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Simulation of Pellet Ablation[1] P.B. PARKS, General Atomics, RYUICHI ISHIZAKI, National Institute for Fusion Science — In order to clarify the structure of the ablation flow, 2D simulation is carried out with a fluid code solving temporal evolution of MHD equations. The code includes electrostatic sheath effect at the cloud interface.[2] An Eulerian cylindrical coordinate system (r, z) is used with z in a spherical pellet. The code uses the Cubic-Interpolated Psudoparticle (CIP) method[3] that divides the fluid equations into non-advection and advection phases. The most essential element of the CIP method is in calculation of the advection phase. In this phase, a cubic interpolated spatial profile is shifted in space according to the total derivative equations, similarly to a particle scheme. Since the profile is interpolated by using the value and the spatial derivative value at each grid point, there is no numerical oscillation in space, that often appears in conventional spline interpolation. A free boundary condition is used in the code. The possibility of a stationary shock will also be shown in the presentation because the supersonic ablation flow across the magnetic field is impeded.

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[2]P.B. Parks *et al.*, Plasma Phys. Contr. Fusion **38**, 571 (1996).
[3]H. Takewaki and T. Yabe, J. Comput. Phys. **70**, 355 (1987).

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