

**(Supporting Information)**

**Stable and color-tunable fluorescence from silicon  
nanoparticles formed by single-step plasma assisted  
decomposition of SiBr<sub>4</sub>**

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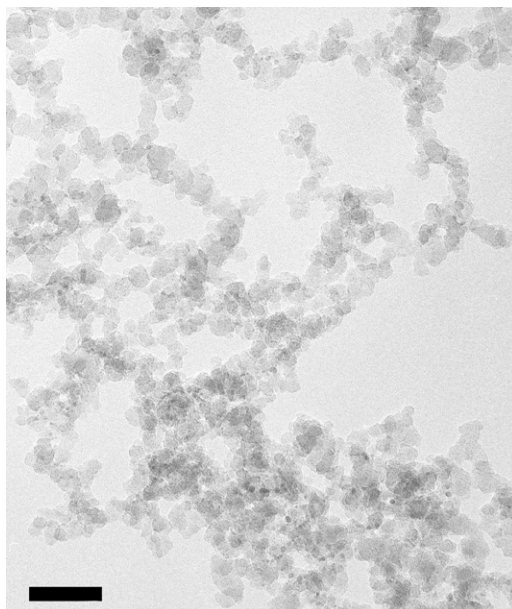


Figure S1

Low-magnification TEM image of the as-synthesized nanoparticles. The scale bar equals to 50 nm.

