Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Electronic Supplementary Information

One-pot solvothermal synthesis of bimetallic yolk-shell Ni@PtNi nanocrystals supported on reduced graphene oxide and their excellent catalytic properties for *p*-nitrophenol reduction

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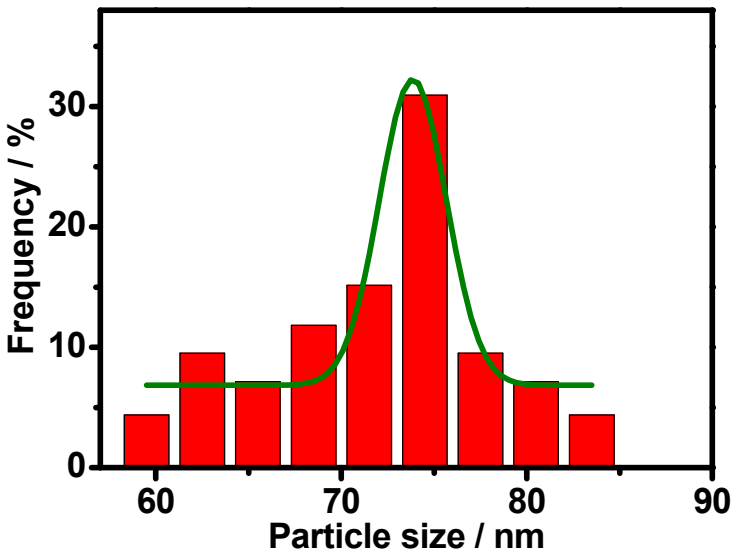

Fig. S1 The corresponding size-distribution histograms of Ni@PtNi NCs nanocrystals.

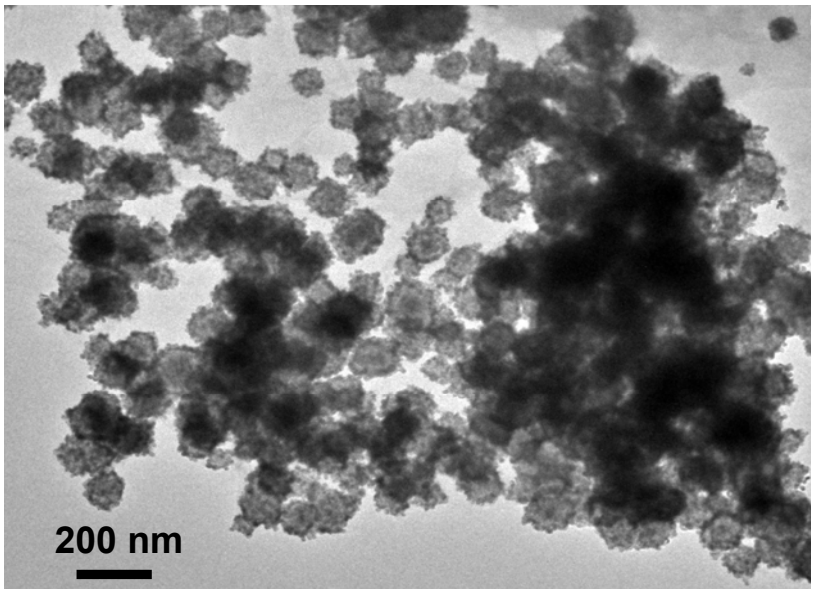

Fig. S2 TEM image of the yolk-shell Ni@PtNi nanocrystals without rGO.

