

## Supporting Information

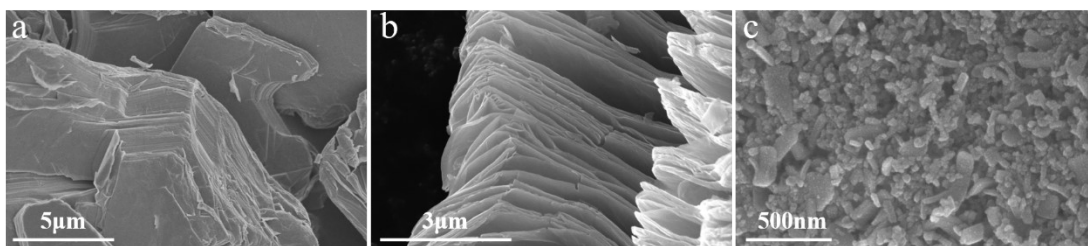
# SnSe Quantum Dots Anchored on Few-layered $\text{Ti}_3\text{C}_2$ as Anodes for Sodium Ion Batteries with Enhanced Cycle Stability

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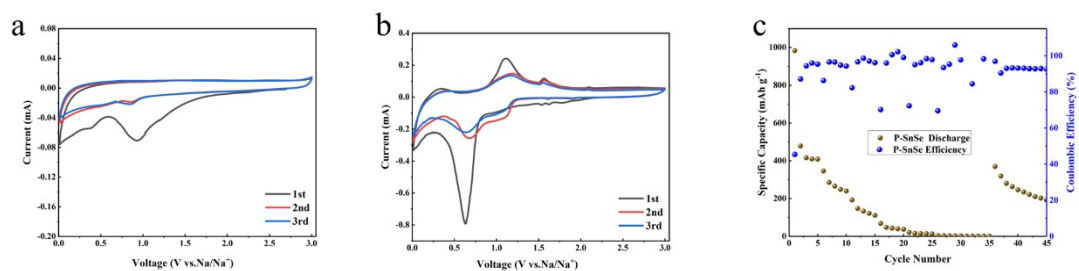
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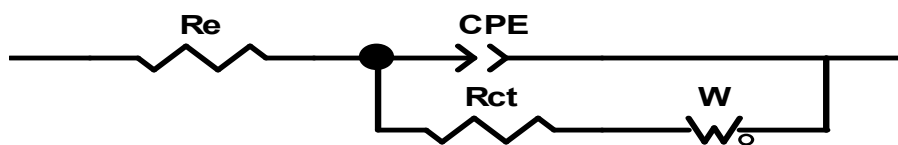
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**Figure. S1.** SEM images of (a)  $\text{Ti}_3\text{AlC}_2$  MAX. (b)  $m\text{-Ti}_3\text{C}_2$ . (c) P-SnSe



**Figure. S2.** CV curves of (a)  $f\text{-Ti}_3\text{C}_2$  and (b) P-SnSe at a scan rate of  $0.1 \text{ mV s}^{-1}$ . (c) Rate performance of P-SnSe electrode.



**Figure. S3.** The equivalent circuit of EIS.

	Re	Rct	CPE-T	CPE-P	W-R	W-T	W-P
	( $\Omega$ )	( $\Omega$ )	( $\mu\text{F}$ )	(m)	(DW)	(DW)	
SnSe@f-Ti <sub>3</sub> C <sub>2</sub>	6.72	184	1.65E-5	0.71	190.4	0.32	0.32
P-SnSe	5.70	358	3.36E-6	0.86	4221	81.9	0.56

**Table S1.** Impedance parameters for the equivalent circuits

The relationship between the peak current ( $i$ ) and the scan rate ( $v$ ) obeys the power law of

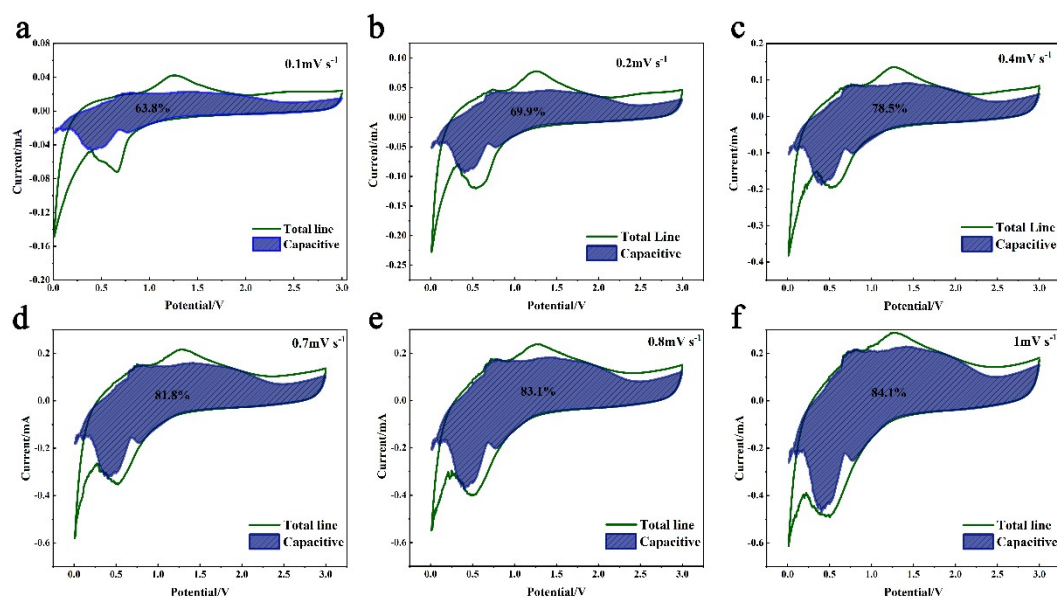
$$i = av^b \quad (1)$$

The intrinsic charge storage kinetics of the electrode can be qualitatively reflected by the  $b$  value, which is the fitting slope of  $\log(i)$  to  $\log(v)$  curve. The  $b$  values of 0.5 and 1 correspond to the diffusion-controlled process and the surface-controlled pseudocapacitive reaction, respectively.

In addition, the two contributions at different scan rates can be quantitatively distinguished as follows:

$$i = k_1v + k_2v^{1/2} \quad (2)$$

$k_1v$  and  $k_2v^{1/2}$  represent the contributions of pseudocapacitance and diffusion control, respectively.



**Figure. S4.** Separation of capacitive and diffusion-controlled contribution areas at different scanrate: (a) 0.1, (b) 0.2, (c) 0.4, (d) 0.7, (e) 0.8 and 1  $\text{mV s}^{-1}$  of  $\text{SnSe}@f\text{-Ti}_3\text{C}_2$ .