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摘要: This paper reviews the recent progress towards III-nitride intersubband devices based on quantum wells. We first present recent achievements in terms of GaN-based quantum cascade detectors operating at near-infrared wavelengths. We show that these devices are intrinsically extremely fast based on femtosecond time-resolved measurements of the photocurrent. The design of III-nitride quantum cascade detectors, which relies on the engineering of the internal electric field, is flexible enough to allow for two-color detection. We finally discuss the potential of III-nitride intersubband devices in the THz frequency domain and present the recent observation of THz absorption using low aluminium content AlGaN/GaN step quantum wells.
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