Supplementary Information (SI) for Inorganic Chemistry Frontiers.
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Enhanced Interfacial Polarization Loss Induced by Hollow Engineering of Hollow Alloyed CoFe-ZIF Nanocage/Carbon Nanofibers for Efficient Microwave Absorption

Dan Wu [1,2], Congmin Fan[2], Wusi Luo*[1], Yingzhi Jin[2], Qinchuan He[2], Yiqun Wang*[2]*

1. School of Materials Science and Engineering, Hubei University of Automotive Technology, Shiyan, 442002, Hubei, P.R.China

2. College of Materials and Chemistry & Chemical Engineering, Chengdu University of Technology, Chengdu, 610059, Sichuan, P.R.China

**Corresponding author: Yiqun Wang, Wusi Luo and Congmin Fan*

E-mail: wangyiqun17@cdut.edu.cn (Yiqun Wang)

luowusi0417@126.com (Wusi Luo)

fcongmin@mail.ustc.edu.cn (Congmin Fan)

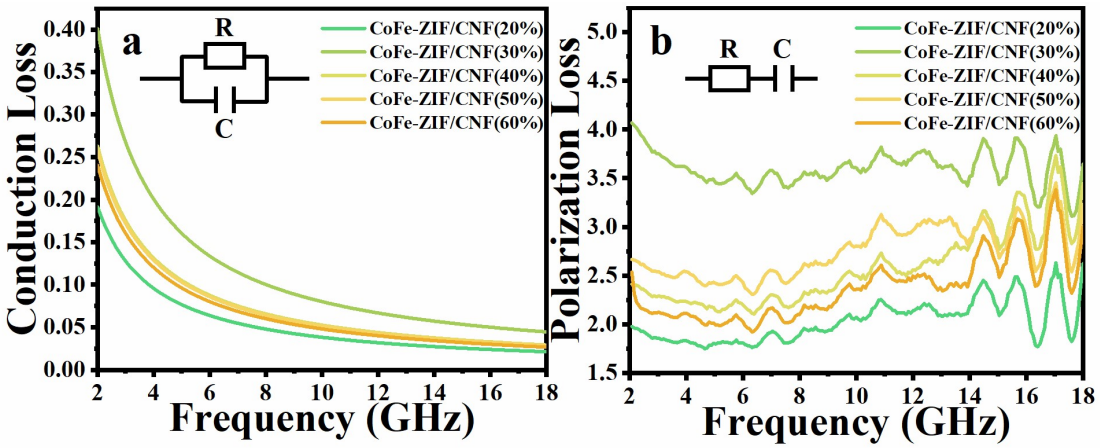

Fig. S1. (a) Conduction loss and (b) polarization loss of CoFe-ZIF/CNFs

The delta function can also be used to calculate the impedance matching degree of the electromagnetic wave absorber surface. The calculation formula is as follows:

$$|\Delta| = |\sin h^2(Kfd) - M| \quad \text{(S1)}$$

Where K and M are calculated by the complex permittivity and complex permeability as shown in the following expressions:

$$K = \frac{4\pi\sqrt{\mu'\varepsilon'}\sin\frac{\delta_e + \delta_m}{2}}{c\cos\delta_e\cos\delta_m} \quad \text{(S2)}$$

$$M = \frac{4\mu'\cos\delta_e\varepsilon'\cos\delta_m}{(\mu'\cos\delta_e - \varepsilon'\cos\delta_m)^2 + \left[\tan\left(\frac{\delta_m}{2} - \frac{\delta_e}{2}\right)\right]^2(\mu'\cos\delta_e + \varepsilon'\cos\delta_m)^2} \quad \text{(S3)}$$

When $|\Delta| < 0.4$, the electromagnetic wave is absorbed into the material and the loss occurs, indicating that it has excellent impedance matching characteristics.

