

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Spectroscopic Analysis and Thomson Scattering Diagnostics of Wire Produced Plasma¹ CHRISTOPHER PLECHATY, Riverside Research, Beavercreek, OH 45431, VLADIMIR SOTNIKOV, Air Force Research Laboratory, Wright Patterson AFB, OH 45433, DANIEL MAIN, Riverside Research, Beavercreek, OH 45431, JAMES CAPLINGER, S4 Inc., Fairborn, OH 45324, AUSTIN WALLERSTEIN, TONY KIM, Air Force Research Laboratory, Wright Patterson AFB, OH 45433 — The Lower Hybrid Drift Instability (LHDI) in plasma is driven by the presence of inhomogeneities in density, temperature, or magnetic field (Krall 1971, Davidson 1977), and occurs in systems where the electrons are magnetized and the ions are effectively unmagnetized. The LHDI is thought to occur in magnetic reconnection (Huba 1977), and has also been investigated as a mitigation technique which can allow for communications to take place through the plasma formed around hypersonic aircraft (Sotnikov 2010). To further understand the phenomenology of the LHDI, we plan to carry out experiments at the Air Force Research Laboratory, in the newly formed Plasma Physics Sensors Laboratory. In experiment, a pulsed power generator is employed to produce plasma by passing current through single, or dual-wire configurations. To characterize the plasma, a Thomson scattering diagnostic is employed, along with a visible spectroscopy diagnostic. Huba, J. D., et al., *grl*, 4, 125-128 (1977). Davidson, R. C., et al., *Phys. of Fluids* 20, 301-310 (1977). Krall, N., *Phys. Rev. A* 4, 2094 (1971). Sotnikov, V. I., AGU Fall Meeting Abstracts. Vol. 1. 2010.

¹This work was performed under the auspices of the U.S. Department of Defense by Riverside Research under Contract BAA-FA8650-13-C-1539.

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Date submitted: 07 Jul 2014

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