Fig. S1. EDX spectra of the electrodeposited Ni-Pd samples.

Fig. S2. The cyclic voltammograms of NiPd-1 sample in 1 M NaOH solution for different NaBH₄ concentrations at a scan rate of 100 mV s⁻¹, inset: Variation of anodic peak current density versus NaBH₄ concentration.
**Fig. S3.** The cyclic voltammograms of NiPd-2 sample in 1 M NaOH solution for different NaBH$_4$ concentrations at a scan rate of 100 mV s$^{-1}$, inset: Variation of anodic peak current density versus NaBH$_4$ concentration.

**Fig. S4.** The cyclic voltammograms of NiPd-3 sample in 1 M NaOH solution for different NaBH$_4$ concentrations at a scan rate of 100 mV s$^{-1}$, (b) Variation of anodic peak current density versus NaBH$_4$ concentration.
**Fig. S5.** The cyclic voltammograms of NiPd-4 sample in 1 M NaOH solution for different NaBH₄ concentrations at a scan rate of 100 mV s⁻¹, inset: Variation of anodic peak current density versus NaBH₄ concentration.

**Fig. S6.** The cyclic voltammograms of NiPd-5 sample in 1 M NaOH solution for different NaBH₄ concentrations at a scan rate of 100 mV s⁻¹, inset: Variation of anodic peak current density versus NaBH₄ concentration.
**Fig. S7.** The cyclic voltammograms of Pd sample in 1 M NaOH solution for different NaBH₄ concentrations at a scan rate of 100 mV s⁻¹, inset: Variation of anodic peak current density versus NaBH₄ concentration.

**Fig. S8.** Linear sweep voltammograms with rotating disk electrode for NiPd-2 sample recorded in 1 M NaOH solution containing 0.03 M NaBH₄ at different rotation rates. Potential scan rate is 5 mV s⁻¹.
**Fig. S9.** Linear sweep voltammograms with rotating disk electrode for NiPd-3 sample recorded in 1 M NaOH solution containing 0.03 M NaBH₄ at different rotation rates. Potential scan rate is 5 mV s⁻¹.

**Fig. S10.** Linear sweep voltammograms with rotating disk electrode for NiPd-4 sample recorded in 1 M NaOH solution containing 0.03 M NaBH₄ at different rotation rates. Potential scan rate is 5 mV s⁻¹.
Fig. S11. Linear sweep voltammograms with rotating disk electrode for NiPd-5 sample recorded in 1 M NaOH solution containing 0.03 M NaBH$_4$ at different rotation rates. Potential scan rate is 5 mV s$^{-1}$.

Fig. S12. Linear sweep voltammograms with rotating disk electrode for Pd sample recorded in 1 M NaOH solution containing 0.03 M NaBH$_4$ at different rotation rates. Potential scan rate is 5 mV s$^{-1}$.