

463

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Title:Terahertz Excitation of a Coherent Lambda-Type Three-Level System of Exciton-Polariton Modes in a Quantum-Well Microcavity

Authors:Tomaino, J. L. (1); Jameson, A. D. (1); Lee, Yun-Shik (1); Khitrova, G. (2); Gibbs, H. M. (2); Klettke, A. C. (3); Kira, M.; Koch, S. W. (3)

Author affiliation: (1) Oregon State Univ, Dept Phys, Corvallis, OR 97331 USA; (2) Univ Arizona, Ctr Opt Sci, Tucson, AZ 85721 USA; (3) Univ Marburg, Dept Phys, D-35032 Marburg, Germany

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Abstract:Interactions of few-cycle terahertz pulses with the induced optical polarization in a quantum-well microcavity reveal that the lower and higher exciton-polariton modes together with the optically forbidden 2p-exciton state form a unique Lambda-type three-level system. Pronounced nonlinearities are observed via time-resolved strong-terahertz and weak-optical excitation spectroscopy and explained with a fully microscopic theory. The results show that the terahertz pulses strongly couple the exciton-polariton states to the 2p-exciton state while no resonant transition between the two polariton levels is observed.

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