

Supporting Information

Facile fabrication of hierarchical ultrathin Rh-based nanosheets for efficient hydrogen evolution

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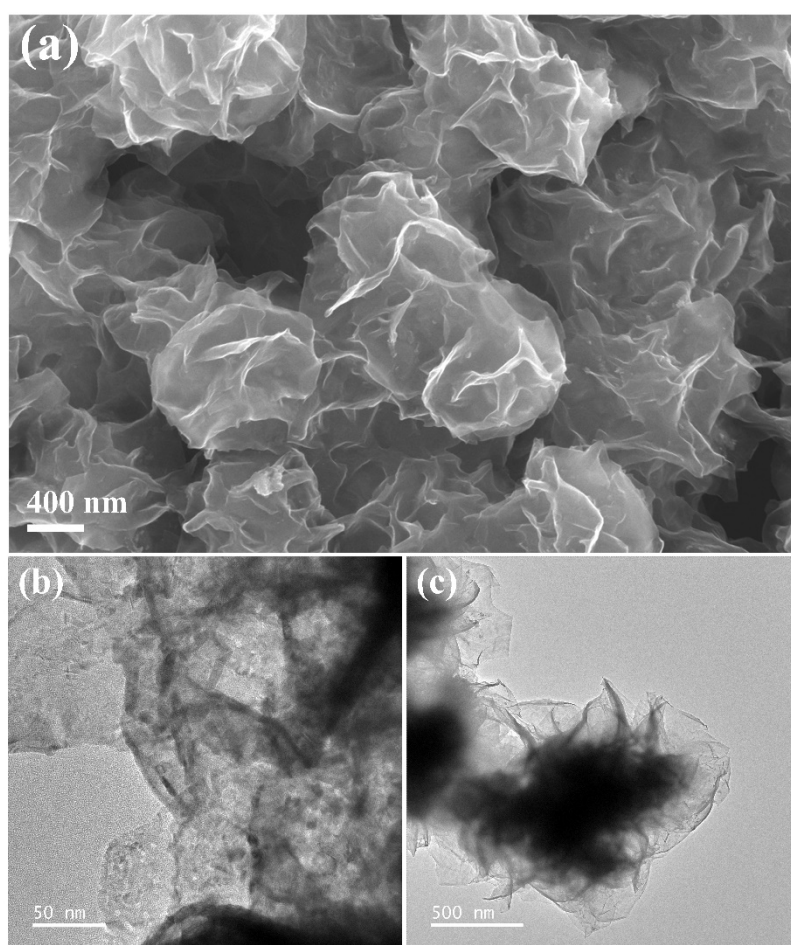


Fig. S1 (a) SEM images and (b, c) TEM images of Rh NSs obtained without PVP.

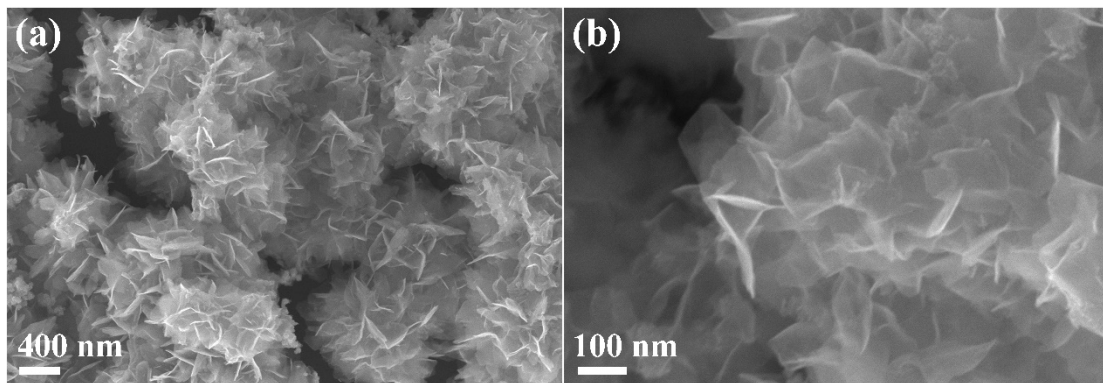


Fig. S2 SEM images of Rh NSs obtained when reacting at 180 °C.

