

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

X-Ray Diagnostics of CUEBIT Highly Charged Ion Plasma

ROSHANI SILWAL, AMY GALL, CHAD SOSOLIK, JAMES HARRISS, ENDRE TAKACS, Clemson Univ — Clemson University Electron Beam Ion Trap (CUEBIT) is one of the few EBIT facilities around the globe that produces highly charged ions by successive electron impact ionization. Ions are confined in the machine by the space-charge of the electron beam, a 6 T magnetic field generated by a superconducting magnet, and the voltages applied to axial electrodes. The device is a small laboratory scale instrument for the study of the structure and emission of highly charged ions and the collisions of these ions with external targets. Along with the introduction of the facility including its structure and capabilities, we present an overview of various spectroscopic and imaging tools that allow the diagnosis of the high temperature ion cloud of the CUEBIT. Instruments include a crystal spectrometer, solid-state detectors, and pin-hole imaging setup equipped with an x-ray CCD camera. Measurements of x-ray radiation from CUEBIT are used to investigate the fundamental properties of the highly charged ions and their interaction with the energetic electron beam.

Roshani Silwal
Clemson Univ

Date submitted: 27 Jan 2015

Electronic form version 1.4