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Supplementary Material (ESI) for Catalysis Science & Technology

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Electronic Supplementary Information (ESI)

Reduction of 4-nitrophenol to 4-aminophenol using novel Pd@Ni_xB - SiO_2/RGO nanocomposite: Enhanced hydrogen spillover and high catalytic performance

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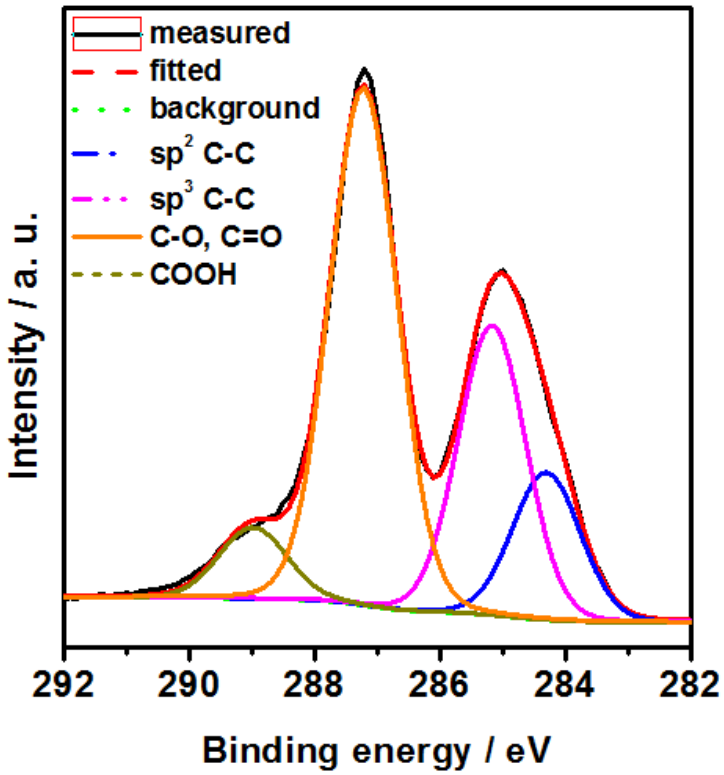

Figure S1. Deconvoluted XPS spectra of GO.

