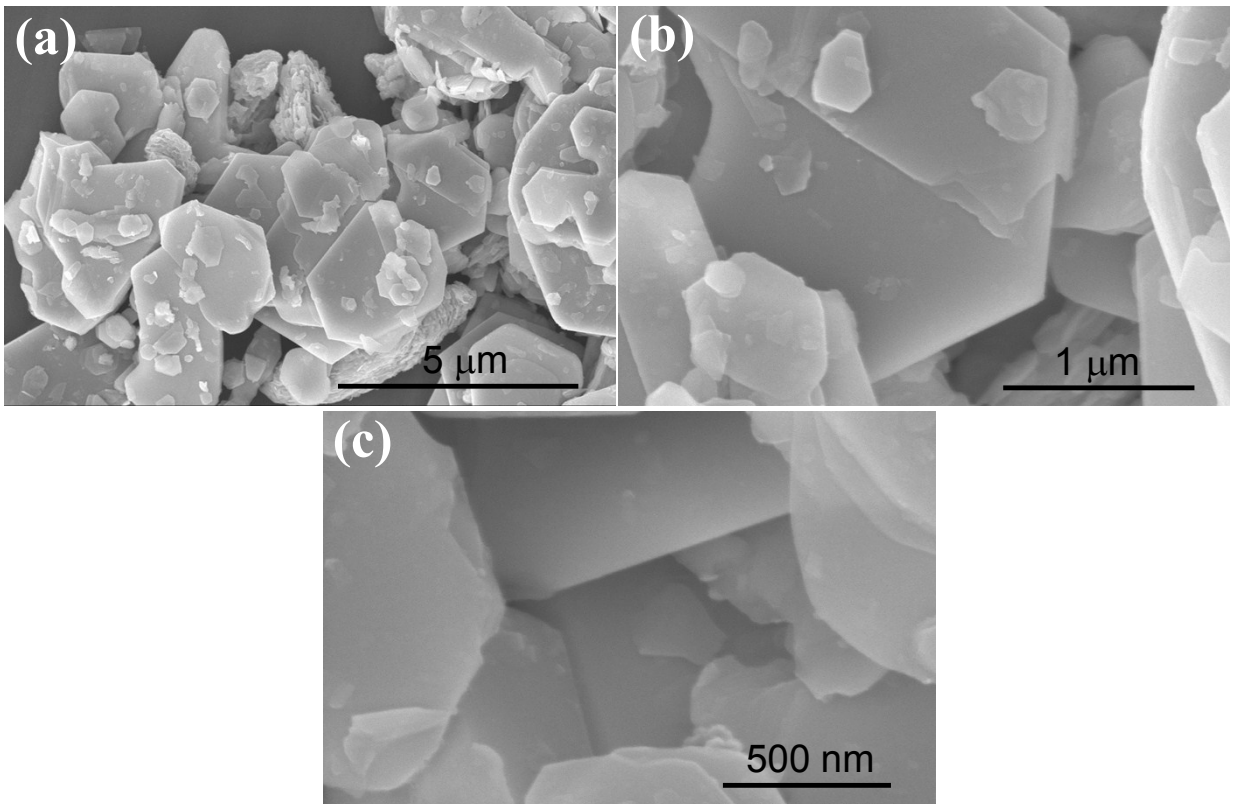

Figure S1. (**a-c**) SEM images of C-WS_2.

