Mission statement

HORYU-IV aims at acquiring on orbit data of discharge phenomena occurring on high voltage solar array to deepen our understanding of satellite charging, to contribute to the reliability improvement of current space systems, and to positively contribute to the realization of future high power space systems.

Project Team

Interdisciplinary and international semi-pro team

HORYU-IV Team is composed of a total of 47 members including faculty from the Laboratory of Spacecraft Environment Interaction Engineering, researchers, contractor, and students. Among the 47 members, there are 30 students and 17 faculty and staff. The team particularities are its international and interdisciplinary dimensions. All members included, there are 18 countries represented in the team and students major encompasses 4 different fields of engineering: integrated system, electrical and electronic, mechanical and control, and civil and architectural engineering.

Missions Overview

Main mission – Discharge acquisition experiment

The objectives are to measure, on orbit, current waveform of discharges occurring on solar arrays, and photography discharge events to identify the ignition point. If successfully executed, acquisition of these data, on orbit, will be a world premiere!

Expected Outcomes

★ World premiere of on orbit acquisition of discharges current waveform and image
★ Use of data for ISO11221 “Spacecraft charging induced electrostatic discharge test methods” revisions
★ Improvement of satellite reliability by improving ground testing
★ Contribution to the development of research on spacecraft charging
★ Capacity building by contributing to emerging countries space program
★ Fostering space utilization to the young generation through outreach activities
★ Global resource development through “Project Based Learning” involving Japanese and foreign students