Supporting Information

Magnetically Aligned Co-C/MWCNTs Composite Derived from MWCNTs Interconnected Zeolitic Imidazolate Frameworks for Lightweight and Highly Efficient Electromagnetic Wave Absorber

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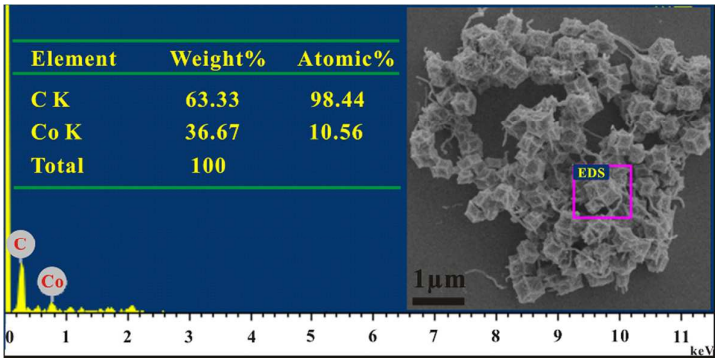

Figure S1. SEM image and EDS result of Co–C/MWCNTs composite.

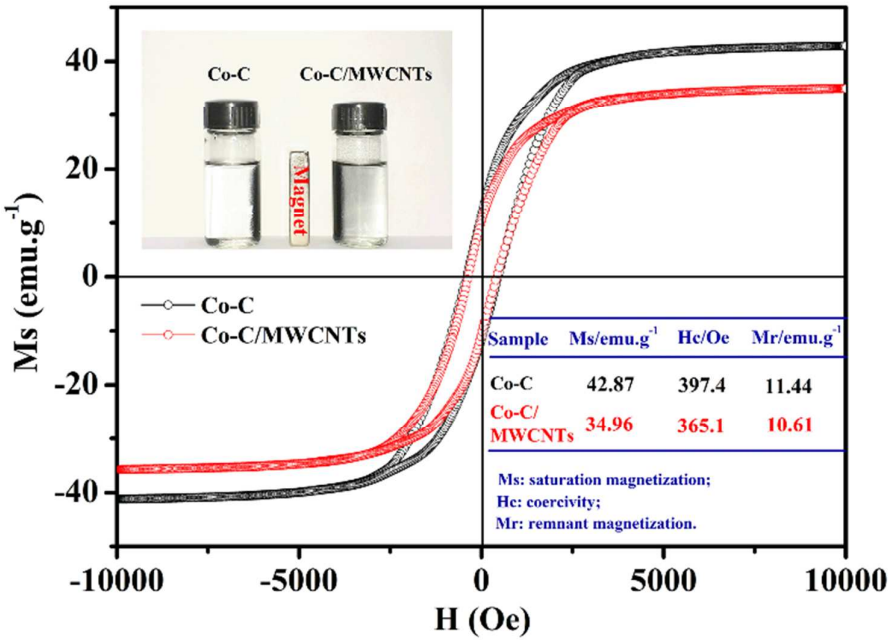

Figure S2. Room-temperature magnetization curves of Co-C and Co–C/MWCNTs composites. Inset: photograph of magnetic separation for Co-C and Co–C/MWCNTs composites.

