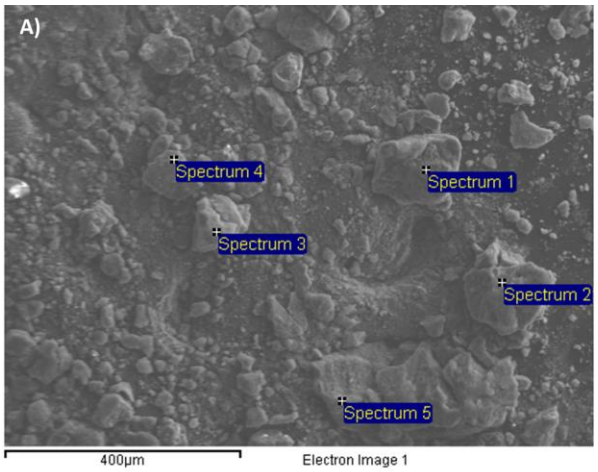
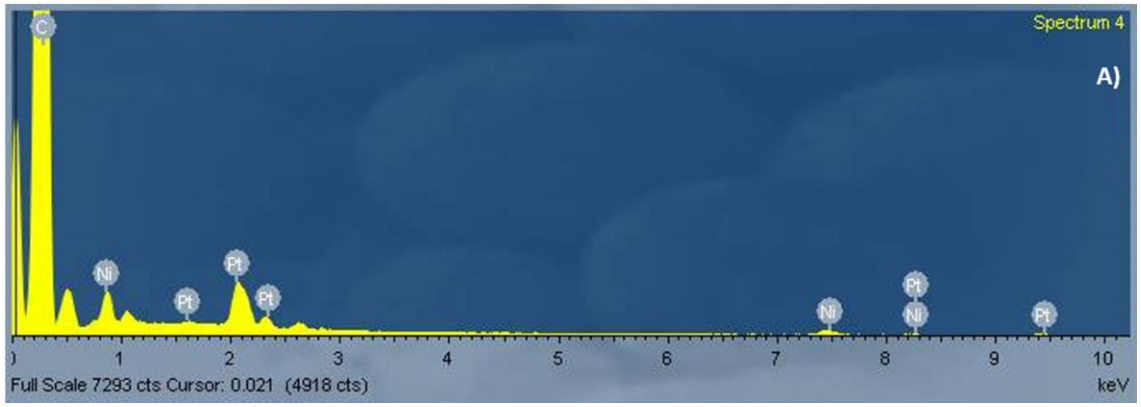
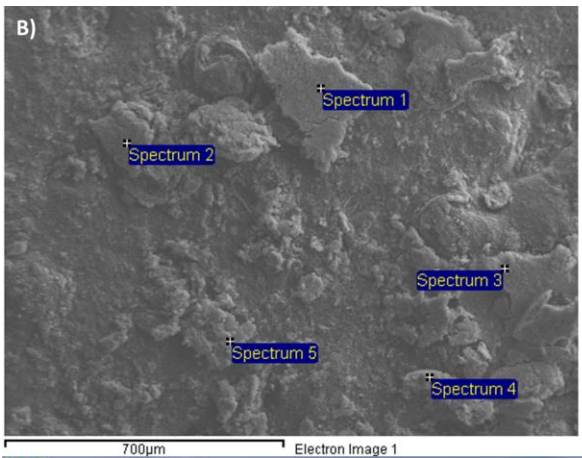
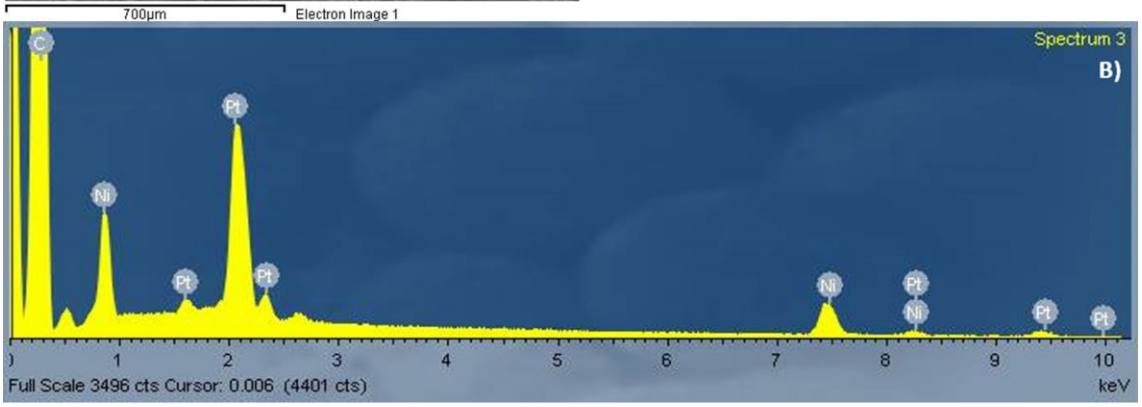