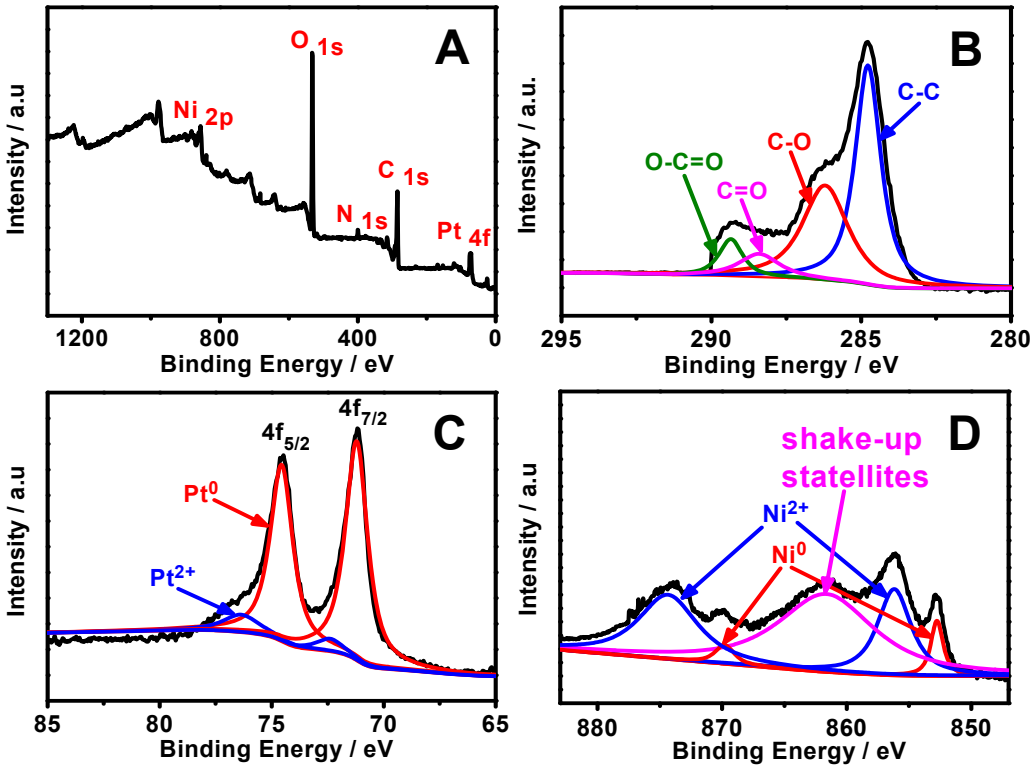

Fig. S3 (A) Survey, high-resolution of (B) C 1s, (C) Pt 4f, and (D) Ni 2p XPS spectra of Ni@PtNi NCs-rGO, respectively.

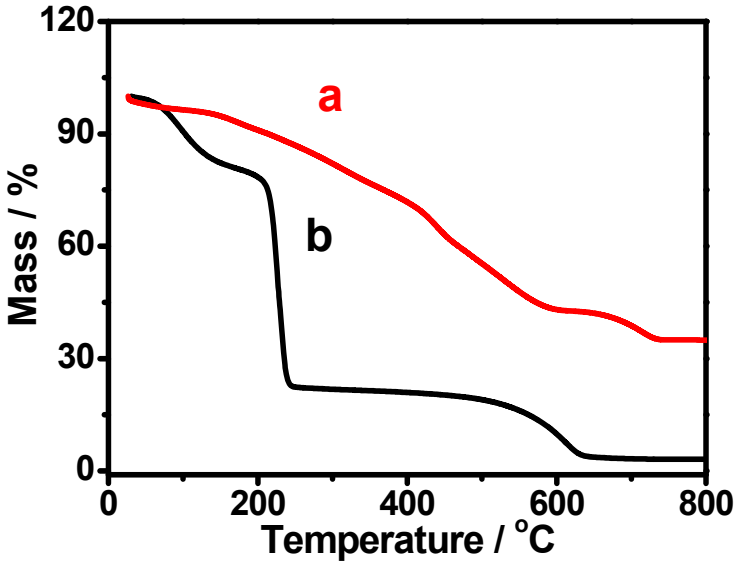

Fig. S4 TGA curves of yolk-shell Ni@PtNi NCs-rGO (curve a) and GO (curve b).

