

Abstract Submitted
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Axially localized optical properties of individual nanowires¹ JUN-PING ZHUANG, YAO LIANG, S.K. HARK, The Chinese University of Hong Kong — Nanowires are not always uniform in their properties. Studying the localized optical properties of the nanowires is thus important for their characterization and potential applications. Micro-photoluminescence spectra and fluorescence lifetime along individual ZnSe nanowires were measured and studied using laser scanning confocal microscopy. The nanowires were selected from an array that was synthesized via self catalyzed VLS mode on GaAs substrates. Through fluorescent imaging, the distribution of the deep-level emissions along the nanowires, in which a bright-tip and a dim-tail were observed, is found to be very different from the relatively uniform distribution of the near-band-edge emissions. Using fluorescence lifetime imaging, we found that the fluorescence decay behaviors are very different between the two emission bands and have position dependence. We believe that the unintended Ga diffusion during the growth of the nanowires should be responsible for the observed distributions.

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Sui Kong Hark
The Chinese University of Hong Kong

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