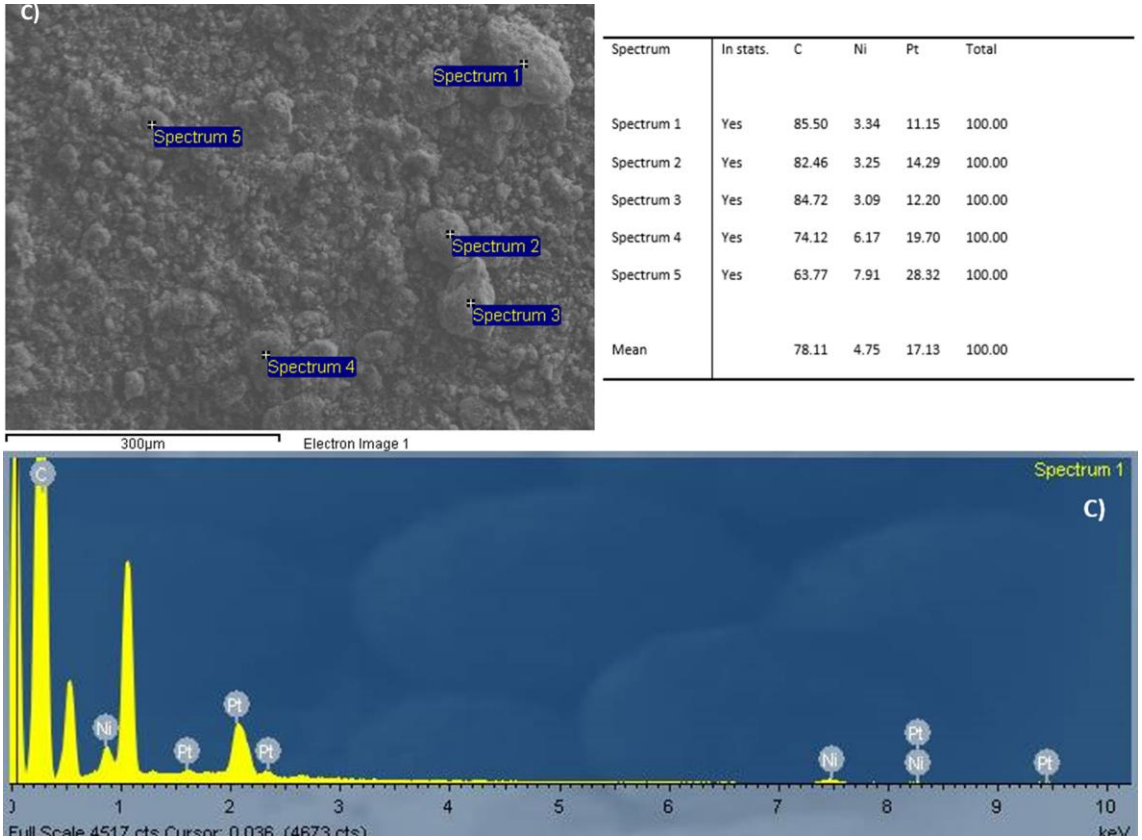
Spectrum	In stats.	C	Ni	Pt	Total
Spectrum 1	Yes	90.03	2.59	7.39	100.00
Spectrum 2	Yes	91.38	1.69	6.93	100.00
Spectrum 3	Yes	88.45	1.91	9.64	100.00
Spectrum 4	Yes	92.82	1.94	5.24	100.00
Spectrum 5	Yes	88.54	1.83	9.63	100.00
Mean		90.24	1.99	7.77	100.00