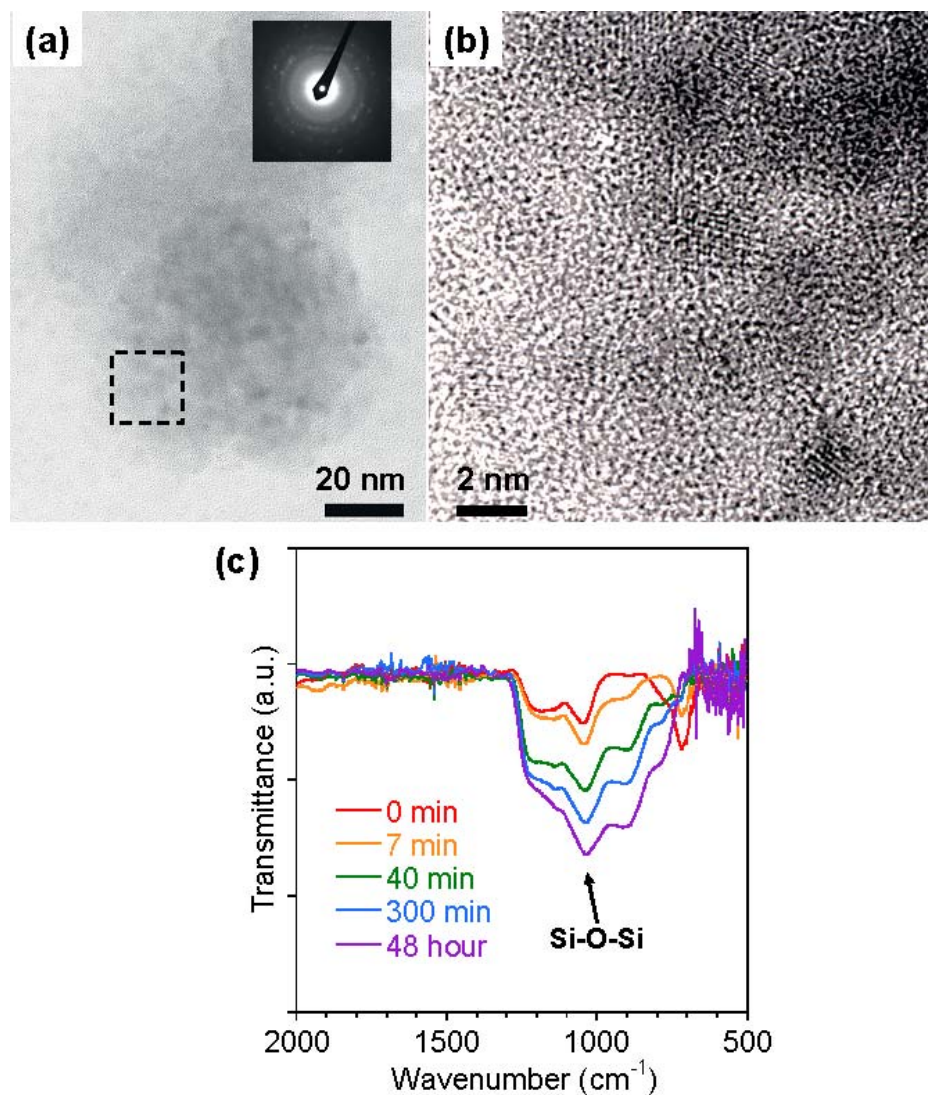


Figure S2

(a) TEM image of as-synthesized particles. We used a nitrogen-filled glovebag to avoid oxidation during TEM sample preparation. The inset shows diffraction pattern of the image. (b) Enlarged TEM image of the dashed square area in (a). (c) Time evolution of FT-IR spectra of the as-synthesized particles after exposing to air. The wide peak centered at 1050 cm<sup>-1</sup> is attributed to Si-O-Si stretching vibration.

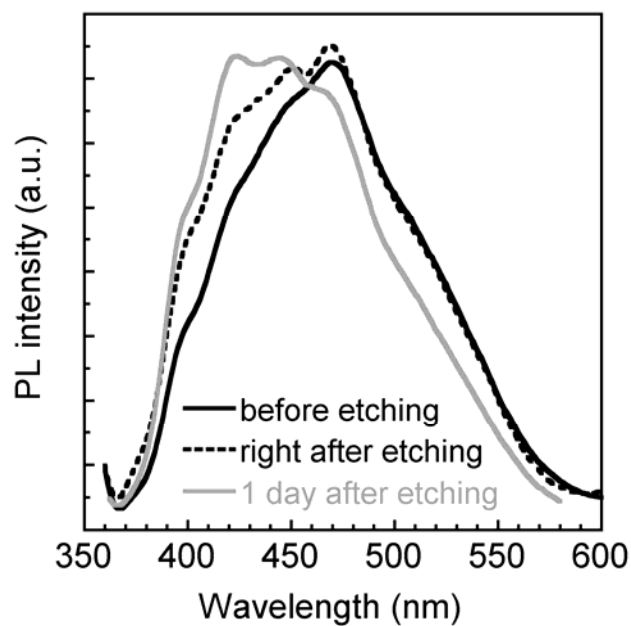


Figure S3

PL spectra of the sample measured before (black solid line), right after (black dotted line) and one day after HF etching (grey solid line). We can observe a blue shift of spectrum one day after etching, which would be explained by surface re-oxidation of Si nanocrystals and subsequent size decrease by HF etching.

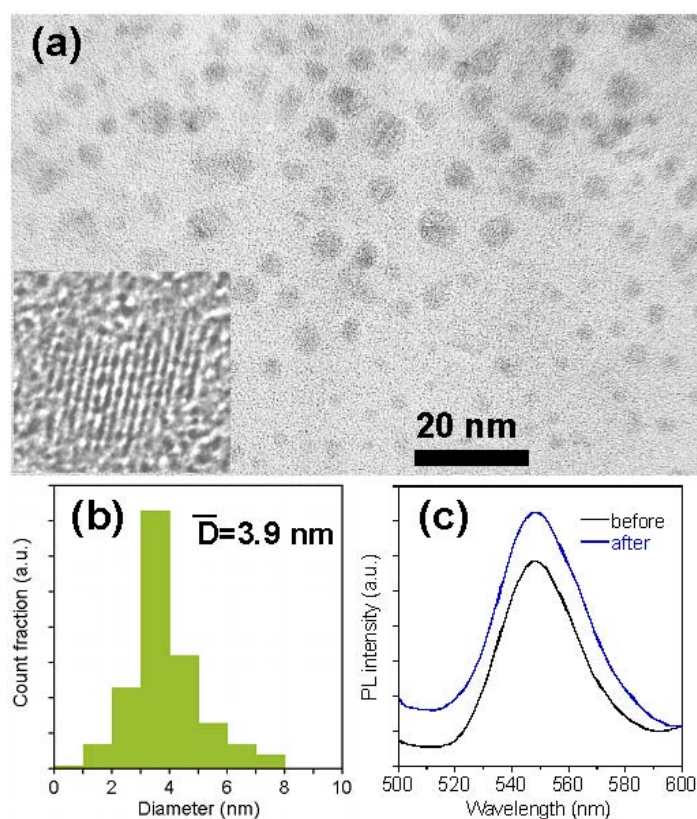


Figure S4

(a) TEM image of the greenish-yellow PL sample after HF etching. The inset shows high-resolution TEM image of one crystal. (b) Size distribution histogram of post-etching nanocrystals, the average size is *ca.* 3.9 nm. (c) PL spectra of before and after HF etching. The integrated PL intensity of post-etching sample showed 25% enhancement.