

Abstract Submitted
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Lost fast ion diagnostics by a scintillator probe MASAKI NISHIURA, M. ISOBE, T. MUTOH, National Institute for Fusion Science, N. KUBO, M. SASAO, Tohoku University, S. MURAKAMI, Kyoto University, M. OSAKABE, J. MIYAZAWA, National Institute for Fusion Science, D.S. DARROW, PPPL, LHD EXPERIMENTAL GROUP TEAM — For lost fast ion studies in confined plasmas, a scintillator type lost ion probe is installed into the Large Helical Device (LHD). The scintillator probe can measure the pitch angle and energy of fast ions simultaneously. During the neutral beam (NB) injection into the LHD, the fast ion profile at the edge plasma was measured using the scintillator probe. The measured results will be compared with fast ion orbits estimated from the deposition profile of NBs. While the self-sustained detachment plasma has been observed, the measured lost ion signal level became quite lower, compared with that before the self-sustained one occurred. The frequency of lost ion signal with 5 kHz disappeared during the self-sustained detachment phase. Taking into account the changes in the deposition of NBs, lost fast ion behaviors would be discussed. The new scintillator probe has been designed and will be installed into the different location of the LHD. A periscope with eyepiece, relay, and objective lenses is employed to transmit the scintillator light to an image intensified charge coupled device camera and 3x3 photomultiplier arrays. The design and first result using new scintillator probe will be presented.

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