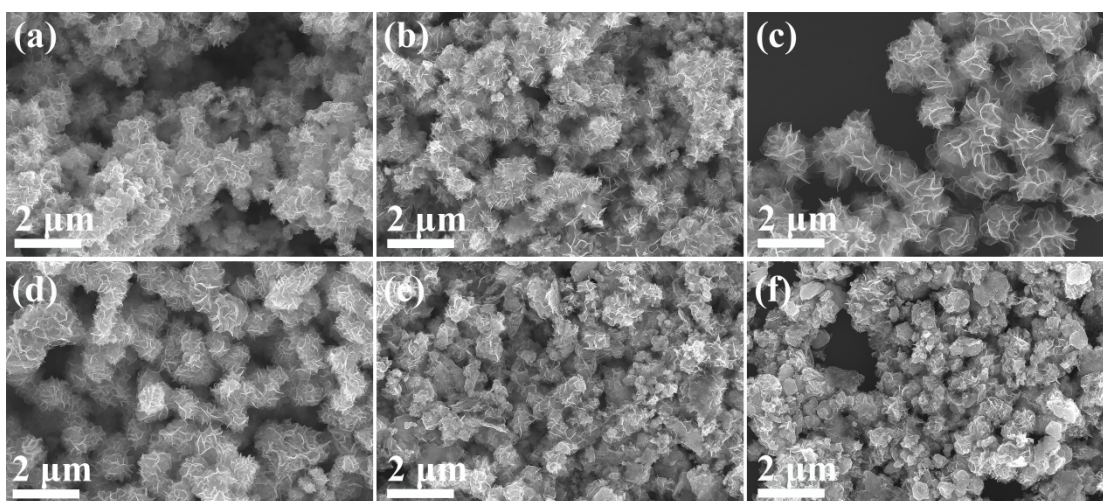


Fig. S3 SEM images of Rh NSs obtained when reacting for (a) 0.5 h, (b) 4 h, and (c) 10 h at 160 °C. SEM images of Rh NSs obtained with (d) 0.6 g, (e) 1.0 g, and (f) 1.2 g of urea.

