Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

High performance flexible electromagnetic interference shielding material realized by ZnO nanorod decorated polyvinylidene fluoride (PVDF)-MXene composite nanofibers

Sol Lee, *Minje Kim*, *Viet Anh Cao, Joomin Park, Ick-Jae Yoon, Pangun Park and Junghyo Nah*[*]

Department of Electrical Engineering, Chungnam National University, Daejeon 34134, Korea

**Corresponding author: jnah@cnu.ac.kr*

Keywords: Electromagnetic interference shielding material, nanofiber, MXene, ZnO nanorods, oxidation resistance

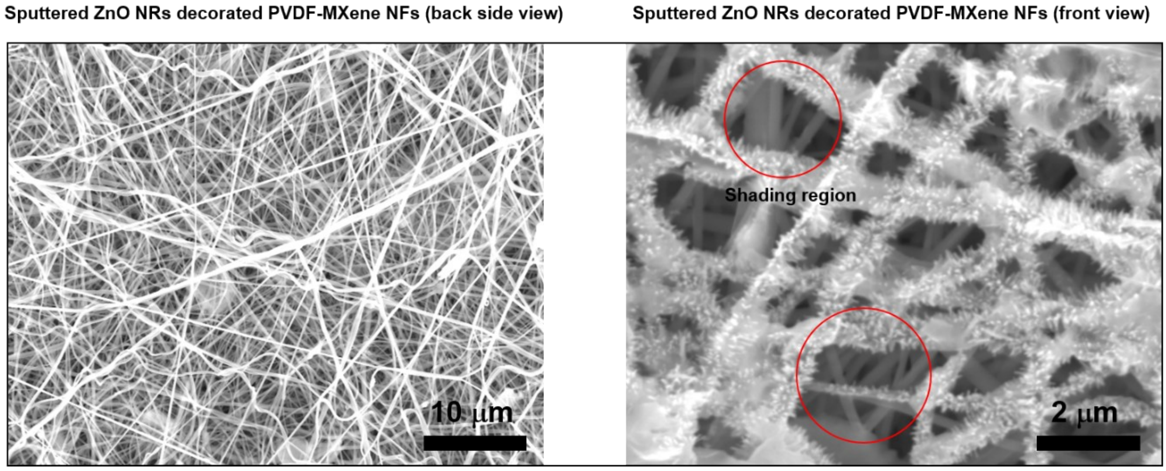

Fig. S1 SEMs of ZnO NRs decorated PVDF-MXene NFs by sputtering method. Red circles indicate the shaded regions where ZnO seed layer cannot be deposited.

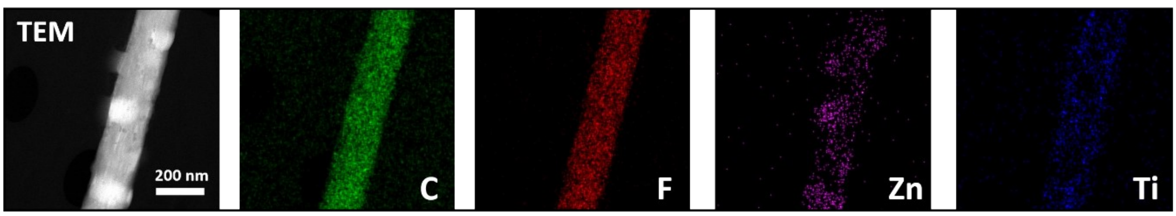

Fig. S2 TEM and EDS analysis of electrospun MXene-CTAB-ZnO embedded NFs.

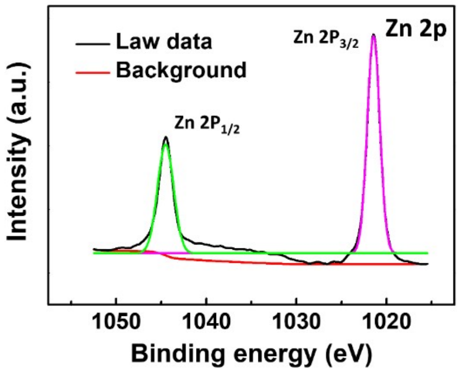

Fig. S3 XPS Zn 2p analysis of ZnO NR–decorated PVDF-MXene NFs.