Spectrum	In stats.	C	Ni	Pt	Total
Spectrum 1	Yes	90.54	1.98	7.49	100.00
Spectrum 2	Yes	82.92	4.54	12.54	100.00
Spectrum 3	Yes	77.85	8.27	13.88	100.00
Spectrum 4	Yes	86.48	3.39	10.13	100.00
Spectrum 5	Yes	85.32	3.50	11.18	100.00
Mean		84.62	4.34	11.04	100.00





Spectrum	In stats.	C	Ni	Pt	Total
Spectrum 1	Yes	85.50	3.34	11.15	100.00
Spectrum 2	Yes	82.46	3.25	14.29	100.00
Spectrum 3	Yes	84.72	3.09	12.20	100.00
Spectrum 4	Yes	74.12	6.17	19.70	100.00
Spectrum 5	Yes	63.77	7.91	28.32	100.00
Mean		78.11	4.75	17.13	100.00

Figure S1 EDX data obtained for A) Ordered Intermetallic, B) Alloy and C) Core-shell nanoparticles at five different points at the particle surfaces. All results in weight %.

Table S1 Atomic proportions of the metals in the synthesized materials obtained by conducting EDX analysis at five different points on each sample.

Material	Average mass/%		Average number of atoms/÷ $1x10^{22}$		Pt/Ni Ratio
	Pt	Ni	Pt	Ni	
PtNi/C - Ordered Intermetallic	7.77	1.99	2.40	2.04	1.2:1.0
PtNi/C - Ordinary Alloy	11.04	4.34	3.41	4.45	1.0:1.3
Ni@Pt/C - Core-Shell	17.13	4.75	5.29	4.87	1.1:1.0