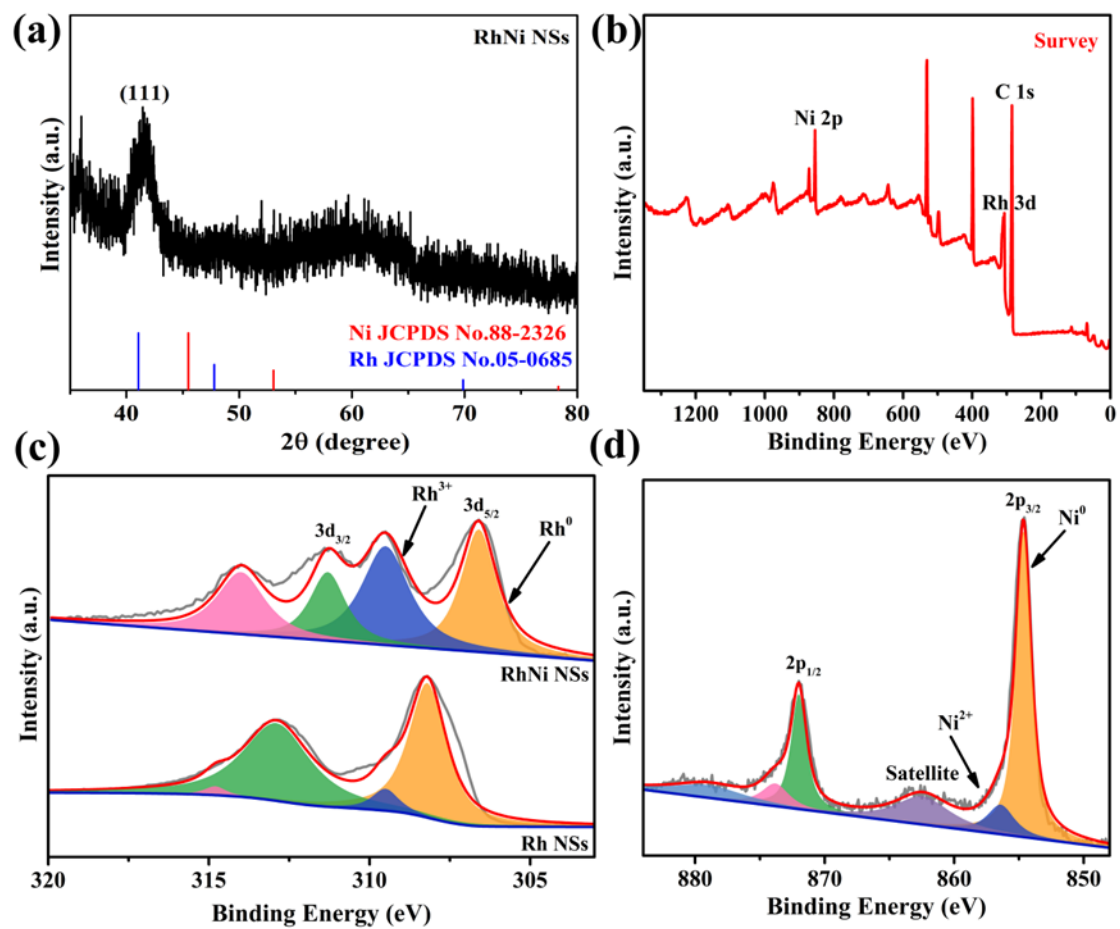


Fig. S4. (a) XRD pattern of RhNi NSs. (b) XPS survey spectrum of RhNi NSs, (c) Rh 3d XPS

spectra of RhNi NSs and Rh NSs, and (d) the Ni 2p XPS spectrum of RhNi NSs.

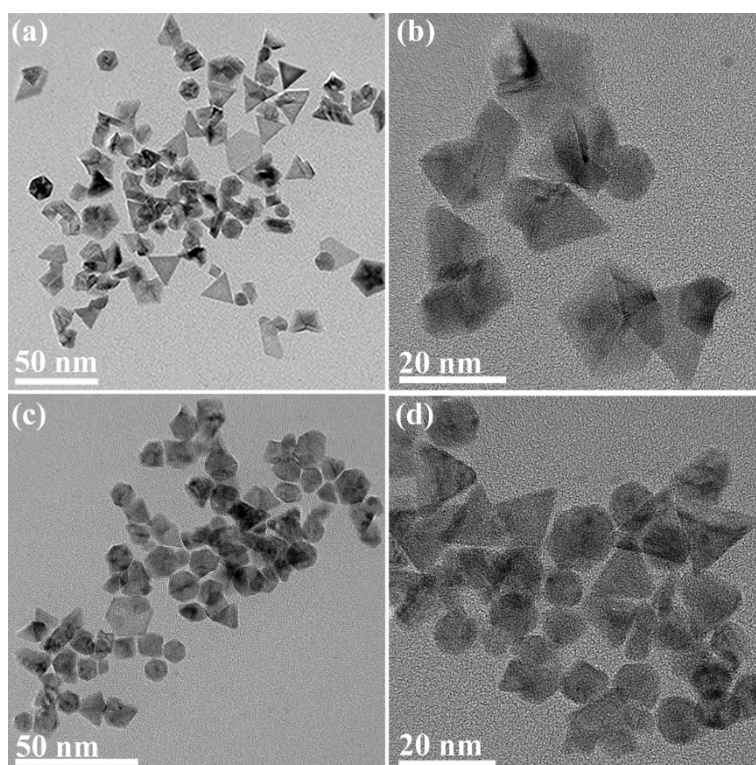


Fig. S5 TEM images of (a, b) Rh NPs, and (c, d) RhNi NPs.

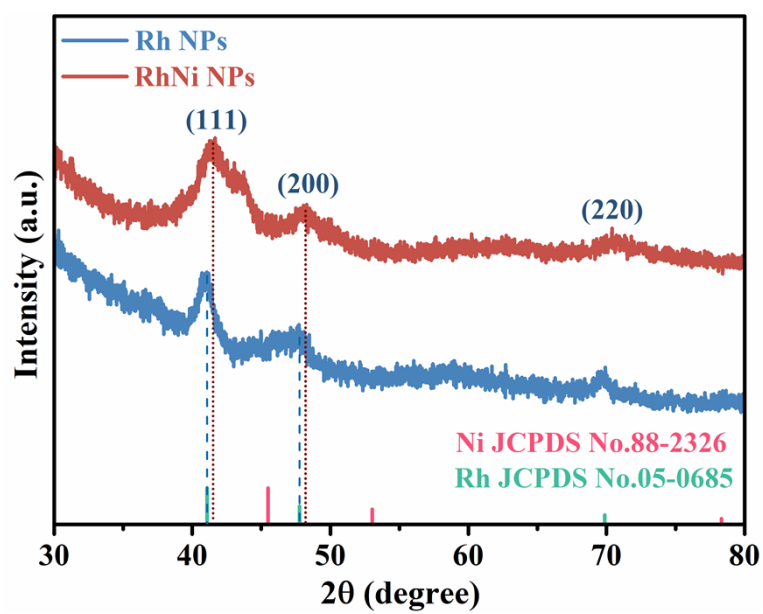


Fig. S6 XRD patterns of Rh-based NPs.

