Supporting Information

Shape-Controlled Synthesis of Ni Nanocrystals via a Wet-Chemistry Strategy and Their Shape-Dependent Catalytic Activity

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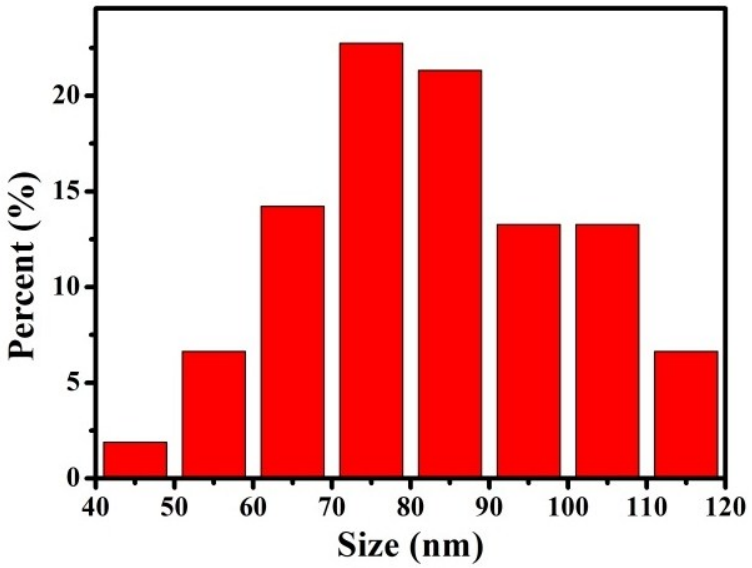


Figure S1. Size distribution diagrams of Ni nanocubes.

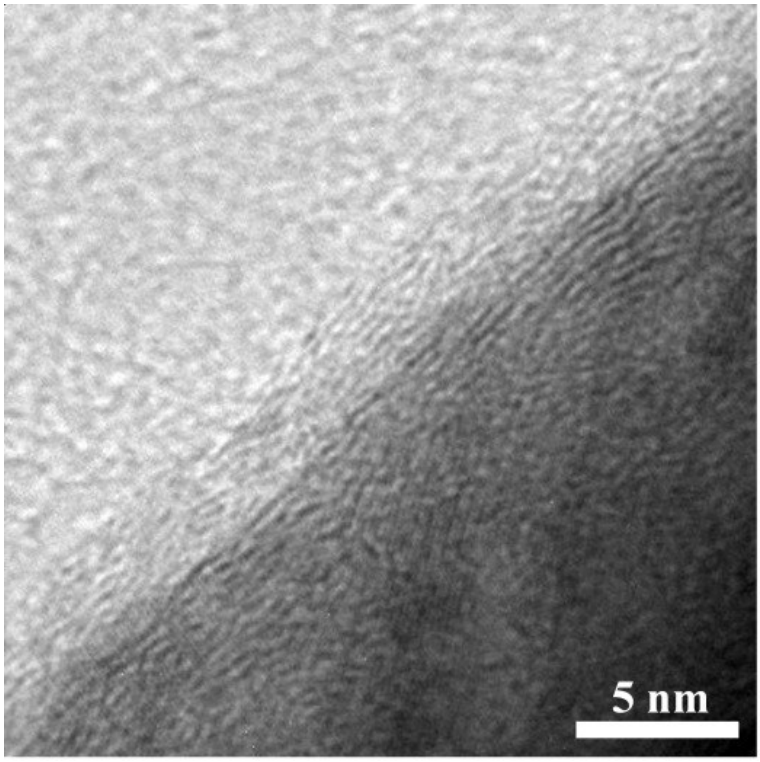


Figure S2. TEM image of a single Ni nanocube with a NiO shell thickness abount 2.9 nm.

