573
标题: Gain measurements of scattering-assisted terahertz quantum cascade lasers
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摘要: Using terahertz time-domain spectroscopy, the gain of scattering-assisted terahertz quantum cascade lasers is measured. By examining the intersubband gain and absorption over a wide range of bias voltages, we experimentally detect energy anticrossings-revealing information about the mechanism of laser action-and compare the resonant-tunneling injection scheme to the scattering-assisted injection scheme. The temperature performance of the gain medium is also measured and discussed, and an additional intersubband transition is identified that contributes to scattering-assisted lasing action at high temperatures. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4732518]
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