Supplementary information

Controllable Fabricating Perovskite SrZrO$_3$ Hollow Cuboidal Nanoshells

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**Fig. S1** XRD patterns of SrZrO$_3$ samples prepared at 200 °C for 24 hrs in the different concentration of the KOH solution: (a) 8 mol·L$^{-1}$, (b) 25 mol·L$^{-1}$, (c) 30 mol·L$^{-1}$, (d) 38 mol·L$^{-1}$.

**Fig. S2** XRD patterns of SrZrO$_3$ samples prepared in 30 mol·L$^{-1}$ KOH solution for 24 hrs at the different reaction temperature: (a) 120 °C, (b) 160 °C, (c) 180 °C, (d) 200 °C.
**Fig. S3** The schematic models of possible mechanisms for the observed photoluminescence of SrZrO$_3$ hollow cuboidal nanoshells. In the schematic models, the upper (blue) and the lower (green) bands are Zr 4d conduction bands and the O 2p valence bands, respectively. The black bar below the conduction band corresponds to the defect level created by the oxygen deficiency. White and black circles stand for the excited holes and electrons, respectively.