

Abstract Submitted
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Optical 2D Fourier-transform spectra of GaAs quantum wells

ALAN BRISTOW, DENIS KARAIKAJ, XINGCAN DAI, STEVEN CUNDIFF, JILA, University of Colorado and NIST, LIJUN YANG, SHAUL MUKAMEL, University of California, Irvine, RICHARD MIRIN, National Institute of Standards and Technology — Optical 2D Fourier-transform spectra are presented for QWs at low temperature. Many-body effects are observed in the exciton lineshapes, and suppressed for certain polarization configuration [1]. Biexcitons are completely resolved and are formed from excitons on the same localization site. The 2D spectra simultaneously reveal homogeneous and inhomogeneous linewidths for all spectra features. Also observed are pure many-body interaction features in the form of 2-quantum transitions, which are spectrally separated from the biexciton contributions [2].

[1] A. D. Bristow, D. Karaiskaj, X. Dai, R. P. Mirin, S. T. Cundiff, *Phys. Rev. B* **79**, 161305(R) (2009).

[2] D. Karaiskaj, A. D. Bristow, L. Yang, X. Dai, R. P. Mirin, S. Mukamel, S. T. Cundiff, arXiv:0906.4068v1 [cond-mat.mes-hall] (2009).

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