Toward one-pot manipulating the nickel shape and catalytic performance:

from sphere, chain to urchin

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**Fig. S1** TEM images of the time-dependent experiments for the formation of nickel spheres: (A) 45 min (B) 90 min (C) 4 h.

**Fig. S2** TEM images of the time-dependent experiments for the formation of nickel chains: (A) 15 min (B) 45 min (C) 150 min (D) 4 h.
Fig. S3 TEM images of the time-dependent experiments for the formation of nickel urchins: (A) 15 min (B) 90 min (C) 150 min (D) 4 h.

Fig. S4 UV/Vis spectra of 4-NP before and after adding NaBH₄ solution.
Fig. S5 TEM image of nickel urchins after five cycles of catalytic reduction reactions