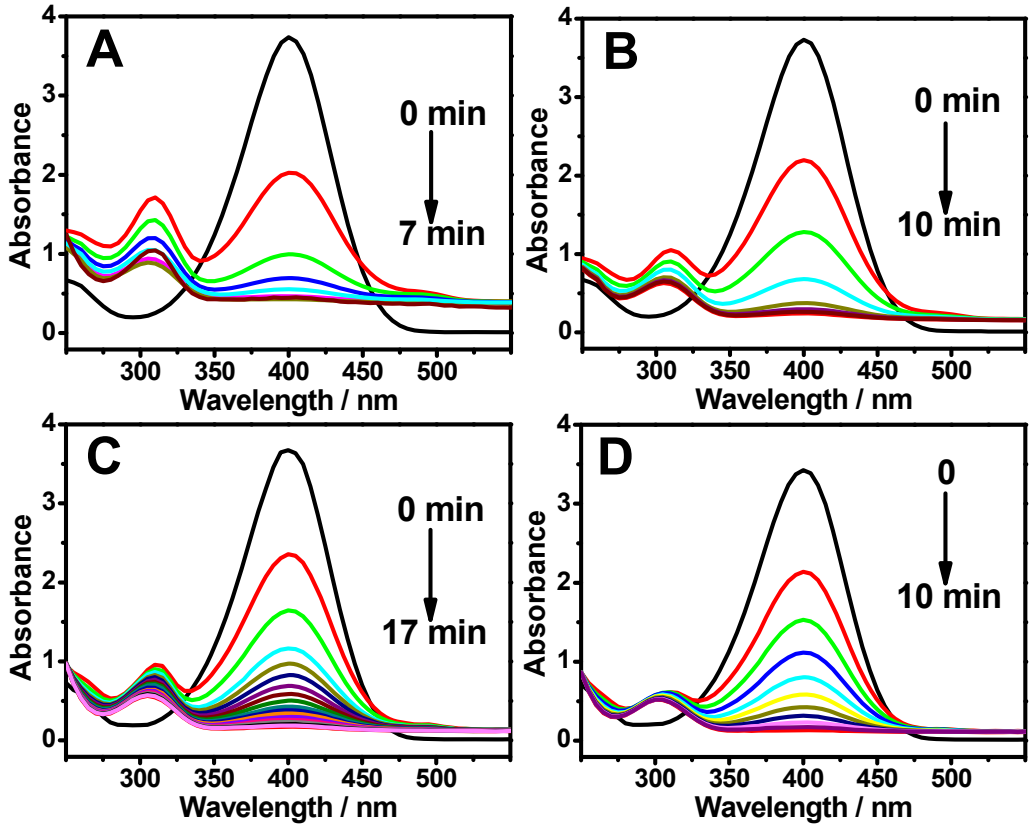

Fig. S5 Time-dependent UV-vis spectral changes in *p*-NP catalyzed by 0.02 g L^{-1} of (A) Ni@PtNi NCs-rGO, (B) commercial Pt/C, (C) Pt NPs-rGO, and (D) Ni NPs-rGO

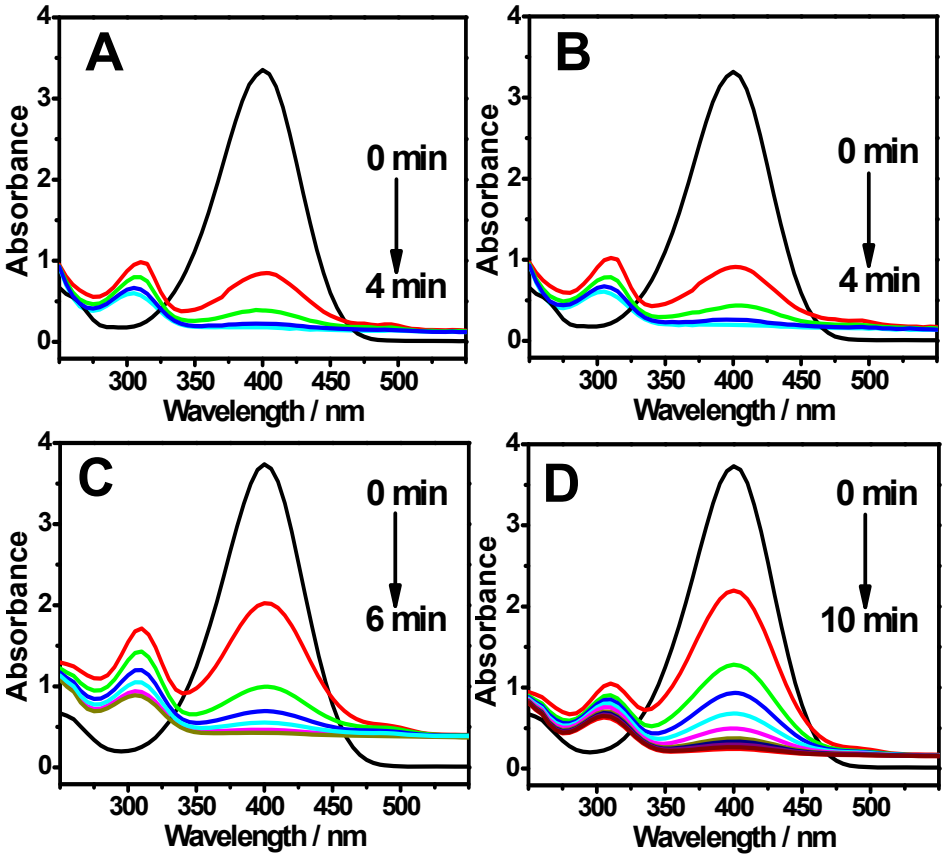

Fig. S6 Time-dependent UV-vis spectra of *p*-NP catalyzed by Ni@PtNi NCs-rGO at (A) 328 K, (B) 318 K, (C) 308 K, and (D) 298 K, respectively