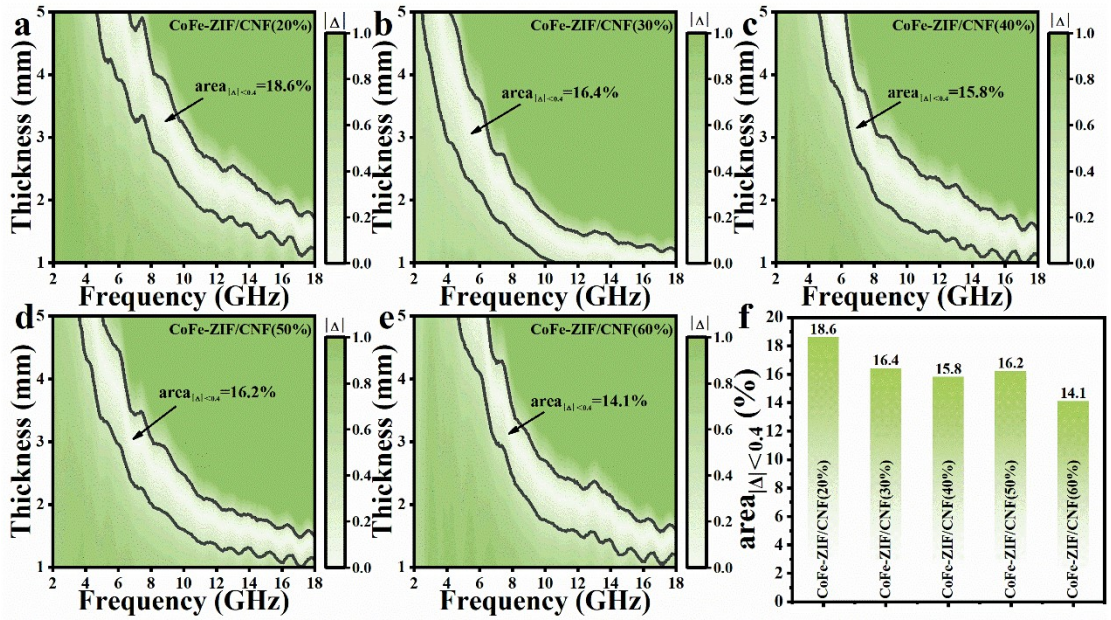

Fig. S2. Calculated delta value maps: (a) CoFe-ZIF/CNF (20%), (b) CoFe-ZIF/CNF (30%), (c) CoFe-ZIF/CNF (40%), (d) CoFe-ZIF/CNF (50%), and (e) CoFe-ZIF/CNF (60%) and (f) delta value of CoFe-ZIF/CNFSs

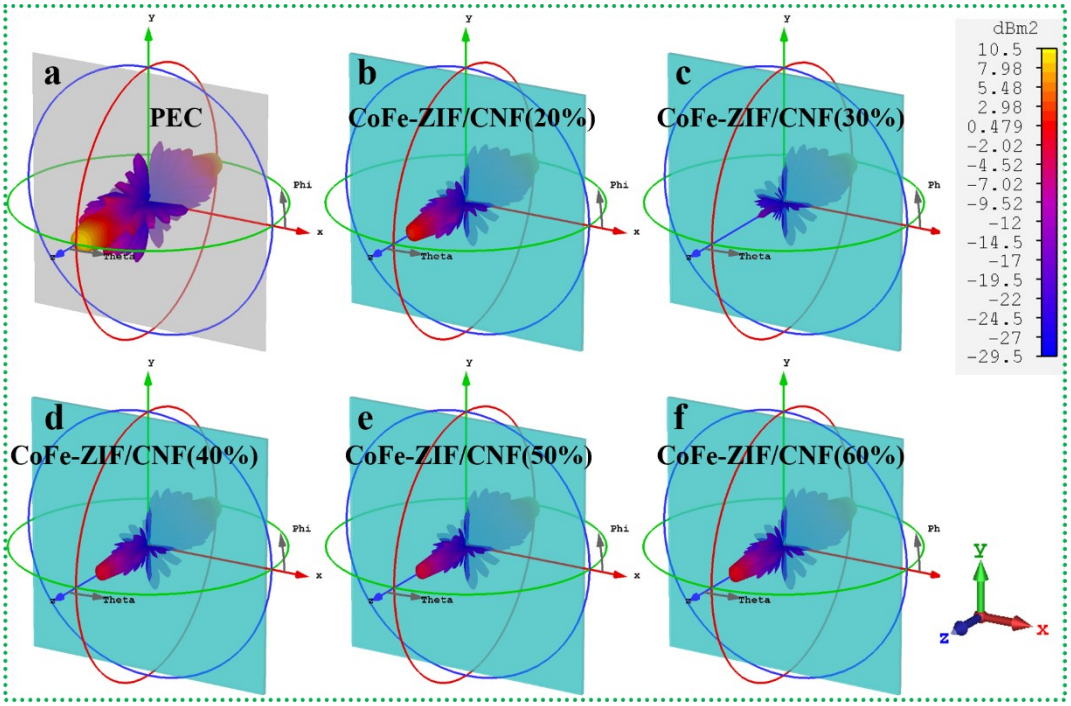

Fig. S3. Results of the far-field simulation of CSTs for PECs and composites: (a) PEC, (b) CoFe-ZIF/CNF (20%), (c) CoFe-ZIF/CNF (30%), (d) CoFe-ZIF/CNF (40%), (e) CoFe-ZIF/CNF (50%), and (f) CoFe-ZIF/CNF (60%)