

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Plasma Impurity Estimations Using Residual Gas Analysis at MCX¹ C.A. ROMERO-TALAMAS, W.C. YOUNG, G. TAYLOR, R.F. ELLIS, A.B. HASSAM, C. TEODORESCU, University of Maryland, College Park, MD 20742 — A methodology to characterize impurity concentrations created during plasma shots is being tested at the Maryland Centrifugal Experiment (MCX) [R.F. Ellis, et al., Phys. Plasmas 12, 055704 (2005)]. The methodology consists of measurements every 2 seconds of mass spectra with a residual gas analyzer (RGA) before, during, and after plasma shots (10 ms), and fitting the measured signals to the heat load equation for a fixed volume and time varying pressure. An extrapolation of this equation is then made to the plasma time in order to find the maximum pressure, which is otherwise too high and short-lived for reliable RGA measurements. Ratios of hydrogen or helium to impurities are then estimated and used in MCX theory models, in tracking effects of new instruments installed in the MCX vessel, and in assessing the efficacy of cleaning campaigns on plasma shots.

¹Work supported by the U.S. Department of Energy.

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Date submitted: 20 Jul 2009

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