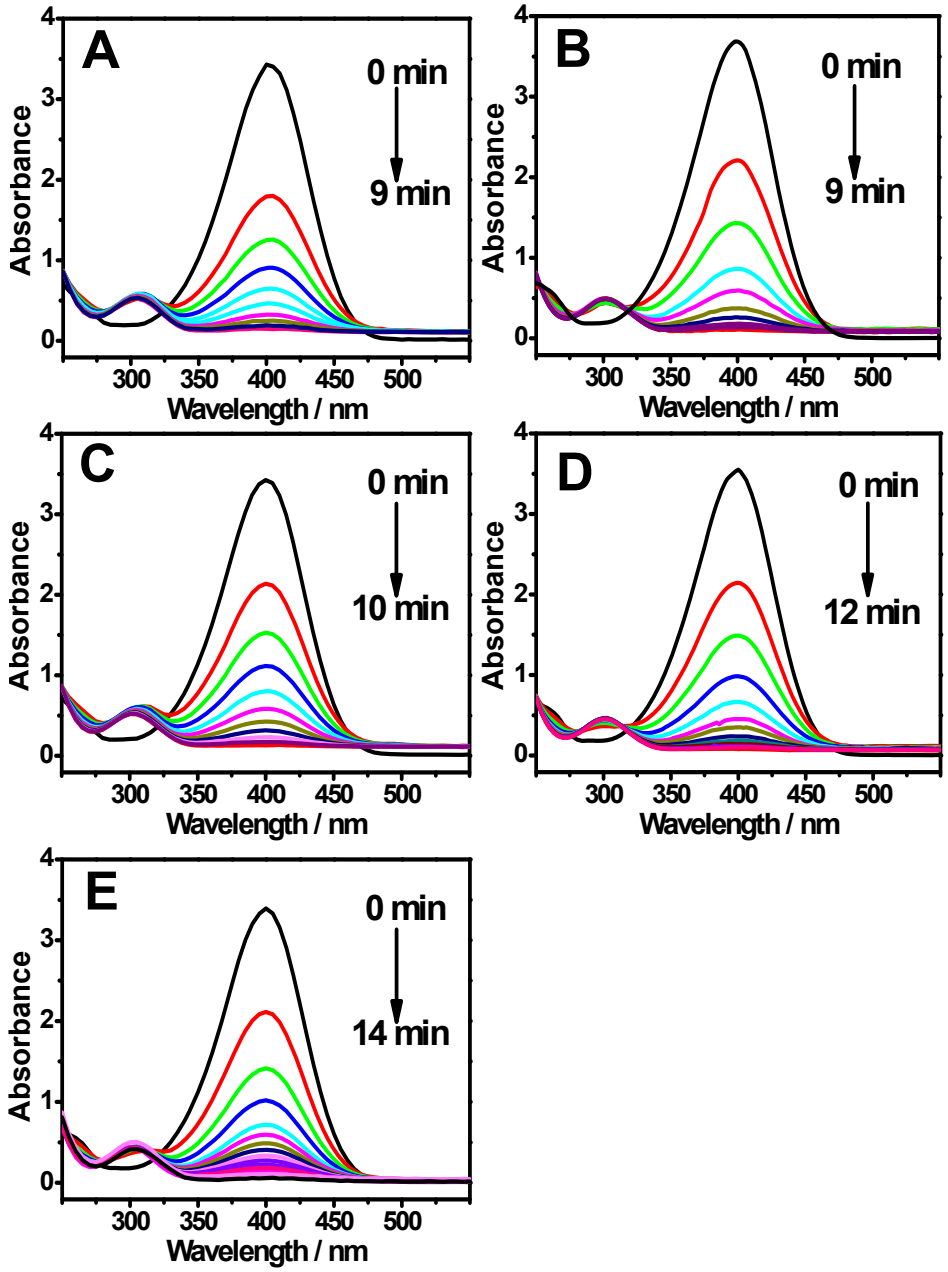

Fig. S7 Time-dependent UV-vis absorption spectra showing five cycles for the catalytic reduction of *p*-NP with Ni@PtNi NCs-rGO.

Table S1 Kinetic and thermodynamic parameters for the catalytic reduction of *p*-NP.

Compound	T / K	k / min^{-1}	Ea / kJ mol^{-1}	$\triangle H^{\#}$ kJ mol^{-1}	$\triangle S^{\#}$ kJ mol^{-1} K
p-NP	298	0.2705	6.97	55.31	-6.65
	308	0.5914			
	318	1.1095			
	328	2.3606			