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UK X-RAY RESEARCH AND THE SPACELAB 2 X-RAY TELESCOPE

Abstract

The UK has been involved in X-ray astronomy since the subject's beginnings. Skylark sounding rockets carried solar X-ray detectors from 1959 and cosmic X-ray detectors from 1964. In 1962 the Ariel 1 US/UK satellite included a proportional counter solar X-ray spectrometer, so initiating a series of satellite-born UK X-ray instruments that continues to this day. Research groups at University College London and the University of Leicester established prominence in the field but in 1971 UCL's Peter Willmore moved to the University of Birmingham to establish a new cosmic X-ray astronomy capability. His team perfected novel, non-reflecting/refracting X-ray imaging techniques that were subsequently used on the Ariel 5 satellite's Rotation Modulation Collimator in 1975 and the Coded Mask X-ray telescope flown as part of the Spacelab 2 mission in 1985 – the first time that the coded mask method had been used in a spacecraft. In 2006 the telescope was reassembled by Willmore's original Birmingham team for display in the Science Museum's new Exploring Space gallery. This paper reviews a history of UK X-ray astronomy that culminated in the flight of the Spacelab 2 X-ray telescope and its pioneering use of the new X-ray imaging technique to observe, for the very first time, the ultra-hard X-ray sources near to the Galactic centre.