DAMOP11-2011-000208

Abstract for an Invited Paper
for the DAMOP11 Meeting of
the American Physical Society

Laboratory Astrophysics for Current and Future X-ray Satellites

RANDALL SMITH, Smithsonian Astrophysical Observatory

Although the analysis of even CCD-resolution X-ray spectra benefits from good-quality atomic data, the high-resolution X-ray data available from existing X-ray satellites have shown the absolute need for atomic data of all stripes: wavelengths, absorption cross sections, and collisional and radiative rates. This process will continue with upcoming telescopes such as Astro-H and IXO. I will describe the successes of both theoretical calculations and laboratory measurements as well as the many remaining needs and the science that hinges upon them. These include, amongst other issues, accurate wavelength measurements in the soft X-ray band, calibrated line ratios of selected strong lines, and high-resolution absorption cross sections for common atoms. I will also discuss the release of v2.0 of the AtomDB, a unified collection of atomic data suitable for analysis of astrophysical X-ray spectra.