Electronic Supplementary Information (ESI)

Controllable fabrication of CoNi bimetallic alloy for high-performance electromagnetic wave absorption†

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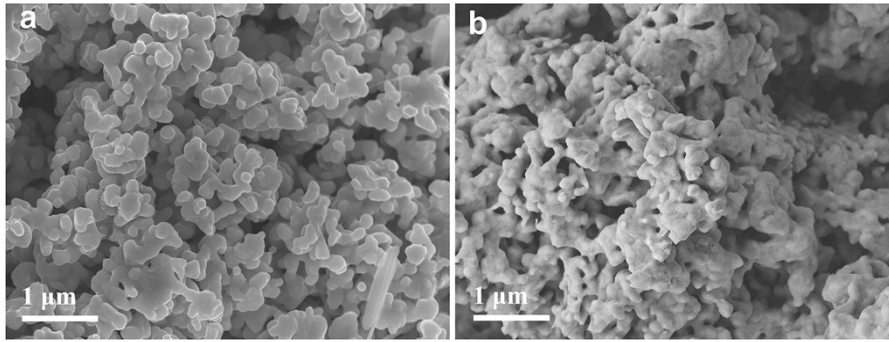(Q.   Wang).

Fig. S1. SEM images of (a) Co$_3$Ni/C and (b) CoNi$_3$/C.
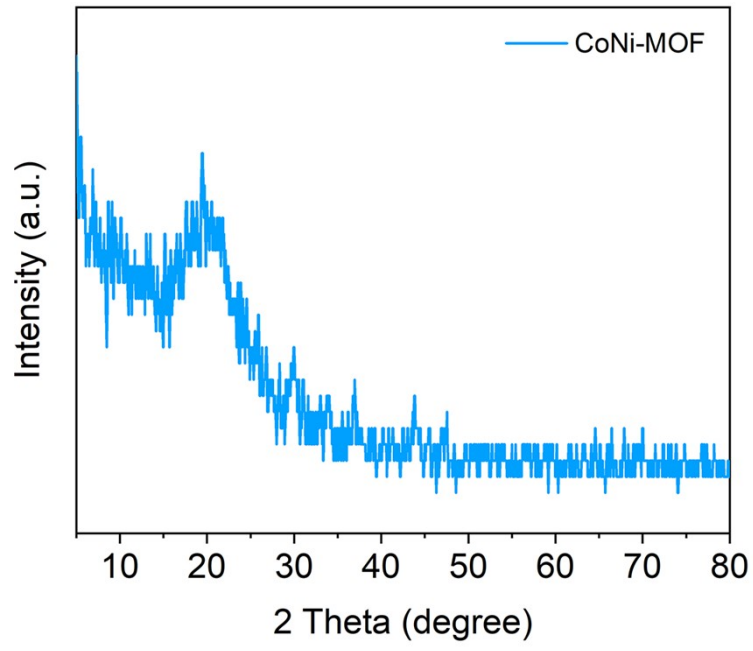
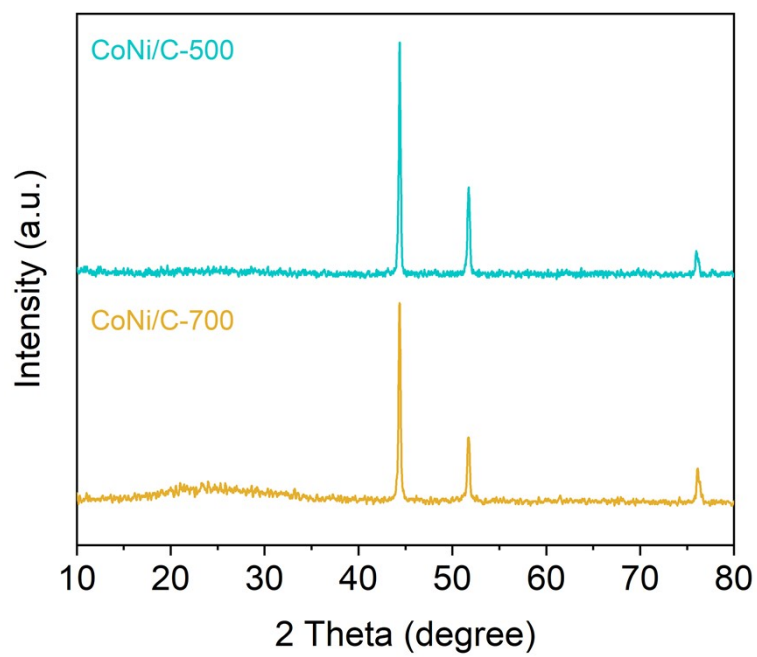**Fig. S2.** XRD pattern of CoNi-MOF.