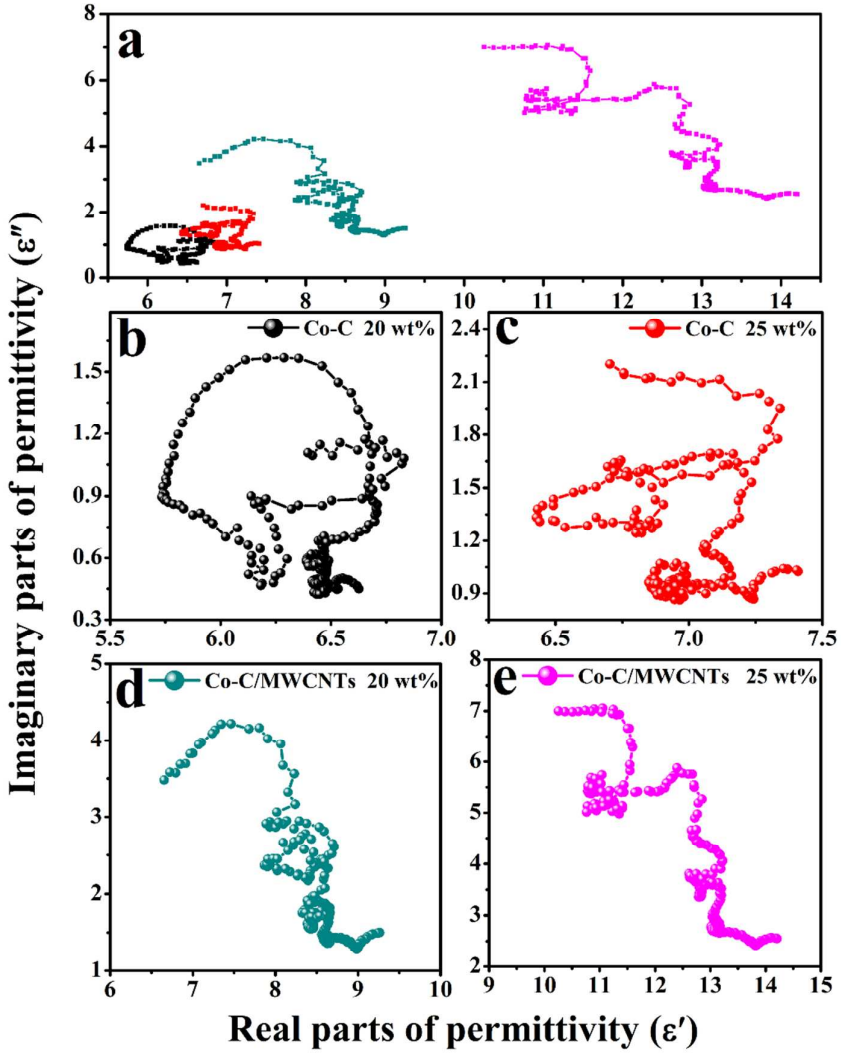

Figure S3. (a) Comparison of ε'–ε'' plots for Co-C and Co–C/MWCNTs composites. Enlarged ε'–ε'' plots for (b) Co-C (20 wt%), (c) Co-C (25 wt%), (d) Co–C/MWCNTs (20 wt%), and (e) Co–C/MWCNTs (25 wt%).

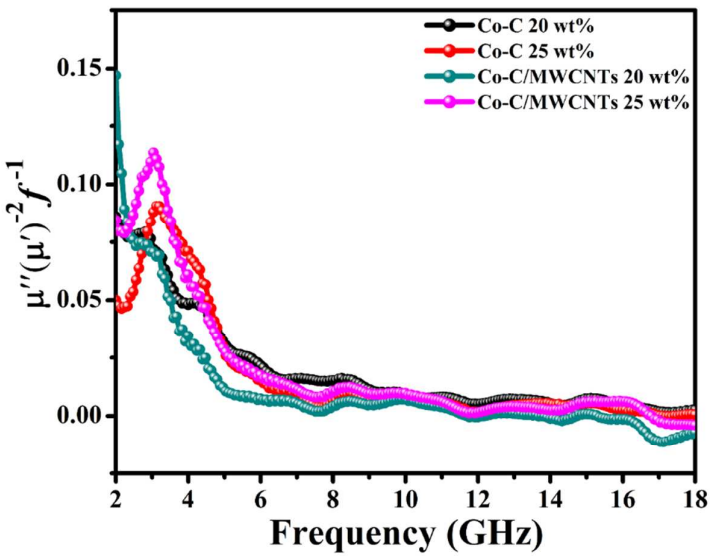

Figure S4. Frequency dependences of $\mu''(\mu')^{-2}f^{-1}$ values for Co-C and Co-C/MWCNTs composites in 2−18 GHz.

