Supporting Information

Gamma irradiation induced synthesis of electromagnetic functionalized aligned Co_xNi_{1-x} alloy nanobundles

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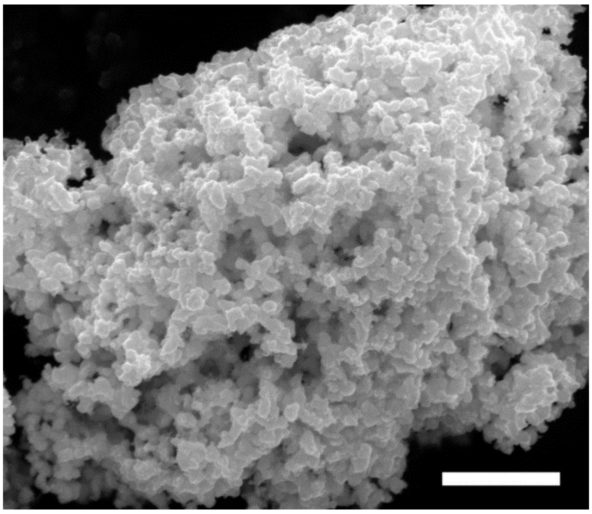

Fig. S1. SEM image of the aggregated particles of Co_1Ni_1 without external magnetic field (scale bar: 1 μm).

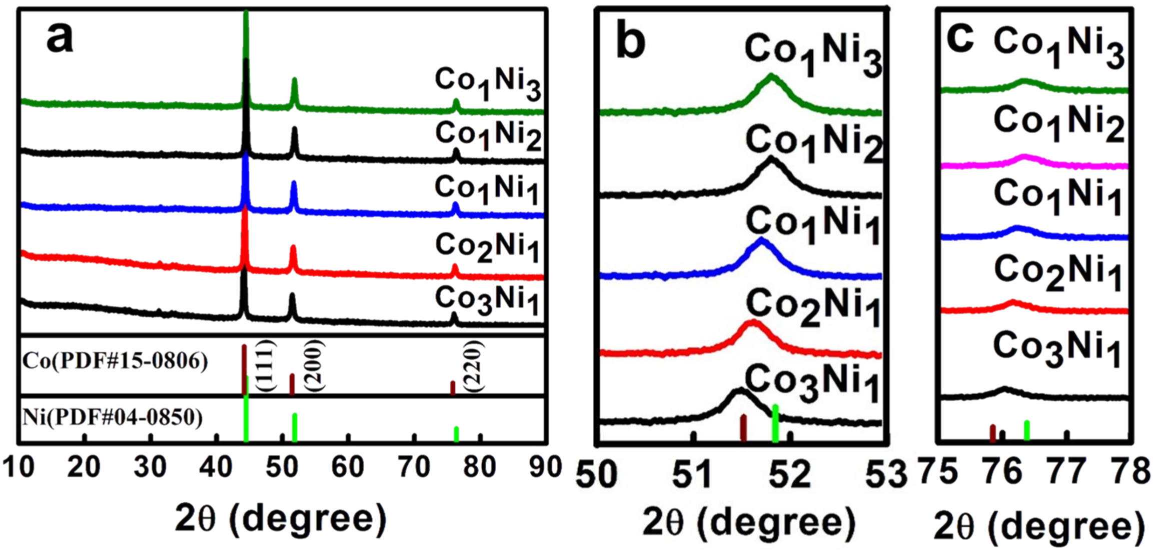

Fig.S2 XRD patterns of the five samples (a) and magnified XRD patterns of the samples of the (200) and (220) peaks (b and c).

