The Role Of Atomic Data In X-Ray Astrophysics

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Abstract. Atomic spectroscopy has been one of the main achievements of the X-ray astrophysical missions of the 21st century, e.g., Chandra and XMM-Newton. Consequently, the knowledge of atomic data has played a major role in determining our ability to carry out high precision measurements using X-ray astrophysical observations. A special challenge to observers and to modelers has been ionized Fe, whose emission and absorption spectra have been investigated only to a small degree until about a decade ago. I will review the progress in the availability of Fe atomic data and indicate the few places where I believe we are still lacking. In particular, I will stress the importance of inner-shell absorption spectroscopy, e.g. [1] with an emphasis on Fe K-shell transitions that will be nicely resolved for the first time with the micro-calorimeter on board the Astro-H mission (to be launched in 2014). I will also describe the difficulties to model Fe L-shell emission from photo-ionized plasmas in active galactic nuclei that have been ongoing since the first measurements of such spectra [2].

Keywords: X-Ray Astrophysics, Spectroscopy, Photoionized Plasma

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REFERENCES