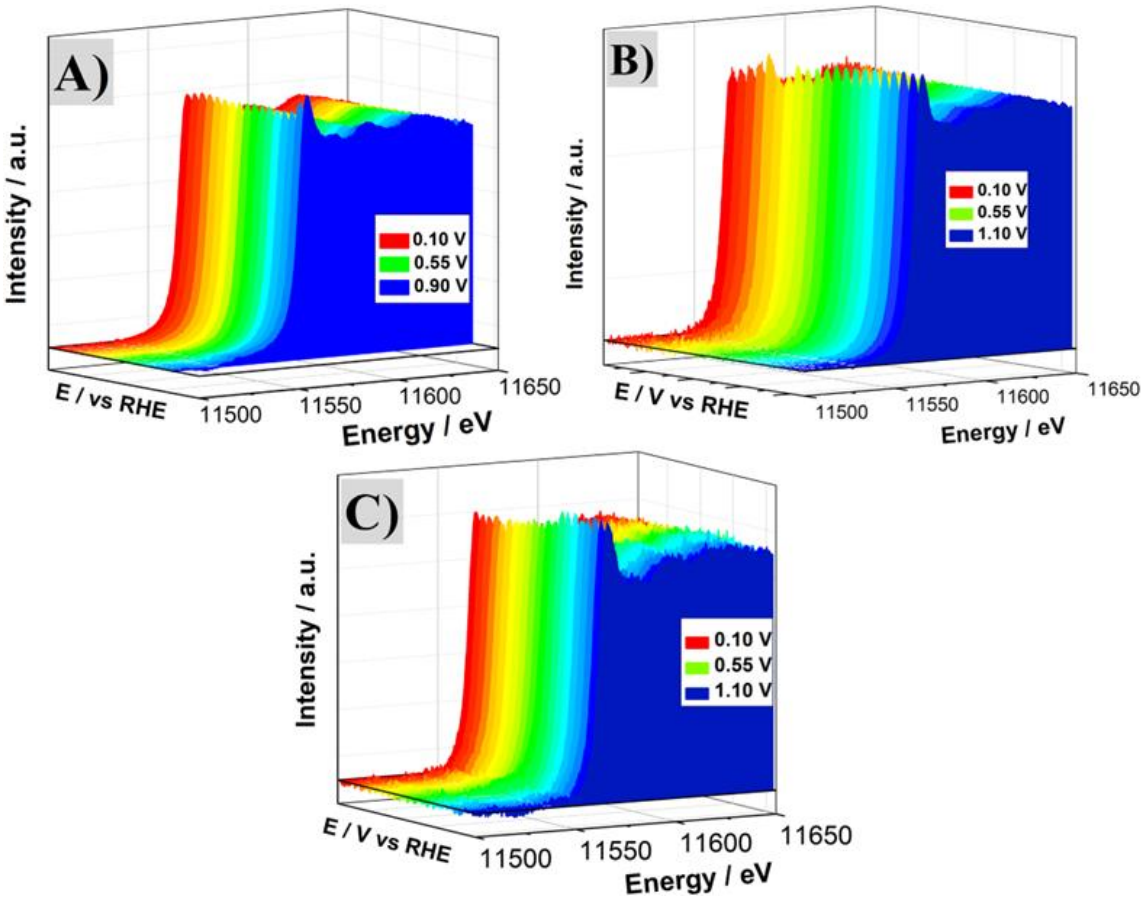


Figure S2 XAS Pt L_3 near edge spectra recorded for Pt-Ni nanoparticles materials in the A) Ordered Intermetallic, B) Alloy, and C) Core-Shell configurations as a function of the potential applied to the electrode in 0.5 mol L^{-1} KOH solution at room temperature.

