Pt-rare earth subnanometric bimetallic clusters efficiently catalyze the reverse water gas reaction

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To prepare CeO_2 polyhedra, 19.2g NaOH and 1.736g $Ce(NO_3)_2{\cdot}6H_2O$ was dissolved in 80 ml of ultrapure water. Place the solution in a hydrothermal reactor and react at 100 ℃ for 24 hours, The precipitate was washed with water until neutral, vacuum dried, and calcined at 350 ℃ in air for 4 hours.

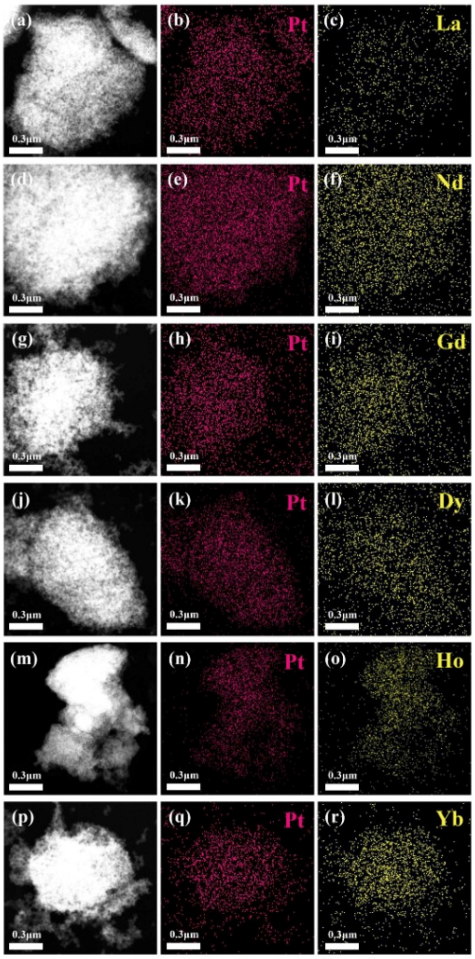


Figure S1. The EDS elemental mapping images of the catalysts (a-c)Pt-La/C; (d-f)Pt-Nd/C; (g-i)Pt-Gd/C; (j-l)Pt-Dy/C; (m-o)Pt-Ho/C; (p-r)Pt-Yb/C used in this study.

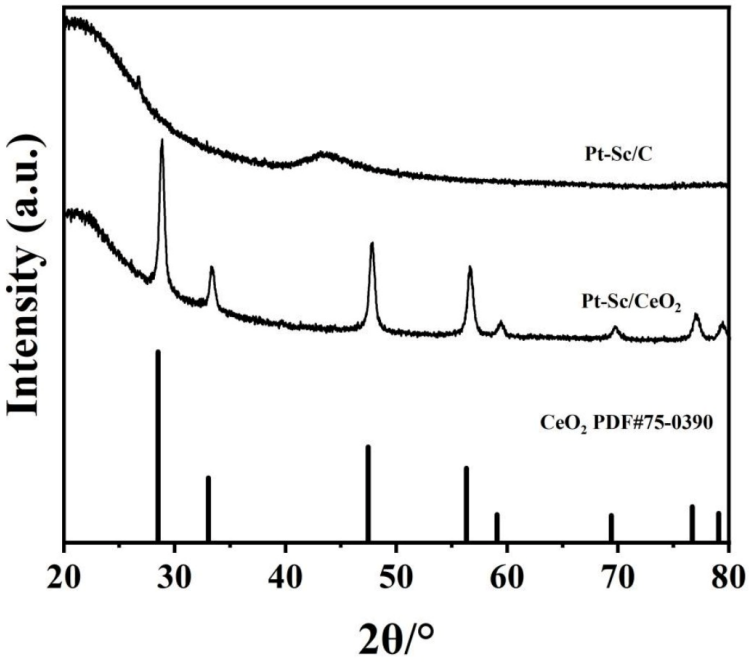


Figure S2. XRD patterns of of Pt-Sc/C and Pt-Sc/CeO_2.

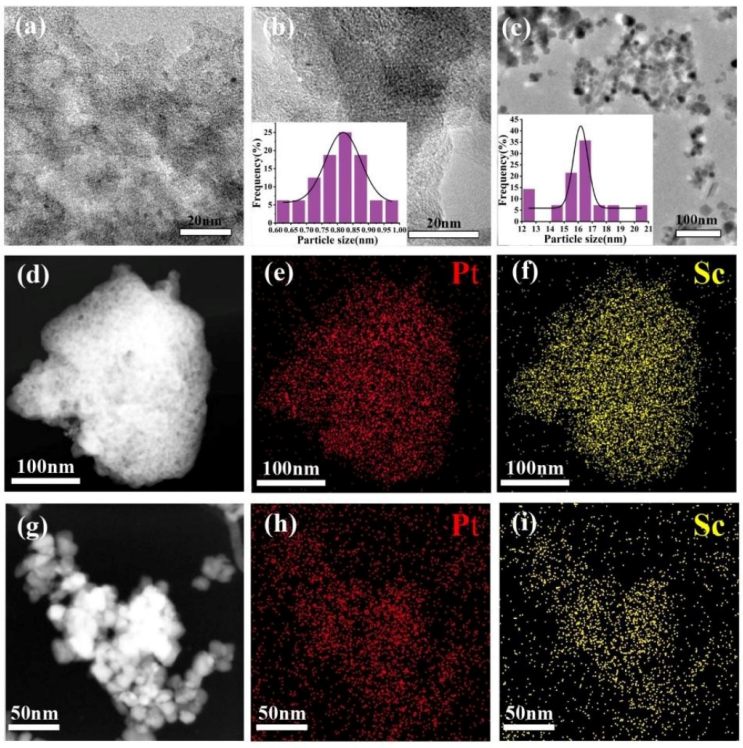


Figure S3. TEM images of (a) Pt/C, (b) Pt-Sc/C with illustrations of size distribution, (c)Pt-Sc/CeO_2 with illustrations of size distribution. EDS elemental spectra of the catalysts (d-f)Pt-Sc/C, (j-i)Pt-Sc/CeO_2.