

Porous CoNi nanoalloy@N-doped carbon nanotube composite clusters with ultra-strong microwave absorption at a low filler loading

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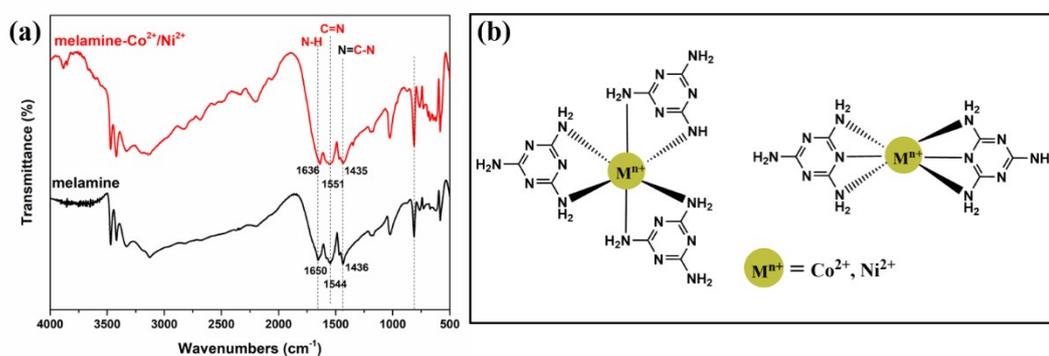


Figure S1. (a) FTIR spectra of the melamine and melamine- $\text{Co}^{2+}/\text{Ni}^{2+}$ complex, (b) schematic diagram of the coordination bond among $\text{Co}^{2+}/\text{Ni}^{2+}$, amino N and triazine N in melamine.

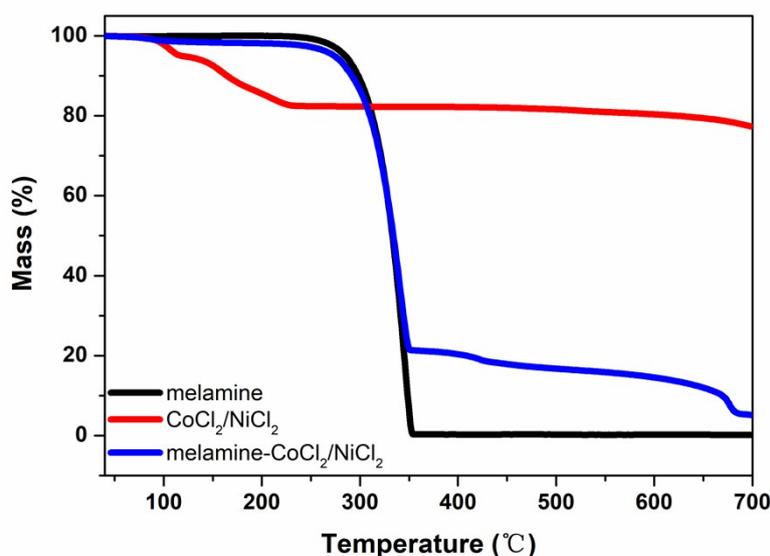


Figure S2. TG curves for melamine, $\text{CoCl}_2/\text{NiCl}_2$, and melamine- $\text{CoCl}_2/\text{NiCl}_2$

complex under nitrogen atmosphere.

