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Title:Room temperature terahertz polariton emitter
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Abstract:Terahertz (THz) range electroluminescence from intersubband polariton states is observed in the ultra strong coupling regime, where the interaction energy between the collective excitation of a dense electron gas and a photonic mode is a significant portion of the uncoupled excitation energy. The polaritons increased emission efficiency along with a parabolic electron confinement potential allows operation up to room temperature in a nonresonant pumping scheme. This observation of room temperature electroluminescence of an intersubband device in the THz range is a promising proof of concept for more powerful THz sources. © 2012 American Institute of Physics.
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Main heading:Quantum theory
Controlled terms:Electroluminescence - Electron gas - Phonons - Photons - Plasma confinement
Uncontrolled terms:Collective excitations - Electron confinement - Emission efficiencies - Inter-subband - Interaction energies - Nonresonant pumping - Photonic modes - Polaritons - Proof of concept - Room temperature - Strong-coupling regime - Tera Hertz - Terahertz range - THz sources
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