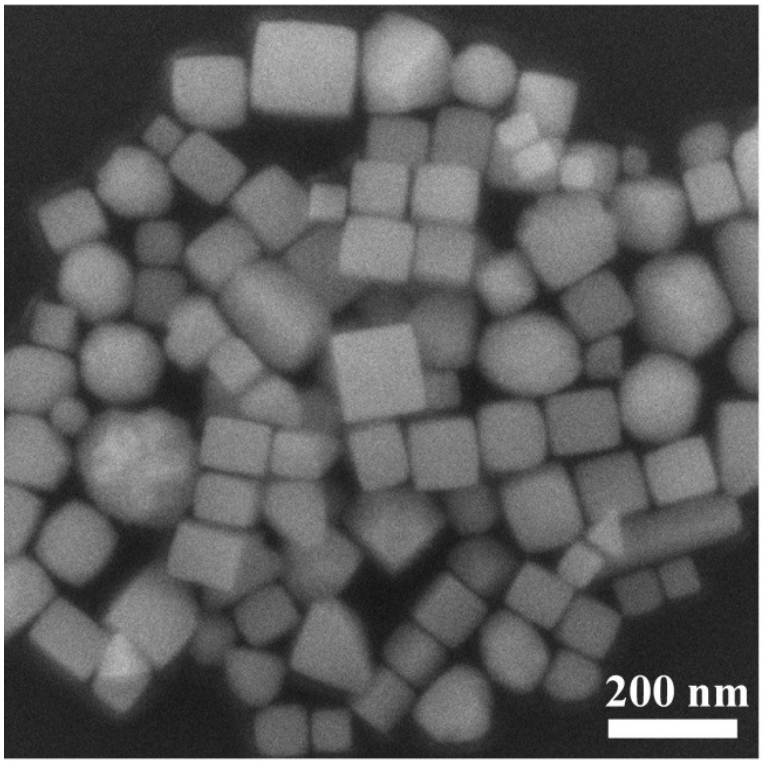


Figure S3. SEM image of the Ni nanocubes after 3 months dispered in hexane.

The Ni nanocubes were seen by SEM (Figure 1A) to be stable for up to 3 months as a dispersion in hexane and retained their cubic morphology.

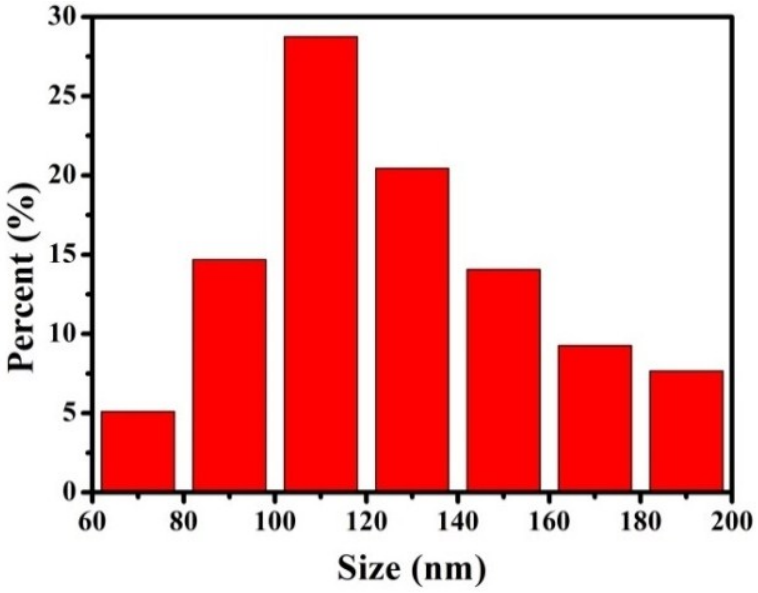


Figure S4. Size distribution diagrams of Ni cuboctahedra.