XRD pattern of P-WS_2

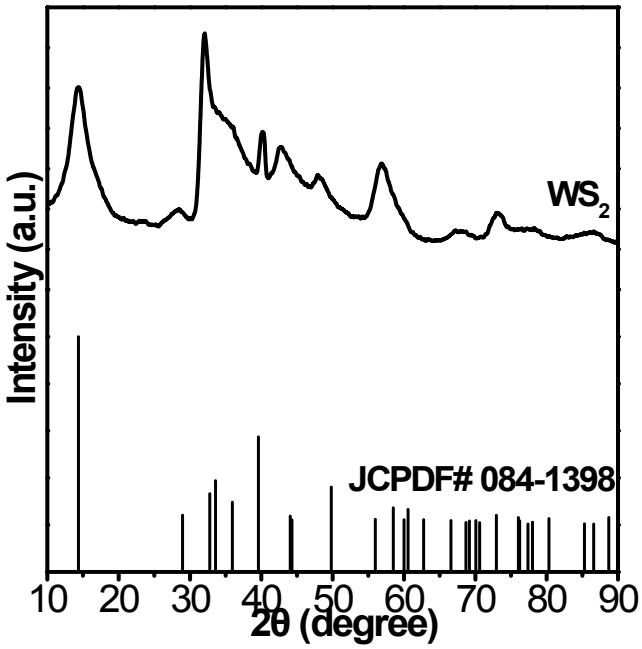

Figure S2. XRD pattern of P-WS_2.

Discharge/charge voltage profile of C-WS_2 nanosheets

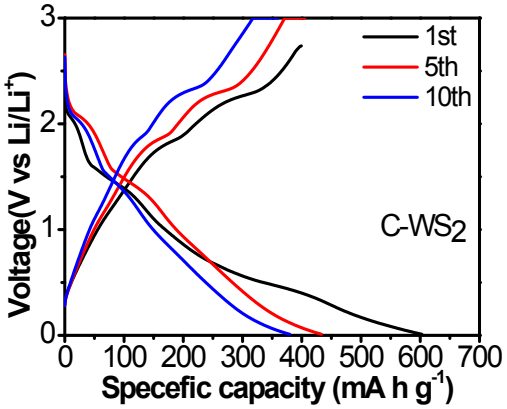

Figure S3. Discharge/charge voltage profile of C-WS_2 nanosheets anode at a current rate of 0.5C.

Table S1. Comparison of electrochemical performance of WS_2 based materials

Electrode materials	Initial coulombic efficiency (%)	Current density	Electrolytes	Cycles (No.)	Ref
WS_2/RGO	54	100 mA/g	1 M $LiPF_6$	50	S1
WS_2/super P	81	100 mA/g	1 M $LiPF_6$	200	S2
WS_2@C/RGO	67.7	100 mA/g	1 M $LiPF_6$	200	S3
WS_2/SWCNT	61.4	100 mA/g	1 M $LiPF_6$	50	S4
P-WS_2	85	108 mA/g	1 M $LiPF_6$	100	this work

Table S2. Comparison of cyclic performances of WS_2 based supercapacitors

Electrode materials	Electrolyte (M)	Current density	Capacitance	Cycles (No.)	Retention (%)	Ref
WS_2/SWCNT	3M KOH	2 mV/s	240 F/g	500	45	S5
WS_2/CFC	1M KCl	1 A/g	399 F/g	500	99	S6
WS_2NP/CTs	3M KOH	1A/ g	536 F/g	500	42	S7
MoS_2/carbon	1M Na_2SO_4	0.2 A/g	201.4 F/g	1000	89.6	S8
SnS nanorods	2M Na_2SO_4	unknown	70 F/g	500	60	S9
P-WS_2	2M KOH	0.75 A/g	241.5 F/g	2000	91.31	this work