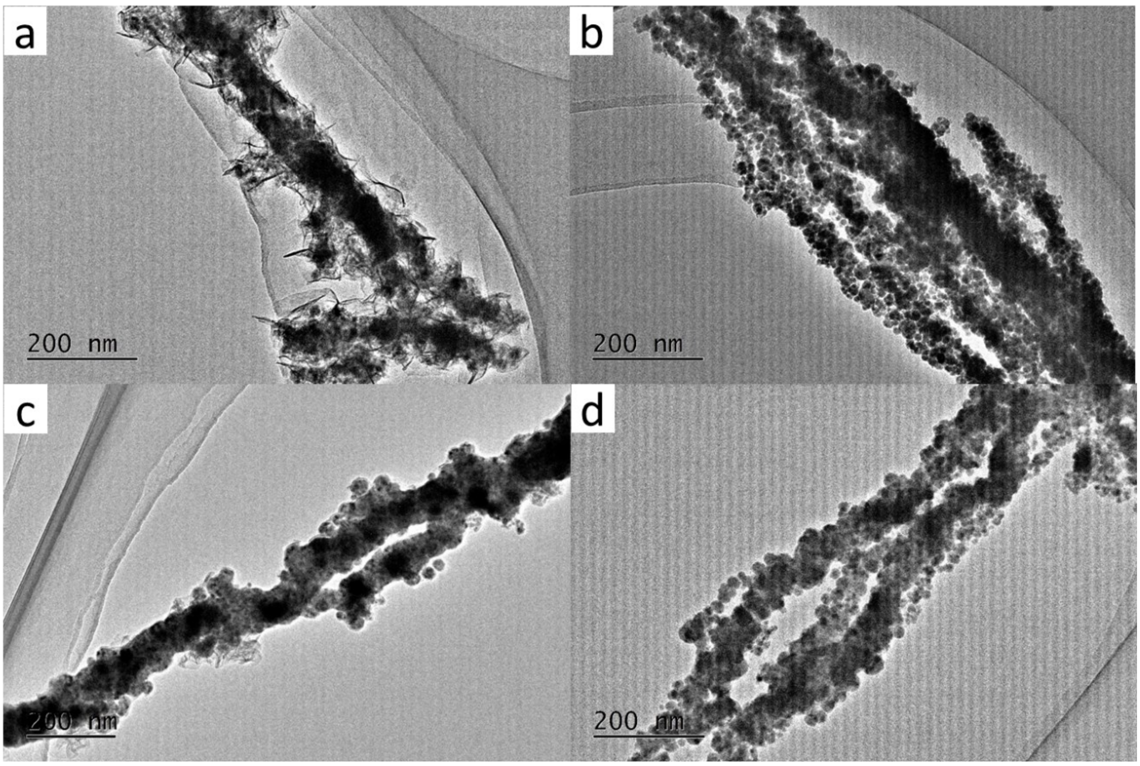

Fig. S3 TEM images of the Co_xNi_{1-x} alloys with the ratio of 3:1(a),2:1(b), 1:2 (c), 1:3(d)

