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标题: Enhanced THz emission from c-plane InxGa1-xN due to piezoelectric field-induced electron transport
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摘要: Enhanced terahertz emission from coherently strained InxGa1-xN epilayers on GaN is observed, which exceeds or is comparable to bulk InAs emission at pump wavelengths of 400 nm or 800 nm, respectively. The inverted terahertz waveform from the InxGa1-xN/GaN heterostructure indicates that the dominant terahertz generation mechanism is electron acceleration toward the InxGa1-xN surface in an internal electric field primarily associated with piezoelectric polarization charge at the heterointerface, rather than diffusive transport away from the surface typically observed in bulk semiconductors. The persistence of the inverted waveform for 266 nm excitation provides evidence of ultrafast electron relaxation via LO phonon emission. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4707387]
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