

Magneto-optical studies and stimulated emission in narrow gap HgTe/CdHgTe structures in the very long wavelength infrared range

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We investigate the prospects of HgTe/HgCdTe quantum wells for long-wavelength interband lasers ($\lambda = 15\text{--}30\ \mu\text{m}$). The properties of stimulated emission (SE) and magnetoabsorption data of QWs structures with wide-gap HgCdTe dielectric waveguide provide an insight on dominating non-radiative carrier recombination mechanism. It is shown that the carrier heating under intense optical pumping is the main factor limiting the SE wavelength and intensity, since the Auger recombination is greatly enhanced when carriers populate high energy states in the valence band.

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