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Title:High-power dual-wavelength external-Cavity diode laser based on tapered amplifier with tunable terahertz frequency difference

Authors:Chi, Mingjun (1); Jensen, Ole Bjarlin (1); Petersen, Paul Michael (1)

Author affiliation:(1) DTU Fotonik, Department of Photonics Engineering, Technical University of Denmark, Frederiksborgvej 399, Dk-4000 Roskilde, Denmark

Corresponding author:Jensen, O.B.(mchi@fotonik.dtu.dk)

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Abstract:Tunable dual-wavelength operation of a diode laser system based on a tapered diode amplifier with double-Littrow external-cavity feedback is demonstrated around 800nm. The two wavelengths can be tuned individually, and the frequency difference of the two wavelengths is tunable from 0.5 to 5.0 THz. An output power of 1.54W is achieved with a frequency difference of 0.86 THz, the output power is higher than 1.3W in the 5.0 THz range of frequency difference, and the amplified spontaneous emission intensity is more than 20 dB suppressed in the range of frequency difference. To our knowledge, this is the highest output power from a dual-wavelength diode laser system operating with tunable terahertz frequency difference.

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