

Supplementary Information

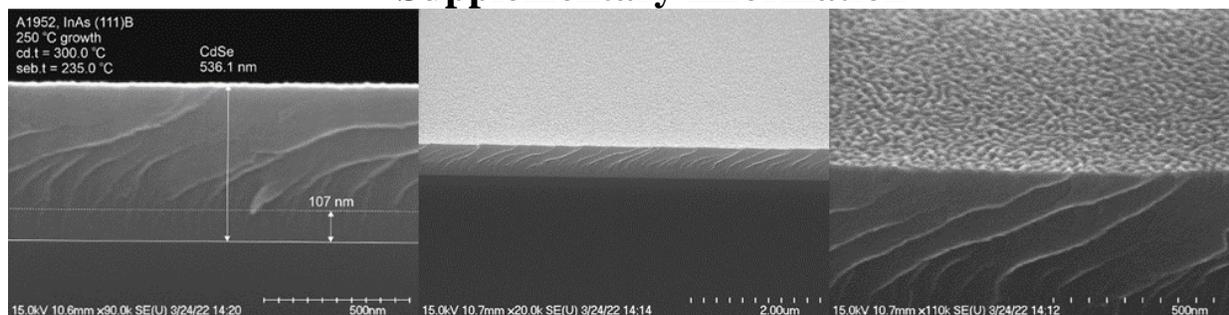


FIG. 1. SEM cross-section (left), tilted view (middle) and surface (right) images of bulk CdSe grown on InAs (111)B at 250 °C, Cd/Se flux ratio = 1.35, and growth rate = 0.84 ML/s. A phase transition from ZB to WZ CdSe after approximately 100 nm of growth is apparent from the change in cleaving facets.

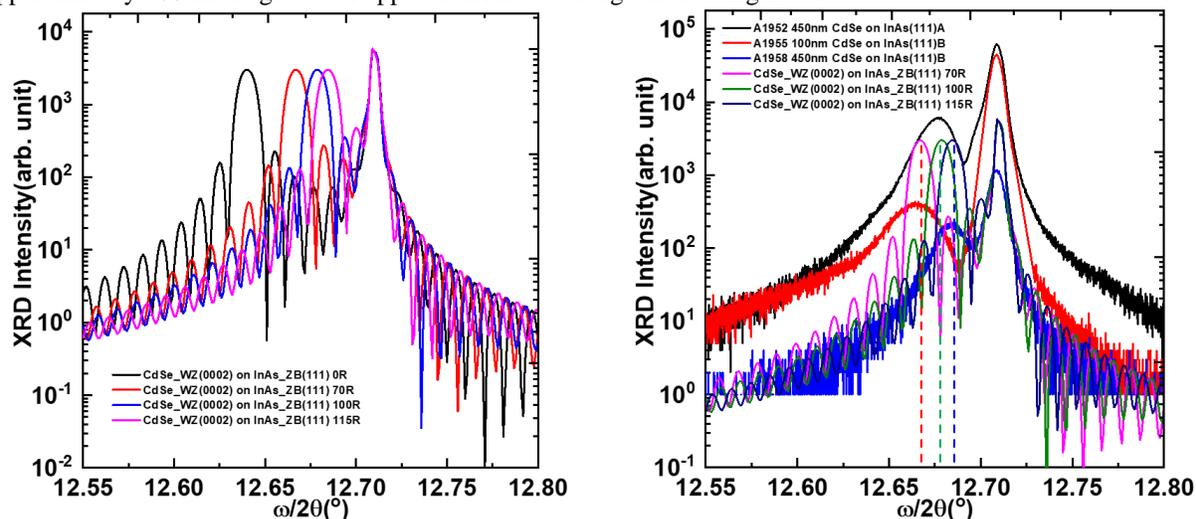


FIG. 2. XRD simulation (left) of 500nm wurtzite CdSe grown on zincblende InAs (111) with various relaxations. The ZB strained CdSe (111) peak nearly overlaps with WZ CdSe (0002) peak. Coupled ω - 2θ scans (right) of the (111) reflection for bulk CdSe layers grown on InAs (111) oriented substrates with corresponding simulation curves. Dashed vertical lines indicate the positions of Bragg angles for WZ CdSe with 70%-100% relaxation

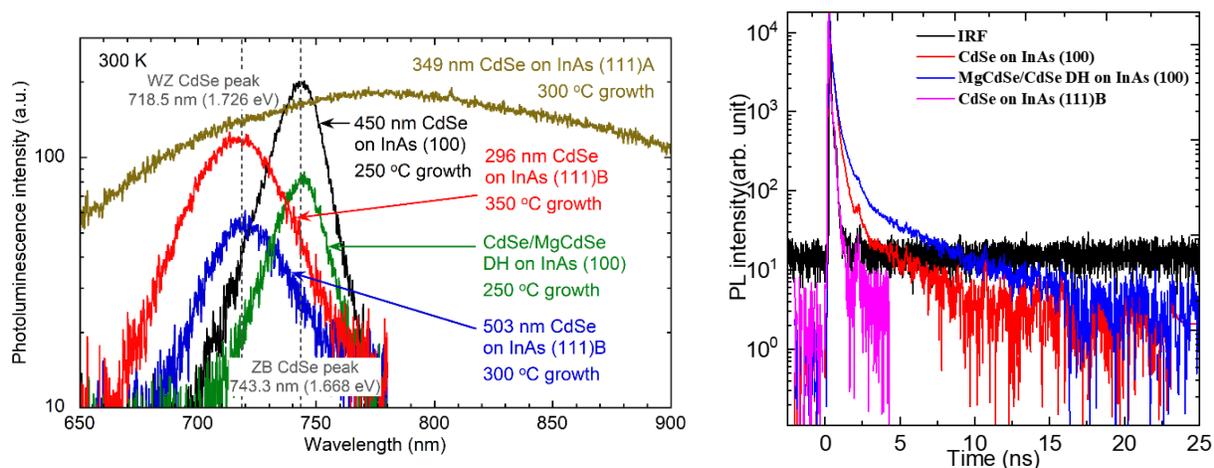


FIG. 3. Room temperature steady-state PL spectra (left) and time-resolved PL (right) for bulk CdSe layers grown on InAs (100), (111)A, and (111)B substrates. Growth conditions are indicated directly on the figure. Dashed lines indicate the PL peaks attributed to ZB and WZ CdSe at 743.3 nm and 718.5 nm, respectively. Minority carrier lifetimes range from approximately 1 to 5 ns. TRPL instrument response is shown by black curve.