

Abstract Submitted
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Coupling and spatial structure of Alfvén-ion-cyclotron waves in GAMMA 10¹ R. IKEZOE, M. ICHIMURA, M. HIRATA, T. YOKOYAMA, T. IIMURA, Y. SAITO, Y. IWAMOTO, T. OKADA, S. SUMIDA, K. WATANABE, M. YOSHIKAWA, J. KOHAGURA, Y. SHIMA, Plasma Research Center, University of Tsukuba, GAMMA 10 TEAM — In the GAMMA 10 tandem mirror, anisotropy-driven Alfvén wave, referred as Alfvén ion-cyclotron (AIC) wave, have been spontaneously excited in high-beta discharges. Density fluctuation, which we measured with a reflectometer, shows fruitful interactions of AIC waves with externally applied ICRF waves and with themselves. These wave-wave coupling phenomena are found to be an important issue for mirror-confinement of high-energy ions in GAMMA 10; the amount of axially transported high-energy ions of greater than 6 keV measured with a semiconductor detector demonstrated significant modulation by the difference frequencies between simultaneously excited AIC waves (about 100 kHz). This indicates pitch-angle scattering due to the excited low-frequency Alfvén waves. We present detailed characteristics of the coupling phenomena observed in GAMMA 10 and also spatial structure of the spontaneously excited AIC waves, which we have investigated by using a two-channel reflectometer.

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