Joint Symposium

The 34th ISTS

International Symposium on Space Technology and Science

& 12th NSAT Nano-Satellite Symposium

"Space for All of Us"

Program

June 3-9, 2023

Kurume City Plaza

Kurume, Fukuoka, Japan

https://ists.ne.jp/

The Kuruppa,
image character of Kurume City.

Organized by

34th, Fukuoka ISTS

Japan Society for Aeronautical and Space Sciences

The 34th ISTS & 12th NSAT
" Space for All of Us "

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Message from the 34th ISTS General Chairperson

As the Organizing Committee Chair, I am delighted to welcome you all to the 34th International Symposium on Space Technology and Science (ISTS). Since its inception in 1959 in Tokyo, the symposium has been held approximately every two years in various locations across Japan. This year, we have the privilege of hosting the event in Kurume, Fukuoka Prefecture, a beautiful city in Kyushu known for its remarkable advancements in manufacturing and technology.

ISTS is a prestigious international symposium that covers various aspects of the space field. In recent years, the symposium has attracted around 1,000 participants from around the world. As the COVID-19 situation seems to be subsiding, we have decided to conduct this year's symposium in a hybrid format, combining both on-site and online participation.

Under the theme "Space for All of Us," we encourage all participants to engage in discussions and exchange ideas about the contributions of space technology and science. Collaboration with local governments and communities has been key to the success of past symposiums, and this year is no exception. With the support of the local government of Fukuoka Prefecture and Kurume City, we are pleased to offer various special programs, cultural events, and a reception to make your experience truly memorable. Please take the opportunity to enjoy the local cuisine and sightseeing as well.

During the symposium, let us explore how space technology and science can contribute to a sustainable future. Through active discussions and exchanging ideas, we can take the first step towards realizing our goals and fostering international cooperation in the space domain.

We hope you enjoy both the symposium and your stay in Kurume, Fukuoka. We are looking forward to fruitful discussions and the forging of new partnerships in pursuit of our shared vision for the future of space technology and science.

Once again, welcome to the 34th International Symposium on Space Technology and Science. Let us make the most of this opportunity to learn, network, and collaborate as we work towards a brighter and more sustainable future for all.

島田 徹

Prof. Toru Shimada,
General Chairperson of the 34th ISTS

Message from the 12th NSAT General Chair

Last year, in 2022, we had two NSAT, 10th NSAT in 33rd ISTS Beppu and 11th NSAT in Istanbul, Turkey, and we energetically discussed recent advancements and future of micro/nano/pico-satellites from perspectives of technologies, applications, business, laws etc. Unfortunately, 33rd ISTS, for which I was the general chair, was finally switched to online symposium, so I am very happy that we can have face to face ISTS in this time in Kurume.

As you recognize, small/micro/nano/pico-satellites are now utilized not only for education or technological demonstration but have been applied to various practical missions including Earth observation, space science and exploration, communication, etc., by which becoming one of core assets for space business. We witnessed two big changes of the way of space development and utilizations; "from government to private sectors" and "small/micro/nano-satellite constellations." Some distinguished start-ups such as SpaceX, Planet, Spire Global, Rocket Lab, have grown up very rapidly which are making larger business based on small/mico/nano-satellite constellations, sometimes obtaining big "anchor-tenancy" contract from US government. Satellite constellation can provide higher "time resolution," i.e., frequent provision of service, but it also provides the opportunity to develop large number of satellite fleets not in one time, but in several different batches. This way of development will enable frequent update of the satellite design based on in-orbit results of the previous satellite batches. I believe that how to realize this effect will be a key consideration for not only start-ups but also governmental space program, for which satellite architecture and development style will become new research issues.

Nano-satellite symposium, which started in 2010, has been featuring the technologies, applications, legal matters, educational aspects and many other themes related to micro/nano/pico-satellites. Though the symposium's name is "Nanosatellite Symposium," the scope has not been restricted to nano-satellites (around 10kg), but also include micro and pico-satellites, in total from around 1kg to 100kg. Japanese "Hodoyoshi Project" lead by myself hosted the first five Nano-satellite Symposiums during Hodoyoshi project period from 2010 to 2013 in Japan, among which 5th Symposium held in University of Tokyo in November 2013 found about 260 attendants from 47 countries. From 6th symposium, NSAT joined ISTS, such as 6th NSAT in 30th ISTS in Kobe 2015, 8th NSAT in 31st ISTS in Matsuyama 2017, 9th NSAT in 32th ISTS in Fukui 2019. In foreign countries, Varna, Bulgaria hosted 7th NSAT in 2016, and Istanbul hosted 11th NSAT in 2022.

As I have been mentioning every time, one of the important objectives of continually holding Nano-satellite Symposiums is to strengthen our community of micro/nano/pico-satellites. Through eleven symposiums, we have established firm community in this field and grew friendships, from which several practical collaborations actually started. Please allow me to take this opportunity to announce that the next annual meeting of UNISEC-GLOBAL, which is an international university community for micro/nano/pico-satellites and has been the host organization of NSAT will be held in Tokyo in November 2023. I hope you could kindly plan your participation in this meeting as well.

Please join us in the 12th NSAT, and let us share the current technologies and future visions of these evolving space systems. I am looking forward to seeing you in Kurume !

Prof. Shinichi Nakasuka, General Chair,
12th Nano-satellite Symposium Organizing Committee

Message from the President of JSASS

On behalf of the Japan Society for Aeronautical and Space Science, JSASS, I am very pleased to welcome you to the 34th ISTS to be held at Kurume city, Fukuoka prefecture, Japan, in June 2023. I personally first joined the ISTS back in 1982 as a graduate student, when it gathered only 300 participants. Now, the ISTS has grown to be one of the largest international symposiums on space technology and science gathering more than 1,000 participants and covers almost all the fields of space related activities.

Since its beginning, the ISTS has put the emphasis on the international collaborations in order to elaborate on ideas of various challenging missions and to accomplish them. I am hopeful that many attractive future mission concepts will become real space missions after the stimulating discussions here in this ISTS. Let's discuss how the space technology and science can contribute to our sustainable future in accordance with the theme of the symposium "Space for All of Us."

Our success in past ISTS can be attributed not only to the combined endeavors of the participants and the organizing committees but also to the strong support of the local communities. We are so proud of having helped the local communities extend their involvement in space related activities even after the symposiums. I am confident that the space industries here in Kurume will become larger and the number of young researchers all over the prefecture will increase after the symposium.

Please join us and have stimulating discussions about space technology and science for our better future. I look forward to seeing you in June 2023 at the city of Kurume.

Yasuhiro Morita

Yasuhiro Morita
President
Japan Society for Aeronautical and Space Science

Synopsis

The 34th ISTS Organizing Committee and the Japan Society for Aeronautical and Space Sciences (JSASS) would like to invite individuals of all nations interested in space-related activities to participate in this event. The 34th ISTS will be held under the main theme of "Space for All of Us". We are also very glad to hold together 12th Nano-Satellite Symposium (NSAT) jointly with ISTS. Please join us at this event in Kurume, Fukuoka.

Kurume is a medium-sized city in Fukuoka Prefecture, Japan. Located 30 minutes by local train (17minutes by Shinkansen) and less than an hour by car from Fukuoka City, Kurume is a transportation hub for southern Fukuoka Prefecture. It is the commercial center of the Chikugo area, and there are various stores and malls, making it convenient for shopping. Despite its attractiveness as a town, what is indispensable when talking about Kurume is its rich nature. The Chikugo Plain, where Kurume City is located, is known for its thriving production of rice, wheat, vegetables, and fruits. We will welcome you with a variety of programs, including keynote speeches, world space highlights, special lectures, and poster sessions in plenary format and, in parallel format, general and organized technical sessions, student sessions, as well as a control contest, a young professionals program and social programs to help you experience and enjoy Kurume.

We are looking forward to seeing you at the 34th ISTS, 12th NSAT in the beautiful city of Kurume, with many recreational facilities and local cuisine and crafts.

Venue

Kurume City Plaza 8-1, Mutsumon-machi, Kurume City, Fukuoka Prefecture

Contacts and Open Hours

Registration & Information Desk Lobby of the 2nd Floor

Opening Hours : June 4 (Sun) 14:00-17:00

June 5 (Mon.) - 8 (Thu.) 8:30-18:00

June 9 (Fri.) 8:30-16:30

International Space Exhibition

Exhibition Room & The Grand Hall's Lobby, 2F

June 3 (Sat.)-June 7(Wed.) 10:00 - 17:00

Organizing Committee

The committee members' list is available on the ISTS web page.

Wi-Fi Service

The following wifi services are available at the venue.

***However, please refrain from downloading large amounts of data, watching videos, or having online meetings, as this is a shared connection.**

We ask for your cooperation so all participants can use the service comfortably.

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Program of Technical Sessions

The latest programs will be posted on the website as needed.

34th ISTS & 12th NSAT Timetable Overview / Event Schedule

・Technical Sessions and Organized Sessions : Meeting Room (4F, 5F), Kurumeza (3F), C BOX (4F), Studio2 (4F)
★ Program is subject to change without notice. Please refer to the ISTS Website ＜ https://ists.ne.jp/ ＞ for the latest information.

Date	Morning	Afternoon	Night	Other Activities
June 3 (Sat.)				・Exhibition Opening (10:00-, 2F Lobby) ・International Space Exhibition (10:00 - 17:00, 2F Exhibition Room)
June 4 (Sun.	・Space Education (u) Session (11:00 - 12:20, 4F The Small Meeting Room 1-3)	・Space Education (u) Session (14:00 - 16:40, 4F The Small Meeting Room 1-3) ・On-site Registration Start (14 : 00 -, 2F Lobby)		・International Space Exhibition (10:00 - 17:00, 2F Exhibition Room)
June 5 (Mon.)	・Opening Ceremony (9:00 - 9:50, 2F Grand Hall) ・Special Session : World Space Highlight (10:00 - 11:30, 2F Grand Hall)	・Keynote Speech:Space for all ---Building a Sustainable Society ---(13:00 - 13:40, 2F Grand Hall) ・Special Session :Sustainable Space Endeavors: Transforming Ideas into Impactful, Diverse Actions (14:00 - 15:40, 2F Grand Hall) ・Technical Sessions (16:00-17:40)	・Welcome Reception (18:30 - 20:30, Hotel New Plaza Kurume)	・International Space Exhibition (10:00 - 17:00, 2F Exhibition Room)
June 6 (Tue.)	・Technical Sessions (9:00 - 12:40)	・Technical Sessions (14:00 - 17:40) ・OS1: Sustainable Space Transportation for the Next-Generation (14:00 - 17:40)	・Cultural Night (18:30 - 20:30, Nakatsuru, Teppan-yaki)	・International Space Exhibition (10:00 - 17:00, 2F Exhibition Room) ・Excursion : Tanushimaru & Winery, Lunch ・Excursion : Dinner Yakitori
June 7 (Wed.)	・Technical Sessions (9:00 - 12:40) ・OS2: A Sustainable Exploration Program for the Moon, Mars and Beyond (9:00 - 12:40)	・Technical Sessions (14:00 - 17:40) ・OS3: Young Professionals Program, Sustainable Space Development Visions 2040 (14:00 - 15:40)	・New Space Night (19:00-21:00, Ishibashi Cultural Center)	・International Space Exhibition(10:00 - 17:00 Close, 2F Exhibition Room) ・Excursion : Kurume Institute of Technology, Shrine, Lunch ・Corporate Presentation (15:00 - 17:00, 4F Studio 3)
June 8 (Thu.)	・Technical Sessions (9:00 - 12:40) ・Finalist Student Session (9:00 - 12:40)	・Technical Sessions (14:00 - 17:40) ・Finalist Student Session (14:00 - 17:40)	・Poster Session (17:40 - 19:00, 4F Foyer of Kurumeza)	・Excursion : Dinner Sukiyaki
June 9 (Fri.)	・Technical Sessions (9:00 - 12:40) ・11th Spacecraft Control System Design Contest (9:00 - 12:40)	・Technical Sessions (14:00 - 17:40)	・Commendation & Closing Ceremony (18:30 - 20:30, Hotel Suikoen Kurume)	・Excursion : Bridgestone Corporation, Lunch ・Excursion : Yanagawa, Lunch

