

A Sustainable and Low-Cost Route to Design NiFe₂O₄ Nanoparticles/Biomass-Based Carbon Fibers with Broadband Microwave Absorption

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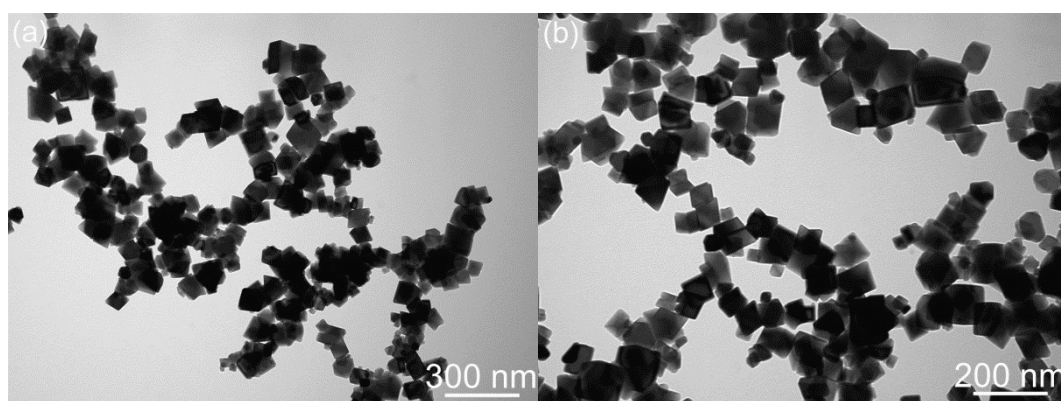
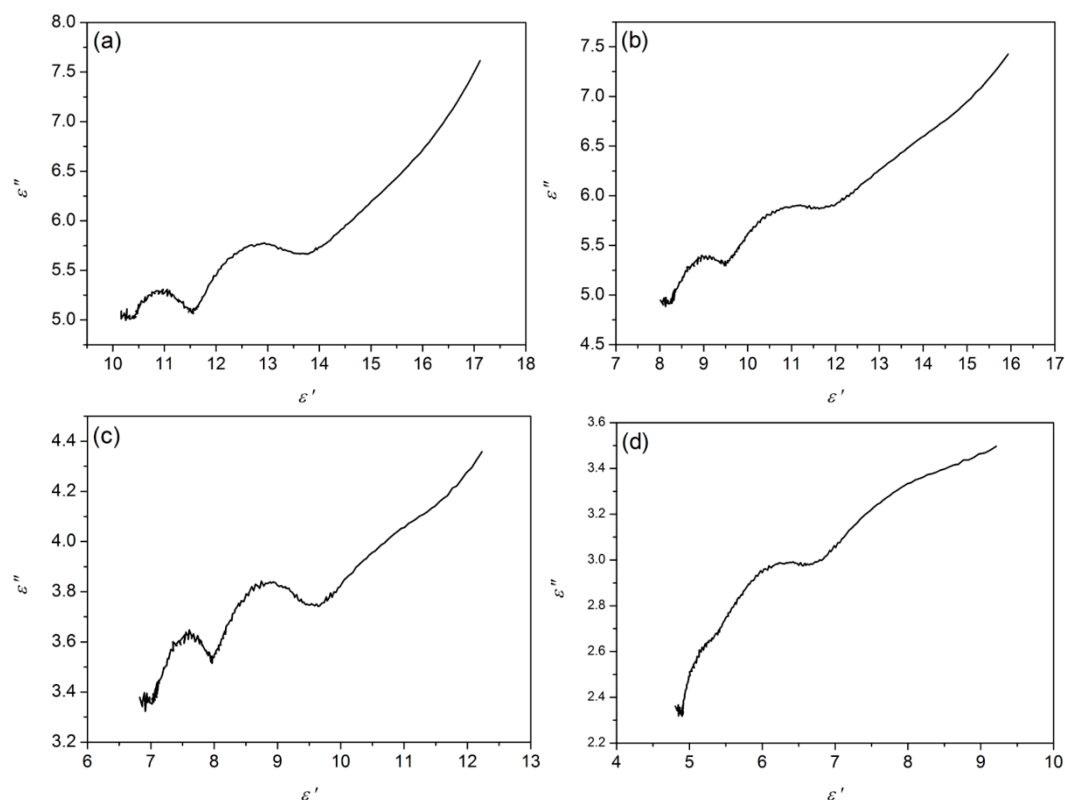


Figure S1. (a,b) TEM images of the NiFe₂O₄ nanoparticles in different magnification.



