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Comparison of measured whistler wave energy flow to theory in the LAPTAG plasma device[1] AMY LEE, New Roads School, Santa Monica, YUHOU WANG, UCLA, CHLOE ECHTEBAS, University High School, Los Angeles, WALTER GEKELMAN, PATRICK PRIBYL, UCLA, JOE WISE, New Roads School, Santa Monica, ROBERT BAKER, University High School, Los Angeles — The two dimensional structure of whistler waves measured in a high school plasma laboratory device is compared to theory. The wave dispersion is dependent on the plasma density and magnetic field. Spatial variation of the magnetic field is determined by the currents in coils surrounding the chamber. Magnetic field gradients can be imposed by programming individual coil currents and density variations along the field can be changed by varying the chamber pressure. The magnetic fields are measured with a Gaussmeter and calculated with a computer program. The wave propagation is analyzed using a ray tracing program. Index of refraction curves are generated from the measured plasma parameters. The magnetic wave-field data is acquired at a variety of background magnetic fields, wave frequencies and plasma densities. The experimental data is then located on the index of refraction curve. The group velocity of the wave is compared to ray tracing predictions.

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