

EUV OBSERVATION OF THE INNER MAGNETOSPHERE OF JUPITER FROM THE EARTH-ORBITING SATELLITE

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An Earth-orbiting satellite "EXtreme ultraviolet spectroSCOpe for Exospheric Dynamics" (EXCEED) which will be launched in 2012 is under development. The mission will carry out spectroscopic and imaging observation of EUV (Extreme Ultraviolet: 60 - 145 nm) emissions from tenuous plasmas around the planets (Venus, Mars, Mercury, and Jupiter). One of the main purposes of the mission is monitoring the electron temperature around the inner magnetosphere of Jupiter. We will use the CHIANTI database which contains the atomic data in order to deduce the electron temperature, density, and ion composition. It is essential that the detection efficiency must be very high in order to catch the faint signals from the target. In this mission, we employ cesium iodide coated microchannel plate as a 2 dimensional photon counting device which shows 1.5 to 50 times higher quantum detection efficiency comparing with the bare one. Furthermore, we coat the surface of the grating and entrance mirror with silicon carbides by the chemical vapor deposition method in order to achieve the high diffraction efficiency and reflectivity. The whole spectrometer is shielded by the 2 mm thick stainless steel to prevent the contamination caused by the high energy electrons from the inner radiation belt. In our presentation, we will introduce the mission overview, its instrument, and their performance.

EUV, Jupiter, magnetosphere

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