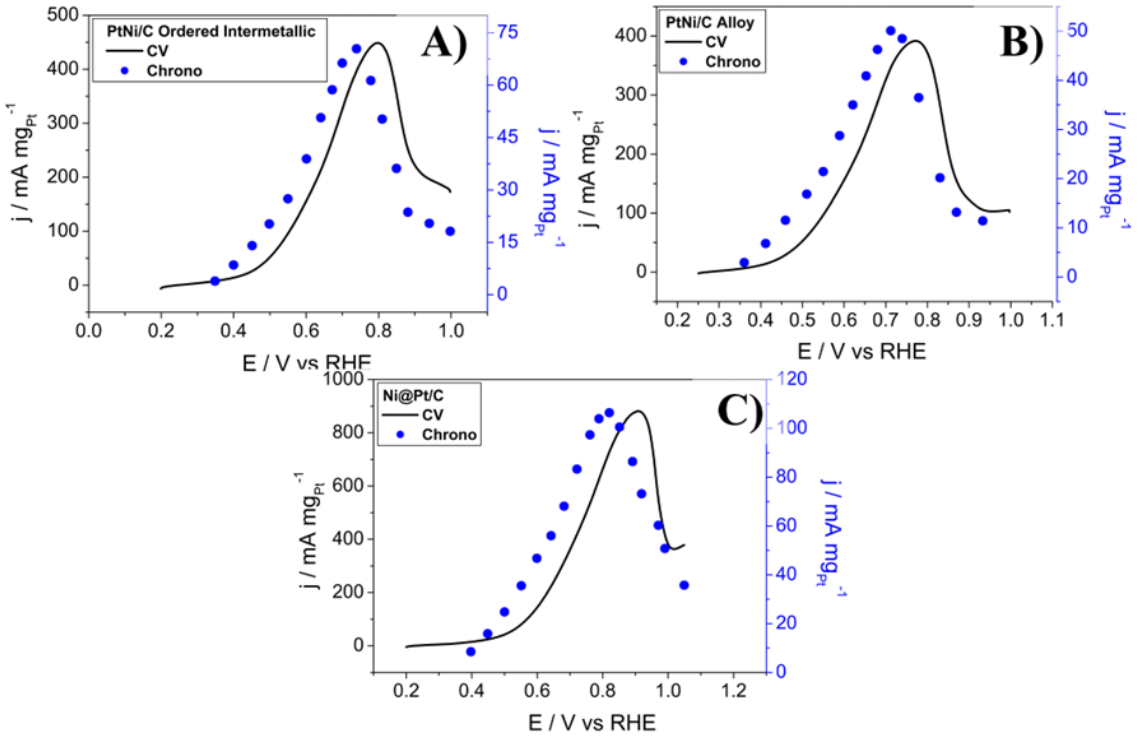


Figure S3 Representative potentiodynamic (lines) and steady-state (blue dots) data registered for electrooxidation in 0.5 mol L^{-1} KOH + 0.5 mol L^{-1} glycerol solution at room temperature for A) PtNi/C Ordered Intermetallic, B) PtNi/C Alloy and C) Ni@Pt/C Core-Shell.

