Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Correlation between heavy-hole and light-hole Mahan Excitons in a two-dimensional electron gas[1] J. PAUL, P. DEY, C.E. STEVENS, Dept. of Physics, University of South Florida, Tampa, Florida 33620, USA, T. TOKUMOTO, Dept. of Physics, University of Alabama at Birmingham, Birmingham, Alabama 35294, USA, J.L. RENO, CINT, Sandia National Laboratories, Albuquerque, New Mexico 87185, USA, D.J. HILTON, Dept. of Physics, University of Alabama at Birmingham, Birmingham, Alabama 35294, USA, D. KARAISKAJ, Dept. of Physics, University of South Florida, Tampa, Florida 33620, USA, D. J. HILTON COLLABORATION, J. L. RENO COLLABORATION — We present the coherent two-dimensional Fourier transform (2DFT) spectra of Mahan Excitons associated with the heavy-hole and light-hole resonances observed in a modulation doped GaAs/AlGaAs single quantum well. These resonances are observed to be strongly coupled through many-body interactions. The 2DFT spectra were measured using co-linear, cross-linear, and co-circular polarizations and reveal striking differences. This work was performed, in part, at the Center for Integrated Nanotechnologies, a U.S. Department of Energy, Office of Basic Energy Sciences user facility. Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under Contract No. DE-AC04-94AL85000.

[1]NSF, Division of Materials Research under grant number: DMR-1409473

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Date submitted: 14 Nov 2014 Electronic form version 1.4