Abstract Submitted for the DPP05 Meeting of The American Physical Society

Observation of the Effect of Fast Ions on Fueling Pellet Ablation MITSUYASU HOSHINO, Nagoya University, RYUICHI SAKAMOTO, HIROSHI YAMADA, TOKIHIKO TOKUZAWA, KAZUMICHI NARIHARA, MASAKI OS-AKABE, RYUHEI KUMAZAWA, TETSUO WATARI, National Institute for Fusion Science, LHD EXPERIMENTAL GROUP TEAM — Ablation of fueling pellets has been investigated for intensive neutral beam injection (NBI) heated plasmas in Large Helical Device (LHD). When measured penetration depth of injected pellets in the experiment is compared with a theoretical model employing ablation only due to the heat flux of thermal electrons, systematic deviation from this model is observed in plasmas containing highly energetic (up to 180 keV) fast ions due to NBI heating. The effect of fast ions on pellet ablation has been quantified by using the stored energy of fast ions in a plasma as an index. The effect has also been confirmed by means of calculations of the ablation model including contributions of not only thermal electrons but also fast ions to the ablation.

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Date submitted: 19 Jul 2005

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