Abstract Submitted
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Magnetic Turbulence in colliding laser produced plasmas[1] WALTER GEKELMAN, ANDREW COLLETTE, UCLA, Dept. of Physics and Astronomy — We describe a series of experiments, which involve the collision of two dense (initially, $\delta n_{lpp}/n_0 >> 1$) laser-produced plasmas (llp) within an ambient, highly magnetized (R_{ci} <Dia-plasma) capable of supporting Alfvén waves. Colliding plasmas can be used to study generation of magnetic turbulence and spontaneous generation of magnetic fields. The plasma column (He, Ne, 1-4 $X10^{12}$ cm^3) is 18 m long and 60 cm in diameter, 15 ms duration and pulsed at 1 Hz. Two carbon targets are struck by 1.5 J (10 ns,10 μ, 1 Hz) laser beams. The lpp's form diamagnetic bubbles in which a large percentage of the background magnetic field (600G <B_0 <1 kG) has been expelled [1], jet across the magnetic field and collide. Fast camera (3 ns) photographs show the bubble surfaces become corrugated after the collision. Small magnetic field probes are used to study the magnetic turbulence. One probe is fixed and the second moved in a small volume close to the targets. An ensemble each location within the volume is used to determine correlations and cross-spectral functions of the magnetic turbulence. The current systems of the waves are fully three-dimensional and are reported in the adjacent poster by Collette et al. [1] M. Van Zeeland, W. Gekelman, Laser Plasma Diamagnetism in the presence of an ambient magnetized plasma, Phys. Plasmas, **11**, 320 (2004)

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