

*Supporting information for:*

**Cross-Dimensional Assembly of MXene/SiO<sub>2</sub>/KNF Composite Aerogels for Radar and Infrared Stealth**

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## SUPPORTING FIGURES

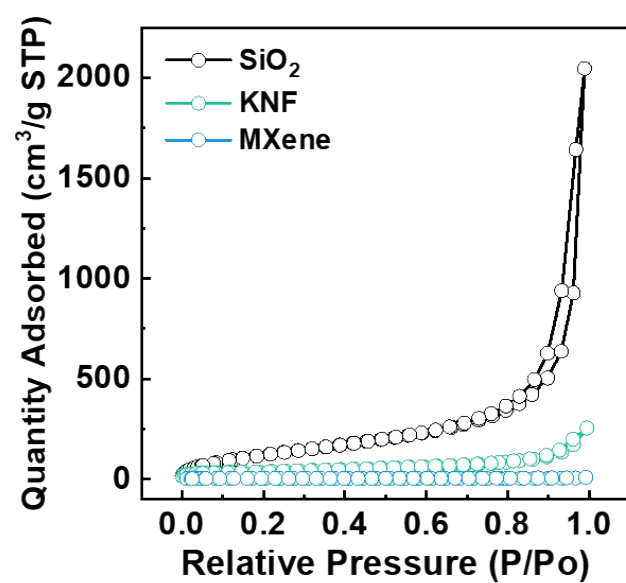


Fig. S1 N<sub>2</sub> adsorption-desorption isotherms of SiO<sub>2</sub>, KNF and MXene.

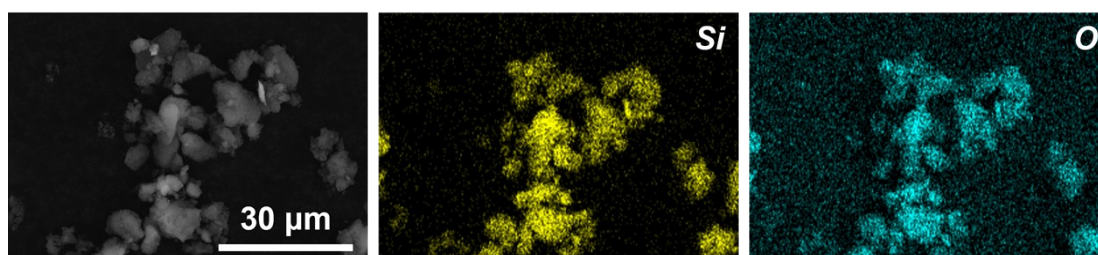


Fig. S2 SEM image and EDS mapping of the sample SiO<sub>2</sub>.

