

Supporting information:

Broadband Microwave Absorber Constructed by Reduced Graphene Oxide/La_{0.7}Sr_{0.3}MnO₃ Composites

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Figure S1 show the SEM image of pure LSMO powder and optical image of rGO/LSMO composite form. The LSMO particle size is ~ 100 nm, as shown in Figure S1a; rGO/LSMO composite form indicates the LSMO powder homogeneously distribute in flaky structure of rGO.

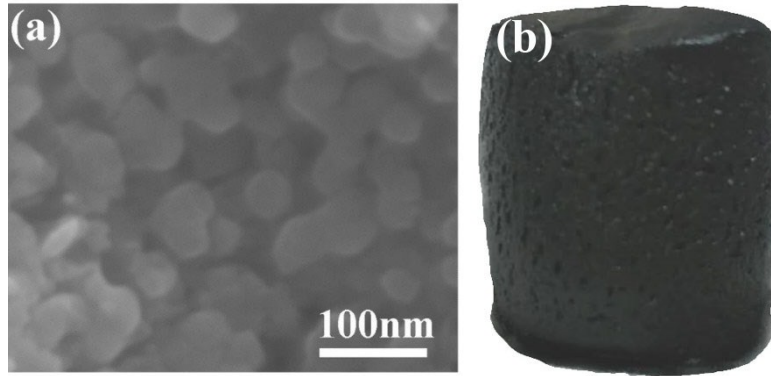


Figure S1(a) SEM image of pure LSMO powder and (b) optical image of rGO/LSMO composite form.

Figure S2 show the permittivity ($\epsilon = \epsilon' + i\epsilon''$) and permeability ($\mu = \mu' + i\mu''$) of pure LSMO. As shown in figure S2 (a), the real part ϵ' value of is range from 25 to 32; and the imaginary part ϵ'' value of is range from 2 to 8. From figure S2 (b), the real part μ' value is around 0.1~0.2, and the imaginary part μ'' is -0.1~ 0.3.

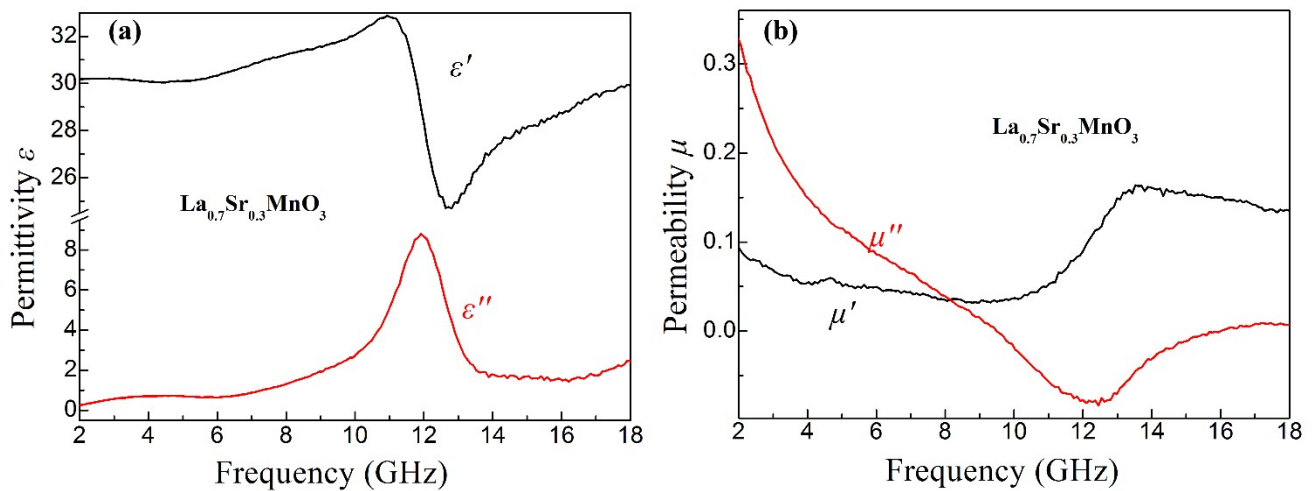


Figure S2 (a) The permittivity and (b) permeability of pure LSMO.