Fig. S3. XRD patterns of CoNi/C-500 and CoNi/C-700.
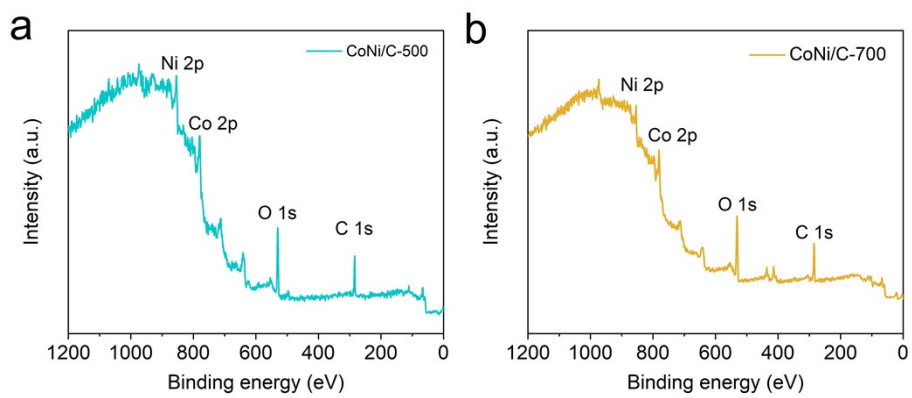
Fig. S4. XPS survey spectra of (a) CoNi/C-500 and (b) CoNi/C-700.
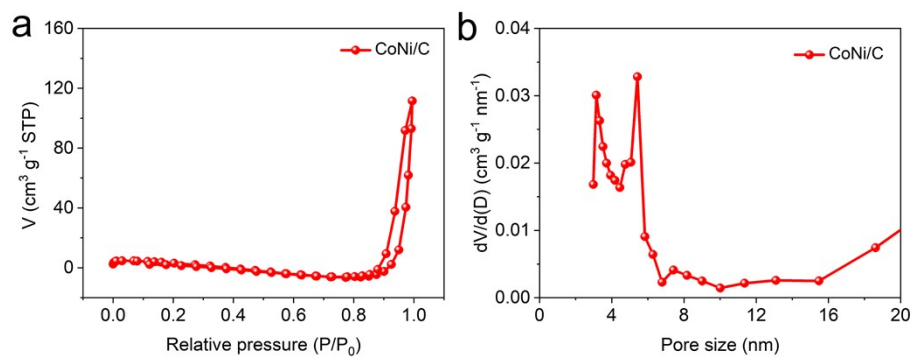
Fig. S5. (a) Nitrogen adsorption-desorption isotherms of CoNi/C. (b) The corresponding BJH pore size distribution curve.
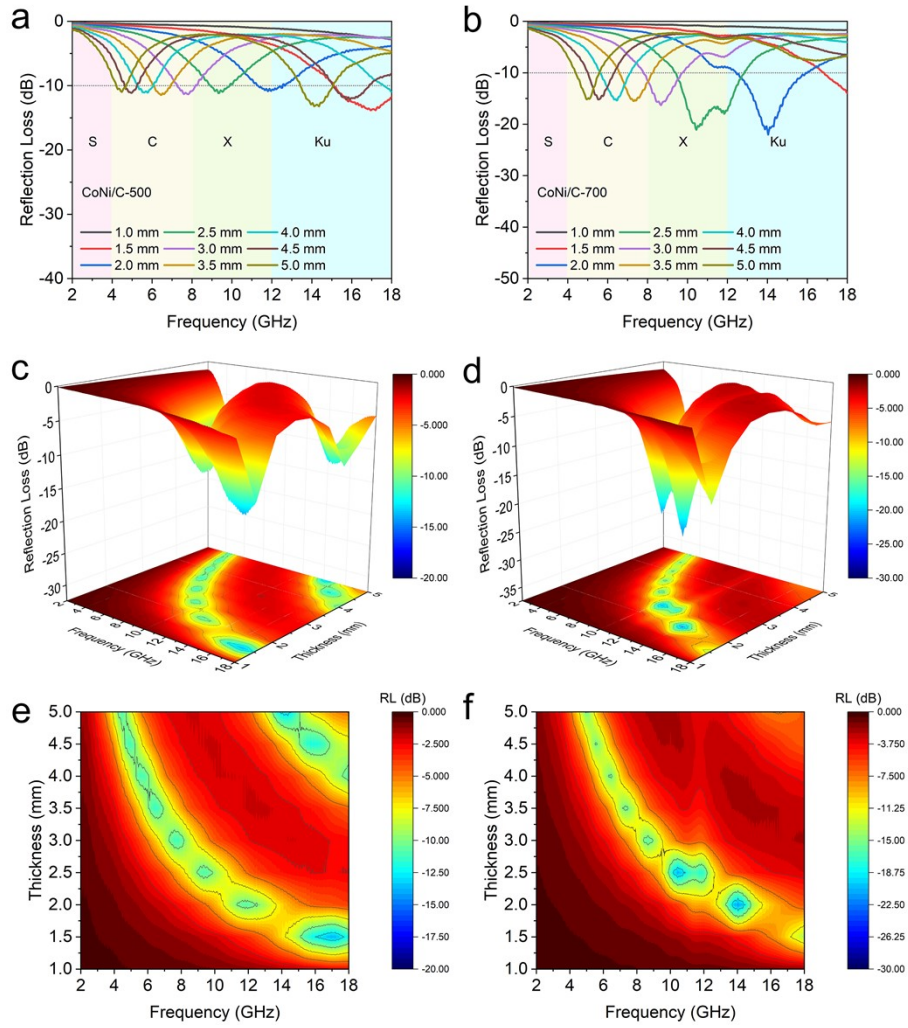
