

replacing FWS17-2017-000070

Abstract Submitted
for the FWS17 Meeting of
The American Physical Society

The LLNL warm electron beam ion trap (WEBIT): An instrument for calibrating space-borne X-ray spectrometers¹ T.E. LOCKARD, E.W. MAGEE, G.V. BROWN, N. HELL, Lawrence Livermore National Laboratory, M.A. LEUTENEGGER, Goddard Space Flight Center-NASA, P. BEIERSDORFER, Lawrence Livermore National Laboratory — We are developing a warm electron beam ion trap (WEBIT) for use as a calibration source for the quantum calorimeter, dubbed Resolve, that will be flown on the X-ray Astrophysics Recovery Mission (XARM) to be launched in ~2021. The WEBIT, is based on a test stand used to develop electron guns for the Lawrence Livermore National Laboratory's EBITs. The WEBIT uses a water-cooled magnet with a field strength of approximately 0.5 T as opposed to the ~3 T field produced by the liquid-helium cooled superconducting Helmholtz coils employed by LLNL's EBIT-I and SuperEBIT. Once complete, WEBIT will be used both at the NASA/GSFC and potentially at JAXA's Tsukuba Space Center to calibrate Resolve's instrumental line shape and gain scale as a function of a variety of operational parameters. Because WEBIT will produce line emission from highly charged helium-like and hydrogenic ions whose transition energies and line shapes are well known, this method is superior to the previous calibration methods that were based on emission from characteristic $K\alpha$ lines produced by X-ray tubes, fluoresced metals, or other radioactive sources. The current status of this project will be presented.

¹This work was performed under the auspices of the U.S. DOE by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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Date submitted: 03 Oct 2017

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