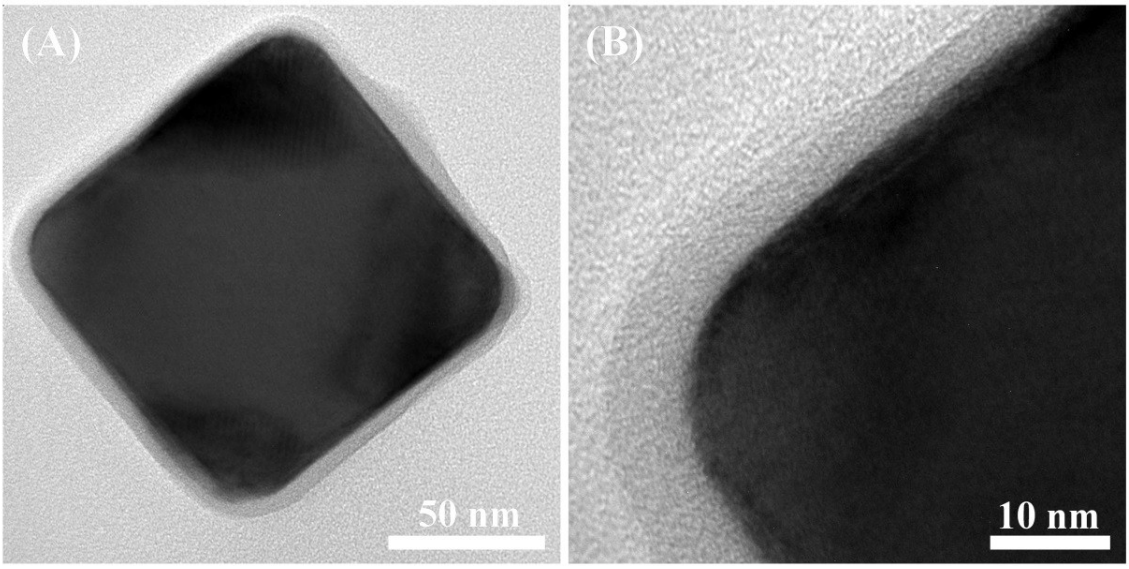


Figure S5. (A) TEM image of a single Ni cuboctahedron around with a lighter contrast. (B) high-magnification TEM image of a part of Ni cuboctahedra indicates a NiO shell thickness around 6 nm.

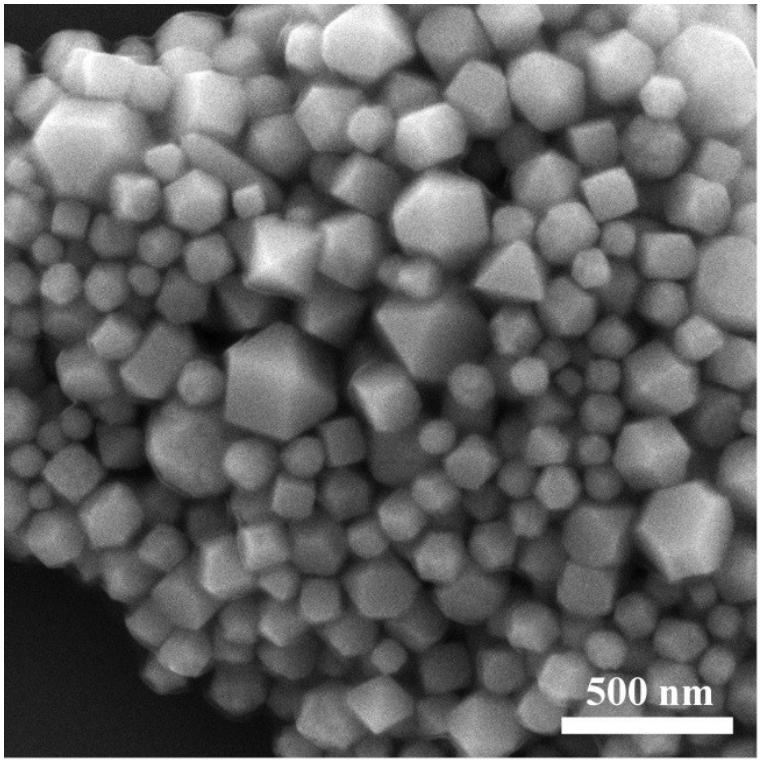
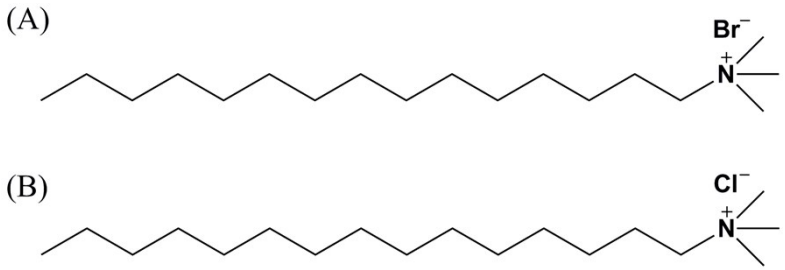


Figure S6. SEM image of Ni cuboctahedra after 3 months dispered in hexane.



