

THE BROAD BAND X-RAY TELESCOPE (BBXRT) ON ASTRO-1

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Abstract. BBXRT is one of four pointed instruments comprising NASA's Astro-1 mission, currently scheduled for a 9–10 day flight in May 1990 on board the Space Shuttle Columbia. X-ray Spectra of over 150 sources will be obtained in the energy range 0.3 to 12 keV, with energy resolution of ~ 100 eV FWHM and timing resolution of 64 μ s. BBXRT's large throughput, broad band mirrors, coupled to segmented cooled Si(Li) detectors, give us the first opportunity to study in detail X-ray spectral features, from oxygen to the iron K band. In developing this instrument, we have made extensive use of detector background reduction techniques in order to be able to observe the many faint extragalactic sources discovered with the Einstein observatory. Sources in our observing plan have been selected to give us in a 2–4 ks observation $< 10^3$ net counts with negligible background. Specific scientific objectives range from refinements of spectra previously obtained at lower resolution, such as a search for relativistic line shifts in compact objects, to observations of faint extragalactic sources for which spectral information is, at best, sketchy, viz. elliptical galaxies and distant quasars. High on our priorities are a search for emission from SN1987A and the first simultaneous observations in the UV and X-ray band of selected sources such as cataclysmic variables and late-type stars.