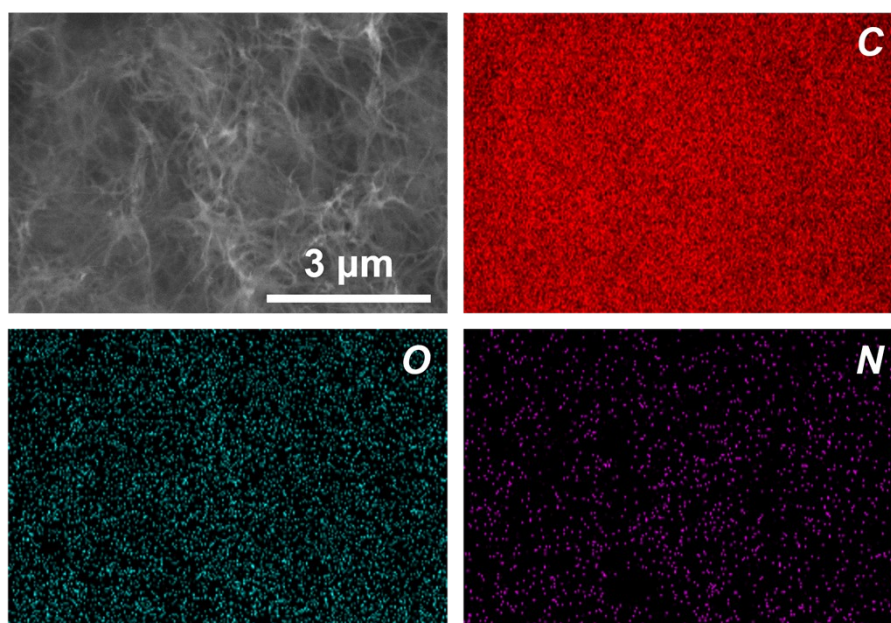
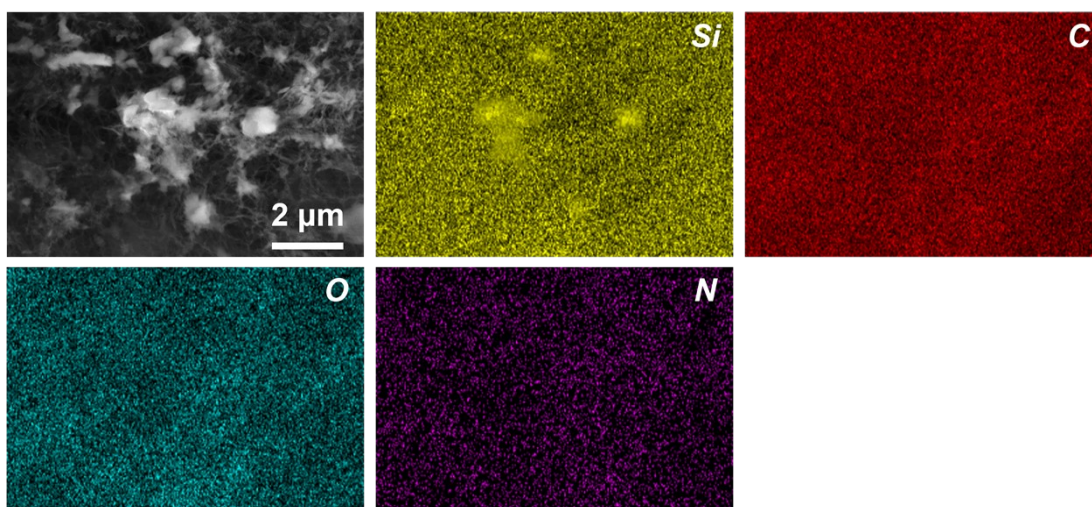
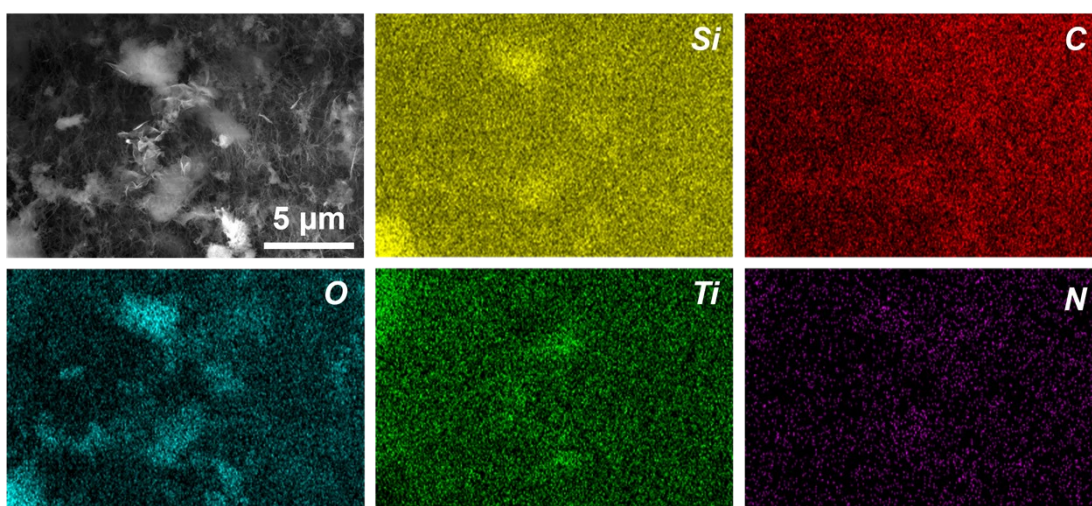


