

Abstract Submitted  
for the DPP14 Meeting of  
The American Physical Society

**Light impurity transport in I-mode in Alcator C-Mod**<sup>1</sup> W.L. ROWAN, I.O. BESPAMYATNOV, D.R. HATCH, W.L. HORTON, K.T. LIAO, IFS, The University of Texas at Austin — The I-mode hallmarks are H-mode-like electron temperature pedestal and energy confinement simultaneous with L-mode-like density pedestal and particle confinement. The I-mode is observed over a wide range of plasma parameters and is robust. As might be expected from the particle confinement observation, accumulation of naturally-occurring impurities is reduced compared to H-mode. Heavy impurity measurements confirm the observation of L-mode-like particle confinement. In the results reported here for light impurities, I-mode impurity profiles are compared with both H- and L- mode profiles for helium and boron with an emphasis on core confinement. We search for the dependence of the impurity density gradient scale lengths on the main ion density scale length and temperature scale length, the  $Z_{eff}$  the collisionality, as well as on total radiation loss, stored energy, and global confinement. The results allow comparisons among discharge modes, as well as comparison to other devices, and turbulence predictions. The data analysis is compared with gyrokinetic simulations using the GENE code.

<sup>1</sup>Supported by USDoE award DE-FG03-96ER-54373.

William Rowan  
The University of Texas at Austin

Date submitted: 10 Jul 2014

Electronic form version 1.4