# Supporting Information

## Synthesis of ultrathin PtPdBi nanowire and its enhanced catalytic activity towards *p*-nitrophenol reduction

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### Synthesis of Pt and Pd nanoparticles

Typically, 55 mg of PVP was dissolved into 9.4 mL of ethylene glycol and heated to 170°C under a flow of argon gas. Subsequently, 1.0 mL of ethylene glycol containing 32.0 mg of $Na_2PtCl_4 \cdot 3H_2O$was injected rapidly. The reaction solution was kept at 170°C under magnetic stirring for 15 min before being cooled to room temperature.

Typically, 27.5 mg of PVP was dissolved into 9.4 mL of ethylene glycol and heated to 170°C under a flow of argon gas. Subsequently, the mixture of 3.662 mL of 0.01 mol/L $H_2PdCl_4$ aqueous solution was injected rapidly. The reaction solution was kept at 170°C under magnetic stirring for 30 min before being cooled to room temperature.

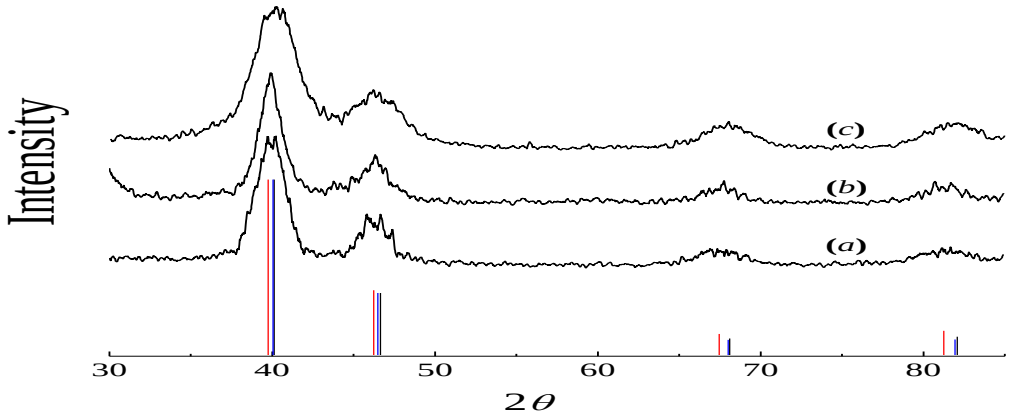


Figure S1.XRD patterns of (a) $Pt_{93}Bi_7$ NWs, (b) $Pd_{92}Bi_8$ NWs, and (c) $Pt_{59}Pd_{41}$ NPs. The red lines are the XRD peaks of Pt (JCPDF Card File 04-0802), the black lines are the XRD peaks of Pd (JCPDF Card File 46-1043), and the blue lines are the XRD peaks of PtPd (JCPDF Card File 65-6418).

