

EUV spectroscopic observation for Io plasma torus

Kazuo Yoshioka[1]; Yoshikawa Ichiro Exceed mission team[2]

[1] JAXA/ISAS; [2] -

The Io plasma torus is composed mainly of sulfur and oxygen ions and their compounds derived from Io's volcanic activities, together with a background of electrons. In addition to those basic components, several in-situ observations have shown that a few percent of the electrons there have been excited to be as much as 100 times hotter than the background electrons. These hot electrons have a significant impact on the energy balance in the Jovian inner magnetosphere. However, their generation process has not yet been elucidated. One difficulty is that the available data all comes from in-situ observations which cannot explore the temporal and spatial distributions explicitly. Therefore remote sensing which could take a direct picture of the plasma dynamics is necessary. In order to clear up the hot electron problem, the Earth-orbiting EUV spectroscope, EXCEED will be launched in 2013. It is dedicated and optimized for observing the terrestrial planets. Because of its large effective area and the simplicity of the scientific target, better temporal resolution and more complete coverage for Io plasma torus observation is expected. In this presentation, the optical design and efficiency performance of FM components of EXCEED are introduced. The observation and analysis procedure will be also discussed.