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Motion of Ablation Cloud in Torus Plasmas RYUICHI ISHIZAKI, NORIYOSHI NAKAJIMA, MASAO OKAMOTO, National Institute for Fusion Science, PAUL B. PARKS, General Atomics — Injecting small pellets of frozen hydrogen into torus plasmas is a proven method of fueling. Experimentally, it is known that the density distribution, after the pellet ablates by encountering the high temperature in plasmas, is not consistent with the distribution inferred from assuming that the ablated material remains on the flux surfaces where the ablation occurred. The subsequent redistribution of mass is considered to be due to $E \times B$ drift induced by toroidal drift (1). It is this phenomenon which we seek to investigate. In this research, the basic equations are MHD equations including the ablation physics. The cubic interpolated pseudo-particle (CIP) method is used in the code (2). As the first trial, the motion of the ablation cloud in a vacuum field is investigated by solving the ideal MHD equations. A vertical electric field is induced due to a toroidal drift in the cloud and in result the cloud has a $E \times B$ drift velocity toward the low field side across the flux surfaces. The ablation cloud drift in a tokamak equilibrium plasma will be investigated and discussed in the presentation.
(1) P. B. Parks *et al.*, Phys. Plasmas **7**, 1968 (2000).
(2) T. Yabe and P. Y. Wang, J. Phys. Soc. Jpn **60**, 2105 (1991).

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