Fig. S6. Calculated RL curves at different thicknesses of (a) CoNi/C-500 and (c) CoNi/C-700. The corresponding three-dimensional (3D) and contour RL representations of (c,e) CoNi/C-500 and (d,f) CoNi/C-700.
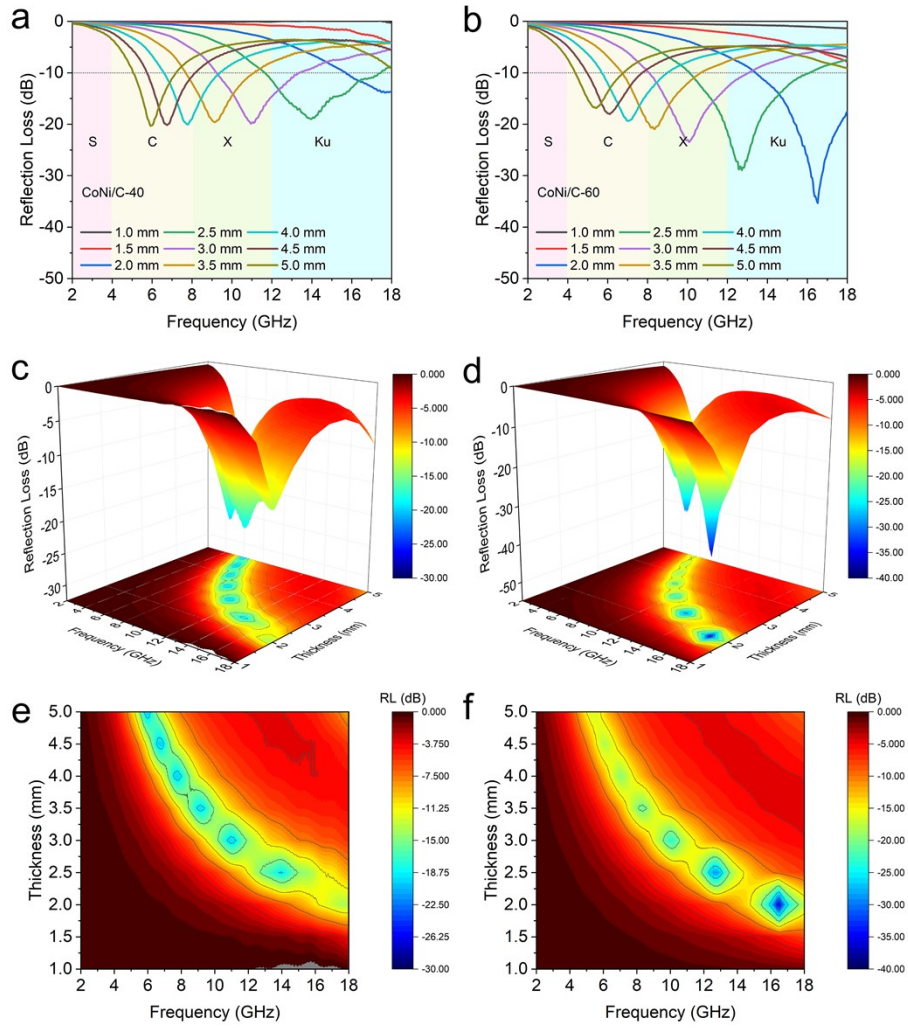
Fig. S7. Calculated RL curves at different thicknesses of (a) CoNi/C-40 and (c) CoNi/C-60. The corresponding three-dimensional (3D) and contour RL representations of (c,e) CoNi/C-40 and (d,f) CoNi/C-60.

