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Interaction of Kelvin-Helmholtz and drift wave instabilities in IMPED P. K. CHATTOPADHYAY, Institute for Plasma Research, SAYAK BOSE, Columbia University, NEERAJ WAKDE, J. GHOSH, Institute for Plasma Research — The unique control features of Inverse Mirror Plasma Experimental Device (IMPED) enables production of magnetized plasmas with variable radial density, potential and electron temperature profiles over a wide range. The radial density and potential profiles are tailored to simultaneously excite Kelvin-Helmholtz and drift wave instability. The instabilities are identified by measuring the wavelength, amplitude of density and potential fluctuations and radial profiles of density and plasma potential. These instabilities are observed to interact nonlinearly with each other leading to the formation of side bands. Bispectral analysis has been used to confirm the nonlinear coupling. The side bands are usually asymmetric in nature. However, the extent of asymmetry, i.e. the ratio of the power of the left to the right side band is controlled experimentally, which occasionally leads to symmetric side bands. The method of excitation and control of these instabilities and the probable mechanism of power distribution in side bands is presented.

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