Scheme S1. Molecular structures of (A) CTAB and (B) CTAC.

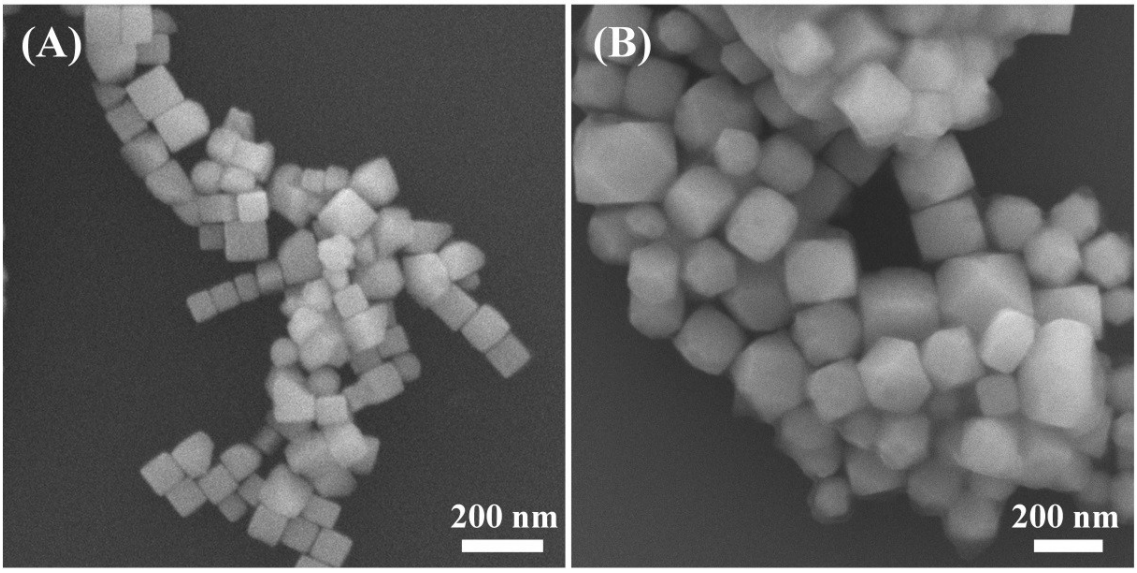


Figure S7. SEM images of Ni NCs prepared using standard procedure with cuboctahedra at different temperature, (A) 260 ºC, (B) 280 ºC, except for fixing the amount of HCHO at 100 μL.

The shape of Ni NCs tuned from nanocubes to cuboctahedra, and the avrage size are around 80 nm, 154 nm, respectively.