Table S1. Surface elemental contents of C, O, Co, and Ni in the composites from XPS spectra.

Composites	C	O	Co	Ni
	at%	at%	at%	at%
CoNi/C-500	41.46	34.79	12.34	11.41
CoNi/C	44.69	33.23	10.93	11.15
CoNi/C-700	46.27	35.47	8.41	9.85

Table S2. Comparison for the electromagnetic wave absorption performance of CoNi/C with other MOF-based absorbers.

Composites	RL_{min} (dB)	Matching EAB (GHz)	References
Co/Co$_3$O$_4$@HCNs	-50.6	6.6	[1]
CoZn/C@MoS$_2$@PPy	-49.18	4.56	[2]
Ni-MOF@N-C-500	-69.6	6.8	[3]
Ni@C@ZnO	-55.8	4.1	[4]
DM-700	-65.2	4.8	[5]
CNT/FeCoNi@C	-51.7	6.0	[6]
DM-700-3	-67.5	2.0 (5.0-7.0)	[7]
Co-C composite	-48.5	6.1 (14.6-8.5)	[8]
Cu-S-MOF	-52.8	6.72 (9.68-16.4)	[9]
CoFe@C	-61.8	9.2 (8.8-18.0)	[10]
Co$_1$Fe$_3$@C/RC	-20.2	10.0 (8.0-18.0)	[11]
CoNi/C	-50.8	4.77 (12.99-17.76)	This work

References

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