

Abstract Submitted  
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**Temperature and Pump Pulse Dependence of Superfluorescence from InGaAs/GaAs Multiple Quantum Well in High Magnetic Fields**<sup>1</sup> XI-AOMING WANG, YOUNG-DAHL JHO, JINHO LEE, DAVID REITZE, University of Florida, JUNICHIRO KONO, Rice University, ALEXEY BELYANIN, VITALY KOCHAROVSKY, Texas A&M University, GLENN SOLOMON, Stanford University, XING WEI, STEPHEN MCGILL, NHMFL — Using intense near-IR ultrashort pulse laser excitation, we investigate the characteristics of cooperative emission (superfluorescence) from dense electron hole magneto-plasmas in InGaAs/GaAs MQW in high magnetic fields as a function of temperature and excitation pulsewidth. We find strong narrow line emissions from 0-0 and 1-1 Landau levels (LLs), with thresholds depending on magnetic field and temperature. Varying the excitation pulsewidth (180 fs – 60 ps) and fluence (0.1 – 1 mJ/cm<sup>2</sup>), we observe qualitative changes in the emission strengths from different LLs. The strong emissions from 0-0 and 1-1 LL excited with short and long pulses are obviously different. Mechanisms of the temperature and excitation pulse width effect on the strong emission are presented.

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