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Spatially Resolved Luminescence from CdSe Nanowires YONG-JOO DOH, KRISTIN N. MAHER, LIAN OUYANG, Department of Chemistry and Chemical Biology, Harvard University, JIWOONG PARK, The Rowland Institute at Harvard, HONGKUN PARK, Department of Chemistry and Chemical Biology, and Department of Physics, Harvard University — We report photoluminescence (PL) and electroluminescence (EL) from devices incorporating single cadmium selenide (CdSe) nanowires. Electrical measurements and spatially resolved optical measurements are carried out simultaneously at room temperature, and under constant uniform illumination (λ = 480 nm). At low bias voltages (V), photoluminescence is observed along the length of the wire, with a spectral peak at 706 nm. Once V exceeds $\pm$1V, the PL intensity begins to decrease, and above $V = \pm$2.5V localized emission can be seen at one of the contacts (at the positively biased electrode). The EL spectrum shows a peak that is broadened and blue-shifted in comparison to the PL. A mechanism for the observed light emission will be discussed.

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