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Converging Resonance Cones in the LAPTAG plasma[1] CAMI KATZ, Harvard Westlake School, CHRIS HA, Palos Verdes Penninsula High School, WALTER GEKELMAN, PATRICK PRIBYL, University of California Los Angeles, NATHAN AGMON, North Hollywood High School, JOE WISE, New Roads School, BOB BAKER, University High School — The LAPTAG laboratory is a high school outreach effort that has a 1.5m long 50 cm diameter magnetized plasma device. The plasma is produced by an ICP source ($1X10^9 < n < 5X10^{11}$ cm^{-3}) and has computer controlled data acquisition. Ring antennas are used to produce converging resonance cones.[2] The experiment was performed in the quiescent plasma afterglow. The electrostatic cones were produced by rf applied to the rings ($80 < f < 120$ MHz), where $f_{RF} < f_{ce}, f_{pe}$. A movable three-axis electric dipole probe, was used to measure the field at thousands of locations and times (dt = 0.4 ns) on a x-z plane where the z axis is parallel to the background field. ($50G < B < 100$ G). Two resonance cones were clearly measured as well as reflections from the density gradient at the plasma edge. The cone angle compares well to the theoretical value. The two focal points, far removed from the antenna are ideal locations for generating hotspots and density perturbations when the rf power is high. Graphics and movies showing the cone generation at different frequencies will be shown.

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[2]R.L Stenzel, W. Gekelman, Phys. Fluids, 20, 108 (1977).

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