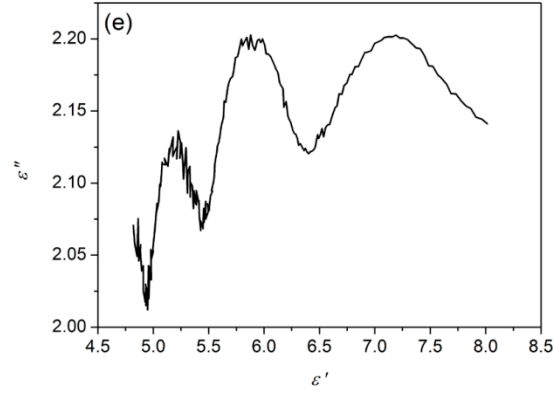


Figure S2. Cole-Cole curves of (a) CCF, (b) NiFe₂O₄/CCF-1, (c) NiFe₂O₄/CCF-2, (d) NiFe₂O₄/CCF-3, and (e) NiFe₂O₄/CCF-4.

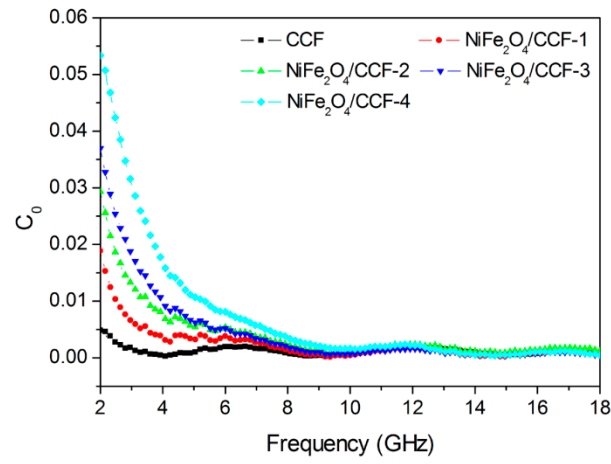
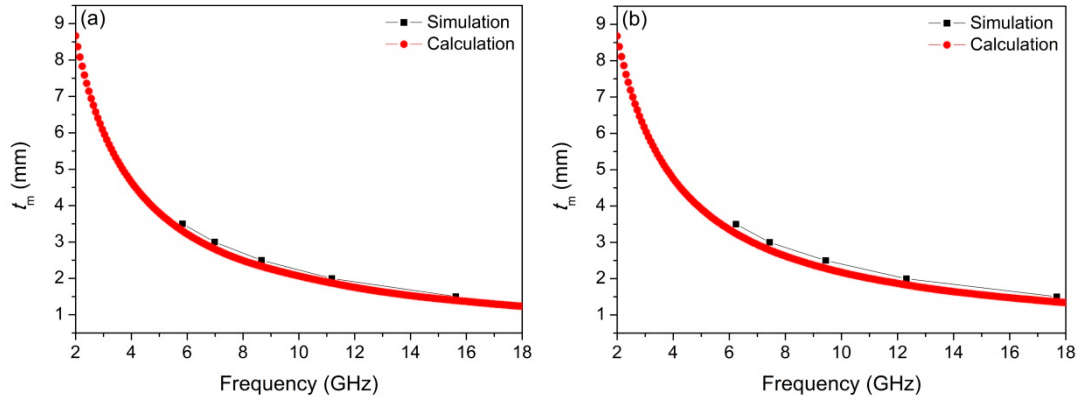


Figure S3 Values of C_0 ($C_0 = \mu'' \mu'^{-2} f^{-1}$) of CCF, NiFe₂O₄/CCF-1, NiFe₂O₄/CCF-2, NiFe₂O₄/CCF-3, and NiFe₂O₄/CCF-4.