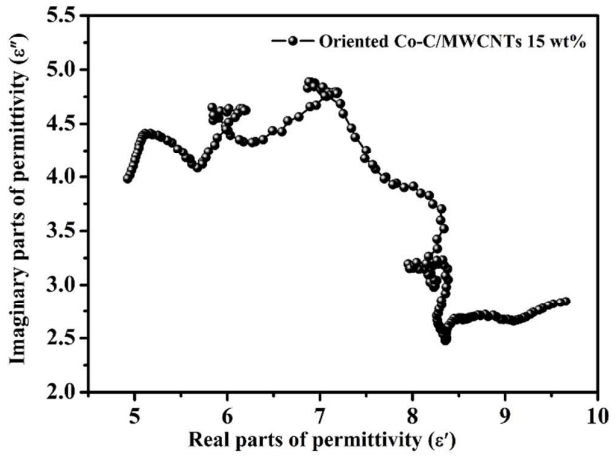

Figure S5. ε'–ε'' plot of oriented Co-C/MWCNTs composite (15 wt%).

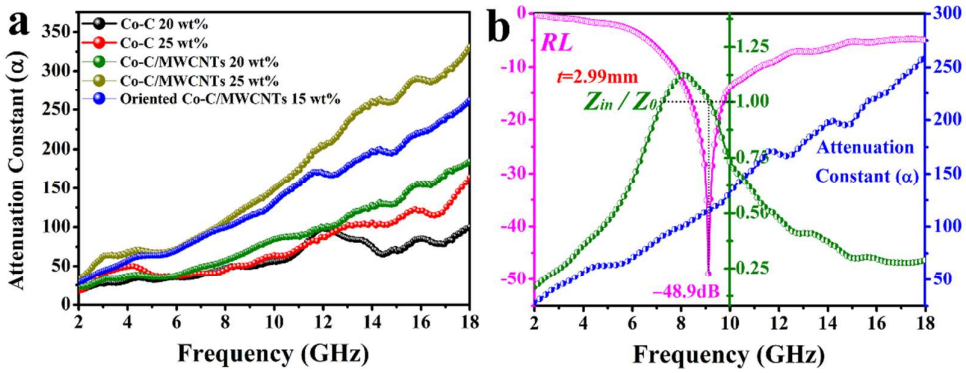

Figure S6. Frequency dependences of (a) attenuation constant for all samples and (b) optimum RL value, relative input impedance ($|Z_{in}/Z_0|$), attenuation constant of oriented Co-C/MWCNTs composites (15 wt%).

Table S1. Comparison of EMW absorbing properties of various MOF-derived composite absorbers.

Sample	Filler loading (wt%)	Matching thickness (mm)	Matching frequency (GHz)	Minimum RL value (dB)	Ref.
Fe-Co/[a]NPC	50	1.2	~15	−21.7	[67]
Fe/C	40	2.0	15.0	−22.6	[26]
ZnO/NPC@Co/NPC	50	1.9	~16	−28.8	[68]
NiO/Ni/GN@Air@NiO/Ni/GN	50	1.7	17.2	−34.5	[74]
CoFe@C	50	2.5	9.92	−43.5	[71]
Co/C-[b]500	40	2.5	5.8	−35.3	[25]
[c]CNCo	50	1.65	3.36	−51	[73]
C-ZIF-67@TiO_2	50	1.65	13.8	−51.7	[13]
CuO@NPC	50	1.55	14.9	−57.5	[69]
Co/NPC@Void@[d]CI	40	2.2	13.68	−49.2	[27]
Co/C-[e]800	30	2.55	9.60	−39.6	[31]
[f]MOF (Fe)/PANI	30	2.0	11.6	−41.4	[70]
Co_3O_4/Co/RGO	20	2.0	13.12	−52.8	[72]
CNTs/Co	20	1.81	15.04	−60.4	[53]
Co-C/MWCNTs	15	2.99	9.12	−48.9	This work

[a]NPC: nanoporous carbon composite, [b]500: calcined at 500 °C, [c]CN: carbon-nanopolyhedron, [d]CI: carbonyl iron, [e]800: calcined at 800 °C, [f]MOF (Fe): Fe-based MOF.