

Abstract Submitted  
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**Continuous emission of keV x-rays from low-pressure, low-field, low-power-RF plasma columns and significance to mirror confinement**<sup>1</sup> P. JANDOVITZ, C. SWANSON, Princeton Plasma Physics Laboratory, A. GLASSER, University of Washington, S.A. COHEN, Princeton Plasma Physics Laboratory — We report on observations of a continuous stream of 0.8-6.0 keV x-rays emitted from cool (bulk  $T_e \sim 4$  eV), tenuous ( $n_e \sim 10^{10}$  cm<sup>3</sup>), 4-cm-diameter hydrogen or argon plasma columns generated in an axisymmetric, high-mirror-ratio, tandem mirror machine heated in one end cell by an external RF (27 MHz) antenna operating at low power, 20600 W. The continuous emission of x-rays is evidence of the steady production of energetic electrons. The source appears to be ion-induced secondary electron emission from a floating carbon cup in the vacuum system about 2 cm from the RF antenna. The cup is charged to a high negative potential, perhaps by other secondary electrons emitted from the self-biased Pyrex vessel under the antenna. X-ray emission in the central cell increases as the mirror ratio increases, an effect we attribute to increased trapping of passing particles due to non-adiabatic scattering at the midplane of the central cell.

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