nanomaterials

MDPI

Supporting Information

Facile Synthesis of Novel Amorphous TiO_2 Nanorods Decorated rGO Hybrid Composites with Wide Band Microwave Absorption

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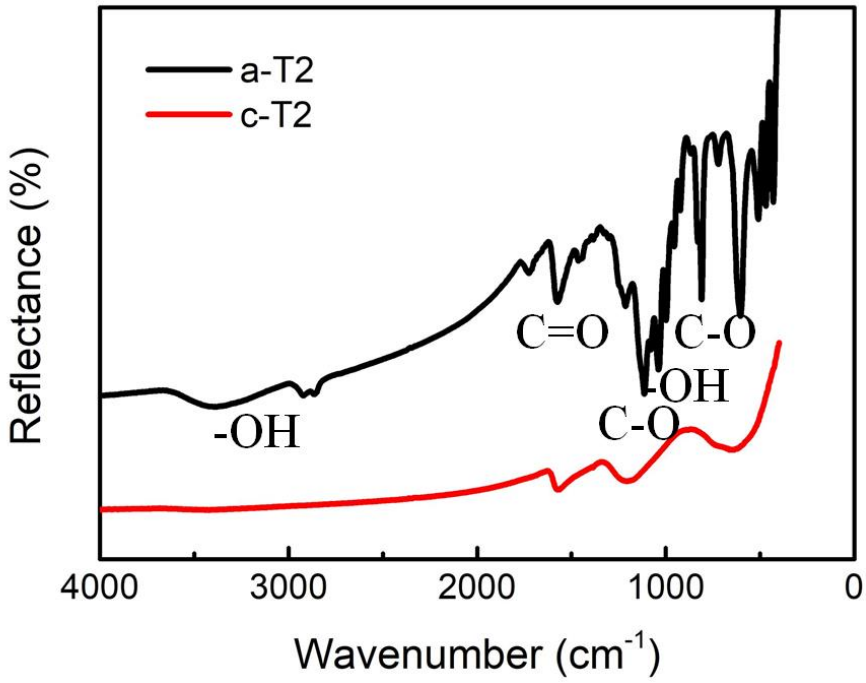

Figure S1. FTIR spectra of a-T2 and c-T2.