June 5, Monday 34th ISTS Technical Program Overview

Room	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00
The Exhibition 2F		10:00 Exhibition							17:00				
The Grand Hall 2F	9:00 9:50 Opening Ceremony	10:00 11:30 Special Session 1 World Space Highlight			13:10 13:50 Keynote Speech	13:55 15:30 Special Session 2 Sustainable Space Endeavors							
Kurumeza 3F								16:00 17:00 b-1 Ion Thruster					
C Box 4F								16:00 17:20 d-1 Orbit Determination					
The Large Meeting Room 1 5F								16:00 17:20 a-1 Intake and Nozzle					
The Large Meeting Room 3 5F								16:00 17:40 f-1 Missions 1					
The Medium Meeting Room 1 4F								16:00 17:00 q-1 Space Power Technologies					
The Medium Meeting Room 2 4F								16:00 17:40 c-1 Composite Materials					
The Medium Meeting Room 3 4F								16:00 17:40 n-1 ALOS-2 and Future Missions					
Studio 4F-2								16:00 17:00 t-1 Satelllite System Design and Data Application					
Event, etc.											18:30 Start Welcome Reception Hotel New Plaza Kurume		

June 6, Tuesday 34th ISTS Technical Program Overview

Room	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00
The Exhibition 2F		10:00 Exhibition							17:00				
Kurumeza 3F	9:00 10:20 b-2 Alternative Propellant for Ion Thruster		11:00 12:20 b-3 Cathode			14:00 15:40 os1-1 Space Transportation		16:00 17:40 os1-2 Space Transportation					
C Box 4F	9:00 10:40 d-2 Orbital Dynamics		11:00 12:40 d-3 Orbital Rendezvous & Proximity Operations			14:00 15:20 d-4 Formation Flying & Satellite Constellations		16:00 16:40 d-5 Entry/Landing/ Ascent Guidance					
The Large Meeting Room 1 5F	9:00 10:40 a-2 Combustion 1		11:00 12:40 a-3 Combustion 2			14:00 15:00 d-6 Attitude Determination		16:00 17:20 d-7 Attitude Dynamics					
The Large Meeting Room 2 5F	9:00 10:20 e-1 Supersonic and Hypersonic Flow (1)		11:00 12:40 e-2 Supersonic and Hypersonic Flow (2)			14:00 15:20 e-3 Atmospheric-entry (1)		16:00 17:40 e-4 Atmospheric-entry (2)					
The Large Meeting Room 3 5F	9:20 10:40 f-2 Missions 2		11:00 12:40 f-3 Missions 3			14:00 15:40 f-4 Missions 4: Lunar and Interplanetary Missions		16:00 17:40 f-5 Missions 5					
The Medium Meeting Room 1 4F	9:00 10:40 q-2 Technologies related to Solar Power Satellites		11:00 12:20 q-3 Solar Power Satellite			14:00 15:40 q-4 Power System on the Moon		16:00 17:00 q-5 Energy System for Lunar					
The Medium Meeting Room2 4F	9:00 10:40 c-2 Materials Characterization		11:00 12:40 c-3 Smart Materials and Structures			14:00 15:40 c-4 Deployable Structures and Structural Concept		16:00 17:20 c-5 Structural Analysis					
The Medium Meeting Room3 4F	9:00 10:40 n-2 ALOS-2 Applications and Disaster Mitigations		11:00 12:40 n-3 Satellite Data Applications			14:00 15:40 n-4 GCOM Series		16:00 17:40 n-5 Earth Observation Technologies and Validations					
The Small Meeting Room 4F-1													
The Small Meeting Room 4F-2													
Studio 4F-2		10:00 10:40	11:00 12:20 t-3 Systems Engineering for Satellite Design			14:00 15:40 v-1 Space Law, Policy and History		16:00 17:40 v-2 Space Business and Governance					
Event, etc.		t-2 Satellite Operations Management									18:30 20:30 Cultural Night Nakatsuru Yakiniku and Japanese Steakhouse		

June 7, Wednesday 34th ISTS Technical Program Overview

Room	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00
The Exhibition 2F		10:00 Exhibition							17:00				
Kurumeza 3F	9:00 10:20 b-4 Hall Thruster		11:00 12:20 b-5 Hall Thruster		os-3 Young Professional Program, Sustainable Space Development Program 2040			16:00 17:20 b-6 Hall Thruster / Cusped Field Thruster					
C Box 4F	9:00 10:40 d-8 Attitude Control 1		11:00 12:40 d-9 Attitude Control 2					16:00 17:20 d-10 Trajectory Design and Optimization 1					
The Large Meeting Room 1 5F		9:40 10:40 a-4 Solid Rocket 1	11:00 12:00 a-5 Solid Rocket 2					16:00 17:40 a-6 Hybrid Rocket 1					
The Large Meeting Room 2 5F	os2-1 A Sustainable Exploration Program for the Moon, Mars and Beyond		os2-2 A Sustainable Exploration Program for the Moon, Mars and Beyond					16:00 17:00 e-5 Aerodynamics of Space Vehicle					
The Large Meeting Room 3 5F	9:00 10:50 f-6 Guidance, Navigation, and Control 1		11:00 12:40 f-7 Guidance, Navigation, and Control 2					16:00 17:20 f-8 Satellite Design and Development 1					
The Medium Meeting Room 1 4F								16:00 17:20 g-1 Flight Experiments 1					
The Medium Meeting Room2 4F	9:00 10:20 c-6 Strucrtual Dynamics and Control		11:00 12:20 c-7 Structures of Spacecraft and Space Vehicles (1)					16:00 17:20 c-8 Structures of Spacecraft and Space Vehicles (2)					
The Medium Meeting Room3 4F								16:00 16:40 k-1 ISS and Future Human Space Mission and their Technologies					
The Small Meeting Room 4F-1	9:00 10:20 i-1 Thermal Control		11:00 12:20 i-2 Thermal Design										
The Small Meeting Room 4F-2													
Studio 4F-2	9:00 10:20 w-1 Quality Evaluation of COTS and New EEE Parts		11:00 12:00 w-2 Reliability of Assembly Technology					16:00 17:20 w-3 Advanced Activities of S&MA					
Event, etc.							15:00 17:00 Corporate Presentation			New Space Night			

June 8, Thursday 34th ISTS Technical Program Overview

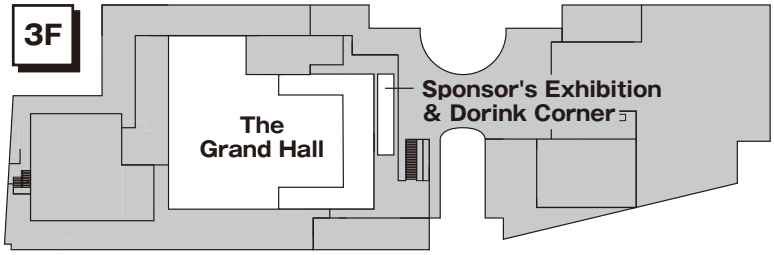
Room	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00
Kurumeza 3F	9:00 10:20 b-7 Water Propellant for Hall Thruster		11:00 12:20 b-8 Water Thruster			14:00 15:00 b-9 Alternative Propellant for Hall Thruster		16:00 17:40 b-10 Resistojet, Arcjet & MPD Thrusters					
C Box 4F	9:00 10:20 d-11 Trajectory Design and Optimization 2		11:00 12:40 d-12 Mission Design 1			Design Contest (preparation)							
The Large Meeting Room 1 5F	9:00 10:40 a-7 Hybrid Rocket 2		11:00 12:40 a-8 Hybrid Rocket 3			14:00 15:40 a-9 Liquid Rocket 1		16:00 18:00 a-10 Liquid Rocket 2					
The Large Meeting Room 2 5F	9:00 10:40 e-6 High Enthalpy Flow and Thermal Protection System (1)		11:00 12:40 e-7 High Enthalpy Flow and Thermal Protection System (2)			14:00 15:20 e-8 Nozzle Flow and Internal Flow							
The Large Meeting Room 3 5F	9:00 10:40 f-9 Satellite Design and Development 2		11:00 12:40 f-10 Structures and Materials			14:00 15:40 r-1 Space Debris, Observation, Modelling		16:00 17:40 r-2 Space Debris, Protection, Hypervelocity impact, Mitigation					
The Medium Meeting Room 1 4F	9:40 10:40 g-2 Flight Experiments 2		11:00 12:20 g-3 Flight Experiments 3			14:00 15:20 g-4 Reusable Launch Vehicles / Orbital Transfer Vehicles		16:00 17:00 g-5 Solid-propellant Rockets / Hybrid-propellant Rockets					
The Medium Meeting Room2 4F	9:00 10:15 s-1 Finalist Student Session 1		10:40 11:55 s-2 Finalist Student Session 2			14:00 15:15 s-3 Finalist Student Session 3		16:00 17:15 s-4 Finalist Student Session 4					
The Medium Meeting Room3 4F	9:00 10:40 h-1 Thermophysical Property		11:00 12:00 h-2 Combustion Science			14:00 15:20 h-3 Fluid Science		16:00 17:20 h-4 Exploration & Technology					
The Small Meeting Room 4F-1	9:00 10:40 k-2 Lunar Surface Environment and Related Technologies		11:00 12:40 k-3 Lunar Resources and their Utilizations			14:00 15:20 k-4 Lunar Subsurface Exploration and Utilizations		16:00 17:20 k-5 Explorations for Mars and its Moons					
The Small Meeting Room 4F-2													
Event, etc.										17:40 19:00 Poster Session Kurumeza 3F, lobby			

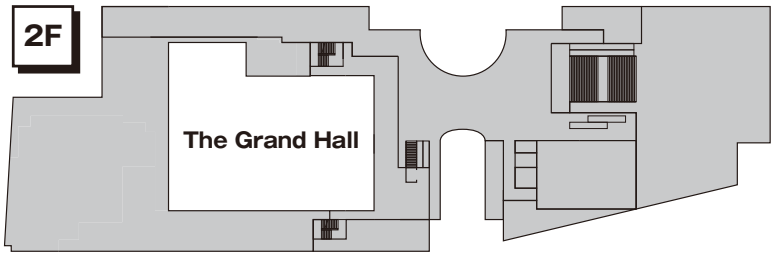
June 9, Friday 34th Final Technical Program Overview

Room	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00
Kurumeza 3F		9:40 10:40 b-11 Electrospray Thruster		11:00 12:00 b-12 Pulsed Plasma Thruster			14:00 15:00 b-13 Pulsed Plasma Thruster		16:00 17:40 b-14 Air-breathing Engine				
C Box 4F	9:00 12:40 Design Contest						14:00 15:00 d-13 Mission Design 2		16:00 17:00 d-14 Navigation & Control				
The Large Meeting Room 1 5F	9:00 10:40 a-11 Green Propellant/ New Propellant 1			11:00 13:00 a-12 Green Propellant/ New Propellant 2									
The Large Meeting Room 2 5F		9:40 10:40 b-15 Magnetic Nozzle		11:00 12:40 b-16 Beaming Propulsion			14:00 15:20 b-17 Beaming Propulsion		16:00 17:20 b-18 Plume Interaction				
The Large Meeting Room 3 5F	9:00 10:40 r-3 Space Debris, Re-entry, ADR			11:00 12:00 r-4 Space Debris, ADR			14:00 15:00 r-5 Space Environment						
The Medium Meeting Room 1 4F	9:00 10:20 m-1 Flight Experiment using Scientific Balloon and Sounding Rocket			11:00 12:20 m-2 Research and Development related to Balloon Flight Test System			14:00 15:00		16:00 17:20 m-4 Development of onboard Device for Fight Experiments				
The Medium Meeting Room2 4F							m-3 Basic Technologies to Support Small Flight Vehicle Experiments						
The Medium Meeting Room3 4F	9:00 10:40 k-6 Deep Space Sciencies and Technologies												
The Small Meeting Room 4F-1	9:00 10:20 j-1 Space Navigation			11:00 12:20 j-2 Propagation			14:00 15:20 j-3 Components and Systems		16:00 17:20 j-4 Systems				
The Small Meeting Room 4F-2													
Event, etc.											18:30 20:30 Closing Ceremony Kurume, Suikoen Hotel		