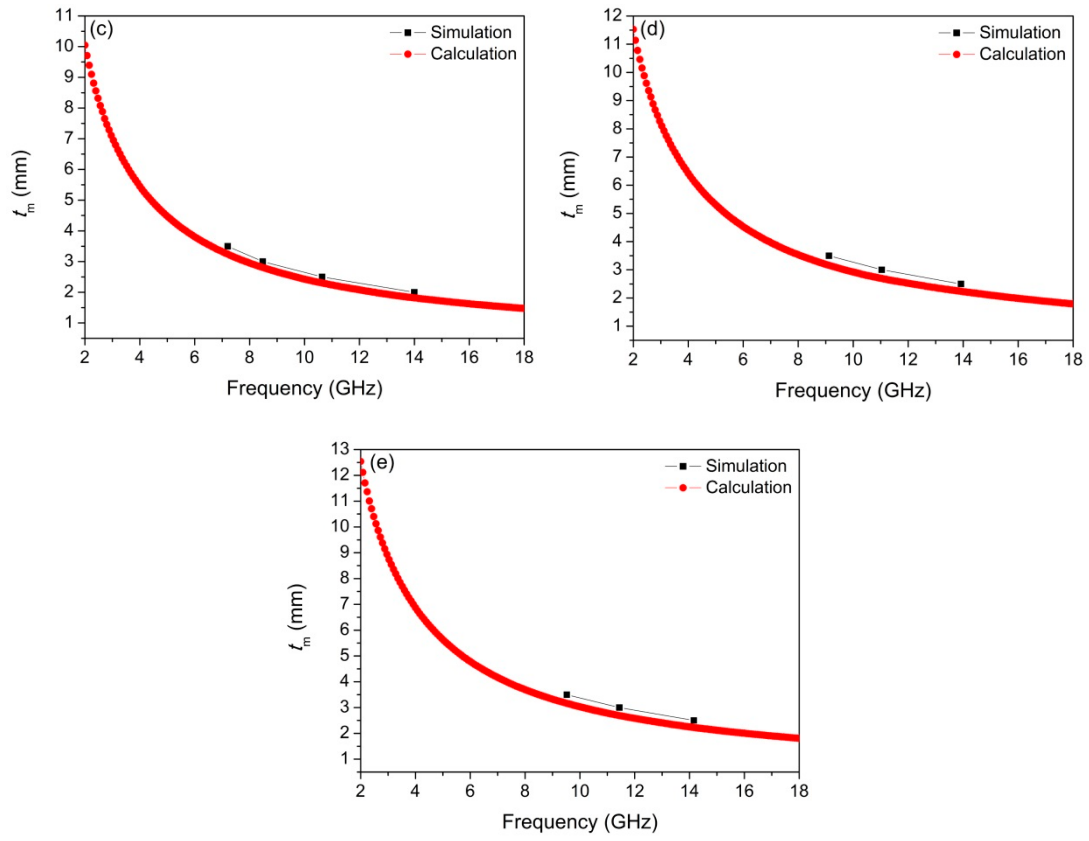


Figure S4. Simulation and calculation of the absorber thickness (t_m) versus peak frequency (f_m): (a) CCF, (b) NiFe₂O₄/CCF-1, (c) NiFe₂O₄/CCF-2, (d) NiFe₂O₄/CCF-3, and (e) NiFe₂O₄/CCF-4.

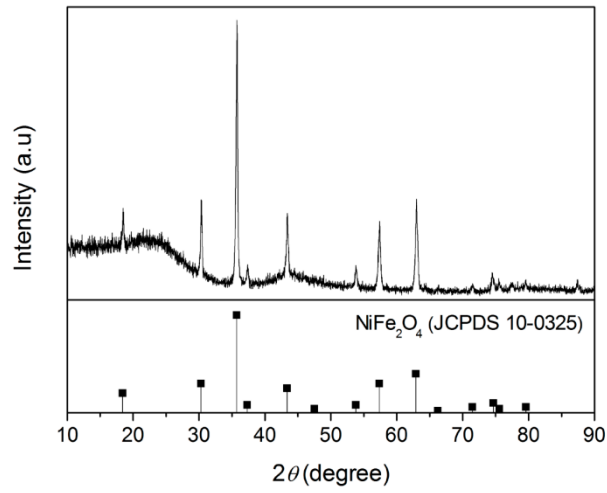


Figure S5. XRD pattern of NiFe₂O₄/carbonized bamboo fibers.