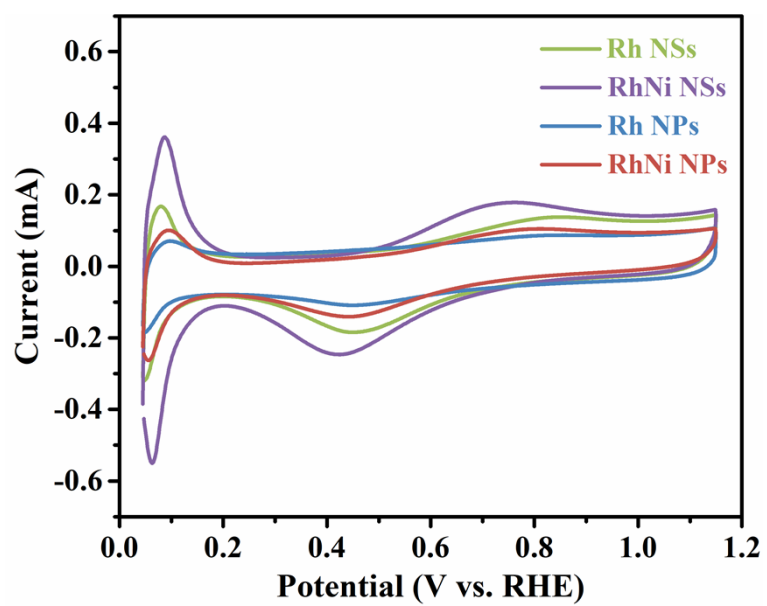


Fig. S7 CV curves of the various catalysts in 0.5 M H₂SO₄ solution with a scan rate of 50 mV s⁻¹.

