

Abstract Submitted  
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**Dispersion Measurements On the Irvine FRC in the Lower Hybrid Frequency Range** E. TRASK, E.P. GARATE, W.S. HARRIS, W.W. HEIDBRINK, R. MCWILLIAMS, T. ROCHE<sup>1</sup> — Measurements of the group velocity have been made on the Irvine Field Reversed Configuration (IFRC) by first exciting electromagnetic fields in the plasma with a folded-dipole antenna and then detecting the electric and magnetic fields with probes in the plasma. Key parameters for the plasma are  $\langle n \rangle \sim 2 \cdot 10^{14} \text{ cm}^{-3}$ ,  $B_{max} \sim 250 \text{ Gauss}$ , lower hybrid frequency (slow wave)  $\sim 10 \text{ MHz}$ , launch frequency  $\sim 30 \text{ MHz}$ . Radial group velocities with values ranging from  $5 \cdot 10^8 \text{ cm/s}$  to greater than  $3 \cdot 10^9 \text{ cm/s}$  have been inferred from measurement of delay times between shots. This implies a radial group velocity index of refraction of up to 60. This agrees somewhat with the cold plasma dispersion relation, which predicts indices of refraction ranging from 30-300. Next steps include measurement of the group and phase velocities in both axial and radial dimensions.

<sup>1</sup>U.C. Irvine

Erik Trask  
UC Irvine

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