Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Design and Construction of a Multi-Pulse Laser Blow-Off System for Impurity Transport Studies on Alcator C-Mod[1] NATHAN HOWARD, M. GREENWALD, J. TERRY, J. RICE, MIT PSFC — A new laser blow-off system for impurity injection on Alcator C- Mod is currently under construction. Design goals include: multiple impurity injections during a single plasma pulse, remote manipulation of the ablated spot size, and a laser pulse capable of ablating a wide range in target Z. This is achieved with the use of a 650 mJ, ND:YAG laser operating at up to 10 Hz, fast beam steering via a 2-D piezoelectric mirror mount able to move spot locations in 100 ms, and a remote controllable optical train allowing spot sizes to vary from approximately 1 to 8 mm. Alcator C-Mod's extensive diagnostic capabilities (soft X-ray, Vacuum Ultraviolet (VUV), charge exchange spectroscopy, etc.) together with the improvements over standard laser blow-off systems allow for detailed studies of the impurity transport dependencies and mechanisms. The impurity injector is scheduled to be installed on Alcator C-Mod for the 2009 run campaign.

[1]Work supported by US DoE Coop. Agreement No. DE-FC02-99ER54512.

Nathan Howard
MIT PSFC

Date submitted: 10 Jul 2008 Electronic form version 1.4