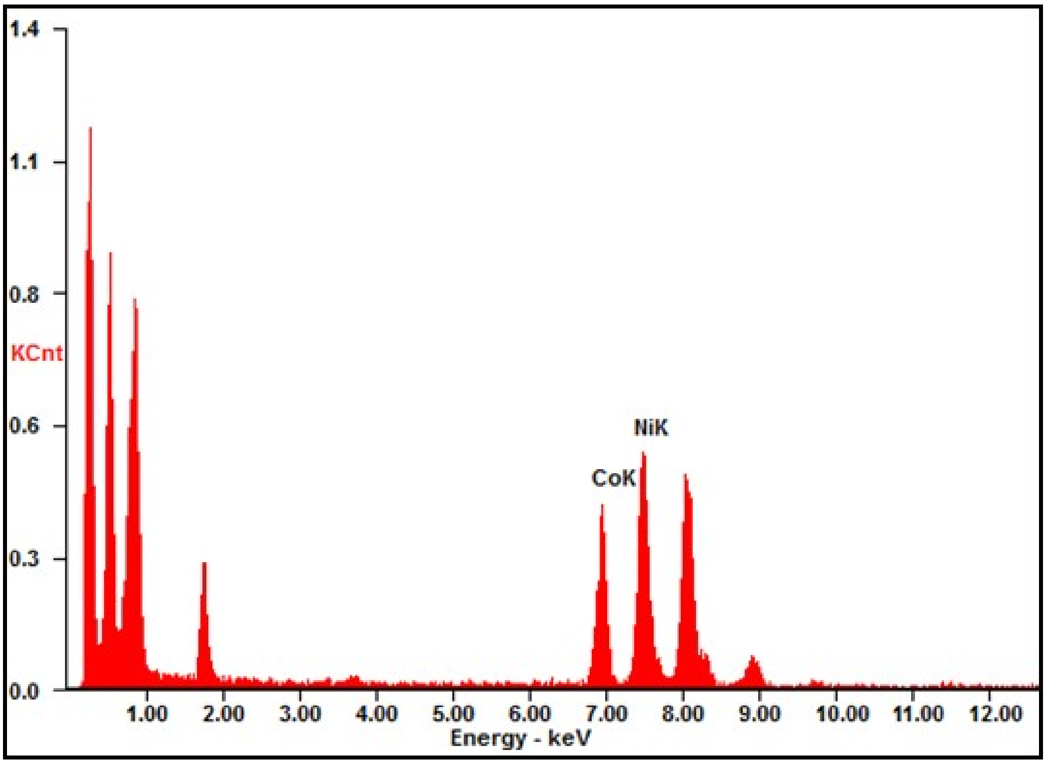

Fig. S4 EDS spectrum of the Co_1Ni_1 alloy

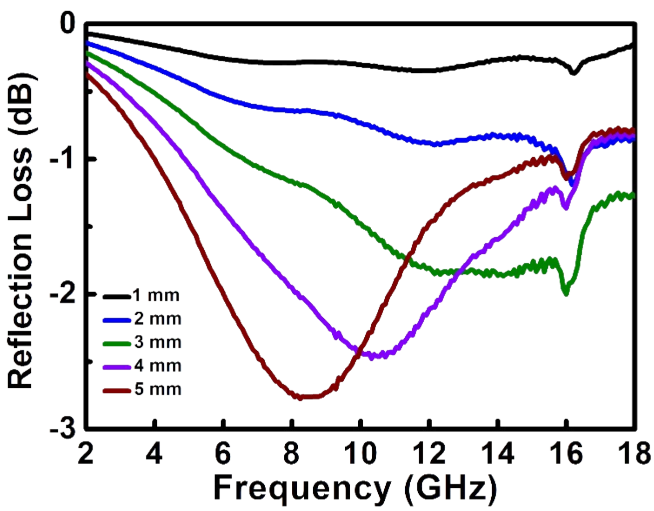

Fig. S5. RL properties of the aggregated particles of Co_1Ni_1 without external magnetic field

Table S1 Comparison of the microwave absorption properties of the magnetic metals or metal alloys

Absorber	Integrated thickness(mm)	Max RL (Frequency, Thickness)	Bandwidth over -10dB(GHz)	Effective bandwidth(RL<-10dB)	Ref
CoNi nanoflowers	2-5	-28.55 dB (6.8GHz,2mm)	6.5GHz-13.0GHz (achieved by 0.6 μm nanoflower)	6.5GHz (achieved by 0.6μm nanoflower)	ACS Appl. Mater. Interfaces 2015, 7, 4233–4240
$Co_{20}Ni_{80}$	2-5	-33.5 dB (3GHz,5mm)	6.0GHz-11.5GHz	5.5 GHz	Nanoscale, 2015, 7, 1736
CoNi nanoparticles	2	-32 dB (8.2GHz,2mm)	7.5-9.2GHz (achieved by Co_1Ni_2)	1.7GHz (achieved by Co_1Ni_2)	J Nanoengineering and Nanosystems 2014, 228(1), 52–56
CoNi chain	1-3	-34.33 dB (17.5GHz,1mm)	15.2-18GHz	2.8GHz	*Journal of Magnetism and Magnetic Materials*, 2014, **372**, 195-200
Co microflowers	1-3	-11.0 dB (13.2 GHz)	12.5-14.0 GHz	1.5GHz	Phys. Status Solidi B, 2012, 249, 575–580.
Co nanowires	1-3	-2.5 dB (6.5 GHz)	-	-	Physica B, 2010, 405, 1484–1488.
Co Sword-like	1-3	-9.9 dB (18.0 GHz)	-		RSC Adv., 2014, 4, 40456–40463.
Co nanostructures	2	-8.8 dB (11GHz,2mm)	-	-	J. Phys. Chem. C 2010, 114, 21214–21218
Ni nanostructures	2	-17.5 dB (8.8GHz)	7-9.5GHz	2.5GHz	J. Phys. Chem. C 2010, 114, 21214–21218
Ni nanowires	1-2	-19 dB (8GHz, 2mm)	7-11GHz	4GHz	Journal of Applied Physics 105, 053911 (2009);
CoNi alloys	2-5	-28.5 dB (17GHz)	16-18GHz	2GHz	Here in this paper