

Supporting Information

Photocatalytic hydrogen generation using mesoporous silicon
nanoparticles: Influence of magnesiothermic reduction
conditions and nanoparticle aging on the catalytic activity

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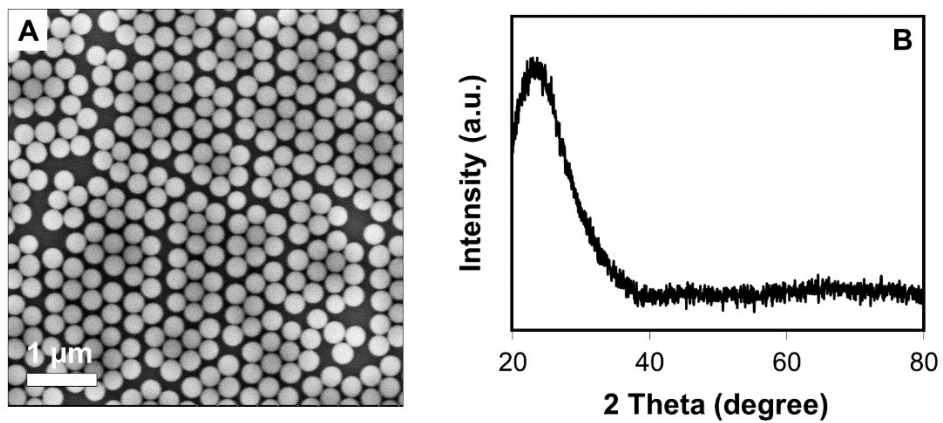


Figure S1. (A) SEM image and (B) powder XRD pattern of Stöber SiO₂ NPs.

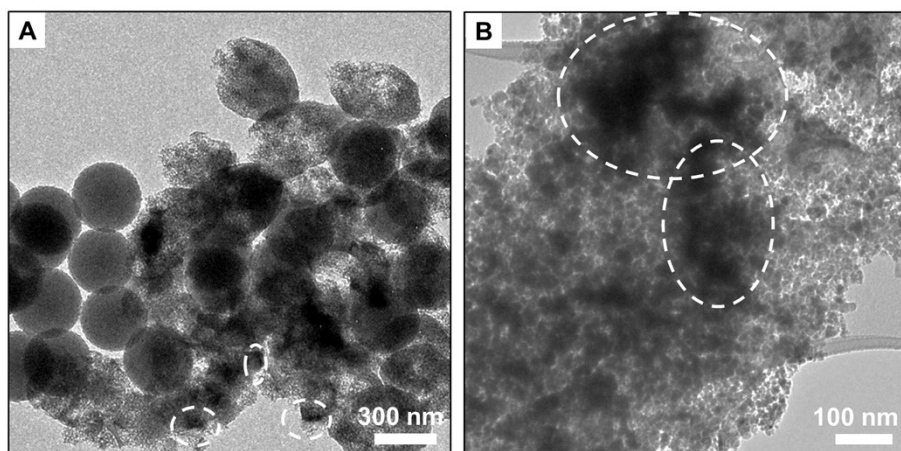


Figure S2. (A) and (B) TEM images of mp-Si650 NPs. The circled regions show sintering.

