

Abstract Submitted
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Development of a Gas Plasma-Based THz Time-Domain Spectrometer for the 25 T Split Florida Helix Magnet System¹ A.D. BURCH, Department of Physics, University of Alabama at Birmingham, J.A. CURTIS, National High Magnetic Field Laboratory, Florida State University, A.G. LINN, B. BARMAN, Department of Physics, University of Alabama at Birmingham, M. STILES, Department of Physics, Utah Valley University, J.L. RENO, Sandia National Laboratories, Albuquerque, New Mexico, S.A. MCGILL, National High Magnetic Field Lab, Florida State University, D. KARAIKKAJ, Department of Physics, University of South Florida, D.J. HILTON, Department of Physics, University of Alabama at Birmingham — THz time-domain spectroscopy has been widely used to study two dimensional electron and hole gas systems.^{1,2} In order to extend the magnetic field range of these measurements we have developed a gas plasma-based THz time-domain spectrometer (TTDS) for use in the 25 T Florida Split Helix magnet system at the National High Magnetic Field Laboratory (NHMFL) at Florida State University. We have successfully quadrupled the bandwidth compared to traditional THz spectrometers (approx. 0.1-2.5 THz) based on non-linear crystals. We have recently performed the first high magnetic field TTDS measurements on a high mobility two dimensional electron gas sample. ¹Curtis, J. A. *et al.*, Physical Review B 2016, 93 (15), 155437. ²Kamaraju, N. *et al.*, Applied Physics Letters 2015, 106 (3), 031902.

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