Supporting information

Experimental and theoretical insights into supercapacitive performance of interconnected WS_2 nanosheet

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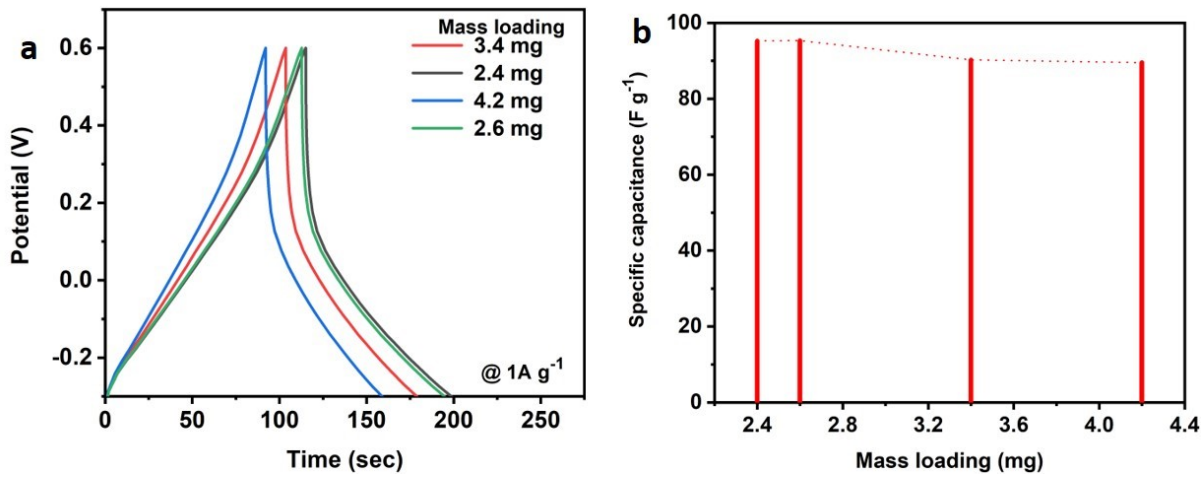

Figure S1. Comparative charge-discharge profile in different mass loading of samples.(b) respective specific capacitance at various mass loading.

Equations are used for the calculations

$$C_s = \frac{I\Delta t}{\Delta V A} \qquad \mathbf{1}$$

Where C_s = Specific Capacitance

I= applied discharge current (A)

Δt= Total discharge time (s)

ΔV= Discharge voltage (V)

A= Active mass (g)

$$E_s = \frac{1}{2} \times \frac{C_s \times \Delta V^2 \times 1000}{3600} \quad \textbf{2}$$

Where, C_s = specific capacitance (F g^{-1})

ΔV= Discharge voltage (V)

E_s =gravimetric energy density(Wh Kg^{-1})

$$P_s = \frac{E_s}{t} \times 3600 \quad \textbf{3}$$

Where, t= discharge time without considering the ohmic drop (s)

P_s = gravimetric power density (W Kg^{-1})

Table S1. Comparative data of reported papers based on WS_2 as an electrode material in 3 electrode setups

Material	Capacitance	Current density	References
WS_2 shell	51 mF cm^{-2}	5 mV s^{-1}	[1]
WS_2 Quantum dots	28 m F cm^{-2}	0.1 mA cm^{-2}	[2]
2D WS_2 Layers	74.25 mF cm^{-2}	5 mV s^{-1}	[3]
WS_2 nanosheets	211 F g^{-1}	4 mA cm^{-2}	[4]
WS_2/PEDOT:PSS film	79.5 mF cm^{-2}	1.0 mA cm^{-2}	[5]
WS_2	70 F g^{-1}	2 mV s^{-1}	[6]
WS_2 Nanosheets	156 F g^{-1}	0.5 Ag^{-1}	Our work

References

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