

P5.4017 Propagation of Alfvén Waves in a Two Ion Species Plasma

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See full abstract here <http://ocs.ciemat.es/EPS2019ABS/pdf/P5.4017.pdf>

Understanding the behavior of plasma waves in mixed-species plasmas is important for explaining many observations seen in both space and laboratory plasmas. The addition of a second ion species in a magnetized plasma introduces new behavior in the propagation of waves in the ion cyclotron region, such as the ion-ion hybrid cutoff frequency for parallel propagating shear Alfvén waves [1]. Previous experiments on the Large Plasma Device (LAPD) have demonstrated the existence of a propagation gap for shear waves between the ion cyclotron frequencies of the two ion species [2], while more recent work has expanded the range of plasma conditions in which this was observed. Additionally, the ion-ion hybrid cutoff is documented for various mix ratios in order to determine its viability as a diagnostic for the ratio of ion densities. ‘

[1] Buchsbaum, S. J. (1960), Resonance in a plasma with two ion species, *Phys. Fluids*, 3, 418, doi:10.1063/1.1706052

[2] Vincena, S. T., W. A. Farmer, J. E. Maggs, and G. J. Morales (2011), Laboratory realization of an ion-ion hybrid Alfvén wave resonator, *Geophys. Res. Lett.*, 38, L11101, doi:10.1029/2011GL047399.

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