Cyclic voltammograms of the P-WS_2 and C-WS_2

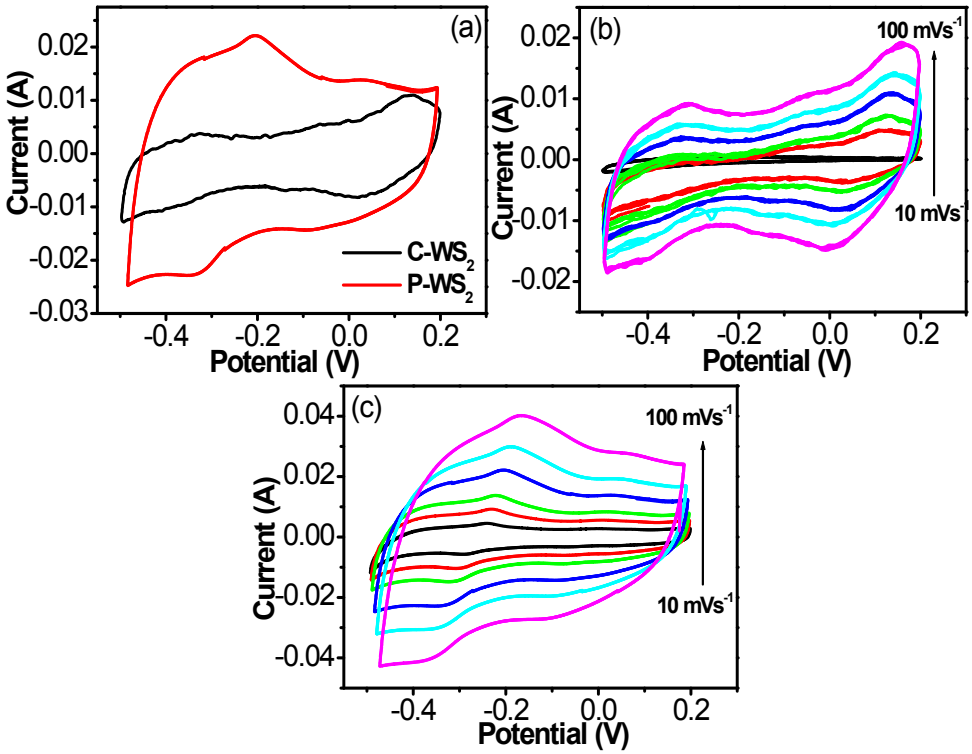

Figure S4. (**a**) Comparative cyclic voltammograms of the P-WS_2 and C-WS_2 at a fixed scan rate, (**b**) voltammogram of C-WS_2 at different scan rate of 10-100 mV s^{-1}, and (**c**) voltammogram of the P-WS_2 at different scan rate of 10-100 mV s^{-1}.

EIS plots of the C-WS_2 and P-WS_2

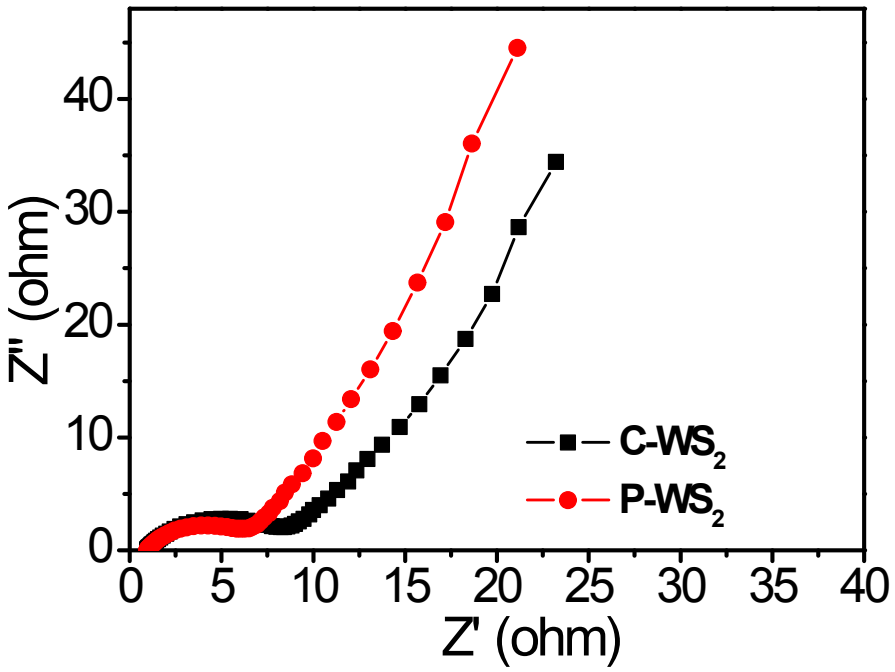

Figure S5. EIS plots of the C-WS_2 and P-WS_2.

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