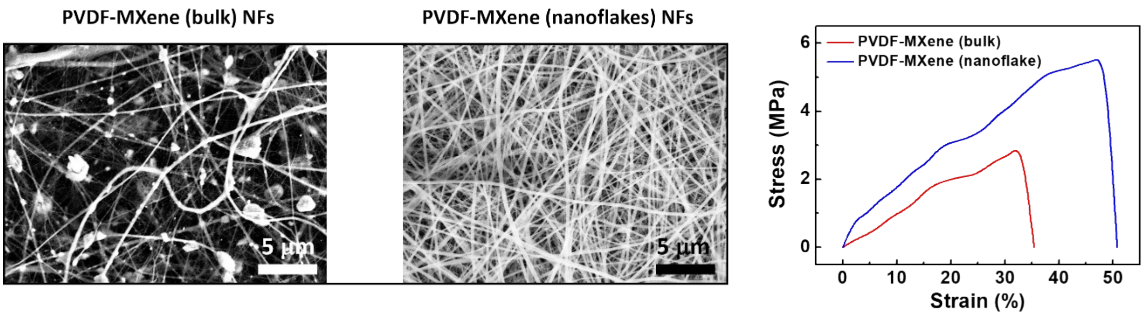

Fig. S4 (left) SEMs of PVDF-MXene composite NFs containing bulk MXene and MXene nanoflakes (right) stress-strain curves of each NF film

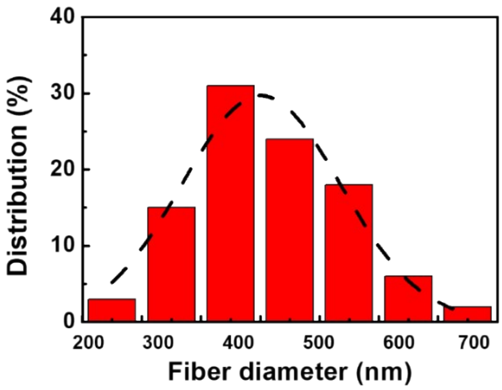

Fig. S5 Average fiber diameter distribution of PVDF NFs

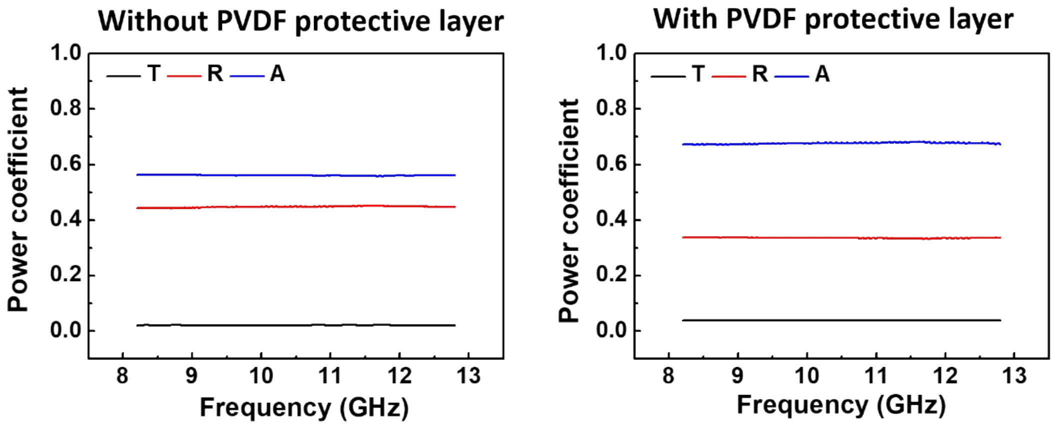

Fig. S6. Reflectivity and absorptivity of ZnO NRs decorated PVDF-MXene composite NF. (left) without a protective layer (right) with a protective layer