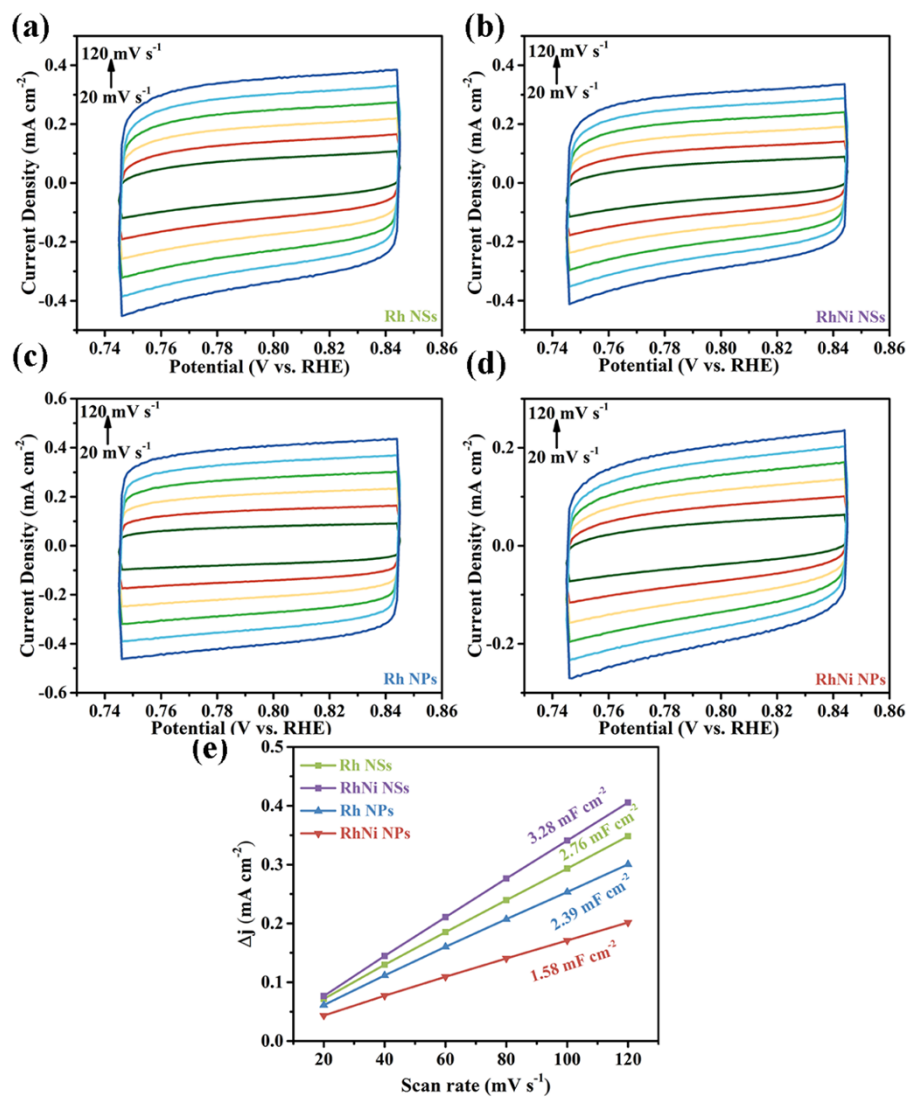


Fig. S8. CV curves of (a) Rh NSs, (b) RhNi NSs, (c) Rh NPs and (d) RhNi NPs at different scan rates from 20 mV s⁻¹ to 120 mV s⁻¹ obtained in 0.5 M H₂SO₄ solution, and (e) their corresponding capacitive current densities.

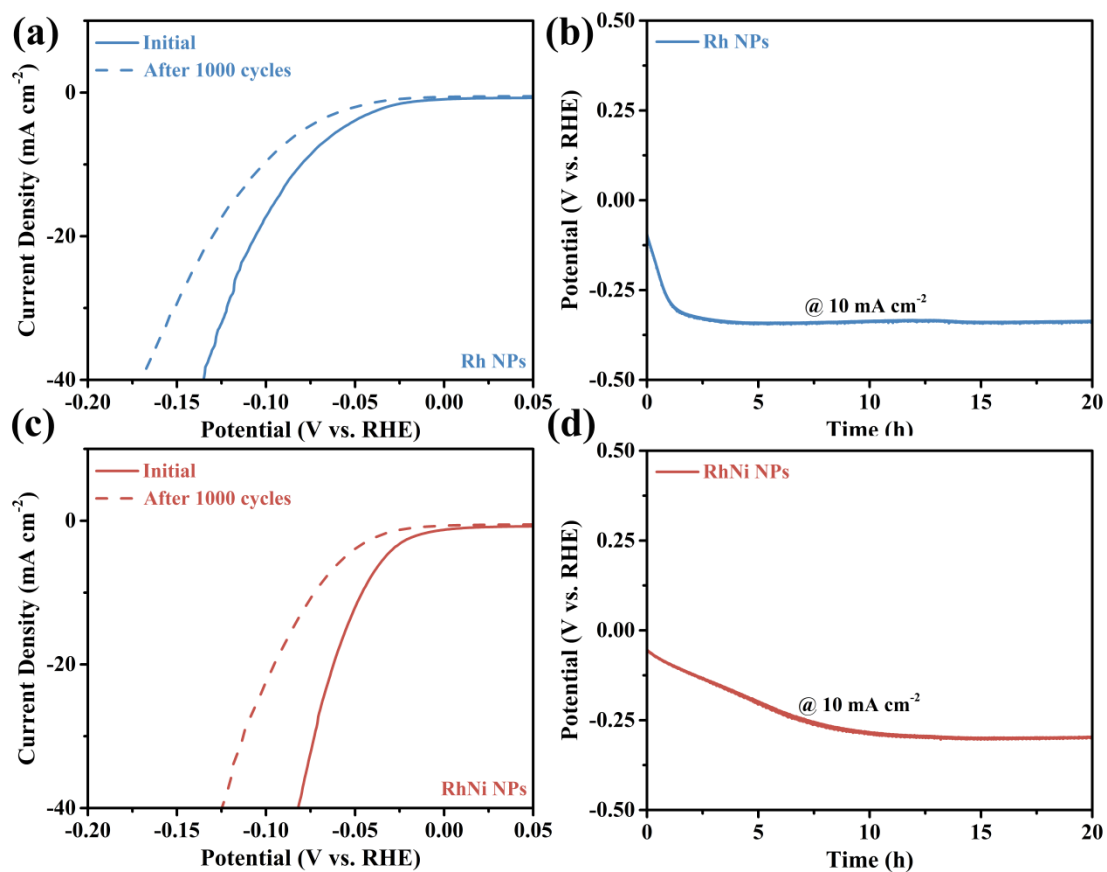


Fig. S9. HER polarization curves before and after 1000 CV cycles. (a) Rh NPs, (c) RhNi NPs. Chronopotentiometry ($V-t$) curves with a constant current density of 10 mA cm^{-2} for 20 h. (b) Rh NPs, (d) RhNi NPs.