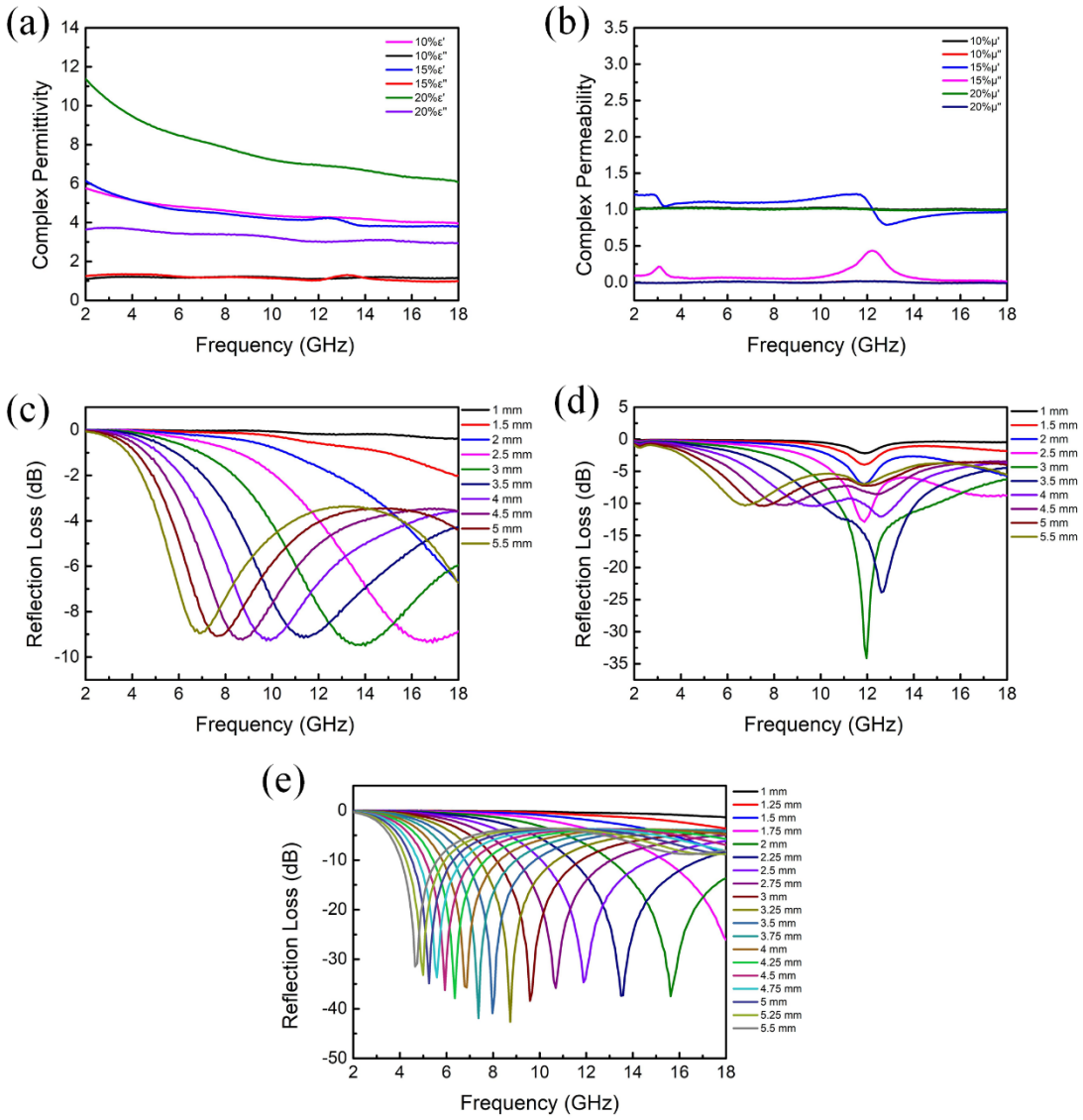

Figure S2. (a) Complex permittivity and (b) permeability of a-T2 with filler loading ratio of 10wt%, 15wt% and 20wt%. (c, d, e) Frequency-dependent reflection loss curve of a-T2 with filler loading ratio of 10wt%, 15wt% and 20wt%.

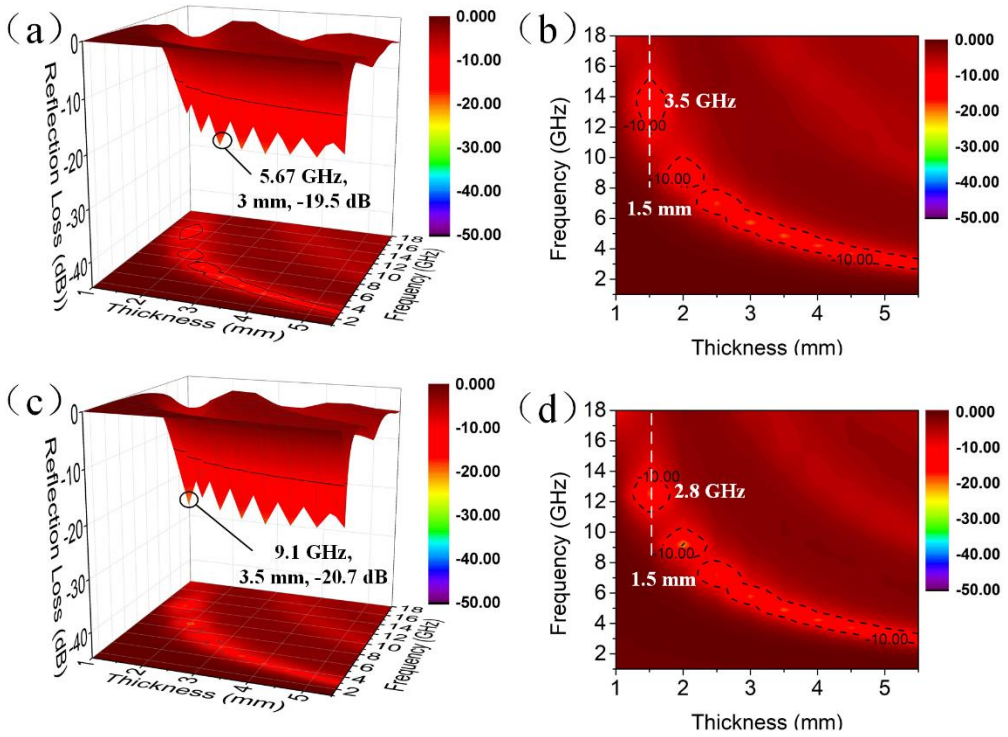

Figure S3. 3D RL and 3D projection plots of (a, b) c-T1 and (c, d) c-T2.

