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Title:Tuning and stability of a singly resonant continuous-wave optical parametric oscillator close to degeneracy
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Abstract:Wavelength tuning and stability characteristics of a singly resonant continuous-wave optical parametric oscillator (cw OPO) in the proximity of signal-idler degeneracy have been studied. The OPO is made singly resonant by using a Bragg grating as a spectral filter in the OPO cavity. The signal-idler frequency difference can be tuned from 0.5 to 7 THz, which makes the OPO suitable for cw THz generation by optical heterodyning. The operation of the OPO within this singly-resonant regime is characterized by a strong self-stabilization effect. A gradual transition to an unstable, doubly-resonant regime is observed for a signal-idler detuning smaller than ∽0.5 THz.
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