Symposium Site Floor Guide

The Grand Hall — 2nd to 4th floor

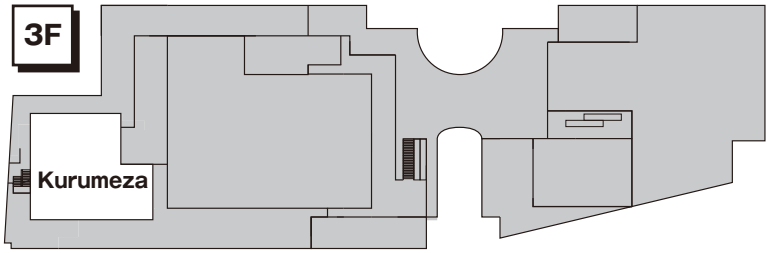




June 5 (Mon)
- Open Ceremony
- World H.
- SDGs

June 3 (Sat) ～ June 7 (Wed)
Sponsor's Exhibition &
Dorink Corner

Kurumeza — 3rd and 4th floor

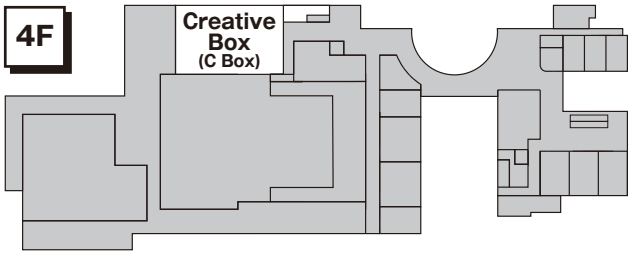


June 5 (Mon) b-1
June 6 (Tue) b-2, 3 / os1-1, 2
June 7 (Wed) b-4, 5, 6, os-3
June 8 (Thu) b-7, 8, 9, 10
June 9 (Fri) b-11, 12, 13, 14

Poster Session (Lobby)

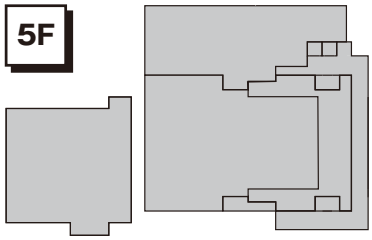
June 8 (Thu) 17:40-19:00

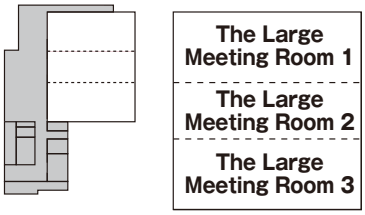
Creative Box (C Box) — 4th floor



June 5 (Mon) d-1
June 6 (Tue) d-2, 3, 4, 5
June 7 (Wed) d-8, 9, 10
June 8 (Thu) d-11, 12
June 9 (Fri) Design Contest
d-13, 14

The Large Meeting Room 1-3 — 5th floor





The Large Meeting Room 1

June 5 (Mon) a-1
June 6 (Tue) a-2, 3 / d-6, 7
June 7 (Wed) a-4, 5, 6
June 8 (Thu) a-7, 8, 9, 10
June 9 (Fri) a-11, 12

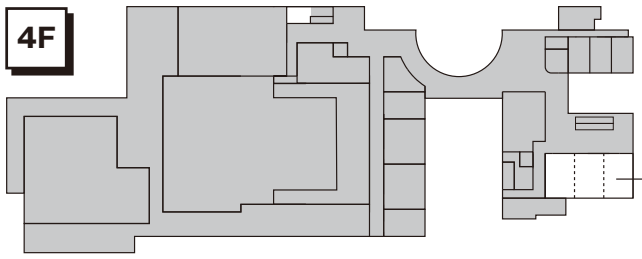
The Large Meeting Room 2

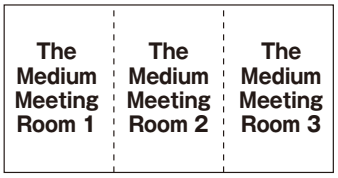
June 6 (Tue) e-1, 2, 3, 4
June 7 (Wed) os2-1, 2 / e-5
June 8 (Thu) e-6, 7, 8
June 9 (Fri) b-15, 16, 17, 18

The Large Meeting Room 3

June 5 (Mon) f-1
June 6 (Tue) f-2, 3, 4, 5
June 7 (Wed) f-6, 7, 8
June 8 (Thu) f-9, 10 / r-1, 2
June 9 (Fri) r-3, 4, 5

The Medium Meeting Room 1-3 ／ Conference Room — 4th floor





The Medium Meeting Room 1

June 5 (Mon) q-1
June 6 (Tue) q-2, 3, 4, 5
June 7 (Wed) g-1
June 8 (Thu) g-2, 3, 4, 5
June 9 (Fri) m-1, 2, 3, 4

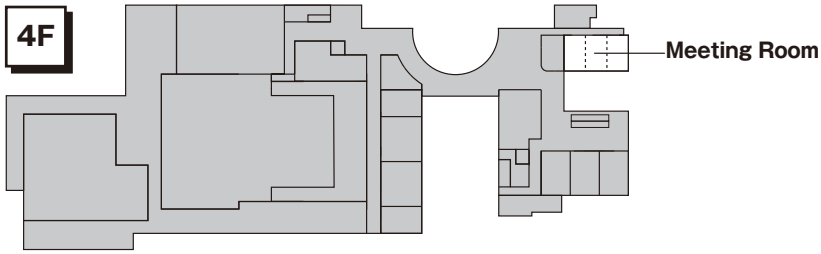
The Medium Meeting Room 2

June 5 (Mon) c-1
June 6 (Tue) c-2, 3, 4, 5
June 7 (Wed) c-6, 7, 8
June 8 (Thu) s-1, 2, 3, 4

The Medium Meeting Room 3

June 5 (Mon) n-1
June 6 (Tue) n-2, 3, 4, 5
June 7 (Wed) k-1
June 8 (Thu) h-1, 2, 3, 4
June 9 (Fri) k-6

The Small Meeting Room 1-3 ／ Meeting Room　4th floor

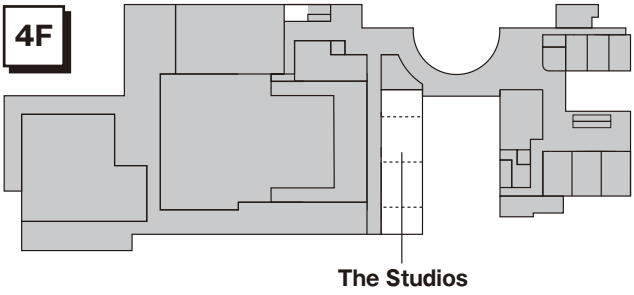


The Small Meeting Room 1	The Small Meeting Room 2	The Small Meeting Room 3

The Small Meeting Room 1-3

June 4 (Sun)　u-1, 2, 3
June 7 (Wed)　i-1, 2
June 8 (Thu)　k-2, 3, 4, 5
June 9 (Fri)　j-1, 2, 3, 4

The Studios　4th floor

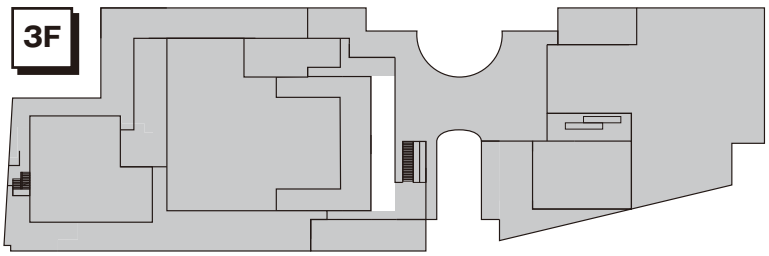


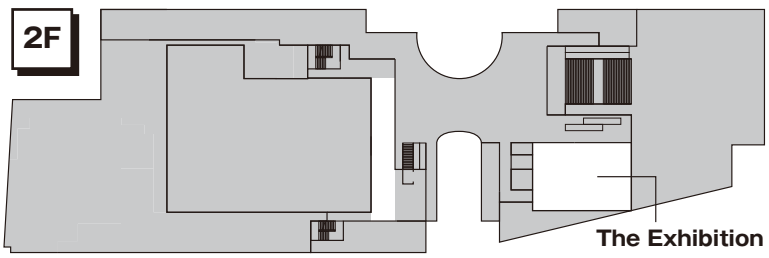
Studio 1
Studio 2
Studio 3
Studio 4

Studio 2

June 5 (Mon)　t-1
June 6 (Tue)　t-2, 3 / v-1, 2
June 7 (Wed)　w-1, 2, 3

The Exhibition (June 3 (Sat.) -7 (Wed.) 10:00-17:00)　2nd and 3rd floor





2nd Floor Exhibition

JAXA
General Company
Fukuoka Prefecture's Company
Tokushima Prefecture
(the next venue)

Opening Ceremony, keynote Speech, Special Sessions, Organized Sessions for 34th ISTS

Opening Ceremony

Date : June 5 (Mon.) 9:00 - 9:50
Place : The Grand Hall (2F)

Opening
Kimiya Komurasaki (Chairperson of General Affairs Committee)

Opening Address from 34th ISTS
Toru Shimada (General Chairperson of the 34th ISTS)

Congratulatory Address from Kurume City
Shingo Haraguchi (Mayor of Kurume City)

Congratulatory Address from JAXA
Hiroshi Yamakawa (President of Japan Aerospace Exploration Agency)

Congratulatory Address from COSPAR
Masaki Fujimoto (Representative of Committee on Space Research)

Congratulatory Address from Overseas Program Committee
Joseph Casas (Representative of Overseas Program Committee)

Address from NSAT
Shinichi Nakasuka (General Chairperson of the 12th Nano-Satellite Symposium)

Address from JSASS
Yasuhiro Morita (President of Japan Society for Aeronautical and Space Sciences)

Information of Program and Event Schedule
Ikko Funaki (Chairperson of Program Committee)

Closing
Kimiya Komurasaki (Chairperson of General Affairs Committee)

Special Programs (Plenary, Invited Speakers)

Special Session 1 ／ World Space Highlight

Date : June 5 (Mon.) 10:00 - 11:30
Place : The Grand Hall (2F)

Moderator : Akira Kosaka (JAXA)
Speakers : Garvey McIntosh (NASA)
Niklas Reinke (DLR)
Julien Mariez (CNES)

This session will inspire all audience the importance of collaboration between various actors (agencies, institutes, academia and private sectors) towards future space exploration which is in line with the theme of ISTS “Space for All of Us”. The background of this session is growing global interests in international space exploration. All speakers will introduce their roadmaps of each organization towards future space exploration and its good practices of collaboration with various private sectors.

Keynote Speech ／ Space for All ---Building a Sustainable Society ---

Date : June 5 (Mon.) 13:00 - 13:40
Place : The Grand Hall (2F)

Speaker : Chiaki Mukai (Tokyo University of Science)

In this keynote speech, the speaker will introduce themes such as SDGs initiatives at the United Nations and human resource development initiatives to support sustainable space development and utilization.

Special Session 2 ／ Sustainable Space Endeavors: Transforming Ideas into Impactful, Diverse Actions

Date : June 5 (Mon.) 14:00 - 15:40
Place : The Grand Hall (2F)

Moderator : Toru Shimada (General Chairperson of the 34th ISTS)
Speakers : Koji Terada (JAXA)
: JAXA's Effort for Achieving the SDGs
Kanya Kusano (Nagoya University)
: Space Weather Prediction for Sustainable Space Development
Takeshi Yano (Bridgestone Corporation)
: Bridgestone's Challenge to Space - Lunar Rover Tire Development -
Aya Iwamoto (Astroscale Japan)
: Striving towards Space Sustainability- How can we foster sustainable space operations and circular economy in space through on-orbit servicing?

Considering the main theme: 'Space for All of Us' and following the keynote speech, this special session dedicates itself to showcasing the diverse connections between space technology and the United Nations Sustainable Development Goals (SDGs). We initiate the discussion by considering the role of space technology in supporting the achievement of the SDGs and delve into various topics. These include the enhancement of our environmental detection capabilities through space weather forecasting, the potential for a business dedicated to tackling the issue of space debris, and the development of mobility technologies on other planets to aid in sustainable city and community building. Throughout our session, we will explore these opportunities, highlighting ongoing initiatives and envisioning future developments. We invite you to join us in this exciting discourse as we discuss the potential of space technologies in driving progress towards a future where space is for all of us.

Organized Session 1 (OS-1) ／ Sustainable Space Transportation for the Next-Generation

Date : June 6 (Tue.) 14:00 - 17:40
Place : Kurumeza (3F)

Organizer : Kenichi Takahashi (Nihon University)

We will discuss what sustainable space transportation for the next generation should be like. The organized session will cover a wide range of issues including technology, nature, people, and economy. Researchers and engineers in a variety of fields (not limited to propulsion researchers) are invited to join and share the current trends and discuss strategies for space transportation to grow sustainably.