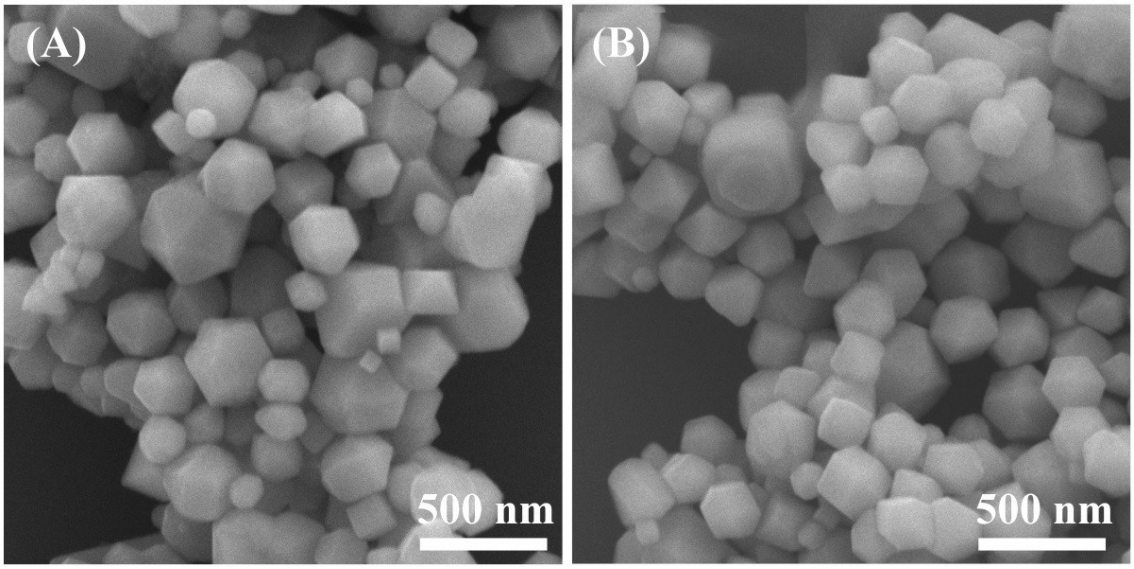


Figure S8. SEM images of Ni NCs prepared using standard procedure with nanocubes at different time intervals, (A) 80 min, (B) 120 min, respectively.

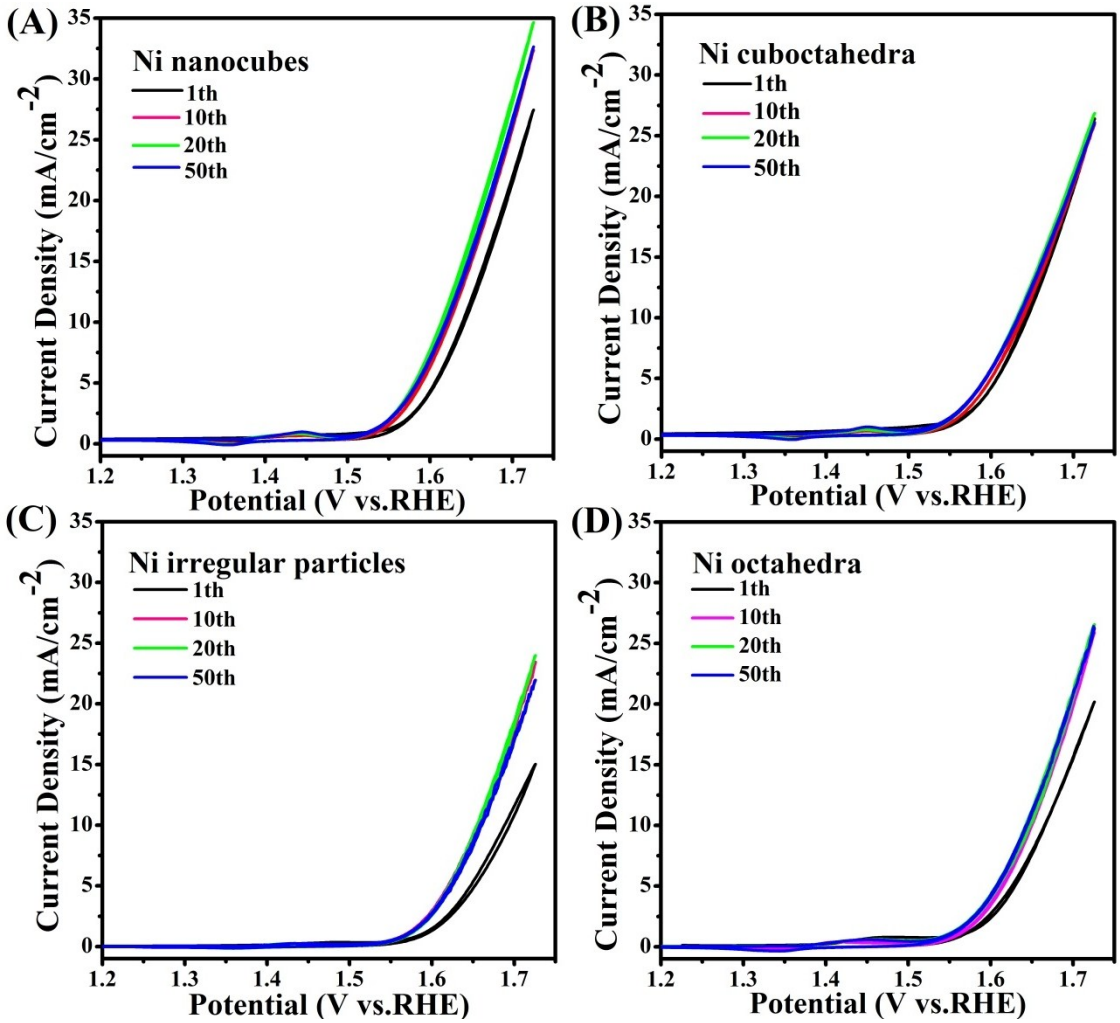


Figure S9. CV curves recorded at 1st, 10th, 20th, and 50th cycle for (A) Ni nanocubes, (B) Ni cuboctahedra, (C) Ni octahedral and (D) Ni irregular particles, respectively.