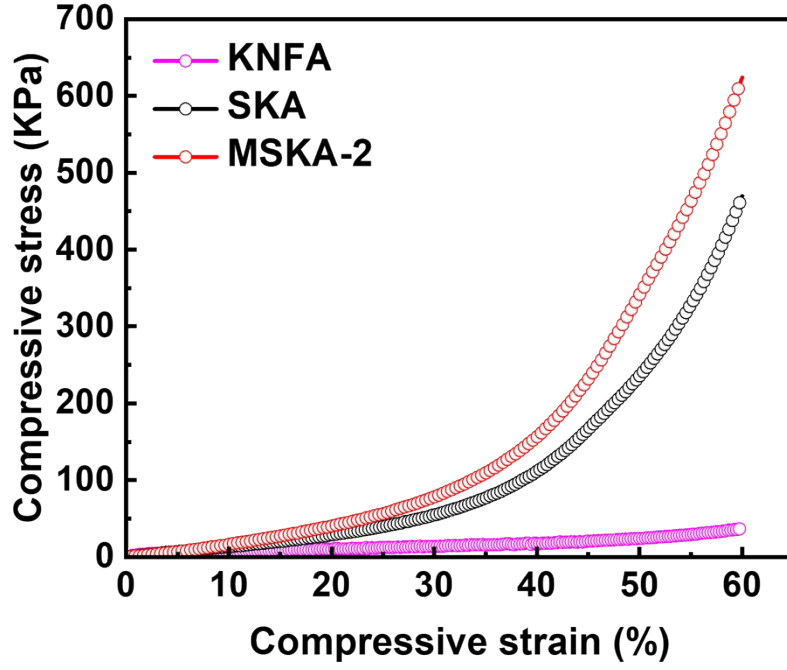
Fig. S3 SEM image and EDS mapping of the sample KNFA.



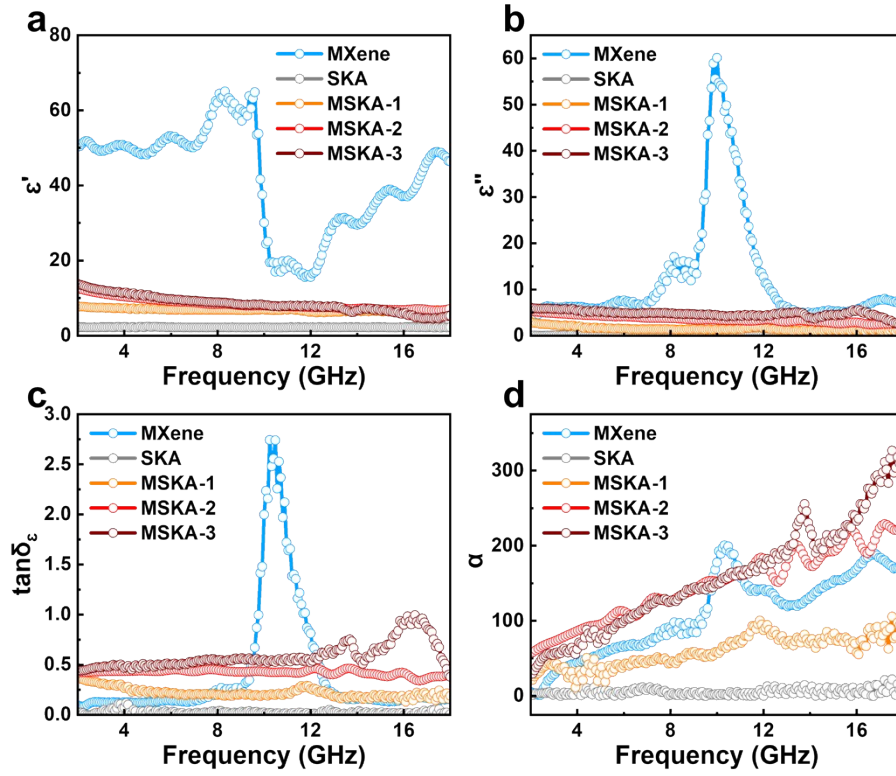
**Fig. S4** SEM image and EDS mapping of the sample SKA.



**Fig. S5** SEM image and EDS mapping of the sample MSKA-2.



**Fig. S6** Compressive stress-strain curves of the samples KNFA, SKA and MSKA-2, respectively.



**Fig. S7** (a) Real part of permittivity, (b) imaginary part of permittivity, (c) dielectric loss tangent, and (d) attenuation constant of the samples MXene, SKA and MSKA, respectively.