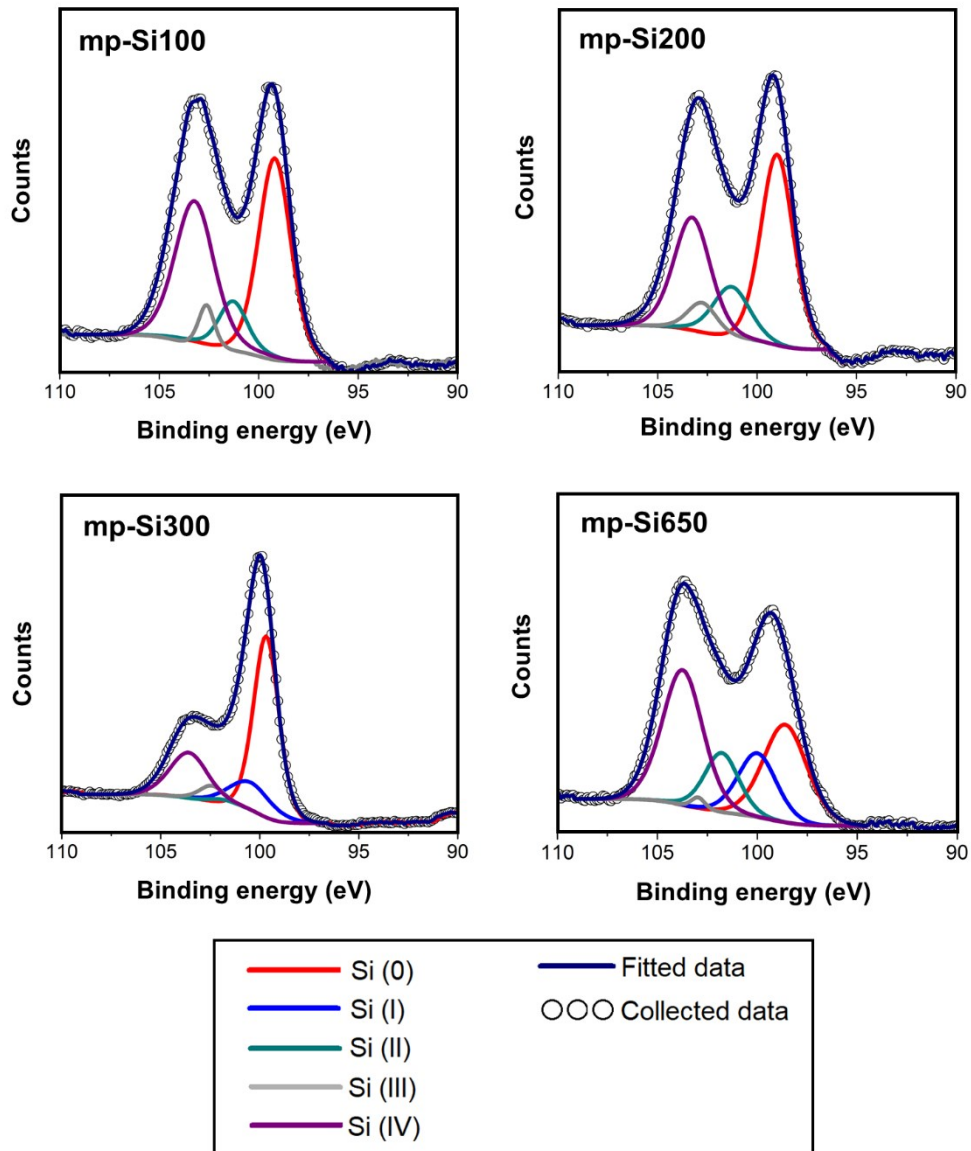


Figure S3. High resolution XP spectra of Si 2p region of mp-Si NPs prepared under different annealing conditions. For clarity, only $2p_{3/2}$ fit peaks are shown. mp-Si650 was prepared using the single step heating at 650 °C for 3 h. mp-Si100, mp-Si200, and mp-Si300 were prepared using the two step heating method with second annealing temperature of 100, 200, and 300 °C, respectively.

