782

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Title

Tunable continuous-wave terahertz generation/detection with compact 1.55 m detuned dual-mode laser diode and InGaAs based photomixer

Source

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Abstract

We demonstrate a tunable continuous-wave (CW) terahertz (THz) homodyne system with a novel detuned dual-mode laser diode (DML) and low-temperature-grown (LTG) InGaAs photomixers. The optical beat source with the detuned DML showed a beat frequency tuning range of 0.26 to over 1.07 THz. Log-spiral antenna integrated LTG InGaAs photomixers are used as THz wave generators and detectors. The CW THz radiation frequency was continuously tuned to over 1 THz. Our results clearly show the feasibility of a compact and fast scanning CW THz spectrometer consisting of a fiber-coupled detuned DML and photomixers operating in the 1.55-m range. (22 References).