

Abstract Submitted  
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**Excitation of low-frequency waves via coupling between slow Alfvén waves in the GAMMA 10 tandem mirror**<sup>1</sup> R. IKEZOE, M. ICHIMURA, T. OKADA, M. HIRATA, M. SAKAMOTO, Y. IWAMOTO, S. SUMIDA, S. JANG, J. ITAGAKI, Y. ONODERA, M. YOSHIKAWA, J. KOHAGURA, Y. SHIMA, X. WANG, Y. NAKASHIMA, Univ of Tsukuba — In normal discharges of the GAMMA 10 tandem mirror, confined energy is saturated against heating power and unstable slow Alfvén wave named as Alfvén-Ion-Cyclotron (AIC) wave is observed in the saturated phase. This saturation may be partly related to (1) the decay of ICRF heating power, which is the main power source in GAMMA 10, due to the coupling with the AIC waves to produce difference-frequency waves and (2) the enhancement of axial transport of high-energy ions owing to nonlinearly excited low-frequency waves. To investigate these phenomena precisely, reflectometry is applied, which can provide assessment of nonlinear process at the location where the nonlinear process are taking place without any disturbance. Bispectral analysis applied to the density fluctuations measured at a wide radial region clearly shows the occurrence of various wave-wave couplings among the heating ICRF wave and the AIC waves. Generation of low-frequency waves via the coupling between coexisting AIC waves is found to be significant only near the core region. Details of measured nonlinear couplings are presented along with the observation showing the clear relation of generated low-frequency waves with the axial transport of high-energy ions.

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