

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Pellet Imaging Diagnostic¹ BROCK BOSE, EARL MARMAR, MIT PSFC — Ultra high speed imaging (max frame rate = 500 kHz) of injected Li pellets into Alcator C-Mod during previous campaigns identified the presence of poloidally moving striations in the pellet's ablation cloud. The behavior of these striations is remarkably different in L-mode and H-mode plasmas. In L-mode plasmas, the velocity of the striations tend to change direction on a length scale of the order of tens of gyro-radii, ranging from ± 3000 m/s. In H-mode plasmas the striations currently have only been observed to move in the direction of the ion diamagnetic drift, with velocities that range up to 4000 m/s. During the 2005 campaign a stereoscopic imaging system was installed on Alcator C-mod to observe the ultra- short time scale ($2 \mu\text{s}$) ablation dynamics of injected lithium pellets in order to determine the cause for both the formation and evolution of these striations. Presented here are the experimental observation of the ablation process and explanation in terms of ablation dynamics and radial electric fields in the tokamak plasma.

¹Work supported by DoE

Brock Bose
MIT PSFC

Date submitted: 21 Jul 2005

Electronic form version 1.4