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Co-existence of Kelvin Helmholtz and Drift wave Instabilities in IMPED. SAYAK BOSE, P.K. CHATTOPADHYAY, J. GHOSH, Y.C. SAXENA, Institute for Plasma Research — The Kelvin-Helmholtz (KH) and drift wave (DW) instabilities are excited simultaneously in the **I**nverse **M**irror **P**lasma **E**xperimental **D**evice (IMPED). The unique control features of IMPED[1] enables one to modify the radial profiles of density, potential and electron temperature as per experimental requirement. 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 found to interact nonlinearly with each other leading to the formation of side bands. Bispectral analysis has been used to experimentally confirm the nonlinear coupling. The side bands are observed to be asymmetrical under most experimental conditions. But, symmetric side bands are observed at atypical experimental conditions. The method of excitation and control of these instabilities and the probable mechanism of power distribution in side bands is presented.

1. Bose et al. Rev. Sci. Instrum. 86, 063501 (2015).

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