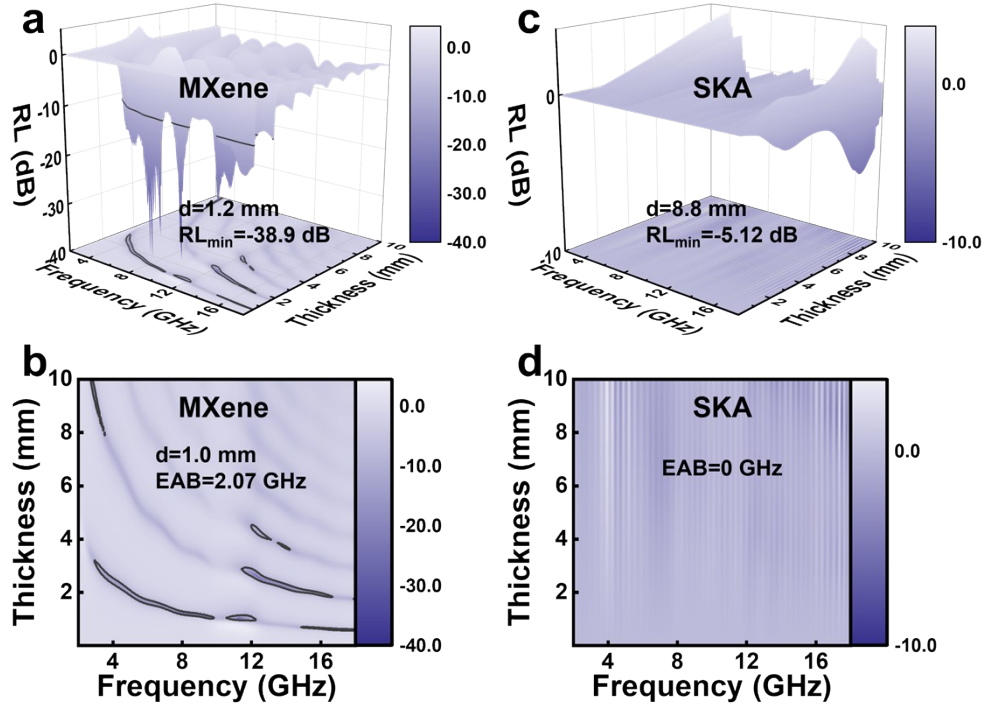


Fig. S8 (a) 3D and (b) 2D RL values of MXene, (c) 3D and (d) 2D RL values of SKA.

