

Abstract Submitted
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Short-period InAs/GaSb superlattices for mid-infrared photodetectors.¹ H.J. HAUGAN, F. SZMULOWICZ, G.J. BROWN, Air Force Research Laboratory, B. ULLRICH, Bowling Green State University, S.R. MUNSII, Air Force Research Laboratory, J.C. WICKETT, D.W. STOKES, University of Houston — Using a newly developed envelope function approximation model that includes interface effects, several InAs/GaSb type-II superlattices (SLs) were designed for uncooled mid-infrared detector applications. The 4 micron cutoff could be achieved with several SL designs. Superlattices with shorter-periods have larger intervalence band separations than larger-ones, which could increase the optical signal and reduce the detector noise, thus making room temperature operation possible. To test these possibilities, several short-period SLs were grown by molecular-beam epitaxy and their optical properties with reducing SL period were studied by band-edge absorption, photoconductivity and photoluminescence measurements.

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