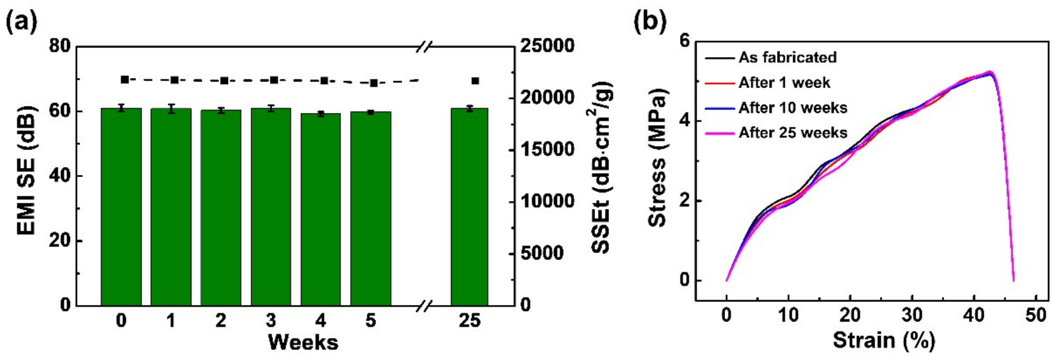

Fig. S7 Long-term stability of the ZnO NRs decorated PVDF-MXene NFs after 6 months. (a) EMI SE and absolute EMI SE (b) Stress-strain curves.

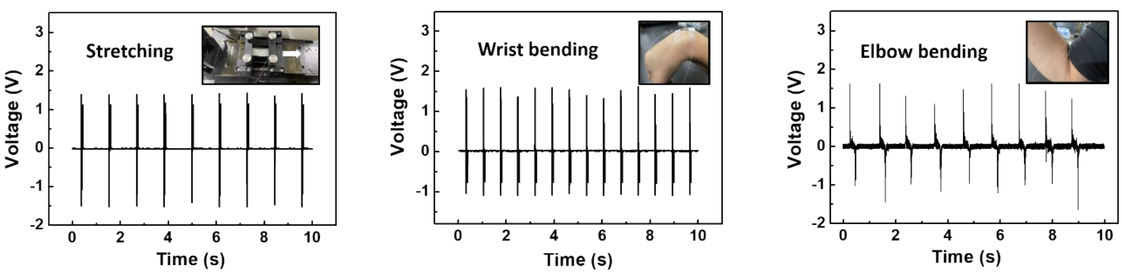

Fig. S8. Piezoelectric outputs of ZnO NRs decorated PVDF-MXene NFs based piezoelectric motion sensor under different motions

Table S1 Comparison of thickness, EMI SE, and absolute EMI SE of ZnO NRs decorated PVDF-MXene NFs and other works.

	Material	Thickness (mm)	SE (dB)	SSE_t ($dB \cdot cm^2/g$)	Ref.
Carbon	$RGO/Fe_3O_4/SiO_2$	0.15	32	12608	[1]
	CNT/RGO	2	31	2735	[2]
	CNT/polymer	0.15	35	1370	[3]
	CNT/cellulose	0.024	35	3800	[4]
	PI/GN	2.5	24	13750	[5]
MXene	HCNF/MXene	0.058	32	5223	[6]
	MXene/ANF	0.017	33	15529	[7]
	MXene/PEDOT:PSS	0.011	42.1	19497	[8]
	$MXene/TiO_2/rGO$	0.009	28	30293	[9]
	Porous MXene	2	75	18116	[10]
Metal	PVDF/MXene/AgNWs	0.03	25	1091	[11]
	AgNWs/CF fabric	0.036	106	6752	[12]
	$PAN/SiO_2/Ag$	0.005	22.6	20571	[13]
PVDF	PVDF-MXene	0.0015	50.3	17860	This work
	ZnO NRs decorate PVDF-MXene	0.0015	61	21830	This work

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