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Ion-Acoustic Wave Scattering description using Case-Van Kampen modes[1] JORGE BERUMEN, FENG CHU, RYAN HOOD, SEAN MATTINGLY, FRED SKIFF, The University of Iowa — We present an experimental characterization of the ion acoustic wave scattering using Case-Van Kampen modes. The experiment is performed in a cylindrical, magnetized, singly-ionized Argon inductively-coupled gas discharge plasma that is weakly collisional with typical conditions: n~10^9cm^{-3} T_e~7 eV and B~1 kG. A 5 ring antenna with diameter similar to the plasma diameter is used for launching the waves. A survey of the ion velocity distribution function's zeroth and first order as well as density fluctuations at different frequencies is done using Laser-Induced Fluorescence (LIF) as the main diagnostics method. Analysis of the scattering of the waves and its dependence on wave frequency is done utilizing Case-Van Kampen modes and the use of Morrison's G-transform [1]. Bibliography: [1] F. Skiff, H. Gunell, C.S. Ng A. Bhattacharjee, and W.A. Noonan. Electrostatic degrees of freedom in non-maxwellian plasma. Physics of Plasmas, 9(5):1931, 2002.

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