OS1-1 Jun.6/Tus. 14:00-15:40, Chairs: I. Funaki, K. Takahashi

14:00 Koichi Okita (Invited), Roadmap for Innovative Future Space Transportation Systems
14:20 Shinji Ishimoto (Invited), CALLISTO Demonstrator for Reusable Rocket Technologies
14:40 Landon Kamps (Invited), Hybrid Chemical Propulsion for Storable and Affordable High-thrust In-space Transportation
15:00 Hiroki Matsunaga (Invited), Development of Next Generation Green Propellant with High Energetic Ionic Liquids
15:20 Yuichi Nakagawa (Invited), Water Propulsion System for Sustainable Space Development

OS1-2 Jun.6/Tus. 16:00-17:40, Chairs: H. Matsunaga, K. Takahashi

16:00 Christopher Glaser, Hybrid Rocket Engines Optimized by Multi- Stepped Design Approach: Experimental Investigation
16:20 Mateusz Tomasz Gulczynski, Parametric Optimization of Turbopump for Reusable Rocket Engine (RRE) Applications
16:40 Shinji Igarashi, 20N class Green Monopropellant Thruster for Propulsion System of Small Satellites
17:00 Armin Herbertz, Comparison of Different Types of Water Propulsion for Near Term Application
17:20 Naoji Yamamoto, A Comparative Study of Water, Carbon Dioxide, and Adamantane as Alternative Propellants for Ion Engines

Organized Session 2 (OS-2) ／ A Sustainable Exploration Program for the Moon, Mars and Beyond

Date : June 7 (Wed.) 9:00 - 12:40
Place : The Large Meeting Room 2 (5F)

Organizer : Tomohiro Usui (JAXA), Masaki Fujimoto (JAXA)

As the area of human activity expand to the Moon, Mars and beyond, the key for success is sustainable transfer of technology and human resources. Seamless transfer from space agencies such as JAXA to private sectors is vitally important. In this session, key lectures as well as invited talks are provided from international space agencies and private companies to share and discuss the current situation and future prospects to make a sustainable exploration program.

Organized Session 3 (OS-3) ／ Young Professionals Program, Sustainable Space Development Visions 2040

Date : June 7 (Wed.) 14:00 - 15:40
Place : Kurumeza (3F)

Moderators : Naoya Ozaki (JAXA), Shion Ando (Kyushu University), Maximilien Berthet (University of Tokyo), Naoko Shinmi (Canon Electronics Inc.)

Space activities are reaching a turning point due to the rapid growth of the commercial space sector and the development of new infrastructures such as lunar orbital gateways and space transportation systems. It is necessary to think about visions for space development involving not only national government organizations and academic institutions but also private companies. In addition, "sustainability" is an indispensable keyword for the future of space development. Sustainability here includes not only environmental sustainability, such as debris management and planetary protection, but also economic sustainability, allowing space development without dependence on governmental budgets. Therefore, the ISTS will hold a program in which students and young professionals from industry, academia, and government can work together on the building blocks of sustainable space development visions for 2040. Through this activity, we aim to create teams that can not only draw cross-sectional visions, but also break through the vertical divisions between occupations and fields, to solve problems as one. Five teams (about six members each) will be formed to discuss sustainable space visions. Each team will discuss "themes to be solved for 2040" and present their vision for solving the issues at the plenary session of ISTS on June 7, 2023.

11th Spacecraft Control System Design Contest

Date : June 9 (Fri.) 9:00 – 12:40
Place : C Box (4F)

The contest aims at providing opportunity to capture the nature of dynamics and control of spacecraft through solving a typical spacecraft control problem and to feel joy to develop "my" algorithm. A certain control problem is announced beforehand, and participants design a controller in the form of a program, which will be evaluated at the contest site by computer simulations.
Several prizes will be given to those participants who designed excellent control algorithms. The discussions about the problems and proposed control algorithms will also be given at the site, which further contribute to understanding of the problem.

Social Programs

■ Welcome Reception

On Monday evening, all ISTS/NSAT participants will be cordially invited to the Welcome Reception by the Governor of Fukuoka Prefecture and the Mayer of Kurume City with Japanese hospitality. See the next page for further information.

■ Cultural Night

Cultural Night will be held at Nakatsuru Yakiniku and Japanese Steakhouse. Advance reservation is required. See the next page for further information.

■ New Space Night

Date : June 7 (Wed.) 19:00 - 21:00
Place : Ishibashi Culture Center, https://www.ishibashi-bunka.jp/en/index.html
Fee : 4,000 JPY

Space BD and the organizing committee of ISTS will hold a networking event "New Space Night" inviting all the people in the industry, government, and academia involved in the Japanese space industry to further deepen exchange. Advance reservation is required.

■ Excursion

Several tours are provided for participants and their accompanying persons. Advance reservation is required, but limited number of tickets might be available at the registration desk. Please look the detailed guidance on the ISTS web page.

• Tanushimaru & Winery Tour	Date: June 6 (Tue.)	Tour fee: 2,300JPY
• Dinner Yakitori	Date: June 6 (Tue.)	Fee: 5,000JPY
• Kurume Institute of Technology Tour	June 7 (Wed.)	Tour fee: 2,100JPY
• Dinner Sukiyaki	June 8 (Thu.)	Fee: 7,200JPY
• Bridgestone Corporation Tour	June 9 (Fri.)	Fee: 3,500JPY
• Yanagawa & Unagi Ryori	June 9 (Fri.)	Fee: 4,500JPY

■ Commendation and Closing Ceremony

The 34th ISTS and 12th NSAT Organizing Committee intends to make this last evening of the joint symposium an unforgettable event. See the next page for further information.

Welcome Reception

June 5 (Mon.) 18:30 ~ 20:30

Hotel Newplaza Kurume

8-1 Mutsumonmachi, Kurume, Fukuoka 830-0031 Japan

TEL : 0942-33-0010　FAX : 0942-38-6583　https://www.newplaza.net/

Cultural Night

＊ advance registration required

June 6 (Tue.) 18:30 ~ 20:30

Nakatsuru Yakiniku and Japanese Steakhouse

6-13 Torihigashimachi, Kurume, Fukuoka 830-0016 Japan

TEL : 0942-34-1338　https://www.nakatsuru.com/

Commendation and Closing Ceremony

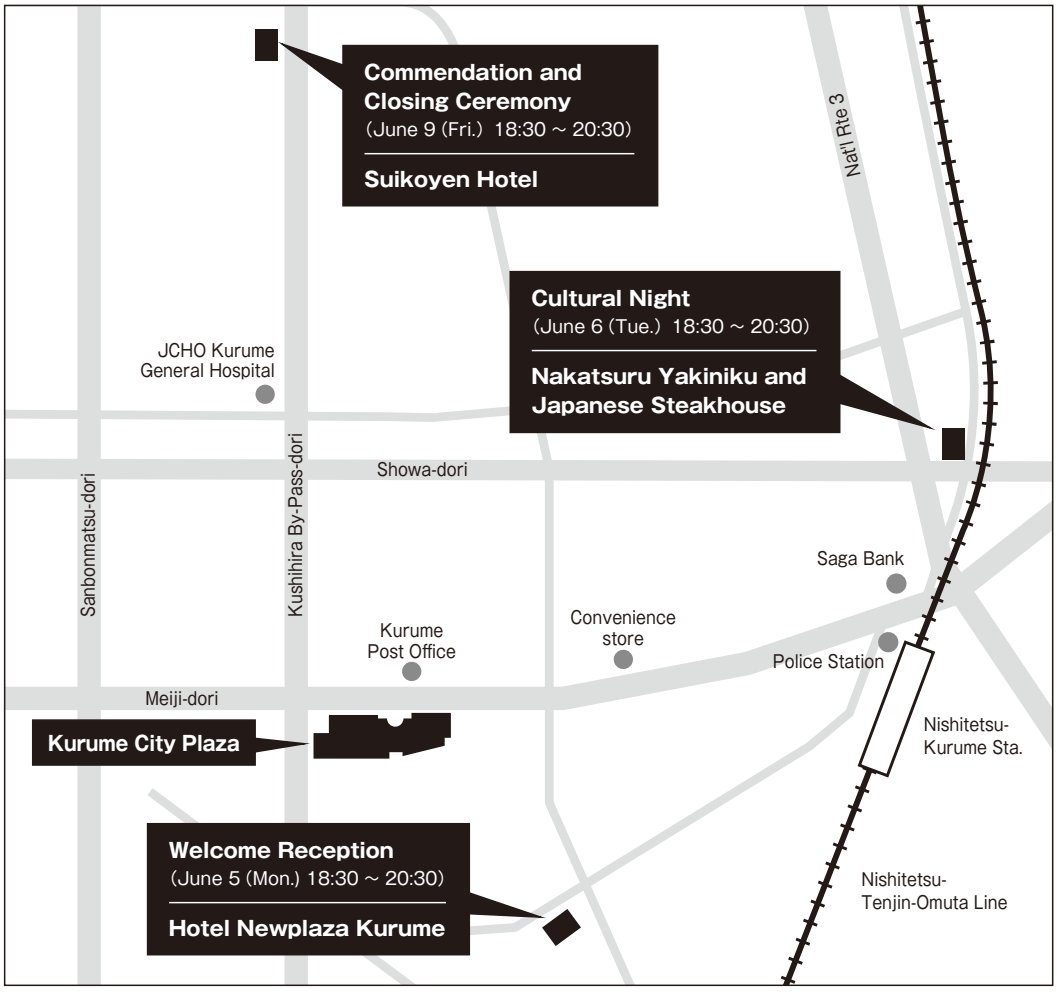
＊ advance registration required

June 9 (Fri.) 18:30 ~ 20:30

Suikoen Hotel

21 Kushiharamachi, Kurume, Fukuoka 830-0013 Japan

TEL : 0942-35-5351　FAX : 0942-35-5356　http://www.suikoyen.co.jp/



Session Details

Session Details

The Symposium will address various fields of space-related technology and science. It will include Special Sessions, Organized Sessions and 19 Technical Sessions of contributed papers and a Finalist Student Session.

Special Sessions after the Opening Ceremony (June 5)

- Special Program 1, World Space Highlight
- Keynote Speech by Dr. Chiaki Mukai
- Special Program 2, Sustainable Space Endeavors: Transforming Ideas into Impactful, Diverse Actions

Organized Sessions

- OS-1: Sustainable Space Transportation for the Next-Generation
- OS-2: A Sustainable Exploration Program for the Moon, Mars and Beyond
- OS-3: Young Professionals Program, Sustainable Space Development Visions 2040

Technical Sessions

a) Chemical Propulsion and Air-breathing Engines

b) Electric and Advanced Propulsion

c) Materials and Structures

d) Astrodynamics, Navigation Guidance and Control

e) Fluid Dynamics and Aerothermodynamics

f) Small Satellite: Joint session with 12th NSAT

g) Space Transportation

h) Microgravity Sciences and Technology

i) Thermal Control

j) Satellite Communications, Broadcasting and Navigation

k) Science and Technology for Human and Robotic Space Exploration

m) Sounding Rocket, Balloon and Flight Experiment using Small Flight Vehicle

n) Earth Observation

q) Space Power Systems

r) Space Environment and Debris

t) Systems Engineering and Information Technology

u) Space Education and Outreach for the Benefit of All People

v) Space Law, Policy and International Cooperation

w) Safety and Mission Assurance

Finalist Student Session

Date : June 8 (Thu.) 9:00 – 17:15

Place : The medium Meeting Room 2 (4F)

The purpose of this session is to encourage students to present their original research results. Single authored papers by graduate students, undergraduate students, or students in technical colleges or in senior high schools are welcome. Co- authored papers can be submitted, only when a student in the above categories has made a principal contribution to the paper and is registered as the first author to make a presentation at the symposium. The submissions are preliminary screened for technological and scientific quality and selected papers are to be presented by the authors as finalists in the student oral session. Special prizes will be awarded to excellent papers presented in the student session based on the jury's evaluation of both the manuscripts and the presentations.

