

Abstract Submitted
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Numerical and Analytical Calculation of Bernstein Resonances in a Non-Uniform Cylindrical Plasma¹ D.K. WALSH, D.H.E. DUBIN, University of California San Diego — This poster presents theory and numerical predictions of electrostatic Bernstein modes in a cylindrical non-neutral plasma column with multiple ion species. These modes propagate radially across the column until they are reflected when their frequency matches the local upper hybrid frequency, setting up an internal normal mode on the column, and also mode-coupling to the electrostatic surface cyclotron wave (which allows the normal mode to be excited and observed using external electrodes). Using our linear Vlasov code discussed last year, we present several numerical results at various magnetic fields, $e^{i\ell\theta}$ -dependencies, and plasma profiles in order to make quantitative predictions of future cyclotron wave experiments. These results are compared to the semi-analytic WKB theory in order to determine under what conditions Bernstein waves are measurable at the wall.

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D.K. Walsh
University of California San Diego

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