

## 0.8-5 keV X-ray emission from PFRC-2 plasma

Peter Jandovitz<sup>1</sup>, Charles Swanson, Jackson Matteucci, S.A. Cohen

<sup>1</sup>*Princeton Plasma Physics Laboratory, 100 Stellarator Road, Princeton, NJ, USA*

*Lead-author e-mail: pjandovi@pppl.gov*

Using a Si-detector pulse-height method, we measured the X-ray spectrum emitted by odd-parity rotating-magnetic-field (RMF<sub>o</sub>)-driven hydrogen plasma in the PFRC-2 device. At RMF<sub>o</sub> powers below 10 kW absorbed, the spectrum appeared Maxwellian with  $T_e \sim 200$  eV and  $n_e \sim 10^{12}$  cm<sup>-3</sup>. The X-ray count rate was largely constant over a 5 ms pulse. It peaked at an axial field near 50 G and decreased as the magnetic field increased, reaching zero at fields over 100 gauss. The count rate was also dependent on the parameters of the capacitively coupled low-density ( $10^{10}$  cm<sup>-3</sup>) low power (20 -400 W) seed plasma which contained 0.1% energetic electrons with  $T_e$  up to 500 eV. Here, we present x-ray count rates and electron temperatures from the PFRC-2 plasma with different background field strengths, RMF<sub>o</sub> powers, and seed plasmas, as well as limited axial and temporal profiles.