Poster Session

Date : June 8 (Thu.) 17:40 - 19:00

Place : Foyer of Kurumeza (3F)

The Poster Session is planned to be held at specified hours during the Symposium. The authors will be requested to stay in the allocated session venue during this Session for explanations and discussions. Several excellent posters presented at the poster session will be awarded with a prize. In the Poster Session, light meals and beverages are provided for the participants. The Poster Session includes a Shotgun Session, during which on-site presenters will be asked to give a brief presentation of their poster to the participants within 30 seconds. The Shotgun Session starts from 17:55. Presentation materials, which are submitted posters, will be projected on a screen by the secretariat. On-site presenters are requested to arrive at the session venue by 17:00.

Notice for online presenters and participants: all posters and presenters' e-mail addresses are open to the conference participants on the paper handling system ("https://ists.confit.atlas.jp/"). Q&A can be conducted via e-mail.

Corporate Presentation

Date : June 7 (Wed.) 15:00 - 17:00

Place : Studio 3 (4F)

ISTS sponsors give presentations of their recent activities in English or Japanese. They welcome participants of the joint conference.

Program of Technical Sessions

Technical Oral Sessions (a, b, c, d, e, f, g, h, i, j, k, m, n, q, r, t, u, v, w)

Finalist Student Session (s)

Technical Poster Session

The latest programme can be found here.

a-1 Jun.5/Mon. 16:00-17:20
Intake and Nozzle

The Large Meeting Room 1 (5F), Chairs: TBD

16:00 2023-a-01 Yuki Kuwabara
Experimental and Numerical Investigation of the Sideslip Angle Effect on the Ramjet Intake for High Mach Integrated Control Experiment (HIMICO) Model at Mach 2

16:20 2023-a-02 Kazuma Matsumoto
Experimental and Numerical Investigation of a Three-Dimensional Supersonic Inlet for the Reusable Sounding Rocket with ATRIUM Engine

16:40 2023-a-03 Rina Kato
Research on Ejector-jet Engines

17:00 2023-a-04 Aoi Ozone
Acoustic Characteristics of Clustered Rockets Using Low-Density Gas

a-2 Jun.6/Tus. 9:00-10:40
Combustion 1

The Large Meeting Room 1 (5F), Chairs: TBD

9:00 2023-a-05 Masahiro Takahashi
Post-flight Ground Tests of a RD1 Supersonic Combustor Model at Mach 6 Flight Condition

9:20 2023-a-06 Sadatake Tomioka
Effects of Flow-path Designs on Scramjet Engine Performance under M8 Flight Condition

9:40 2023-a-07 Koichi Omi
Koopman Mode Decomposition Analysis on Combustion Instabilities in a Hydrogen-Ram Combustor under various Hydrogen Jet Momentum Ratios to Air Flow

10:00 2023-a-08 Stéphane Boulal
Frequency Analysis of the Combustion Instabilities Induced by a Backward-facing Step

10:20 2023-a-09 Wolfgang Armbruster
Experimental Investigation of a Small-Scale Oxygen-Hydrogen RDE

a-3 Jun.6/Tus. 11:00-12:40
Combustion 2

The Large Meeting Room 1 (5F), Chairs: TBD

11:00 2023-a-10 Yoshiki Matsuura
Development Status of a Laser-initiated Ignition Device

11:20 2023-a-11 Shinichiro Ogawa
Study on Accuracy Improvement of a Forced Ignition Model Focused on Micro-Rocket Torch

11:40 2023-a-12 Yownin Albert Leung
A Study on the Thermal and Pyrolysis Characteristics of Copper-Infused Electrically Conductive Polymer Igniter for Rocket Ignition

12:00 2023-a-13 Yuki Nobuhara
Effect of Electric Power and Oxidizer Flow Rate on the Ignition Criteria of Electrically Conductive Fuel

12:20 2023-a-14 Eliot Alan Foss
Numerical Simulations of Methane-LOx Transcritical Combustion in a Model Combustor Considering Real Gas Effects.

a-4 Jun.7/Wed 9:40-10:40
Solid Rocket 1

The Large Meeting Room 1 (5F), Chairs: TBD

9:40 2023-a-15 Jouke Hijlkema
A New Attempt to Measure the Al2O3 Particle Size Distribution for Solid Propellants under Representative Conditions

10:00 2023-a-16 Apollo B. Fukuchi
Effect of Magnalium on Burning Rate and Agglomeration Size of Composite Propellant

10:20 2023-a-17 Akihiro Terachi
Analysis of Internal Damage Process of AP/HTPB Composite Propellant by Comparison of 3D X-ray CT Images before and after Load Application

a-5 Jun.7/Wed 11:00-12:00
Solid Rocket 2

The Large Meeting Room 1 (5F), Chairs: TBD

11:00 2023-a-18 Hiroshi Tabata
Consideration of Mechanical Properties of Solid Propellants in Low Temperature Environments for Application to Planetary Exploration

11:20 2023-a-19 Kai Ikoma
Combustion Control with Jellied Solid Propellant

11:40 2023-a-20 Mizuki Teshima
Effect of LiF addition on Combustion Controllable Solid Propellant Microthruster Using Laser Heating

a-6 Jun.7/Wed 16:00-17:40
Hybrid Rocket 1

The Large Meeting Room 1 (5F), Chairs: TBD

16:00 2023-a-21 Wonjeong Hyun
Pressure Oscillation and Instability in Paraffin Wax Combustion of Hybrid Rocket

16:20 2023-a-22 Naoki Yasunaga
Experimental Investigation on the Scale Effect of Hybrid Rockets With a Low Melting Point Fuel

16:40 2023-a-23 Yo Kawabata
Developing a Stagnation Point Combustion Chamber and Measuring the Fuel Regression Rate of Hybrid Rocket Fuel

17:00 2023-a-24 Hironori Shimura
Prototyping and Hot Firing Test Results of Liquid-encapsulated Fuel

17:20 2023-a-25 Jacquelyn Gwynn
Heat Treatment of Additively Manufactured Hybrid Rocket Fuel Grains

a-7 Jun.8/Thu. 9:00-10:40
Hybrid Rocket 2

The Large Meeting Room 1 (5F), Chairs: TBD

9:00 2023-a-26 Kohei Matsui
Evaluation of Experimental System for Combustion Test of SOFT Hybrid Rocket with Changing Oxygen Temperature

9:20 2023-a-27 Shigeru Aso
A Study on Hybrid Rocket Engine with Multi-Section Swirl Injection Method and Aft Counter-Swirl Injection Method for Space Launch

9:40 2023-a-28 Shigeru Aso
A Study on Hybrid Rocket Engine with Multi-Section Swirl Injection Method and Aft Counter-Swirl Injection Method under Acceleration Conditions for Space Launch

10:00 2023-a-29 Alejandro Taiki Padilla Torres
Lunar Orbit Mission Using Spatial-resolved Fuel Regression Rate of Hybrid Thrusters

10:20 2023-a-30 Raymond Pangestu
Pressure Loss of an Intake for an Air Breathing Engine Under Counter Flow Condition

a-8 Jun.8/Thu. 11:00-12:40
Hybrid Rocket 3

The Large Meeting Room 1 (5F), Chairs: TBD

11:00 2023-a-31 Masashi Wakita
Study on Flame Holding with Catalyst Assist in CAMUI-type Hybrid Rocket Using 60wt% Hydrogen Peroxide as Oxidizer

11:20 2023-a-32 Landon Thomas Kamps
Thrust Characteristics of Hybrid Rocket Kick Motor

11:40 2023-a-33 Giuseppe Gallo
Numerical and Experimental Advancements in the Development of a Regenerative Cooling System for Hybrid Rocket Applications

12:00 2023-a-34 Takashi Sakurai
Fundamental Study on SOFT Hybrid Rocket Engine with LT Fuel and LOX Regenerative-Cooling Nozzle

12:20 2023-a-35 Marco Rotondi
Numerical and Experimental Analysis of Transient Erosion in Rocket Nozzles

a-9 Jun.8/Thu. 14:00-15:40
Liquid Rocket 1

The Large Meeting Room 1 (5F), Chairs: TBD

14:00 2023-a-36 Kai Dresia
Design and Control Challenges for the LUMEN LOX/LNG Expander-Bleed Rocket Engine

14:20 2023-a-37 Sebastian Klein
Investigation of the Chill Down Process in the LUMEN LOX/LNG Demonstrator Engine

14:40 2023-a-38 Robson Hahn
Validation of Performance Prediction Model at Off-Design Conditions for Partial Admission Supersonic Impulse Turbines

15:00 2023-a-39 Hiromitsu Kakudo
Modeling of Heat Generation in Cryogenic Turbopump Ball Bearings

15:20 2023-a-40 Tobias Traudt
LUMEN: Test Platform for Rocket Engine Technologies. Project Overview and Upcoming Steps in the Development

a-10 Jun.8/Thu. 16:00-18:00
Liquid Rocket 2

The Large Meeting Room 1 (5F), Chairs: TBD

16:00 2023-a-41 Yu Daimon
Modeling of Shutdown Transient State for Space Propulsion System Simulation

16:20 2023-a-42 Sebastian Soller
Development Status of Laser Ignition Systems for LOX/Methane Propulsion Systems

16:40 2023-a-43 Cheng Huang
Component-based Reduced Order Modeling of Multi-Injector Rocket Combustors

17:00 2023-a-44 Jan Martin
Flame Response of a Sub- and Supercritical LOX/H2 and LOX/LNG Rocket Combustor with large Optical Access

17:20 2023-a-45 Beatrice Latini
CFD Simulation of Flow in LRE Rectangular Cooling Channels

17:40 2023-a-46 Matteo Fiore
Cooling System Analysis for an Upper-Stage Aerospike

a-11 Jun.9/Fri. 9:00-10:40
Green Propellant/New Propellant 1

The Large Meeting Room 1 (5F), Chairs: TBD

9:00 2023-a-47 Hiroki Matsunaga
Reactivity of Ammonium Dinitramide-Based Energetic Ionic Liquids with Metals and Metal Oxides

9:20 2023-a-48 Kenshin Kawabata
Firing Test of Hydrogen-peroxide-added ADN-based Monopropellant Using Catalytic Thruster

9:40 2023-a-49 Toshiaki Iizuka
Effect of Wettability and Temperature of Pt/TiO2 Catalyst Surface on Propellant Reactivity

10:00 2023-a-50 Haruki Sashida
Study on Life Extension of Catalysts for Microsatellite-Friendly Multi-Purpose Propulsion System

10:20 2023-a-51 Takumi Takizawa
A Study of Hybrid Micro Thruster Using Powder Fuel

a-12 Jun.9/Fri. 11:00-13:00
Green Propellant/New Propellant 2

The Large Meeting Room 1 (5F), Chairs: TBD

11:00 2023-a-52 Hisayoshi Ito
Improvement of Flash Atomization Characteristics of HAN-based Green Propellants Using High Saturation Pressure Additive

11:20 2023-a-53 Akira Kakami
Thrust Chamber Design for Stable Combustion for Dimethyl Ether and Nitrous Oxide

11:40 2023-a-54 Ryosuke Hosoi
Investigation of Characteristic Exhaust Velocity Model for Water/Liquid Nitrogen Rocket Engines with Consideration of Vapor Pressure of Superheated Water

12:00 2023-a-55 Masazumi Yamaguchi
Performance Evaluation of Green Monopropellant Thruster with In-liquid Plasma

12:20 2023-a-56 Akira Kakami

A Dual Mode Thruster Using Microwave Plasma and Green Propellant

12:40 2023-a-57 Ryosuke Omori

Ignition of Energetic Ionic Liquids Using Electrolysis Ignition Thrusters

b-1 Jun.5/Mon. 16:00-17:00
Ion Thruster

Kurumeza 3F, Chairs: T. Muranaka, K. Nishii

16:00 2023-b-01 Kuniyoshi Tabata

Development Status of the Microwave Ion Thruster for JAXA's Deep Space Mission DESTINY+

16:20 2023-b-02 Takuya Koiso

Development of Microwave Discharge Ion Thruster Using High Microwave Frequency

16:40 2023-b-03 Takato Morishita

Effect of Nozzle Contamination on Microwave Discharge Cathode Performance

b-2 Jun.6/Tus. 9:00-10:20
Alternative Propellant for Ion Thruster

Kurumeza 3F

Chairs: T. Morishita, D. Ichihara

9:00 2023-b-04 Ryudo Tsukizaki

Alternative Propellant Study (krypton vs. xenon) of the μ10 ECR Gridded Ion Engine at its Hayabusa2 and DESTINY$^+$ Missions