Figure S3 show the permittivity ($\epsilon = \epsilon' + i\epsilon''$) and permeability ($\mu = \mu' + i\mu''$) of pure rGO. As shown in figure S3, the real part ϵ' value of is range from 40 to 80; and the imaginary part ϵ'' value of is range from 12.5 to 30; the real part μ' value is around 0.2~0.8, and the imaginary part μ'' is 0.2~ 1.0.

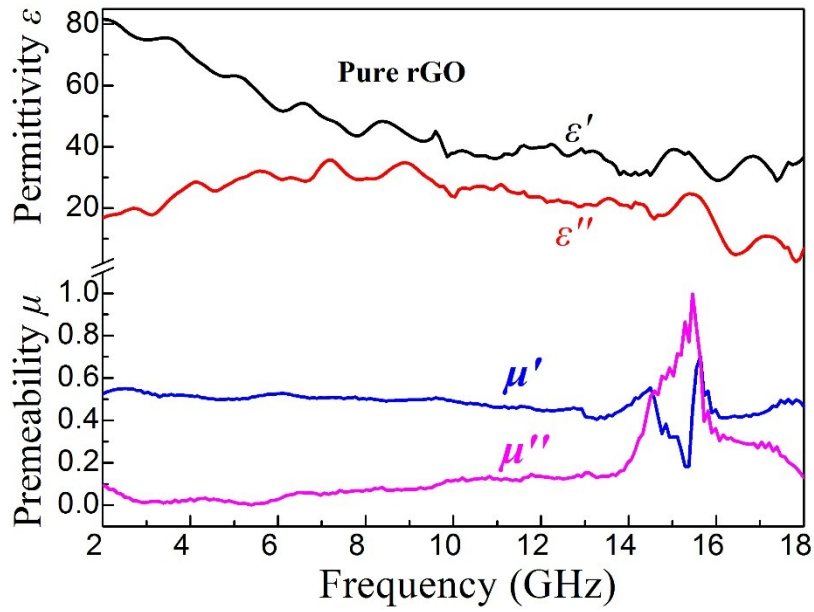


Figure S3 The permittivity and permeability of pure rGO.

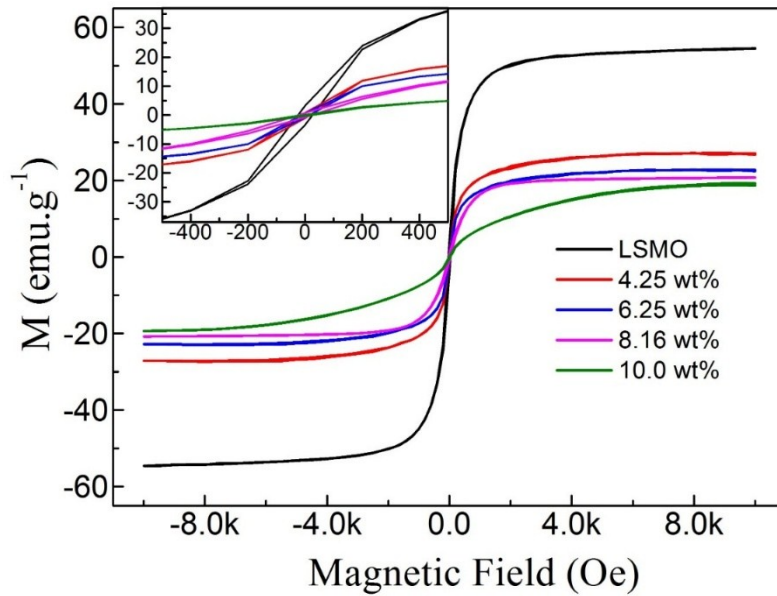


Figure S4 VSM of LSMO and rGO/LSMO with different weigh percent of rGO.

Figure S4 shows hysteresis loop of the rGO/LSMO composites. The results of VSM analysis show that the saturation magnetization and coercivity are decreased by increasing the percentage of the rGO. LSMO show the ferromagnetic with saturation magnetization (M_s) of $54.5 \text{ emu}\cdot\text{g}^{-1}$. The coercivity (H_c) and remanence (M_r) of LSMO are 25.63 Oe and $0.02 \text{ emu}\cdot\text{g}^{-1}$, respectively. It can be observed that the M_s and M_r are dropped dramatically with an increase in the nonmagnetic rGO; the coercivity

of rGO/LSMO composites declined slightly compared with pure LSMO and gradually showed the magnetic characteristic of paramagnetic.