

Abstract Submitted
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On the nonlinear couplings among ICRF waves observed in GAMMA 10¹ R. IKEZOE, M. ICHIMURA, T. OKADA, M. HIRATA, T. YOKOYAMA, Y. IWAMOTO, S. SUMIDA, K. TAKEYAMA, S. JANG, T. OI, M. YOSHIKAWA, J. KOHAGURA, Y. SHIMA, Plasma Research Center, University of Tsukuba, GAMMA 10 TEAM — Effective ICRF heating creates high ion-temperature plasma of several kiloelectronvolts and the ion-temperature anisotropy exceeds 10 near the midplane of the GAMMA 10 tandem mirror. In such environment, left-hand polarized Alfvén wave becomes unstable overcoming ion-cyclotron damping and so-called Alfvén-ion-cyclotron (AIC) wave is spontaneously excited. Density fluctuations associated with AIC waves and ICRF waves for heating have been recently measured by using reflectometers on GAMMA 10. The measured fluctuations show fruitful wave-wave couplings more clearly than magnetic fluctuations measured by pick-up coils at the plasma periphery. The signals showing the axially transported energetic-ion flux and the diamagnetism display apparent effects of such nonlinear couplings on the global energy confinement of GAMMA 10. Bispectral analysis is applied to the density fluctuations and the detailed characteristics of the nonlinear couplings occurring among the AIC waves and ICRF waves for heating in GAMMA 10 are presented.

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