9:20 2023-b-05 Ryotaro Matsumoto

Thrust Performance of Ion Thruster with Nitrogen Propellant

9:40 2023-b-06 Michael Tsay

400W Class, Iodine-Fueled Gridded Ion Propulsion System Development

10:00 2023-b-07 Ryo Minematsu

Langmuir Probe Measurements within a Water-propelled Gridded Ion Thruster

b-3 Jun.6/Tus. 11:00-12:20
Cathode

Kurumeza 3F, Chairs: S. Yokota, R. Kawashima

11:00 2023-b-08 Yuya Oshio

The Orifice Diameter Effect on Plasma and Emitter Surface Temperature Distributions of a LaB6 Hollow Cathode

11:20 2023-b-09 keito Hirai

Orifice Surface Temperature Measurement of LaB6 Hollow Cathode by a Near-infrared Two-color Radiation Thermometer

11:40 2023-b-10 Shun Imai

Effect of Hollow Cathode Discharge Condition on the LaB6 Inner Surface Contamination

12:00 2023-b-11 Tsubasa Hashizume

Diagnostics of Hollow Cathode Discharge Plasma by Spectroscopic Methods

b-4 Jun.7/Wed 9:00-10:20
Hall thruster

Kurumeza 3F, Chairs: T. Miyasaka, N. Yamamoto

9:00 2023-b-12 Ikkoh Funaki

Development and Qualification of a 6-kW-class Hall Thruster Subsystem for ETS-9

9:20 2023-b-13 Youngho Kim

Comparison of Performance and Ion Beam Characteristics of Xenon and Krypton Mixture Discharges in 500 W-class Cylindrical Hall Thruster

9:40 2023-b-14 Taisei Nakajima

Design of 1-kW Class TAL-Type Double-Channel Hall Thruster

10:00 2023-b-15 Yusuke Sawanishi

The Effect of Peak Magnetic Field Position on High-Specific Impulse Hall Thruster

b-5 Jun.7/Wed 11:00-12:20
Hall Thruster

Kurumeza 3F, Chairs: Y. Okawa, TBD

11:00 2023-b-16 Jaehong Park

Numerical Modeling of Xenon and Krypton Mixture Discharges in Hall Thruster

11:20 2023-b-17 Aika Koeda

Observation of the Plasma Perturbation inside Hall Thrusters Using Numerical Simulation

11:40 2023-b-18 Masahiro Nonaka

Θ-Z 2D3V Full-PIC Simulation to evaluate Anomalous Transport in Hall thrusters

12:00 2023-b-19 Shu Tokuda

Collision Model for Numerical Calculation of Carbon Dioxide Hall Thruster

b-6 Jun.7/Wed 16:00-17:20
Hall Thruster / Cusped Field Thruster

Kurumeza 3F, Chairs: Y. Okawa, Y. Oshio

16:00 2023-b-20 SHIGERU SATO

Hollow Anode Characterization for Low-power Miniaturized SPT Hall Thruster

16:20 2023-b-21 Kento Takishima

Hollow Anode Optimization for Miniaturized Low-power Anode Layer Hall Thrusters

16:40 2023-b-22 Arash Rezazadeh

Miniaturization of Low-Power Hall Thrusters

17:00 2023-b-23 Suk Hyun Yeo

Multi-Objective Design Optimization of Low-Power Cusped Field Thruster

b-7 Jun.8/Thu. 9:00-10:20
Water Propellant for Hall Thruster

Kurumeza 3F, Chairs: I. Funaki, M. Tsay

9:00 2023-b-24 Kento Shirasu

Miniaturization of a Water-vapor Hall Thruster for Performance Enhancement and Cathode Coupling

9:20 2023-b-25 Masayuki Matsuura

Effect of Channel Diameter and Width on a Low-Power Water-Vapor Hall Thruster

9:40 2023-b-26 Daigo Takasaki

Coupling operation of a LaB6 Thermionic Cathode with a Low-power Water-vapor Hall Thruster

10:00 2023-b-27 Fuga Matsuo

A TAL-type Hall Thruster Using Water Propellant

b-8 Jun.8/Thu. 11:00-12:20
Water Thruster

Kurumeza 3F, Chairs: A. Kawasaki, K. Kinefuchi

11:00 2023-b-28 Juliusz Saryczew
Development of a Test Bench for Electrolyser Performance Evaluation for Water Electrolysis Propulsion

11:20 2023-b-29 Daisuke Komatsu
Study on Electrodes Design for MPD Thruster Using Water Propellant

11:40 2023-b-30 Kaname Yokota
Performance Test and Estimation of Orbital Control Authority of Micro Water Resistojet Thruster for Small Satellites

12:00 2023-b-31 Kento Yoshida
Study on High-power Arcjet Thruster for Spacecraft Using Water Propellants

b-9 Jun.8/Thu. 14:00-15:00 Alternative Propellant for Hall Thruster

Kurumeza 3F, Chairs: H. Tahara, K. Nishii

14:00 2023-b-32 Dibyesh Satpathy
Performance of Anode Layer Thruster RAIJIN66 with Argon Propellant based on Anode Temperature Change

14:20 2023-b-33 Kota Gunji
Performance Evaluation of Hall Thrusters Using Carbon Dioxide as Propellant

14:40 2023-b-34 Takuya Nakajima
Development and Performance Enhancement of Hall Thrusters for Transportation in the Solar System -Use of Carbon Dioxide, Methane, Ammonia, Hydrogen, Helium, Air and Ice/Water etc. in the Planets and Satellites to Propellants-

b-10 Jun.8/Thu. 16:00-17:40 Resistojet, Arcjet & MPD Thrusters

Kurumeza 3F, Chairs: Y. Oda, TBD

16:00 2023-b-35 Alexander Scott Hillstrom
Optimization of Additively Manufactured Multi-wall Electrothermal Thruster

16:20 2023-b-36 Ryo Ikemoto
Performance Characteristics and Their Enhancement of Direct-Current Arcjet Thrusters -Use of Carbon Dioxide, Methane, Ammonia, Hydrogen, Helium, Air and Ice/Water etc. in Planets and Satellites in the Solar System to Propellants-

16:40 2023-b-37 Ayano Yoshida
Performance Characteristics and Their Enhancement of Steady-State MPD Thrusters with Permanent Magnets for Transportation in the Solar System -Use of Carbon Dioxide, Methane, Ammonia, Hydrogen, Helium, Air and Water/Ice etc. in the Planets and Satellites to Propellants-

17:00 2023-b-38 Alexander Behnke
Current Balance and Current Densities in the Plume of the AF-MPD Thruster SX3

17:20 2023-b-39 Jonathan Skalden
Thruster
Neutron Imaging Investigation of AM Tungsten Nozzles for an Arcjet Deorbit System

b-11 Jun.9/Fri. 9:40-10:40 Electrospray Thruster

Kurumeza 3F, Chairs: K. Tabata, K. Nishiyama

9:40 2023-b-40 Shujun Guo
Ionic Liquid Electrospray Thrusters with a Double-Emitter Structure for High Current Density

10:00 2023-b-41 Koki Matsukawa
Improvement of Grooved Needle Emitter Performance for Ionic Liquid Electrospray Thrusters

10:20 2023-b-42 Momoko Naemura
Time-of-Flight Measurements of Ion Beam Compositions in Electrospray Thrusters

b-12 Jun.9/Fri. 11:00-12:00 Pulsed Plasma Thruster

Kurumeza 3F, Chairs: Y. Takao, H. Tahara

11:00 2023-b-43 Shota Mizoi
Prototype Evaluation of Electrothermal-Acceleration-type PPT Applying Sheet-type Propellant Supply Mechanism and New Propellant

11:20 2023-b-44 Masayuki Yamada
Effect of Reverse Configuration of Electrode for Coaxial Pulsed Plasma Thruster

11:40 2023-b-45 Prach Ammarittakul
Coaxial Short-pulse Laser-assisted Pulsed Plasma Thruster Characterization

b-13 Jun.9/Fri. 14:00-15:00 Pulsed Plasma Thruster

Kurumeza 3F, Chairs: Y. Takao, Y. Oshio

14:00 2023-b-46 Yoshihiro Kajimura
Development and Operation Demonstration of Pulsed Plasma Thruster for 2U-CubeSAT

14:20 2023-b-47 Yasuhisa Oda
A Study for Automated Tuning System Development of a Thrust Stand for Miniature Thrusters

14:40 2023-b-48 Takuma Unegawa
Development of Commercially-Available High-Total-Impulse Electrothermal Pulsed Plasma Thruster Systems in Osaka Sangyo University -from Charging Electric Energy/Power: 1J/1W for 1U(1kg) Cubesats to 50J/50W for 50cm Cube (50kg) Nano-Satellites-

b-14 Jun.9/Fri. 16:00-17:40 Air-breathing Engine

Kurumeza 3F, Chairs: M. Tagawa, K. Nishiyama

16:00 2023-b-49 Jonathan Skalden
Performance Characterization of an Atmosphere-Breathing RF Helicon Plasma Thruster

16:20 2023-b-50 Yuteng Hu
Fundamental Study about Air-breathing Pulse Magnetoplasmadynamic Thruster

16:40 2023-b-51 Koki Sugimoto
High Compression Intake System for Air Breathing Ion Engine Using Anisotropic Molecular Scattering Property of Intake Surfaces

17:00 2023-b-52 Yukai Miya
Performance Evaluation of an Air-breathing Ion Engine with the Microwave Discharge Ion Engine μ10 Shaped Ion Source.

17:20 2023-b-53 Koki Murata
A High Compression Intake System for Air Breathing Ion Engine

b-15 Jun.9/Fri. 9:40-10:40
Magnetic Nozzle

The Large Meeting Room 2 (5F)
Chairs: A. Kawasaki, TBD

9:40 2023-b-54 Xiang Ma
Numerical Simulation of Plasma Expansion in RF Plasma Thruster with Magnetic Cusp

10:00 2023-b-55 Jonathan Skalden
Advancements in VLEO Satellite Platform Design Utilizing an RF Helicon-based Plasma Thruster

10:20 2023-b-56 Naoki Katsura
Relation between the Electric Field Fluctuation and Electron Detachment in a Magnetic Thrust Chamber for Laser Fusion Rockets

b-16 Jun.9/Fri. 11:00-12:40
Beaming Propulsion

The Large Meeting Room 2 (5F)
Chairs: K. Komurasaki, Y. Oda

11:00 2023-b-57 Atsushi Isomura
Ion Current Distribution in Pulsed Laser Ablation Plume

11:20 2023-b-58 Gakuto Sekine
Impulse Angle Variation in Pulsed Laser Ablation with Oblique Incidence

11:40 2023-b-59 John E. Sinko
The Influence of Environmental Pressure on Microsecond Laser Propulsion with Metals

12:00 2023-b-60 John E. Sinko
Microsecond Laser Propulsion with Elemental Metals under Vacuum Conditions

12:20 2023-b-61 Ayuto Manabe
Effect of Reed Valve's Length on the Thrust Performance of Microwave Rocket in Multi-Cycle Operation

b-17 Jun.9/Fri. 14:00-15:20
Beaming Propulsion

The Large Meeting Room 2 (5F)
Chairs: H. Horisawa, K. Mori

14:00 2023-b-62 Kyohei Kato
Laser-Supported Detonation Wave Induced in a Laser Beam with a Multi-peaked Profile

14:20 2023-b-63 Seiichiro Takano
Performance Evaluation of Diode Laser Sustained Plasma Thruster Using Argon

14:40 2023-b-64 Ten Arai
Construction of the Calculation Model to Clarify the Energy Ratio in the Entire Area of an LSD Wave.