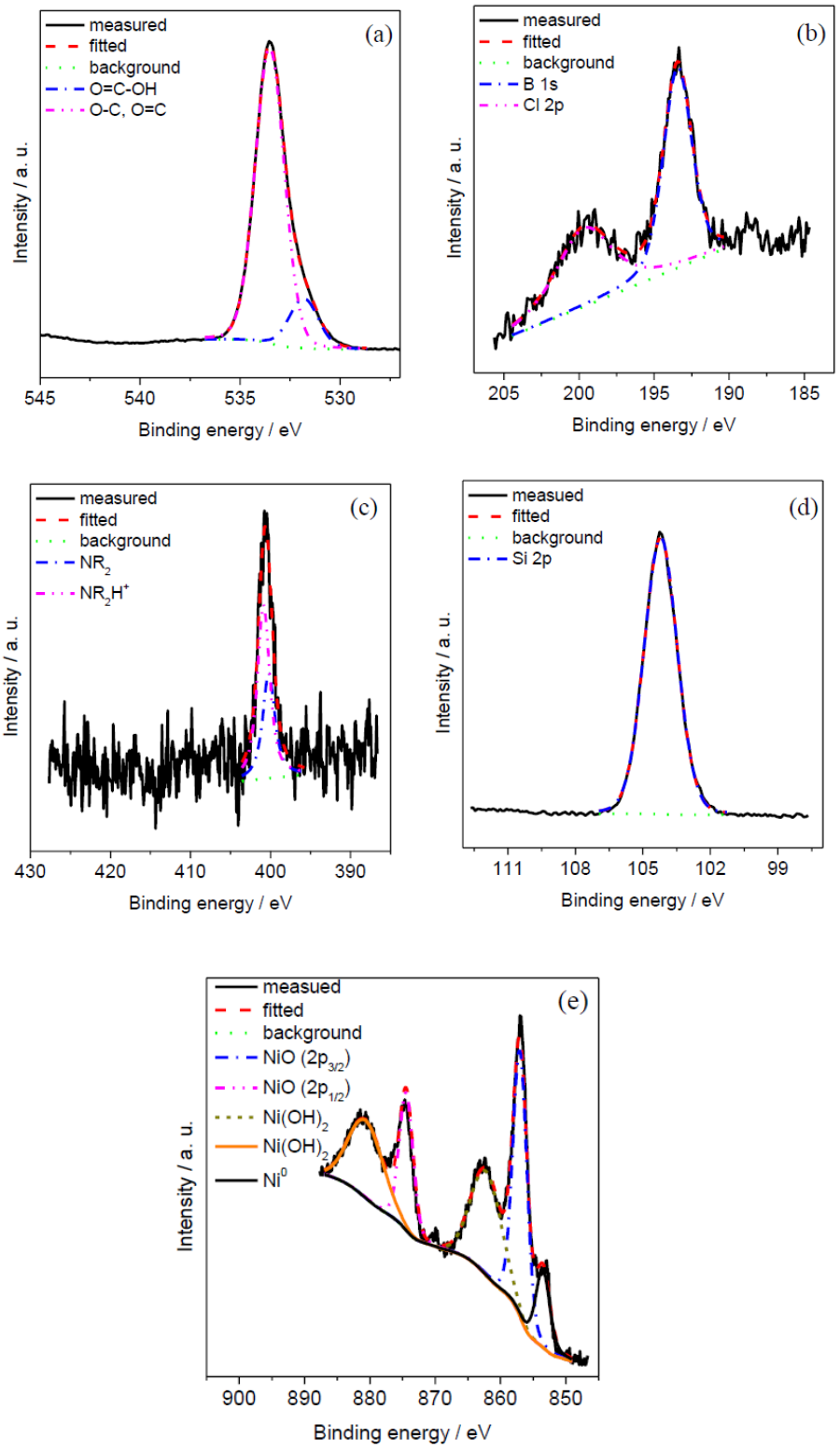

Figure S2. Deconvoluted XPS spectra for Pd@NSG: (a) O 1s, (b) B 1s, (c) N 1s, (d) Si 2p and (e) Ni 2p.

Sample	Atomic %							
	C 1s	O 1s	N 1s	B 1s	Si 2p	Cl 2p	Ni 2p	Pd 3d
GO	66.2	33.8						
Pd@NSG	18.2	57.1	0.8	3.2	15.3	0.5	4.1	0.8

Table S1. Surface atomic percentages of each component for GO and Pd@NSG.

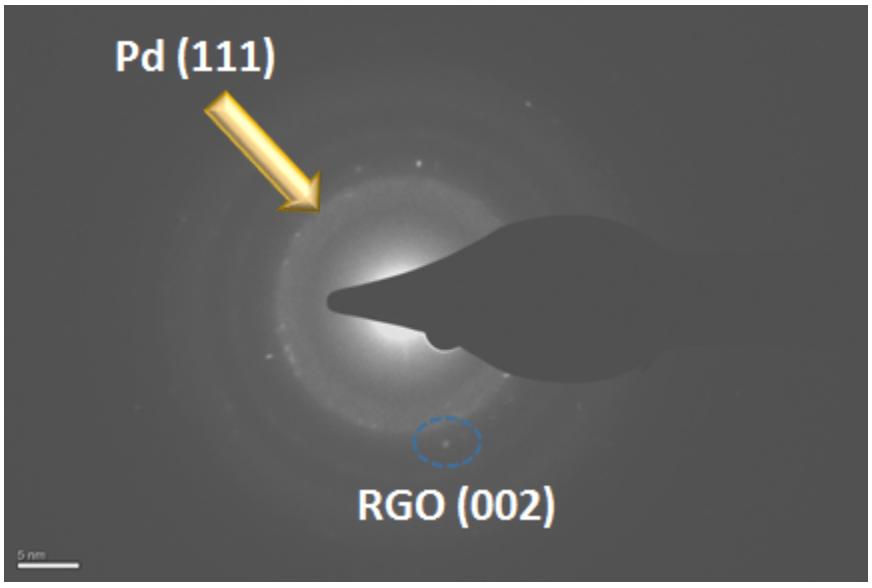

Figure S3. Selected area electron diffrcation (SAED) of Pd@NSG where arrow indicated the (111) lattice fringe of Pd and bright spot (inside of dotted marked blue circle) originated due to the differaction from (002) plane of RGO.

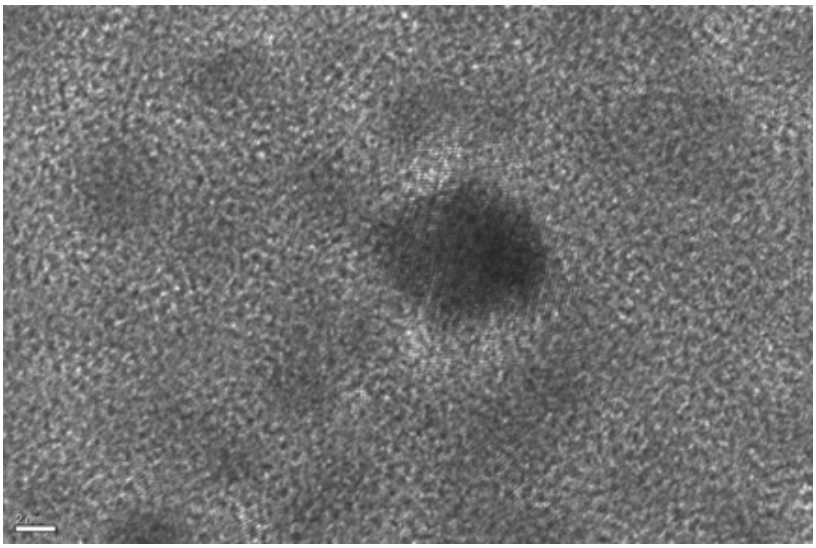

Figure S4. High resolution transmission electron spectroscopy (HRTEM) image of Pd@NSG nanocomposite.