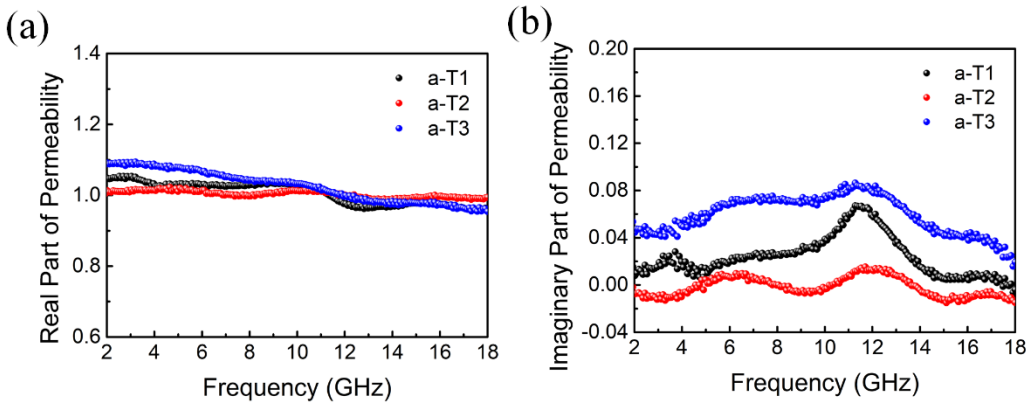

Figure S4. Complex permeability of a-T2 and c-T2: (a) real permeability, (b) imaginary permeability at 2-18 GHz.

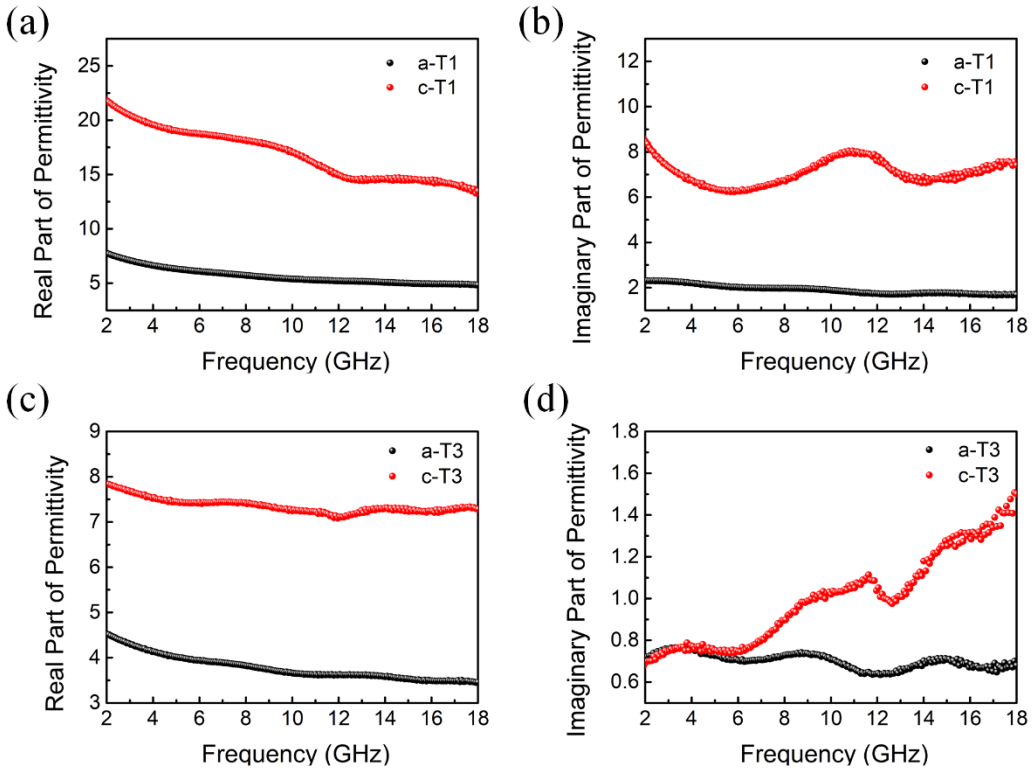

Figure S5. (a) Real permittivity and (b) imaginary permittivity of a-T1 and c-T12-18 GHz; (c) real permittivity and (d) imaginary permittivity of a-T3 and c-T3 at 2-18 GHz.

