

Abstract Submitted
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Impact of Poloidal Density Variation on Radial Impurity Transport¹ MATTHEW REINKE, NATHAN HOWARD, IAN HUTCHINSON, MARTIN GREENWALD, AMANDA HUBBARD, JERRY HUGHES, JOHN RICE, JOHN WALK, ANNE WHITE, MIT - Plasma Science and Fusion Center — Results are presented from a first of its kind experiment to test the impact of poloidal asymmetries of impurity density on their flux-surfaced averaged radial transport in tokamak plasmas. Laser blow-off of molybdenum was introduced in ICRH heated, Alcator C-Mod L-mode plasmas where changes to the hydrogen minority resonance layer were used to modify the in/out asymmetry between $-0.2 < n_{z,\cos}/\langle n_z \rangle < 0.2$ at mid-radius. Changes in the impurity confinement time by a factor of two, measured using radiated power and vacuum ultraviolet spectroscopy diagnostics, are correlated to changes in the asymmetry. Radial profiles of Mo^{32+} for $r/a < 0.8$ are measured using x-ray imaging crystal spectroscopy, and are used to constrain STRAHL simulations which provide details on changes in the gradient scale length of the impurity density.

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