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Title:Tunable continuous-wave terahertz generation/detection with compact 1.55 μm detuned dual-mode laser diode and InGaAs based photomixer
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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-μm range.
Number of references:22