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标题: Quenching of the transient miniband photoconductivity in semiconductor superlattices due to a cancellation of field acceleration by Bragg reflection
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摘要: We have investigated transient conductivity of photoexcited electrons in the miniband of a semiconductor superlattice (SL) by using time-domain terahertz (THz) spectroscopy. When the pump photon energy of the femtosecond laser pulses lies in the SL miniband energy range, clear Bloch emission is observed. However, when the pump photon energy is set much above the miniband, the Bloch emission disappears and, instead, THz emission due to the optical rectification effect shows up. This fact can be interpreted as the quenching of transient miniband transport due to the cancellation of field acceleration by the Bragg reflection when the miniband is uniformly populated in k space by electrons photoexcited by the above-miniband femtosecond laser pulses.
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