

Abstract Submitted  
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**Measurement of Phase Space Structure of Fast Ions Interacting with Alfvén Eigenmodes**<sup>1</sup> KENICHI NAGAOKA, MASAKI OSAKABE, MITSUTAKA ISOBE, KUNIHIRO OGAWA, YASUHIRO SUZUKI, National Institute for Fusion Science/SOKENDAI(The Graduate University for Advanced Studies), SHINJI KOBAYASHI, SATOSHI YAMAMOTO, Institute of Advanced Energy, Kyoto University, YOSHIKAZUMI MIYOSHI, Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya, 464-8601, Japan, YUTO KATOH, Graduate School of Science, Tohoku University, JOSE M. FONTDECABA, Laboratorio Nacional de Fusión CIEMAT — Experimentally observed Alfvén eigenmodes (AEs) shows nonlinear behaviors such as intermittency, fast sweep in frequency and so on. In order to understand such nonlinear behaviors of AEs, it is widely recognized that the phase space structure have to be taken into account. However, there are few direct measurements of phase space structure in experiments so far. Here, we propose to apply the wave-particle interaction analyzer (WPIA) technique being developed for magnetosphere plasma physics (ERG project) to magnetically confinement fusion experiments. In the meeting, we present a high speed pulse analyzer system for WPIA using the field programmable gate array (FPGA) module and discuss the phase space structures observed in the LHD experiment.

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