

Abstract Submitted
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Impurity Generation and Transport in CTIX¹ D. BUCHENAUER, Sandia National Laboratories, R.D. HORTON, R. KLAUSER, University of California Davis, B.E. MILLS, Sandia National Laboratory, S.B. VAN DEUSEN, Sandia National Laboratories, D.Q. HWANG, University of California Davis — The Compact Toroid Injection Experiment (CTIX) produces a high density, high velocity hydrogen plasma which maintains its configuration in free space on a MHD resistive time scale. Earlier studies have shown that impurities generated through plasma surface interactions within CTIX can be observed exiting the accelerator, although depth profile analysis of silicon collector probe data indicated they are not traveling at the full velocity of the compact toroid plasma. To improve gas utilization in the formation region, CTIX has converted to active switching from the passive technique used in past studies. Here we present results extending our impurity studies to compare passive and active switching using several new diagnostics: (1) Rutherford Backscattering Spectrometry and Auger Depth Profiling of silicon collector probes, (2) spectroscopy at several axial locations, and (3) residual gas analysis following plasma discharges. Designs for improved electrode surfaces will also be discussed.

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