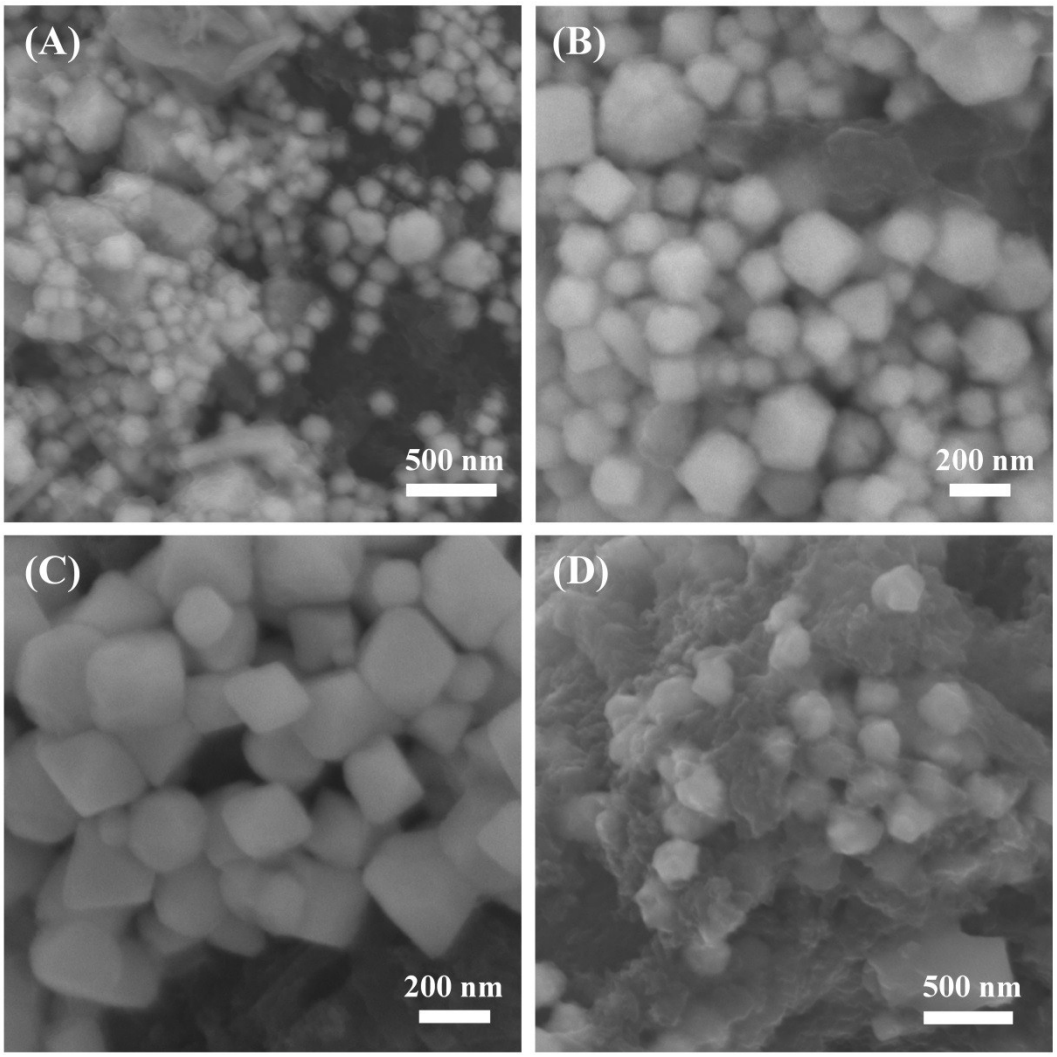


Figure S10. The SEM of Ni NCs obtained after the eclectrocatalytic tests, (A) nanocubes and (B) cuboctahedra, respectively.