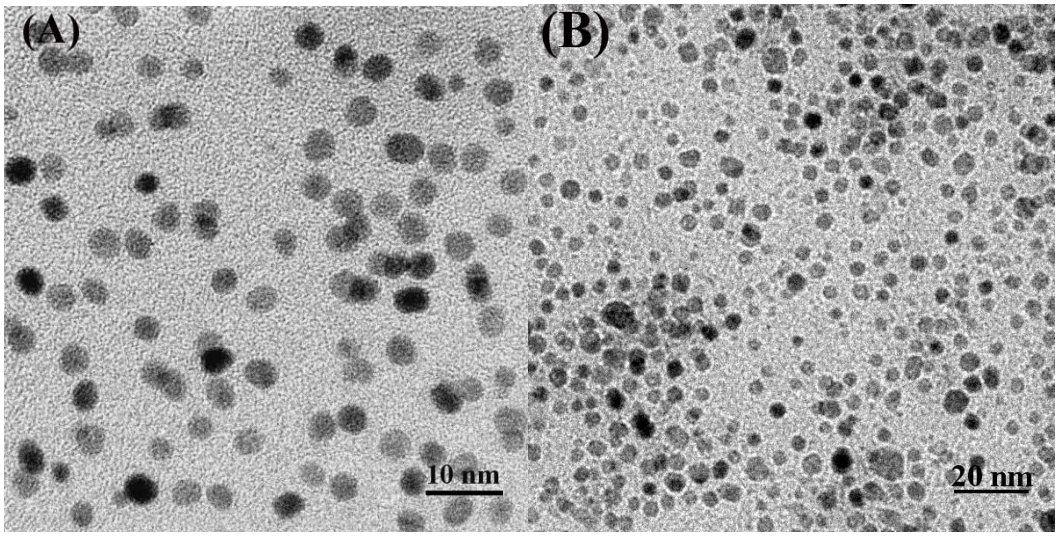


Figure S2. TEM images of Pt (A) and Pd (B) nanoparticles.

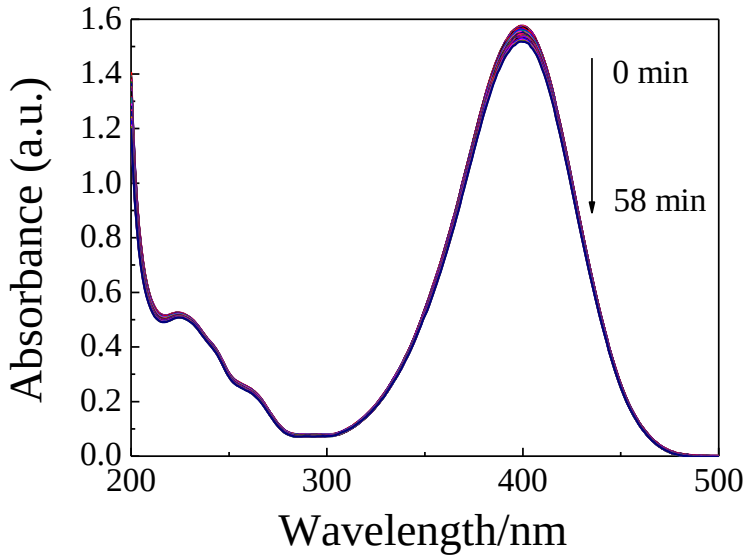


Figure S3. UV-vis spectra of the conversion from *p*-nitrophenol to *p*-aminophenol over one hour without adding any metal catalyst.

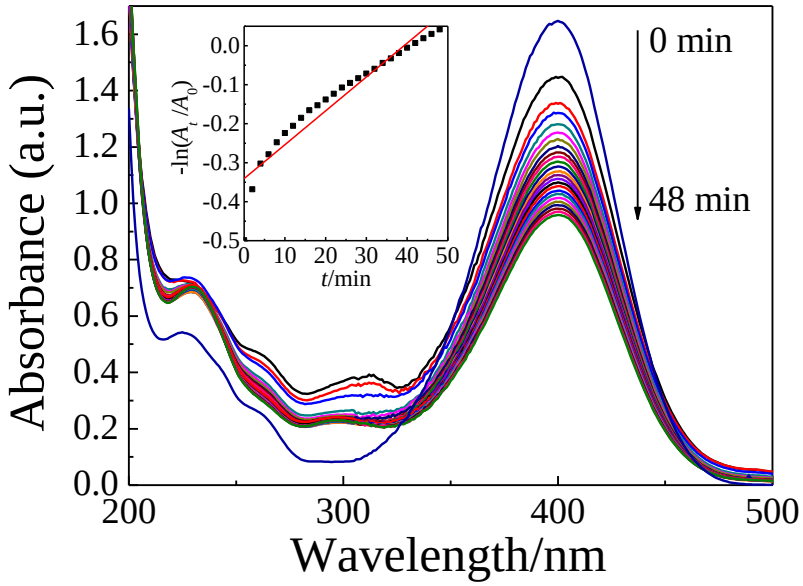


Figure S4. Successive absorption spectra of the conversion from *p*-nitrophenol to *p*-aminophenolwith $Pt_{58}Pd_{42}$ catalysts. Inset was plot of $-\ln(A_t A_0)$ versus *t*.