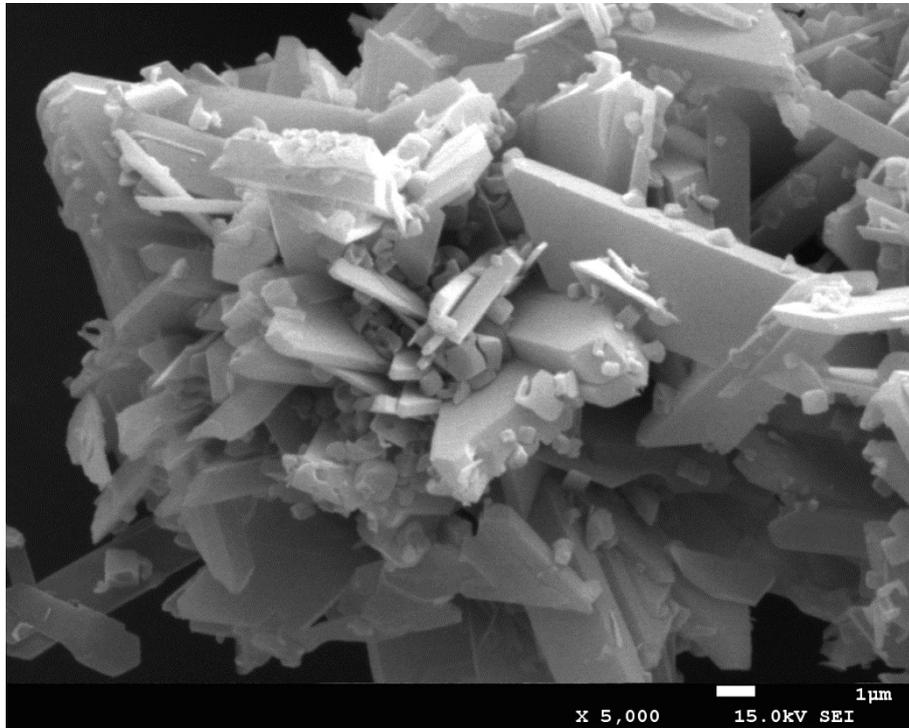


Figure S3. SEM image for the melamine- $\text{Co}^{2+}/\text{Ni}^{2+}$ complex.

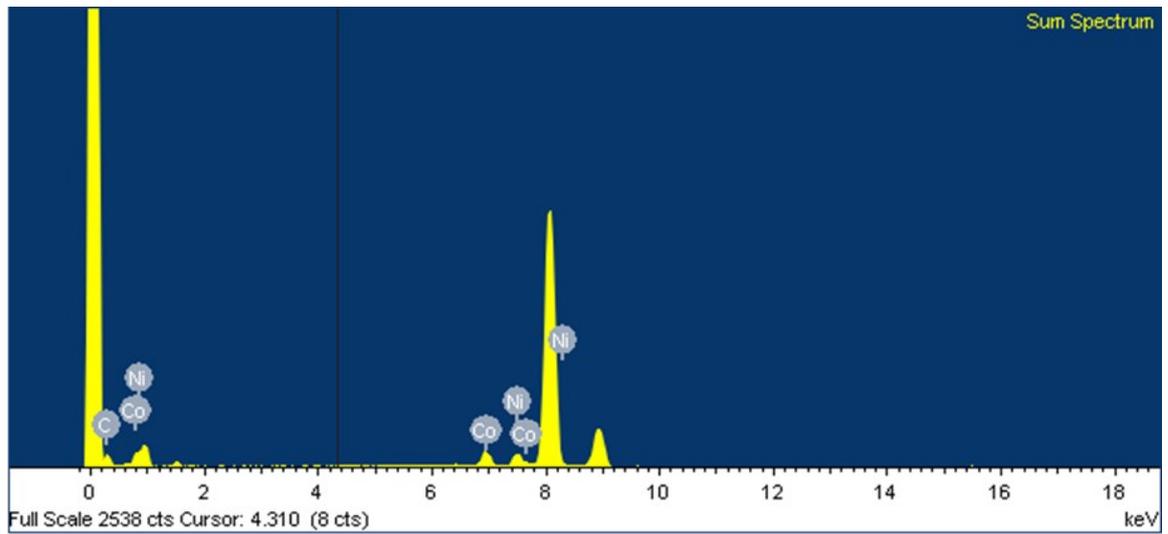


Figure S4. EDX image for CoNi@NCNT-800 composite.

