Supporting information for

Gas-Phase Anion Exchange towards ZnO/ZnSe Coaxial Nanorods with Intensive Visible Light Emission

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Figure S1 (a) Scanning transmission electron microscope (STEM) image of nanoparticles formed on a ZnO nanorod after being heated to 600 °C without holding temperature. (b) Elemental linescan analysis across a nanoparticle along the line shown in (a); (c) HRTEM image of a nanoparticle on the ZnO/ZnSe nanorod, the inset is a FFT pattern corresponding to the area in the white frame.



Figure S2 XRD patterns of the thin ZnO nanorods before anion exchange and corresponding pure ZnSe nanorods after anion exchange.



Figure S3 (a) TEM image of the selenylation product by using thin ZnO nanorods as template; (b) SAED pattern of the agglomerated particles marked in (a).



Figure S4 Cross-sectional SEM images of (a) raw ZnO nanorod; (b) the sample heated to 600 °C without holding temperature; (c) the sample being kept temperature at 600 °C for 10 min; (d) the sample being kept temperature at 600 °C for 60 min.



Figure S5 The $(\alpha hv)^2$ -hv plot of the absorption spectra shown in Figure 5a. (a) pure ZnO nanorods, (b) ZnO/ZnSe nonorods after 10 min anion exchange, (c) ZnO/ZnSe nonorods after 60 min anion exchange.



Figure S6 PL spectra of the raw thin ZnO nanorods and product after selenization. The PL spectra were acquired at an excitation wavelength of 325 nm.