Supporting information

Multifunctional AgNWs-Fe_3O_4/ANF Composite Films with Janus like Structure for outstanding electromagnetic interference shielding and thermal management

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3.1. Characterization of AgNWs-Fe_3O_4/ANF composite film

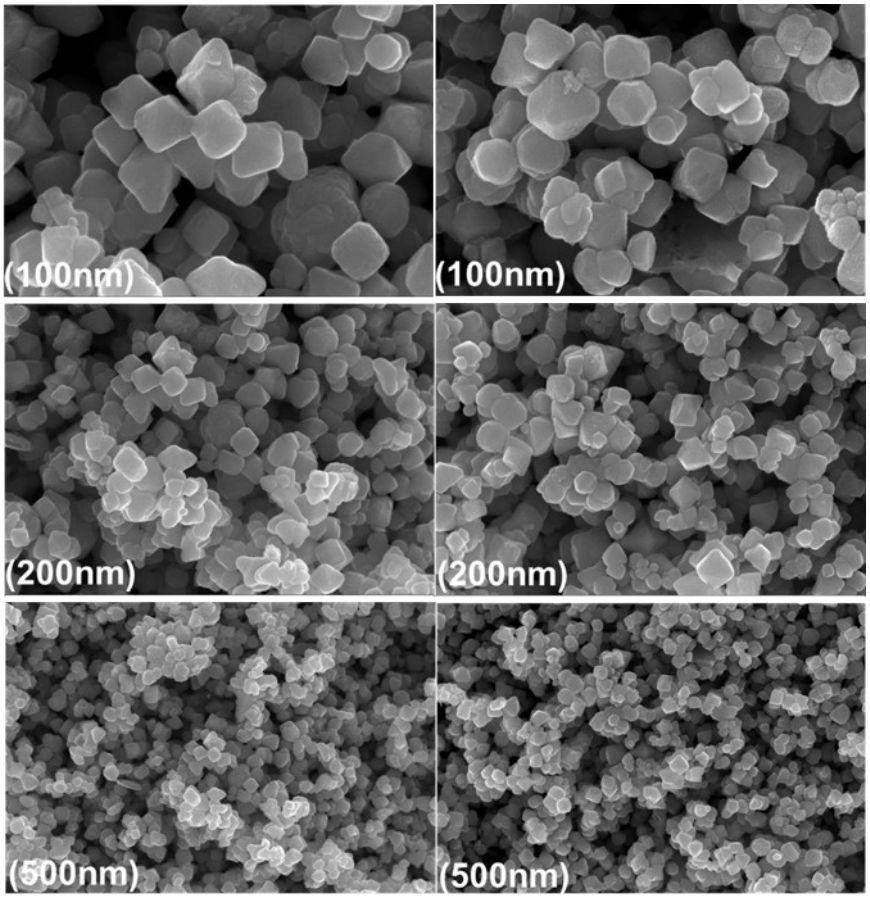

Fig. S1. SEM image of Fe_3O_4.

3.5. Photothermal conversion performance of the Janus AgNWs-Fe_3O_4/ANF composite film.

The heat transfer processes of ANF, Fe_3O_4/ANF and AgNWs-Fe_3O_4/ANF composite films were modeled by COMSOL Multiphysics software. The ANF composite films with a diameter of 25mm and a thickness of 60 um was contacted with the top surface of heat source, with a diameter of 7mm and a thickness of 3mm. Afterwards, the two-dimensional model was established to study the effect of filler on the thermal conductivity of composite films. There was a square composite (5μm×5μm) and a bottom heat source with a temperature of 100 °C. In addition, the circular Fe_3O_4

particle was with a diameter of 200 nm[1, 2].

References

1. H. Zhang, G. Zhang, J. Li, X. Fan, Z. Jing, J. Li and X. Shi, *Compos. Part A* , 2017, **100**, 128-138.
2. J. Rhyou, J. Youn, S. Eom and D. S. Kim, *ACS Macro Lett.*, 2021, **10**, 965-970.