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A 会場 : 11/27 PM1 (13:15-15:15)

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Newly development of an ion energy-mass spectrometer for observations of suprathermal ions

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In the inner magnetosphere, oxygen ions, nitrogen ions, and molecular ions flow out from the ionosphere along the Earth's magnetic field lines. The mechanism for accelerating these thermal ions (about 1 eV) in the ionosphere to suprathermal ions (about 10 eV) remains unclear. To clarify the mechanism, we develop a new suprathermal ion energy-mass spectrum analyzer for the next sounding rocket experiment "LAMP-2" and the future geospace satellite mission "FACTORS". One of the scientific objectives is to observe the 3D distribution function for each ion species from the ionosphere to the magnetosphere. To achieve this, several functions are required to observe these ions, including a sensitivity adjustment function to prevent saturation in case of high ion flux. The instrument consists of mainly two components: an electrostatic energy-per-charge analyzer and a mass analyzer using a Time-Of-Flight (TOF) method with the linear-electric field (LEF) system. Using a dedicated electrode system, the field-of-view (FOV) of the instrument is expanded by controlling the looking direction sequentially and the sensitivity is also controllable. We report on the design of the instrument and outline our plans.