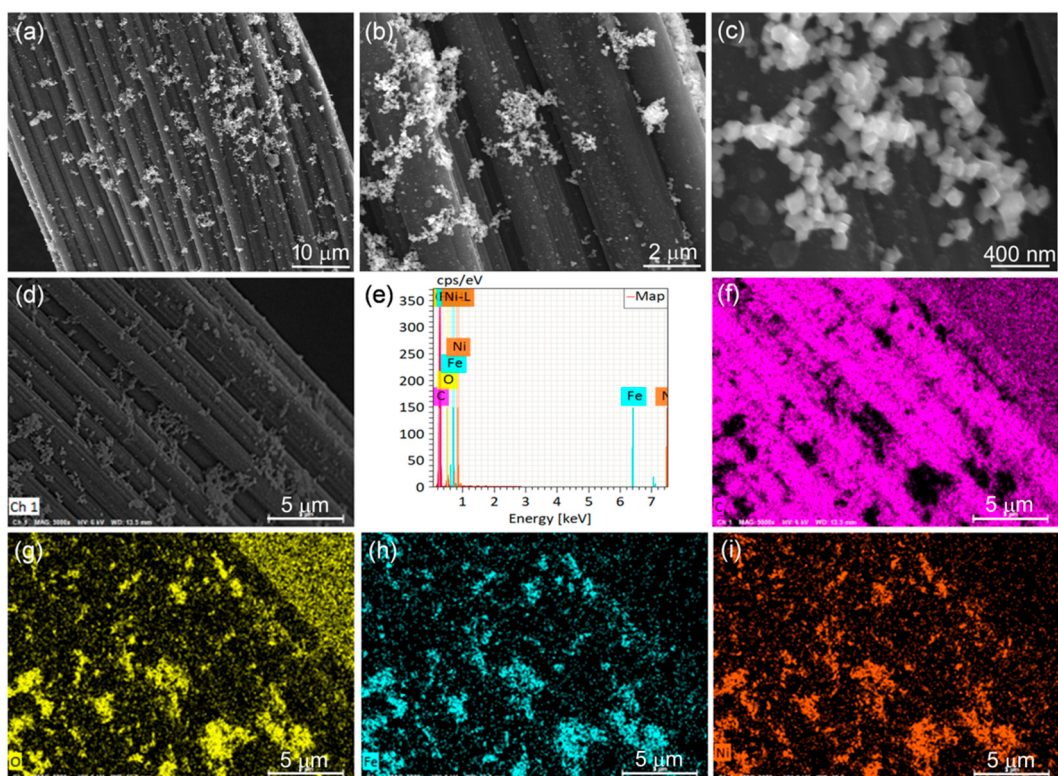


Figure S6. (a–d) SEM images, (e) EDX spectra, and (f–i) elemental mapping images of NiFe₂O₄/ carbonized bamboo fibers.

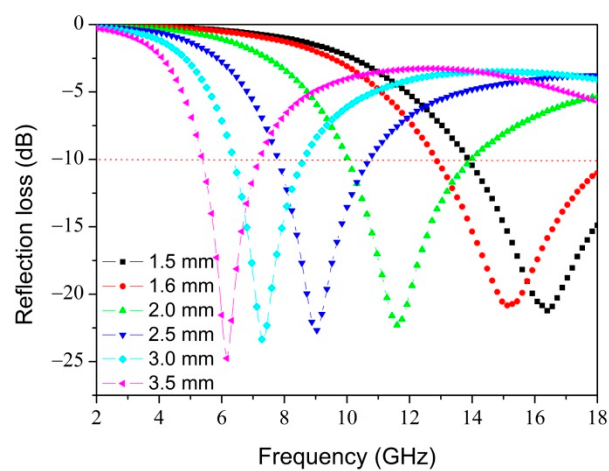


Figure S7. Frequency dependence of the simulated reflection loss for NiFe₂O₄/carbonized bamboo fibers at different thicknesses.