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标题: Probing and modelling the localized self-mixing in a GaN/AlGaN field-effect terahertz detector
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摘要: In our previous work [Sun et al., Appl. Phys. Lett. 100, 013506 (2012)], we inferred the existence of localized self-mixing in an antenna-coupled field-effect terahertz detector. In this Letter, we report a quasistatic self-mixing model taking into account the localized terahertz fields and its verification by comparing the simulated results with the experimental data in a two-dimensional space of the gate voltage and the drain/source bias. The model well describes the detector characteristics: not only the magnitude, but also the polarity, of the photocurrent can be tuned. The existence of strongly localized self-mixing in such detectors is confirmed. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4705306]
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