

175

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Title:Integrated AlGaAs quantum-well ridge-structure two-wavelength distributed bragg reflector laser for terahertz wave generation

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Abstract:An integrated two-wavelength distributed Bragg reflector (DBR) laser consisting of two DBR lasers and a Y-branch waveguide amplifier was designed and fabricated. The optical waves from the two DBR lasers are combined into a single output channel of the Y-branch waveguide amplifier and emitted from the output facet. Laser performances of the same output level of ~10mW and a wavelength difference of 1.0-3.7nm (0.47-1.8 THz beat frequency) with a side-mode suppression ratio of 30 dB were obtained. Coherent THz wave generation was also demonstrated by photomixing of the integrated two-wavelength laser output. © 2012 The Japan Society of Applied Physics.

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Main heading:DBR lasers

Controlled terms:Aluminum gallium arsenide - Distributed Bragg reflectors - Integration

Uncontrolled terms:Beat frequency - Laser performance - Optical waves - Output levels - Photomixing - Quantum well - Side mode suppression ratios - Single output - Terahertz wave generation - THz waves - Two wavelength - Two-wavelength lasers - Wavelength difference - Y-branch waveguides

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