

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Simulation of pellet ablation in DIII-D tokamak¹ TIANSHI LU, PATRICK RINKER, Wichita State University — We investigated by numerical simulations the effect of various physical parameters on the pellet ablation rate in a tokamak. In particular, we did benchmark simulations against experimental data from DIII-D tokamak pellet launches. As a model for the tumbling pellet, the anisotropic heating of pellet was averaged over the pellet surface so that the pellet remains spherical as it ablates. The rotation of the pellet due to the distribution of electrostatic potential was included in the simulations. DIII-D plasma temperature profile was used, while the plasma density was assumed to have a linear ramp in the pedestal region. The pellet lifetime and density profiles reproduced by simulations have been compared to the experimental measurements. The mechanisms for the striation in the ablation cloud have also been studied numerically.

¹This work was supported by the NSF Kansas EPSCoR First Award.

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Date submitted: 16 Jul 2011

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