

## The extreme ultraviolet spectroscope for planetary science, EXCEED

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The extreme ultraviolet spectroscope EXCEED (EXtrem ultraviolet spetrosCope for ExosphEric Dynamics) on board the SPRINT-A mission will be launched in the summer of 2013 by the new Japanese solid propulsion rocket Epsilon as its first attempt, and it will orbit around the Earth with an orbital altitude of around 1000 km. EXCEED is dedicated to and optimized for observing the terrestrial planets Mercury, Venus and Mars, as well as Jupiter for several years. The instrument consists of an off axis parabolic entrance mirror, switchable slits with multiple filters and shapes, a toroidal grating, and a photon counting detector, together with a field of view guiding camera. The design goal is to achieve a large effective area but with high spatial and spectral resolution. In this paper, the performance of each optical component will be described as determined from the results of test evaluation of flight models. In addition, the results of the optical calibration of the overall instrument are also shown. As a result, the spectral resolution of EXCEED is found to be 0.3-0.5 nm FWHM (Full Width at Half Maximum) over the entire spectral band and the spatial resolution achieve was 10" . The evaluated effective area is around 3 cm<sup>2</sup>. Based on these specifications, the possibility of EXCEED detecting atmospheric ions or atoms around Mercury, Venus, and Mars will be discussed. In addition, we estimate the spectra that might be detected from the Io plasma torus around Jupiter for various hypothetical plasma parameters.