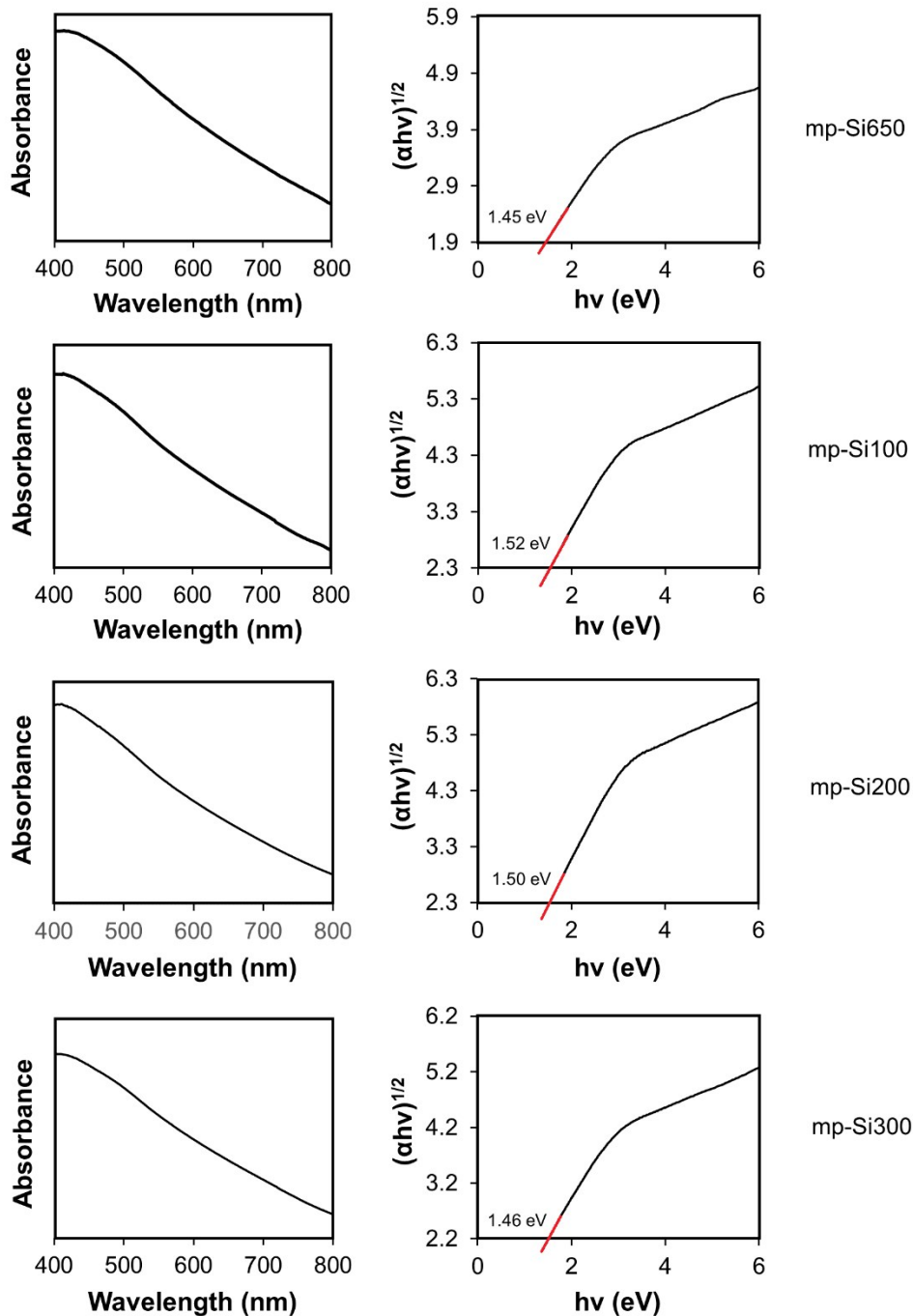


Figure S4. UV-Vis absorbance spectra and corresponding Tauc plots of mp-Si NPs prepared under different magnesian reduction conditions. mp-Si650 was prepared using the single step heating at 650 °C for 3 h. mp-Si100, mp-Si200, and mp-Si300 were prepared using the two step heating method with second annealing temperature of 100, 200, and 300 °C, respectively.

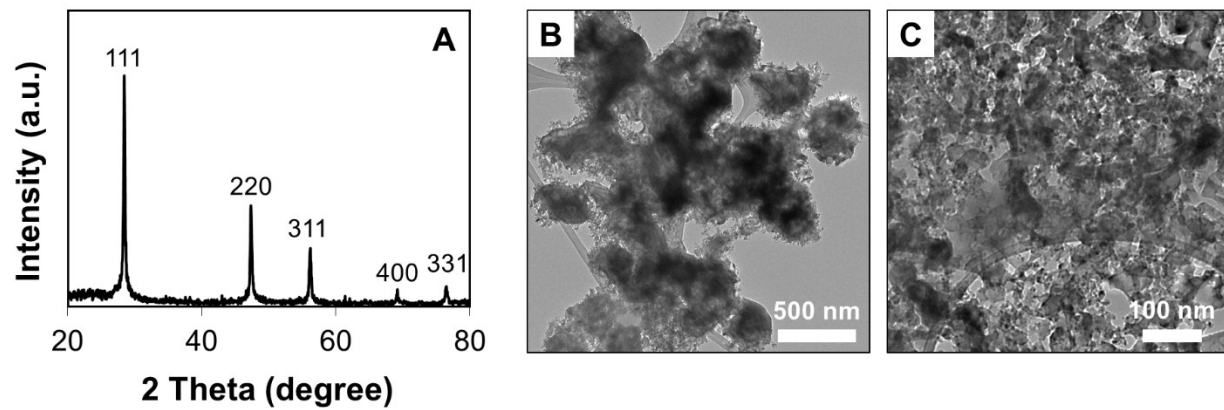


Figure S5. (A) Powder XRD pattern, (B) and (C) TEM images of mp-Si NPs prepared at 650 °C with 6 h reaction time.