15:00 2023-b-65 Yamato Homme
Temperature and Fractional Absorption Measurement of Fiber Laser-Sustained Plasma Using Argon

b-18 Jun.9/Fri. 16:00-17:20
Plume Interaction

The Large Meeting Room 2 (5F)
Chairs: H. Horisawa, M. Matsui

16:00 2023-b-66 Keita Nishii
Numerical Investigation of Facility Effect on Performance Measurements of Low-Reynolds-Number Nozzles

16:20 2023-b-67 Takanobu Muranaka
Experimental Evaluation of Ion Energy Distribution Functions for Backflow Ions in 10 cm-class Microwave Discharge Ion Thruster Operation

16:40 2023-b-68 Ayumu Nono
Numerical Investigation of Ion Back Flow of a Microwave Discharge Ion Thruster

17:00 2023-b-69 Ryota Shirasawa
Backflow Xenon Ions Measurement by Laser-induced Fluorescence Spectroscopy in the Plume of a Microwave Discharge Ion Thruster

c-1 Jun.5/Mon. 16:00-17:40
Composite Materials

The Medium Meeting Room 2 (4F)
Chairs: T. Yokozeki, M. Kotani

16:00 2023-c-01 YU ZHOU
The Evaluation of Mechanical Properties of Composite Laminates based on Sheet-winding Compression-molding (SWCM) Processing

16:20 2023-c-02 Lea Anne
Clemence Lecointre Defects Detection in CFRP Composites with Non-contact Lamb Waves Propagation

16:40 2023-c-03 Tomoe Yayama
Effect of Interfacial Chemical Bonding on Mechanical Properties of Carbon Nanotubes/epoxy Nanocomposites

17:00 2023-c-04 Yugo Kimoto
Research on Siloxane-Block-Polyimide Film for Space Application

17:20 2023-c-05 Ei Phyu Phyu
Analyzing and Comparing SRS Waveform Properties Using Different Materials

c-2 Jun.6/Tus. 9:00-10:40
Materials Characterization

The Medium Meeting Room 2 (4F)
Chairs: Y. Kimoto, Y. Zhou

9:00 2023-c-06 Santa Nishioka
Ground-based Simulation Experiment on Degradation of Spacecraft Polymeric Materials in VLEO

9:20 2023-c-07 Kaichi Nakayama
Ground-based Experiment for Simultaneous N2 Collision Effects on Atomic Oxygen-induced Polyimide Erosion in Very Low Earth Orbit

9:40 2023-c-08 Yuko Kubo
Evaluation of Space Debris Impact on AO-resistant Polyimide for MLI

10:00 2023-c-09 Koki Yao
Evaluation of the Structural Shielding/shadowing Effect of Atomic Oxygen from SLATS Flight Data

10:20 2023-c-10 Shuko Akamine
Radiation Heating Test of Porous MgAl2O4 Ceramics with Low Emissivity as Inner Thermal Insulator for Stand-off Thermal Protection System Using an Arc-heated Wind Tunnel

c-3 Jun.6/Tus. 11:00-12:40
Smart Materials and Structures

The Medium Meeting Room 2 (4F)

Chairs: A. Senba, N. Kishimoto

11:00 2023-c-11 Nozomu Kogiso
Resilient Operation Scheduling of Smart Antenna System Considering Uncertainties and Safety Conditions through STPA

11:20 2023-c-12 Kazuki Nagai
Evaluation of Deployed Shape of Two-layer Space Membrane Array Antenna

11:40 2023-c-13 Yushin HARA
Piezoelectric Semi-Active Structural Identification Method to Realize Energy-Saving On-Orbit Identification

12:00 2023-c-14 Ryosuke Mochida
Stewart Platform with Low Thermal Expansion and Low Thermal Conduction Elastic Hinges for Precise Pointing Control

12:20 2023-c-15 Meng Zhou
Phase-Delay Switching Strategy for Piezoelectric Vibration Energy Harvesting

c-4 Jun.6/Tus. 14:00-15:40
Deployable Structures and Structural Concept

The Medium Meeting Room 2 (4F)
Chairs: K. Otsuka, A. Tsuyohi

14:00 2023-c-16 Hiroaki Tanaka
Study on Deformable Space Structure System Consisting of Lattice Structures

14:20 2023-c-17 Leticia Santos Lula
Barros Evaluation of Folding-Pattern Designs for Large-Scale Square Solar Sail

14:40 2023-c-18 Ryota Tsuchiya
Antenna Structural Concept Composed of Scissors Member Connected with Convex Tapes

15:00 2023-c-19 Yasuko Sudo
Thermal-structural Analysis of Stand-off Thermal Protection System Made of CMC Panel and Pyramidal Lattice Truss Structures

15:20 2023-c-20 Tetsuo Yasaka
Wrap-rib Antenna Deployment Analysis

c-5 Jun.6/Tus. 16:00-17:20
Structural Analysis

The Medium Meeting Room 2 (4F)
Chairs: H. Tanaka, N. Kogiso

16:00 2023-c-21 Ryo Kuzuno
Dominant Geometrical Factor in Non-Equatorial Space Elevator Dynamics

16:20 2023-c-22 Nobuya Toyoda
Pillow Deformation of Cable-mesh Surface Antenna

16:40 2023-c-23 Daiki Watanabe
Design Of Solar Paddle With Improved Power Generation Using Multiple Reflections

17:00 2023-c-24 Takeshi Akita
A Study on Tension Monitoring of Cable-Beam Structure by Using a Sequential Data Assimilation Technique

c-6 Jun.7/Wed 9:00-10:20
Structural Dynamics and Control

The Medium Meeting Room 2 (4F)
Chairs: Y. Hara, A. Senba

9:00 2023-c-25 Hideki Uchida
Vibration Damping by Wire Harnesses on Flexible Structures

9:20 2023-c-26 Asuka Tatara
Spin Deployment Prediction of Large Membrane Structure by Ground Test with Small Model Based on Scaling Law

9:40 2023-c-27 Tianyi Tang
System Identification of Space Structures Subjected to Unknown Disturbances Using Piezoelectric Device

10:00 2023-c-28 Takumi Yamada
Compensator in Large Deployable Structure for Space Using Mecanum Wheel

c-7 Jun.7/Wed 11:00-12:20
Structures of Spacecraft and Space Vehicles (1)

The Medium Meeting Room 2 (4F)
Chairs: Y. Sato, N. Kogiso

11:00 2023-c-29 Konosuke Nishinaga
Design and test of the Paddle Deployment Mechanism for 3UCubeSat

11:20 2023-c-30 Kentaro Shirai
Research on Mitigating Mechanical Environment by Satellite Structures Itself

11:40 2023-c-31 Sora Kanamaru
Improvement of Beam Scanning Accuracy by Shape Estimation of Space Deployable Array-Antennas

12:00 2023-c-32 Ryohei Orii
Membrane Fixing Method for Realizing Large and Lightweight High-precision Structure

c-8 Jun.7/Wed 16:00-17:20
Structures of Spacecraft and Space Vehicles (2)

The Medium Meeting Room 2 (4F)
Chairs: Y. Miyazaki, Y. Sato

16:00 2023-c-33 Yusaku Ashida
Effect on Atomic Oxygen-Induced Surface Erosion of Polyimide on Atmospheric Drag of Satellite in Very Low Earth Orbit

16:20 2023-c-34 Towa Ushijima
Atomic oxygen density variation in VLEO region: SLATS/AOFS flight data analysis

16:40 2023-c-35 Silas Eichel
Development of the Fairing Structure for CALLISTO

17:00 2023-c-36 Felix Frederic Krziwanie
Development of the Landing Leg Structure for CALLISTO

d-1 Jun.5/Mon. 16:00-17:20
Orbit Determination

C Box 4F, Chairs: TBD

16:00 2023-d-01 Masaki Tsutsui
Research on Improvement of Orbit Determination Accuracy by Satellite-to-Satellite Tracking in Inter-Satellite Radio Occultation Observation Mission to Venus

16:20 2023-d-02 Kazuki Takashima
Quasi-Autonomous Orbit Determination Model by Optical Camera in Cislunar Space

16:40 2023-d-03 Hiroshi Takeuchi

Orbit Determination Using INS Observables for CubeSat Mission

17:00 2023-d-04 Sho Tniguchi

Optimization of Orbit Determination Period and Orbit Correction Timing

d-2 Jun.6/Tus. 9:00-10:40 Orbital Dynamics

C Box 4F, Chairs: TBD

9:00 2023-d-05 Daichi Ito

Perturbation Analysis of Distant Moons for Multiple Gravity Assists Trajectory Design

9:20 2023-d-06 Damennick Bolte Henry

Quasi-periodic Orbits near Earth-Moon L1 in the Hill Restricted Four-body Problem

9:40 2023-d-07 Takayuki Shihara

Analysis of Approach Conditions to Capture by the Moon

10:00 2023-d-08 Ayano Tsuruta

New Equilibria in Quadratic Optimal Control Systems

10:20 2023-d-09 Nishanth Pushparaj Hamiltonian

Structure-Preserving Stabilization of Spacecraft in Spatial Periodic Orbits

d-3 Jun.6/Tus. 11:00-12:40 Orbital Rendezvous & Proximity Operations

C Box 4F, Chairs: TBD

11:00 2023-d-10 Katsuyoshi Tsujita

A Model Predictive Control of Small Spacecraft Maneuver for Autonomous Docking

11:20 2023-d-11 Takahiro Sasaki

Requirement Optimization of Proximity Operations for Active Debris Removal Missions Considering Both GNC and Capture System Constraints

11:40 2023-d-12 Sajjad Keshtkar

Exploring Task Relaxations for Collision Avoidance of Space Robots

12:00 2023-d-13 Sho Nishimura

Design of Image-only Navigation Strategy for Deep Space Rendezvous and Docking

12:20 2023-d-14 Anivid Pedros-Faura

Target Marker Deployment Strategies for Hayabusa2 Extended Mission to the Fast-rotating Asteroid 1998 KY26

d-4 Jun.6/Tus. 14:00-15:20 Formation Flying & Satellite Constellations

C Box 4F, Chairs: TBD

14:00 2023-d-15 Toshinori Yabe

Formation Trajectory Tracking Control of Port-Hamiltonian Systems with Gain Scheduling on the Tracking Error

14:20 2023-d-16 Yuki Hamanaka

Formation Tracking Control Based on Generalized Canonical Transformation with Adaptive Mechanism for Atmospheric Drag

14:40 2023-d-17 Keito Otsubo

A Concept Study of Small Satellite Formation Flight Using Variable Shape Function

15:00 2023-d-18 Takeya Shima

Distributed Control for Satellite Constellation Separation with Differential Drag

d-5 Jun.6/Tus. 16:00-16:40 Entry/Landing/Ascent Guidance

C Box 4F, Chairs: TBD

16:00 2023-d-19 Takaaki Matsuura

Multi-Objective Design Optimization of Lunar Landing Using Neural ODE

16:20 2023-d -20 Tetsuya Kusumoto

Guidance, Navigation, and Control for Landing on an Asteroid Using Deployable Target Markers

d-6 Jun.6/Tus. 14:00-15:00 Attitude Determination

The Large Meeting Room 1 (5F), Chairs: TBD

14:00 2023-d-21 Ralf Christian Boden

Performance Evaluation of the MASCOT Orientation Temperature Sensors

14:20 2023-d-22 Vinicius Ferreira Nery

EQUULEUS' In-Space Least Squares Thrust Vector Estimation with Non-linear Observation Model

14:40 2023-d-23 Julian Guinane

Systems Engineering Design and Verification of CROSS, a Star Tracker for Nanosatellite Platforms

d-7 Jun.6/Tus. 16:00-17:20 Attitude Dynamics

The Large Meeting Room 1 (5F), Chairs: TBD

16:00 2023-d-24 Saki Takeuchi

Optimization of Structural Configurations of Spacecraft for Efficient Attitude Change Utilizing Non-holonomic Features

16:20 2023-d-25 Haruma Suzuki

Optimal Tether Deployment and Ejection Direction Control of Tether-Net via Attitude Control of Tethered Subsatellite for Debris Capture

16:40 2023-d-26 Pavel M Trivailo

Control of External Directional Exposures of Various Surface Locations on the Tumbling Spacecraft Using Inertial Morphing

17:00 2023-d-27 Pavel M Trivailo

Design of the Attitude Acrobatic Manoeuvres by the Autonomous Spacecraft Possessing Inertial Morphing (IM) Capabilities

d-8 Jun.7/Wed 9:00-10:40 Attitude Control 1

C Box 4F, Chairs: TBD

9:00 2023-d-28 Kazutoshi Ito

Attitude Control and Morphology Evolution of Flapping Spacecraft via Deep Reinforcement Learning

9:20 2023-d-29 So Kaieda

Semi-Optimal Control Law and Experiment for Agile Maneuver of Small Satellites with VSCMGs

9:40 2023-d-30 Mio Miyazawa

Design and Stability Analysis of Attitude Tracking Control System for Spacecraft Considering Stochastic Disturbances

10:00 2023-d-31 Yuta Hayashi

Discrete-Time Attitude Control for Spacecraft Using Iterative

Learning

10:20 2023-d-32 Hirohisa Kojima
Underactuated Steering Control Law for Spacecraft Attitude Control Using Two Skewed Control Moment Gyroscopes under Path Constraint

d-9 Jun.7/Wed 11:00-12:40
Attitude Control 2

C Box 4F, Chairs: TBD

11:00 2023-d-33 Takahiro Fujikawa
Sliding-Mode Attitude Control for Redundant System with Input Constraints Using Linear Programming

