

Abstract Submitted
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Stark Shifts in the Mid-Infrared Absorption Edge of Type II Quantum Wells JOHN LITTLE, KIMBERLEY OLVER, WENDY SARNEY, STEFAN SVENSSON, Army Research Laboratory, FRED TOWNER, Maxion Technologies, QUANTUM DEVICES TEAM, MAXION TEAM — We have studied electric field induced (Stark) shifts in real-space indirect mid-infrared transitions that occur in type II AlSb/InAs/GaSb quantum wells. Because of the spatial separation of the electron and hole wavefunctions, the potential drop between the layers dominates the shift in the absorption edge, and can result in either a red shift or a blue shift, depending on the ordering of the quantum wells within the intrinsic region of a p-i-n diode. Of particular interest is the case in which a reverse bias on the diode yields a blue shift in the absorption edge since this field tends to increase the overlap between the electron and hole wavefunctions, increasing the absorption strength. We will give the results of low temperature photocurrent spectroscopy on a series of samples with different layer ordering, degrees of confinement, and coupling between the wells.

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