

Material	Thickness (nm)	Minimum RL(dB)	EAB(GHz)	Ref.
Fe/SiC/PCS	2.25	-46.3	4.6(<-20dB)	[1]
MXene	2.7/2.1	-54.1(2.7)	7.76(2.1)	[2]
Fe/Co@C-CNFs	1.08/1.22	-18.66(1.08)	4.2(1.22)	[3]
PAN/Fe ₃ O ₄	4	-11.3	7	[4]
TiN/carbon-paraffin composites	1.9	-41.8	3.9	[5]
SiC	1.9	-57.8	12	[5]
ZnO/Co	3.0/2.6	-68.4(3.0)	5.9(2.6)	[6]
P-CNF/Fe	4.1	-44.86	3.28	[7]
CeO ₂ /NC	2.5	-42.95	8.48	[8]
Zr/SiC	3.5	-48.6	3.2	[9]
ZrC	1.25/1.0	-25.77(1.25)	3.04(1.0)	[10]
ZrO ₂ /ZrC/ZrB ₂	2.4	-21	8.64	[11]
ZrO ₂ /ZrB ₂ /C	4.0	-54	3.1	[12]
ZS-HNFA-x	2.4	-53.2	6.4	[13]
ZrO ₂ /CF-rGO	3.14	-62.99	8.19	[14]
ZrO ₂ /C	2.5	-36	7.3	[15]

参考文献

- [1] HOU Y, CHENG L, ZHANG Y, et al. Electrospinning of fe/sic hybrid fibers for highly efficient microwave absorption[J]. ACS applied materials & interfaces, 2017, 9(8): 7265-7271.
- [2] ZHANG S, JIA Z, ZHANG Y, et al. Electrospun fe_{0.64}ni_{0.36}/mxene/cnfs nanofibrous membranes with multicomponent heterostructures as flexible electromagnetic wave absorbers[J]. Nano Research, 2023, 16(2): 3395-3407.
- [3] CAI W J, JIANG J G, ZHANG Z D, et al. Carbon nanofibers embedded with fe-co alloy nanoparticles via electrospinning as lightweight high-performance electromagnetic wave absorbers[J/OL]. Rare Metals, 2024, 43(6): 2769-2783. <https://doi.org/10.1007/s12598-023-02592-7>.
- [4] YANG Y, GUO Z, ZHANG H, et al. Electrospun magnetic carbon composite fibers: Synthesis and electromagnetic wave absorption characteristics[J/OL]. Journal of Applied Polymer Science, 2013, 127(6): 4288-4295. <https://onlinelibrary.wiley.com/doi/abs/10.1002/app.38027>. DOI: <https://doi.org/10.1002/app.38027>.
- [5] WEI Y, ZHANG L, GONG C, et al. Fabrication of tin/carbon nanofibers by electrospinning and their electromagnetic wave absorption properties[J/OL]. Journal of Alloys and Compounds, 2018, 735: 1488-1493. <https://www.sciencedirect.com/science/article/pii/S092583881734077X>. DOI: <https://doi.org/10.1016/j.jallcom.2017.11.295>.
- [6] QIAO J, XU D, LV L, et al. Self-assembled zno/co hybrid nanotubes prepared by electrospinning for lightweight and high-performance electromagnetic wave absorption[J/OL]. ACS Applied Nano Materials, 2018, 1(9): 5297-5306. <https://doi.org/10.1021/acsanm.8b01303>.

- [7] ZUO X, XU P, ZHANG C, et al. Porous magnetic carbon nanofibers (p-cnf/fe) for low-frequency electromagnetic wave absorption synthesized by electrospinning[J/OL]. *Ceramics International*, 2019, 45(4): 4474-4481. <https://www.sciencedirect.com/science/article/pii/S0272884218332425>. DOI: <https://doi.org/10.1016/j.ceramint.2018.11.127>.
- [8] ZHAO P Y, WANG H Y, CAI B, et al. Electrospinning fabrication and ultra-wideband electromagnetic wave absorption properties of ceo₂/n-doped carbon nanofibers[J/OL]. *Nano Research*, 2022, 15(9): 7788-7796. <https://doi.org/10.1007/s12274-022-4675-x>.
- [9] ZHANG B, LIU Y, LI X, et al. Closed-cell zro₂/sic-based composite nanofibers with efficient electromagnetic wave absorption and thermal insulation properties[J/OL]. *Journal of Alloys and Compounds*, 2022, 927: 167036. <https://www.sciencedirect.com/science/article/pii/S0925838822034272>. DOI: <https://doi.org/10.1016/j.jallcom.2022.167036>.
- [10] GUO Y, SONG Q, ZHANG L, et al. High-aspect-ratio zrc whiskers: Synthesis, growth mechanism and electromagnetic wave absorption properties[J/OL]. *Journal of Materiomics*, 2023, 9(2): 235-243. <https://www.sciencedirect.com/science/article/pii/S2352847822001460>. DOI: <https://doi.org/10.1016/j.jmat.2022.11.001>.
- [11] WANG Q, QI L, JIA Y, et al. Flexible zro₂/zrc/zrb₂ ceramic nanofiber mats by electrospinning with broadband electromagnetic absorption and high-temperature oxidation resistance[J/OL]. *Materials Letters*, 2024, 365: 136442. <https://www.sciencedirect.com/science/article/pii/S0167577X24005809>. DOI: <https://doi.org/10.1016/j.matlet.2024.136442>.
- [12] YANG C, LI K, HU M, et al. Flexible zro₂/zrb₂/c nanofiber felt with enhanced microwave absorption and ultralow thermal conductivity[J/OL]. *Journal of Materiomics*, 2025, 11(4): 100988. <https://www.sciencedirect.com/science/article/pii/S2352847824002272>. DOI: <https://doi.org/10.1016/j.jmat.2024.100988>.
- [13] ZHU H, WENG X, LIAO M, et al. Zro₂-interface-engineered sic nanofiber aerogel with integrated hydrophobicity, thermal insulation, and broadband electromagnetic wave absorption [J/OL]. *Applied Surface Science*, 2025, 711: 164079. <https://www.sciencedirect.com/science/article/pii/S0169433225017945>. DOI: <https://doi.org/10.1016/j.apsusc.2025.164079>.
- [14] YIN X, WANG Y, PANG N, et al. Ultralight, highly elastic zro₂/carbon fiber reinforced reduced graphene oxide aerogels with radar and infrared stealth capabilities[J/OL]. *Composites Part B: Engineering*, 2025, 303: 112628. <https://www.sciencedirect.com/science/article/pii/S1359836825005293>. DOI: <https://doi.org/10.1016/j.compositesb.2025.112628>.
- [15] WANG X, LIU L, WANG X, et al. Joule heat induced ultrafine zro₂/c composites for enhanced microwave absorption[J/OL]. *Surfaces and Interfaces*, 2024, 51: 104818. <https://www.sciencedirect.com/science/article/pii/S2468023024009751>. DOI: <https://doi.org/10.1016/j.surfin.2024.104818>.