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Interaction of High Amplitude Alfvén Waves with Density Striations[1] DAVID LENEMAN, WALTER GEKELMAN, PATRICK PRIBYL, BRET JACOBS, UC at Los Angeles — Examining the basic physics of Alfvén waves propagating in non-uniform plasmas is important to understanding a wide range of phenomena in space. Using a multi-turn loop antenna we launch high amplitude ($B_{wave}/B_0 = 10^{-3}$) and measure the radiation pattern as the wave interacts with a density striation. The experiment is conducted in the Large Plasma Device (LaPD) at the University of California, Los Angeles. The cylindrical device produces a uniform magnetic field of up to 2.5 kG and noble gas plasmas 0.5 m in diameter and 18 m long by means of a pulsed, cathode-anode discharge, with densities of $3x10^{12}/cm^3$. Striations are easily produced in the plasma by introducing a metal paddle into the plasma source. Plasma production is inhibited there and the deficit of plasma persists along the field lines, which connect back to the paddle. The radiation pattern is observed to rotate in the presence of the striation. We present LIF measurements of the ion distribution to explore ion heating and drifts. This experiment is carried out at the Basic Plasma Science Facility.

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David Leneman
UC at Los Angeles

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