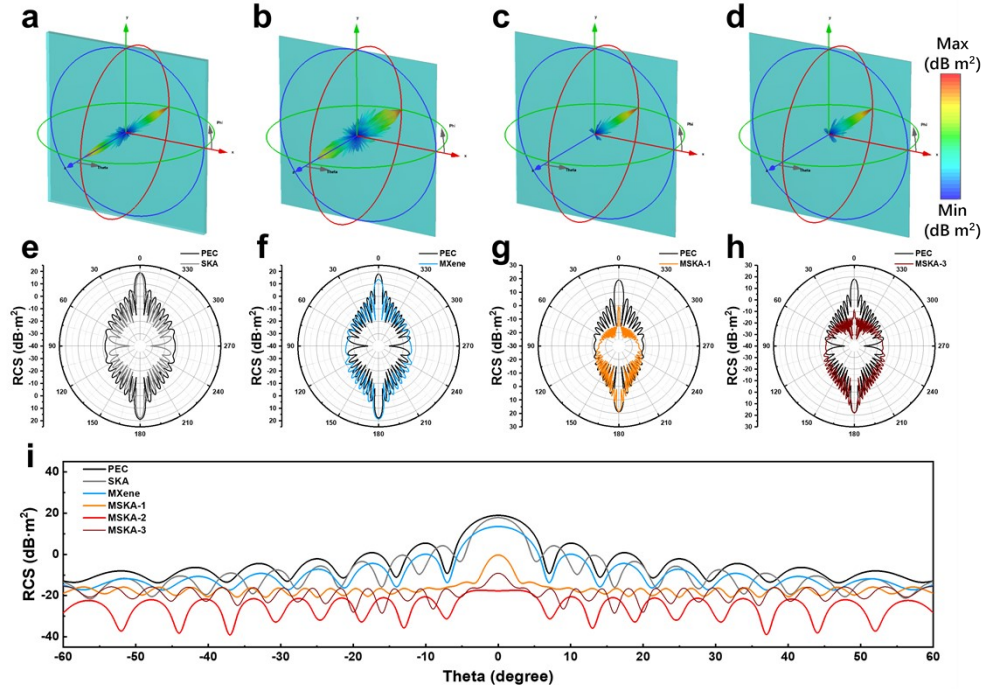
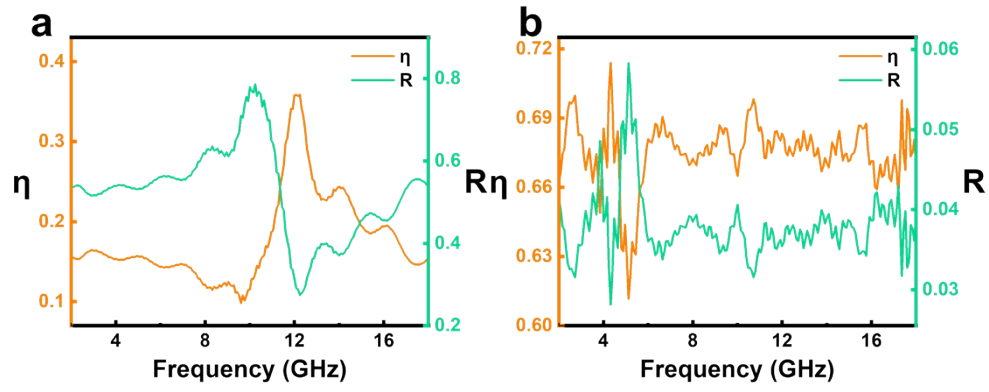
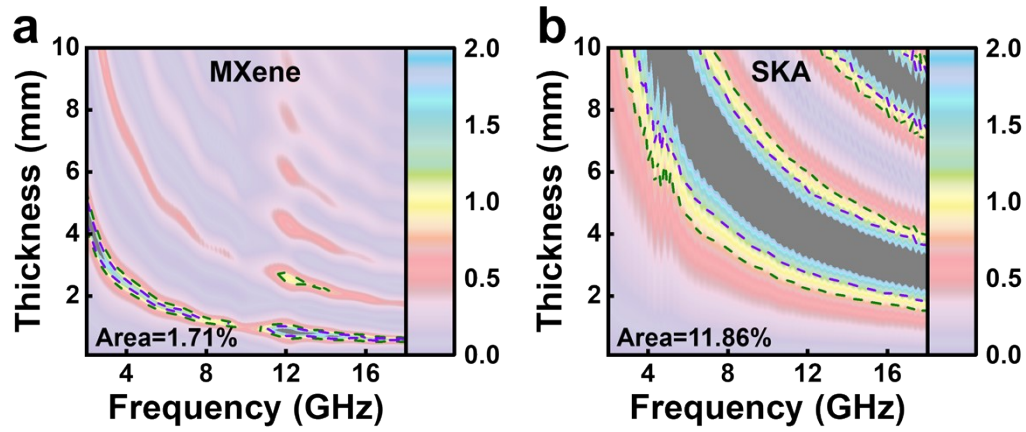


Fig. S9 Full-angle RCS simulation results of PEC substrates coated with (a, e) SKA, (b, f) MXene, (c, g) MSKA-1, and (d, h) MSKA-3, along with (i) a direct comparison of the RCS values for all samples within the range of  $-60^{\circ}$  to  $60^{\circ}$ .



**Fig. S10** (a) Normalized wave impedance  $\eta$  and interface reflection coefficient  $R$  curves of (a) MXene and (b) SKA.



**Fig. S11** 2D impedance matching diagram of (a) MXene and (b) SKA.

**Table S1** Composition of the sample MSKA-2 (at%)

|               | <i>XPS</i> |       | <i>EDS</i> |       |
|---------------|------------|-------|------------|-------|
|               | <i>C</i>   |       | <i>C</i>   |       |
| <i>MSKA-2</i> | <i>N</i>   | 45.37 | <i>N</i>   | 53.11 |
|               | <i>O</i>   | 2.53  | <i>O</i>   | 2.02  |
|               | <i>Si</i>  | 29.64 | <i>Si</i>  | 24.20 |
|               | <i>Ti</i>  | 7.31  | <i>Ti</i>  | 8.70  |
|               |            | 15.15 |            | 11.97 |