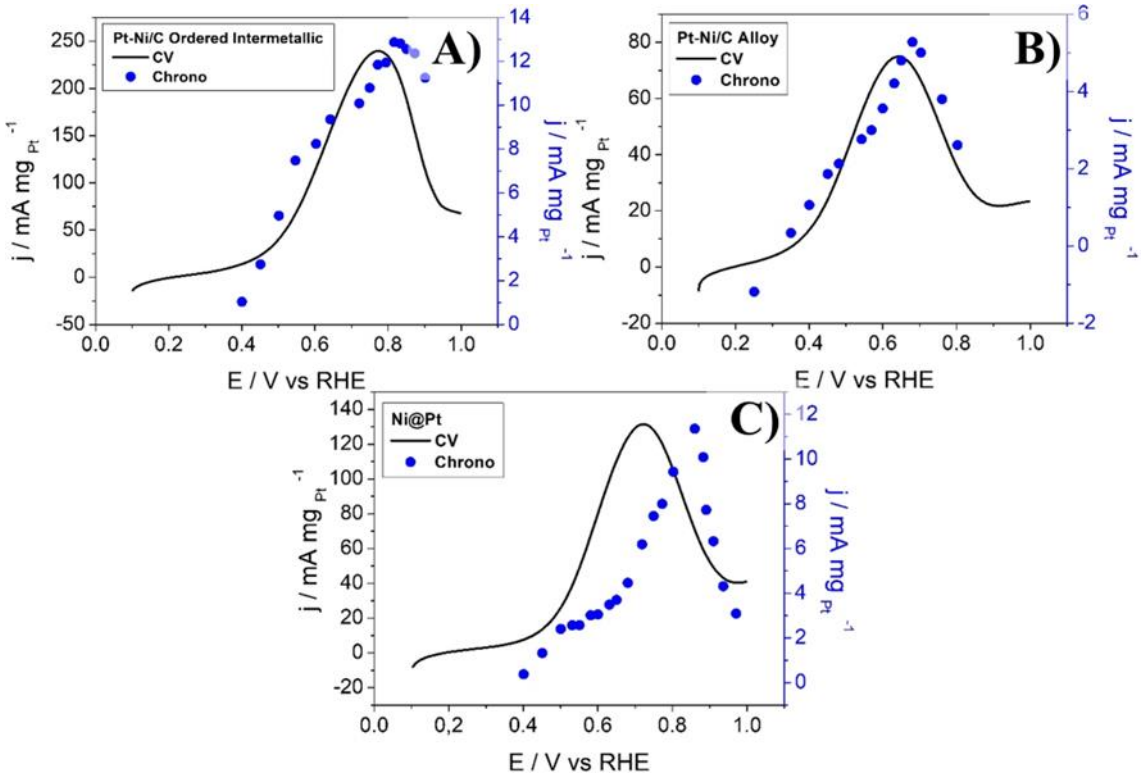


Figure S4 Representative potentiodynamic (lines) and steady-state (blue dots) data registered for electrooxidation in 0.5 mol L^{-1} KOH + 0.5 mol L^{-1} ethanol solution at room temperature for A) PtNi/C Ordered Intermetallic, B) PtNi/C Alloy and C) Ni@Pt/C Core-Shell.

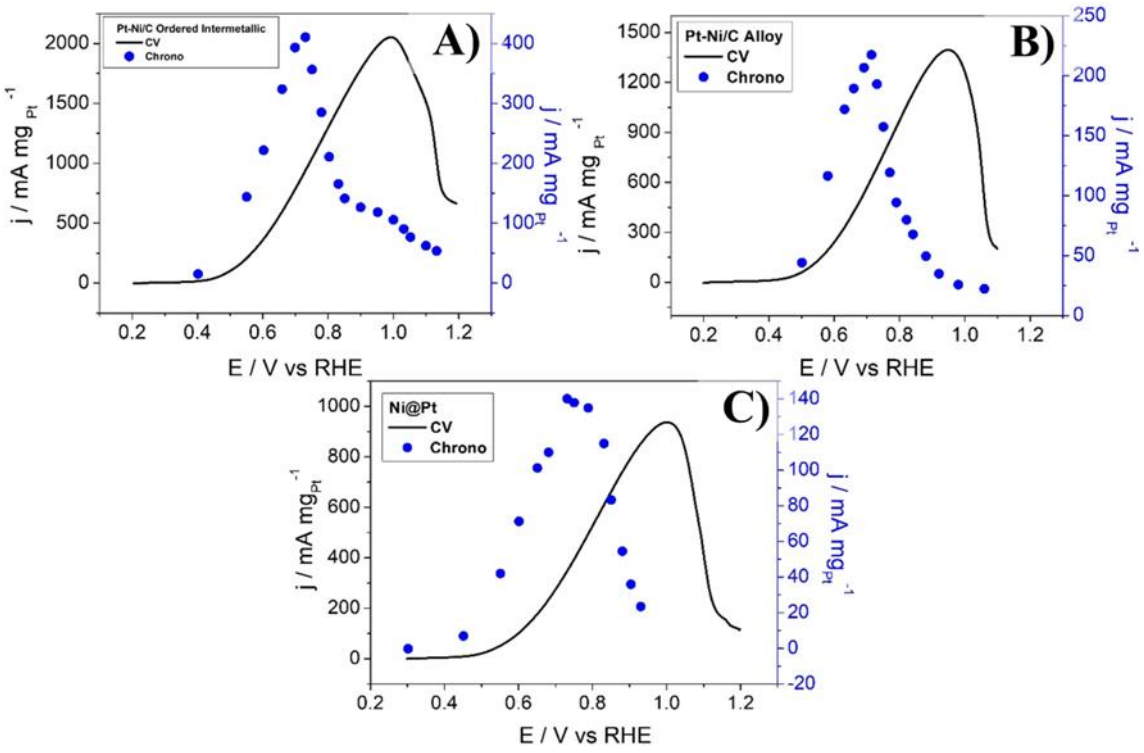


Figure S5 Representative potentiodynamic (lines) and steady-state (blue dots) data registered for electrooxidation in 0.5 mol L^{-1} KOH + 0.5 mol L^{-1} ethylene glycol solution at room temperature for A) PtNi/C Ordered Intermetallic, B) PtNi/C Alloy and C) Ni@Pt/C Core-Shell.