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Title:Photonic THz generation in GaAs via resonantly enhanced intracavity multispectral mixing
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Abstract:We generate tunable (1.5-2 THz) terahertz output with up to 200 μW average power in periodically inverted GaAs using resonantly enhanced multispectral frequency mixing inside the cavity of a type-0 optical parametric oscillator operating at degeneracy. The optical parametric oscillator was synchronously pumped by a 1064-nm picosecond Yb-fiber laser and produced, due to the presence of an intracavity Fabry-Pe´rot etalon, a set of optical frequency peaks spaced at the desired THz interval that allows efficient THz wave production via difference frequency generation. The proposed method is well adapted for cascaded THz generation, where the quantum conversion limit can be significantly surpassed.
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