Electronic Supplementary Information (ESI)

**Figure S1.** (a) Cross-section TEM image of oriented ZnO nanorods; (b) XRD pattern of the oriented ZnO nanorods.

**Figure S2.** The EDS data of ZnO nanorods immersed in APS-Na$_2$SiO$_3$ solution at 90°C for 40 min.

**Figure S3.** Low magnification TEM image of ZnO nanorod immersed in APS-Na$_2$SiO$_3$ solution at 90°C for 80 min.