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Impurity Transport Studies Using the Multi-Pulse Laser Blow-Off System on Alcator C-Mod[1] NATHAN HOWARD, MARTIN GREENWALD, JIM TERRY, JOHN RICE, MIT PSFC — A new laser blow-off system for use in impurity transport studies on Alcator C-Mod was installed for the 2009 run campaign. Its capabilities 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. The use of a 650 mJ, ND:YAG laser operating at up to 10 Hz coupled with fast beam steering via a 2-D piezoelectric mirror mount able to move spot locations in 100 ms, and a remote controllable optical train allow spot sizes to vary from approximately 1 to 5 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. An overview of system and results from the 2009 campaign are presented.

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