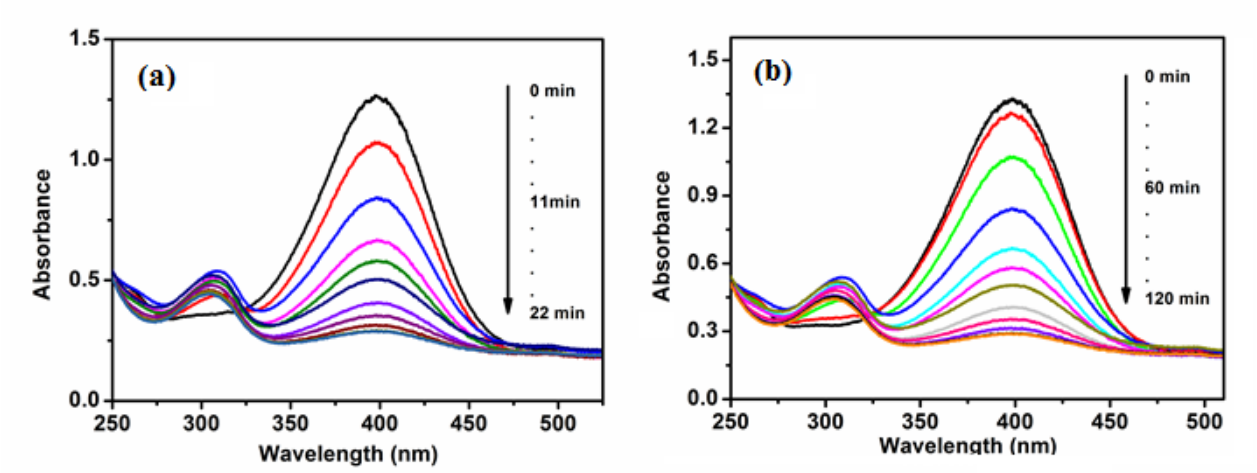

Figure S5. UV-vis spectra of 4-NP reduction by $NaBH_4$ in aqueous medium at 25 °C (a) with $Pd@SiO_2/RGO$ nanocomposite and (b) Ni_xB-SiO_2/RGO.

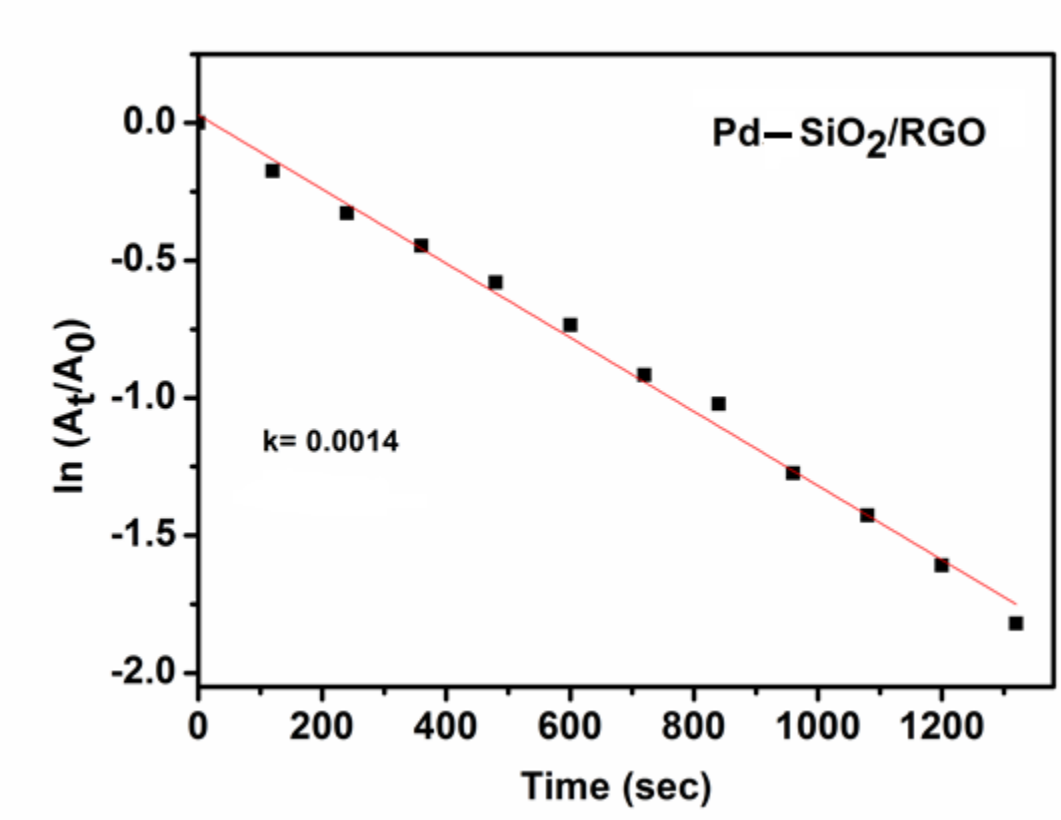

Figure S6. Pseudo-first order plots of 4-NP reduction catalysed by Pd-SiO_2/RGO in the presence of $NaBH_4$.