

# Life-environmentology, Astronomy, and Planetary Ultraviolet Telescope Assembly (LAPYUTA) mission: instrument overview and technical developments

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The Life-environmentology, Astronomy, and Planetary Ultraviolet Telescope Assembly (LAPYUTA) mission aims to carry out spectroscopy with a large effective area (>300 cm<sup>2</sup>) and a high spatial resolution (0.1 arc-sec) and imaging with a wide field of view in an ultraviolet spectral range (110-190 nm) from a space telescope. The main part of the science payload is a Cassegrain-type telescope with a 60 cm-diameter primary mirror. Two main instruments are installed on the focal plane of the telescope: a spectrometer and a UV slit imager. The spectrometer contains a movable slit with different slit width, a holographic toroidal grating with 2000 lines/mm, and an MCP detector coupled with CMOS imaging sensors. Spectral resolution of <0.01 nm and field-of-view of 100 arc-sec will be achieved. A UV slit imager consists of imaging optics, several bandpass filters with a wheel, and a same type of UV detector as the one installed in the spectrometer. In order to achieve a high spatial resolution of 0.1 arc-sec, we will install a target monitoring camera at 0<sup>th</sup> order position inside the spectrometer and slit imager for both attitude control and image accumulation process. We are studying the concept of LAPYUTA and preparing a proposal of it to JAXA's M-class category. Here we present the LAPYUTA concept design, the overview of the spacecraft and instruments, and the status of technical developments.

Keywords: Ultraviolet, Space telescope, Upper atmosphere