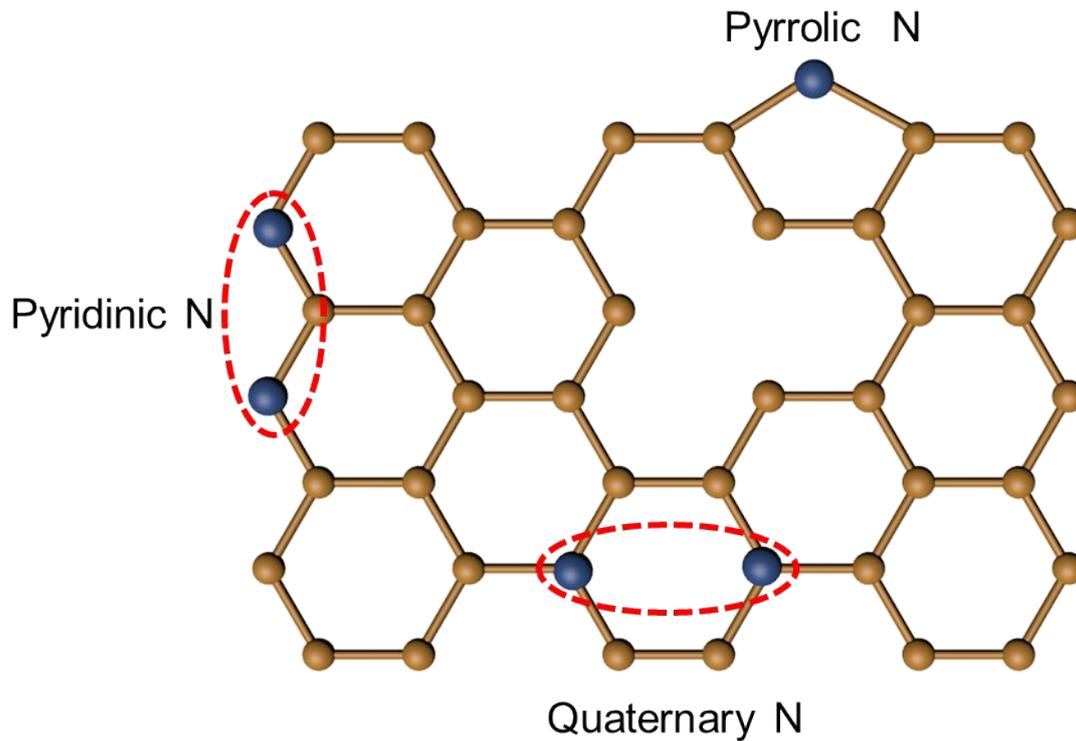


Figure S5. Description for the doped N in carbon nanotube.

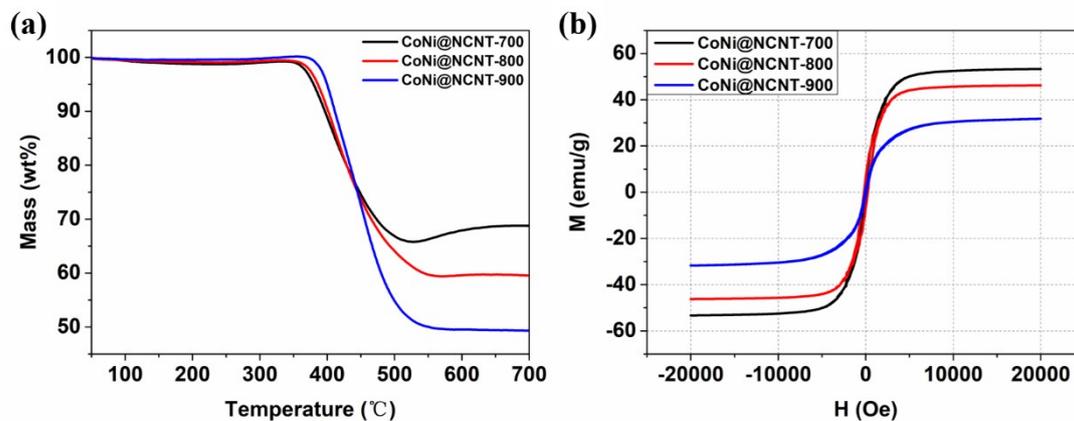


Figure S6. (a) TGA curves in air and (b) magnetization curves for CoNi@NCNT composites.

Table S1. Saturation magnetization (M_s) of CoNi@NCNT composites and the CoNi content in CoNi@NCNT composites calculated from TG test.

Samples	M_s (emu/g)	CoNi content (wt%)
CoNi@NCNT-700	53.3	52.52

CoNi@NCNT-800	46.2	45.45
CoNi@NCNT-900	31.7	37.65

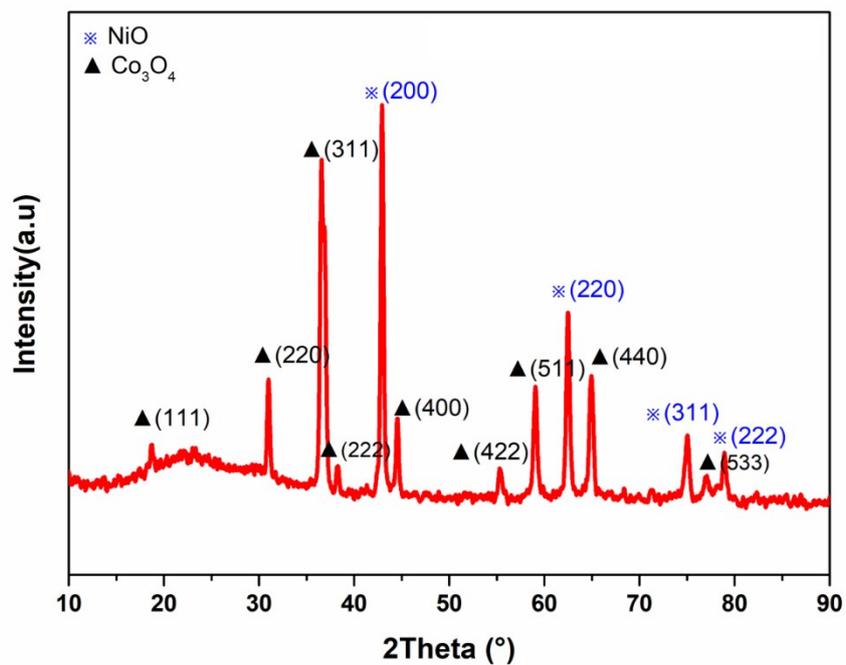


Figure S7. XRD pattern for the final product of CoNi@NCNT-800 composite after TGA test.