

Abstract Submitted
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Polarized Photoluminescence from Single Wurtzite and Zincblende InP Nanowires¹ A. MISHRA, L.V. TITOVA, T.B. HOANG, H.E. JACKSON, L.M. SMITH, University of Cincinnati, J.M. YARRISON-RICE, Miami University, Y. KIM, H.J. JOYCE, Q. GAO, H.H. TAN, C. JAGADISH, Australian National University — We use polarized photoluminescence spectroscopy of single InP nanowires to compare the optical properties of vapor-liquid-solid growth of single zincblende (ZB) and wurtzite (W) nanowires. Since ZB and W nanowires have different symmetries and selection rules, their optical properties should also be different. The emission from single W nanowires is observed to be ~ 80 meV higher than for ZB nanowires. Low temperature polarization measurement shows that ZB nanowires are strongly polarized along the nanowire axis, while the W nanowires are polarized perpendicular to the NW axis. The temperature dependence of the ZB and W NW emissions are compared with a bulk InP epilayer. Apart from the 80meV shift in bandgap, the temperature dependencies are similar.

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