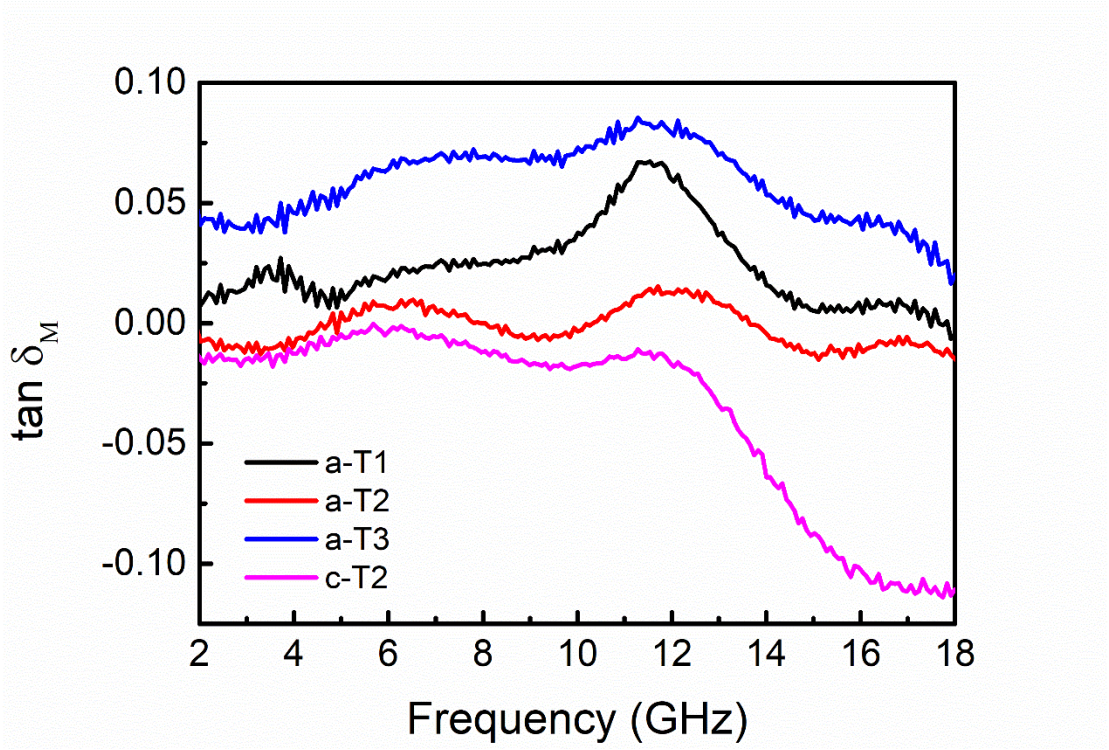

Figure S6. Magnetic dissipation factor (tgδ_μ) of a-T1, a-T2, a-T3 and c-T2.

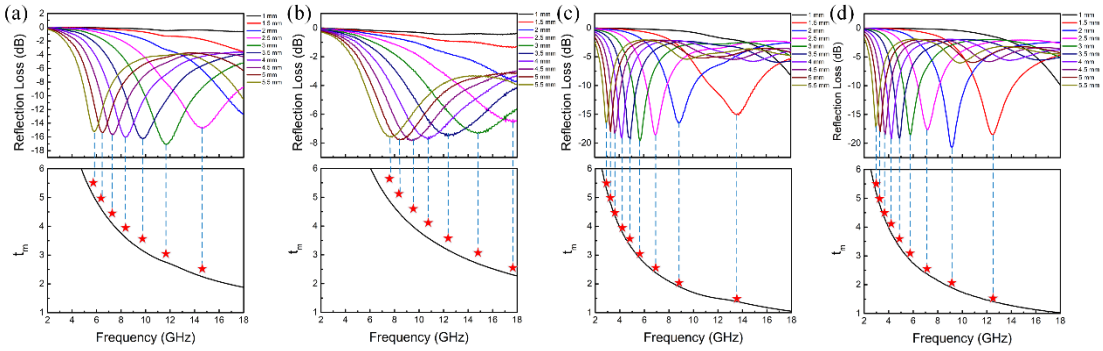

Figure S7. Frequency dependence of RL curves and the calculated matching thickness versus peak frequency of (a) a-T1, (b) a-T3, (c) c-T1 and (d) c-T2.

Table S1. Different composites based on carbon materials for microwave absorption in recent researches.

Absorbers	Matrix	Loading ratio (wt%)	Thickness (mm)	RL_{min} (dB)	Effective absorption bandwidth (GHz)	refs
CNT/TiO_2 sponge	Paraffin	30	2	-31.8	2.76	[46]
TiO_2/Co/CNFs	Paraffin	20	3.5	-50	5.2	[59]
Fe_3O_4@SiO_2/rGO nanocomposites	Paraffin	50	1.5	-26.4	2.6	[65]
B-TiO_2/C	Paraffin	50	1.5	-73.2	6.8	[61]
TiO_2/EG	Epoxy	30	1.4	-33.9	2.7	[62]
SiO_2@TiO_2 nanoparticle	Paraffin	50	3	-35.2	2.5	[60]
SCFs@TiO_2	Paraffin	30	1	-46.3	2.4	[64]
NiFe@C@GO	Silicon resin	30	2.8	-51	4.55	[66]
Fe_3O_4@LAS/rGO	Paraffin	50	2.1	-65	4	[63]
Amorphous TiO_2/rGO composites	Paraffin	20	3.25	-42.8	6.2	This work