

## Supporting Information

# Scalable, superelastic, and superhydrophobic MXene/silver nanowire/melamine hybrid sponges for high-performance electromagnetic interference shielding

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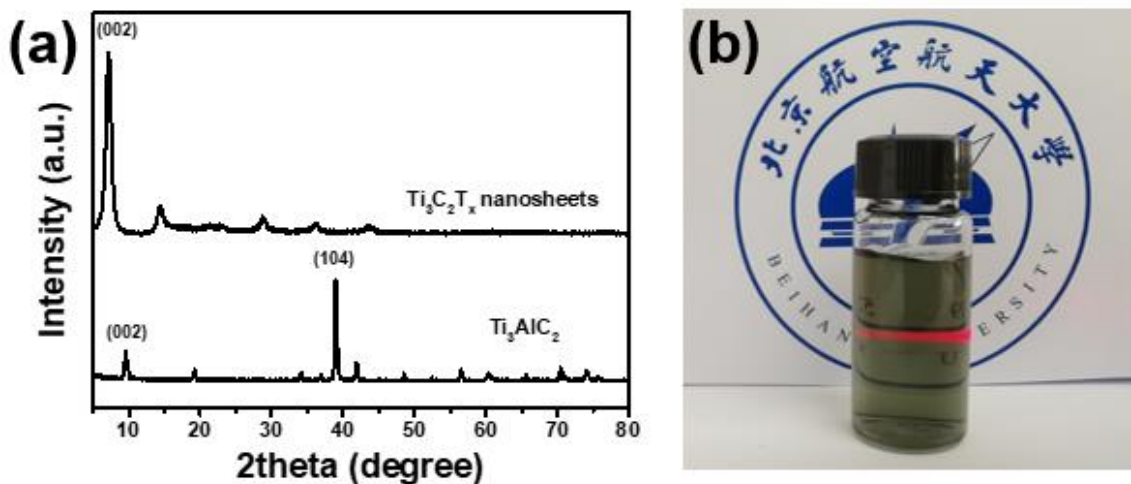
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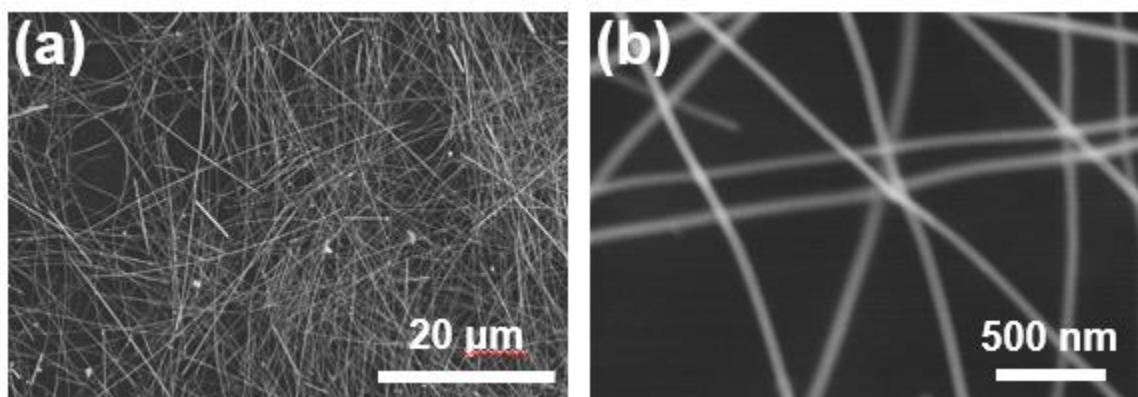
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**Fig. S1.** (a) XRD patterns of  $\text{Ti}_3\text{AlC}_2$  and  $\text{Ti}_3\text{C}_2\text{T}_x$  nanosheets; (b) Tyndall scattering effect of MXene nanosheet dispersion.



**Fig. S2.** (a,b) SEM images of AgNWs.

**Table S1.** The porosity and specific surface area of the hybrid sponges.

	MS	MS-M	MS-MA	MS-MAF
Porosity (%)	99.4	99.3	99.2	99.2
Specific surface area ( $\text{m}^2 \text{g}^{-1}$ )	220.7	292.3	298.1	298.6

**Table S2.** Comparison of the EMI shielding performance of the MS-MAF hybrid sponge with reported porous EMI shielding materials.

<b>Materials</b>	<b>Thickness (mm)</b>	<b>Density (g cm<sup>-3</sup>)</b>	<b>SSE/t (dB cm<sup>2</sup> g<sup>-1</sup>)</b>	<b>Refs</b>
Graphene-PMMA foam	2.4	0.76	104	1
CNT-PS foam	1.2	0.604	276	2
PEI/graphene/Fe <sub>3</sub> O <sub>4</sub> foam	2.5	0.439	166	3
PEI/graphene foam	2.3	0.29	192	4
PP-SSF composite foam	3.1	0.64	242	5
C/SiO <sub>2</sub> /SiC aerogel	6	0.2	200	6
Ag/CNTs/SBS foam	4	0.42	542	7
CNT/cellulose aerogel	2.5	0.095	876	8
CuNi-CNT foam	1.5	0.23	1583	9
Graphene aerogel-CT	3	0.07	1760	10
Carbon foam	2	0.166	1250	11
Graphene/PDMS foam	1	0.06	3330	12
BS-graphene foam	1	0.18	3110	13
V <sub>2</sub> O <sub>5</sub> -PANI aerogel	6	0.021	2770	14
MXene aerogel/WPC	3	0.197	1206	15
PN-based carbon foam	2	0.15	1705	16
CNF/AgNW sponge	3	0.035	2674	17
PI/graphene aerogel	2.5	0.076	1516	18
CNT-sponge	2.38	0.02	4622	19
GO/cellulose aerogel	2	0.057	5132	20
MWCNT/WPU foam	1	0.039	5410	21
CNF@Co/C aerogel	4	0.023	6095	22
CNF/AgNW@Fe <sub>3</sub> O <sub>4</sub> sponge	3	0.016	6751	23
CMF/rGO/Ag hybrid foam	5	0.016	7616	24
Ti <sub>2</sub> CT <sub>x</sub> /PVA foam	5	0.011	5136	25
Ti <sub>3</sub> C <sub>2</sub> T <sub>x</sub> /CNT aerogel	3	0.042	8246	26
<b>MS-MAF hybrid sponge</b>	<b>2</b>	<b>0.012</b>	<b>10128</b>	<b>This work</b>

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