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Title:Voltage-controlled sub-terahertz radiation transmission through GaN quantum well structure
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Abstract:We report on measurements of radiation transmission in the 0.220-0.325 THz frequency range through GaN quantum wells grown on sapphire substrates at nitrogen and room temperatures. Significant enhancement of the transmitted beam intensity with applied voltage is found at nitrogen temperature. This effect is explained by changes in the mobility of two-dimensional electrons under electric bias. We have clarified which physical mechanism modifies the electron mobility and we suggest that the effect of voltage-controlled sub-terahertz transmission can be used for the development of electro-optic modulators operating in the sub-THz frequency range.
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