11:20 2023-d-34 Saad Farraj Alshammari
Adaptive Sliding Mode Control (ASMC) for Space Manipulator to Minimize the Base Disturbances

11:40 2023-d-35 Takayuki Sakai
Research on Minimum Time Attitude Control of Spacecraft with Flexible Structures

12:00 2023-d-36 Truong An Hoang Xuan
Attitude Control of Spacecraft with Membrane Using Interplanetary Magnetic Field with Consideration of Vibration

12:20 2023-d-37 Dmytro Faizullin
Sustaining LEO Satellite Missions with the Use of Magnetorquers

d-10 Jun.7/Wed 16:00-17:20
Trajectory Design and Optimization 1

C Box 4F, Chairs: TBD

16:00 2023-d-38 Takuya Chikazawa
Designing Swing-by Trajectories on B-plane with Application to Ride-sharing CubeSat

16:20 2023-d-39 Mehmet Esit
Comparative Study on Trajectory Optimization for Solar Sail Mercury Mission

16:40 2023-d-40 Junji Kikuchi
Off-Nominal Trajectory Design of Earth-NRHO Transfer Orbit for Logistics Resupply Mission to Gateway

17:00 2023-d-41 Zhengxu Pan
Orbital Configuration Control for Space-based Gravitational Wave Observatory in the Three-body Problem

d-11 Jun.8/Thu. 9:00-10:20
Trajectory Design and Optimization 2

C Box 4F, Chairs: TBD

9:00 2023-d-42 Kenta Oshima
Applications of the Regularized Direct Method for Nonlinear Trajectory Optimization

9:20 2023-d-43 Shodai Hirayama
Optimal Transfer by Stochastic Gradient Descent Algorithm Adam

9:40 2023-d-44 Keitaro Yamamoto
On Sparse Trajectory Planning in the Bicircular Restricted Four-Body Problem Based on the ℓ1-Optimal Newton Method

10:00 2023-d-45 Nicola Marmo
Robust Control Strategy of Periodic Orbits via a Hybrid Multiple-shooting Approach

d-12 Jun.8/Thu. 11:00-12:40
Mission Design 1

C Box 4F, Chairs: TBD

11:00 2023-d-46 Andres Anselmo Loera
Dynamic Study of Tethered Probe for Planetary Atmospheric Exploration

11:20 2023-d-47 Yosuke Kawabata
Trajectory Design and Flight Results in LEOP for EQUULEUS Mission

11:40 2023-d-48 Hitoshi Ikeda
Flight Dynamics Operation Strategies of Martian Moons eXploration (MMX)

12:00 2023-d-49 Masakazu Iwabuchi
Impact Probability Analysis for Planetary Protection of Martian Moons eXploration

12:20 2023-d-50 Kohei Yamaguchi
Practical Asteroid Retrieval Mission Design Method Based on The Capture Dynamics in the Planar Circular Restricted Three-body Problem

d-13 Jun.9/Fri. 14:00-15:00
Mission Design 2

C Box 4F, Chairs: TBD

14:00 2023-d-51 Shota Kikuchi
Orbital and Surface Environments of the Fast Rotator 1998 KY26: Application to the Hayabusa2 Extended Mission

14:20 2023-d-52 Yuya Mimasu
Research of On-board Optical Navigation for Hayabusa2's Flyby Mission

14:40 2023-d-53 Haruhito Ohki
Attitude Control Law of Touch-and-Go Probe for Non-small Celestial Body Sample Return Mission

d-14 Jun.9/Fri. 16:00-17:00
Navigation & Control

C Box 4F, Chairs: TBD

16:00 2023-d-54 Takaomi Chubachi
Path Planning of Magnetic Movable Robot on Deployable Membrane Structure

16:20 2023-d-55 Masahiro Fujita
Study on Deep Space Relative Radio Navigation Using Beacons

16:40 2023-d-56 Volkan Paksoy
Optical Lunar Navigation for a Small Spacecraft Using Basilisk Astrodynamics Software

e-1 Jun.6/Tus. 9:00-10:20
Supersonic and Hypersonic Flow (1)

The Large Meeting Room 2 (5F)
Chairs: H. Nishida, H. Otsu

9:00 2023-e-01 Hayato Nogami
Diagnostics of Expansion Tube Flows by Sensitivity Enhanced Laser Absorption Spectroscopy of Oxygen Molecule

9:20 2023-e-02 Yasumasa Watanabe
Study on Water-Ice Behavior and Subsequent Water-Flow Interaction in Mach-7 Hypersonic Flow

9:40 2023-e-03 Hiromu Ueno
Preliminary Experiments of Flow Structure of Axisymmetric Supersonic Free Jets

10:00 2023-e-04 Takumi Sakashita
Preliminary Experiments of Elliptic Underexpanded Sonic Jets

e-2 Jun.6/Tus. 11:00-12:40 Supersonic and Hypersonic Flow (2)

The Large Meeting Room 2 (5F)
Chairs: K. Suzuki, Y. Watanabe

11:00 2023-e-05 Takahiro Yamashita
Fundamental Experiments of Unsteady Transonic Diffuser Flows

11:20 2023-e-06 Masaki Okajima
Numerical Study of Unsteady Transonic Diffuser Flows

11:40 2023-e-07 Ryuki Nishi
Preliminary Experiments of Square Supersonic Microjets

12:00 2023-e-08 Yosuke Kurosaka
Development of Microwave Tuned Operation Technique for the Free-Piston Driven Expansion Tube

12:20 2023-e-09 Masato Taguchi
PIV Measurement on Wake of Co-rotating Vortex Generator in Low-Speed Flat-Plate Boundary Layer

e-3 Jun.6/Tus. 14:00-15:20 Atmospheric-entry (1)

The Large Meeting Room 2 (5F)
Chairs: T. Yamada, T. Ozawa

14:00 2023-e-10 Kyosuke ITABASHI
Development of Experimental Evaluation Method of Martian Real-Gas Aerodynamics

14:20 2023-e-11 Yoshihiro Shimizu
Measurement of CO2 Recombination Rates in Shock Tube with Divergent Nozzle

14:40 2023-e-12 Jianshu Wu
Calculation of Nonequilibrium Hypersonic Flowfield over a Blunt Body Using an Open Source Solver hy2Foam

15:00 2023-e-13 Kojiro Suzuki
Aerothermodynamic Environment around Venus Low-Ballistic-Coefficient Aerocapture Vehicle with Membrane Aeroshell

e-4 Jun.6/Tus. 16:00-17:40 Atmospheric-entry (2)

The Large Meeting Room 2 (5F)
Chairs: N. Onishi, K. Fujita

16:00 2023-e-14 Keita Manabe
Fundamental Aerodynamic Study on Small Atmospheric Entry Probes for Multi-point Mars Exploration

16:20 2023-e-15 Yasuhito Okano
Numerical Analysis of Free Oscillation of Reentry Capsule on Suppression of Dynamic Instability at Transonic Flow

16:40 2023-e-16 Tetsuya Yamada
Subsonic Attitude Motion of the Capsule-type Vehicle Hayabusa2 SRC REMM and Vertical Windtunnel Data

17:00 2023-e-17 Takashi Ozawa
Analyses of Roll Damping Coefficients in Hypersonic Rarefied Flows

17:20 2023-e-18 Hirotaka Otsu
Pressure Distribution Measurement around a Re-entry Capsule with Hyperbolic Contours in the Supersonic Regime

e-5 Jun.7/Wed 16:00-17:00 Aerodynamics of Space Vehicle

The Large Meeting Room 2 (5F)
Chairs: H. Nishida, K. Kitamura

16:00 2023-e-19 Daiki Asamitsu
Optimal Shape Design for Lifting Body Type Upper Stage of Reusable Launch Vehicle

16:20 2023-e-20 Ryota Tamai
An Experimental Study on the Flow Field Structure around a Slender Body under Pitch Motion

16:40 2023-e-21 Ichiro Baba
A Novel Concept of Hypersonic Aircraft with Variable Geometry Twin-Oblique-Wing

e-6 Jun.8/Thu. 9:00-10:40 High Enthalpy Flow and Thermal Protection System (1)

The Large Meeting Room 2 (5F)
Chairs: K. Fujita, M. Matsui

9:00 2023-e-22 Clemens Felix Kaiser
Experimental Application of a Catalytic Heat Flux Probe in Venus Aerobraking and High-Altitude Earth Re-entry Environments

9:20 2023-e-23 Clemens Felix Kaiser
Experimental Analysis of Catalysis for Demisable Materials under Consideration of Non-Equilibrium Effects in Plasma Wind Tunnels

9:40 2023-e-24 Kenichi Sakamoto
Shear Stress Measurement on Model Surface in Arcjet Wind Tunnel

10:00 2023-e-25 Johannes Wolfgang
Oswald Investigation of Re-Entry Break-Up Radiation Markers with a Splitter Probe

10:20 2023-e-35 Tomohisa TSURUTA
Experimental Study of Performance of Huels Type Arc Heater in Aichi Institute of Technology

e-7 Jun.8/Thu. 11:00-12:40 High Enthalpy Flow and Thermal Protection System (2)

The Large Meeting Room 2 (5F)
Chairs: A. Matsuda, H. Otsu

11:00 2023-e-26 Takahisa Kaneda
Heating Experiments of Resin-impregnated Porous-carbon Materials under High Heating-rate Conditions

11:20 2023-e-27 Takuto Utsumi
Study of High-Density Thermal Protection System with Carbon Black Filler

11:40 2023-e-28 Yasunori Nagata
Three-dimensional MHD Analysis of Wall Electrical Conduction Effect on MHD Flow Control for Re-entry Capsule

12:00 2023-e-29 Johannes Wolfgang Oswald
MHD Flow Manipulation Experiments in High Enthalpy Air Plasma

12:20 2023-e-30 Kanta Ishiguro
Effect of Reducing Agents and Preheating on the Reduction Efficiency of Al2O3 by Laser Diode Ablation

e-8 Jun.8/Thu. 14:00-15:20
Nozzle Flow and Internal Flow

The Large Meeting Room 2 (5F)
Chairs: Y. Nagata, K. Kitamura

14:00 2023-e-31 Anwesh Kumar Yadav
Thrust Vectoring of a Supersonic Jet by Fluidic Injection

14:20 2023-e-32 Virgile Charton
Investigation on the Simulation of a Nozzle Flow Ionization in a Rarefied Atmosphere Using a Post-computation Approach

14:40 2023-e-33 Mizuki Yamamoto
A Study of Laminar-Turbulent Transition in a Curved Pipe Flow

15:00 2023-e-34 Hikaru Yokoo
Experimental Study on Reverse Transition of Pipe Flow

f-1 Jun.5/Mon. 16:00-17:40
Missions 1

The Large Meeting Room 3 (5F)
Chairs: M. Imai, Y. Sakamoto

16:00 2023-f-01 Tomoki Mochizuki
On-orbit Demonstration of a Redundant System Using Multiple Frequency Transmitters and Receivers in 6U CubeSat

16:20 2023-f-02 Masafumi Imai
One-Year Operation of Technology Demonstration CubeSat KOSEN-1

16:40 2023-f-03 Yuko Kawasoe
On-Orbit Operation Results of the AIS Receiving System Demonstration Satellite IHI-SAT

17:00 2023-f-04 Kei Watanabe
On-Orbit Performance Evaluation of Agile and Large-Angle Attitude Control of Spacecraft with Variable Shape Function

17:20 2023-f-05 Yoshihito Morishita
Ryman Sat Project 2nd 1U Cubesat RSP-01 Development Results & Improvements for Successor 1U Cubesats RSP-02 & RSP-03

f-2 Jun.6/Tus. 9:20-10:40
Missions 2

The Large Meeting Room 3 (5F)
Chairs: K. Miyata, N. Miyamura

9:20 2023-f-06 Mehmet Sevket Uludag
Journey of a Pocketqube: Concept to Orbit

9:40 2023-f-07 Joseph C Casas
The Scintillation Prediction Observations Research Task (SPORT): An International Collaborative CubeSat Mission Partnership

10:00 2023-f-08 Kikuko Miyata
Localization Method of Multi-Platform Low Power Wide Area-Network Constellation

10:20 2023-f-09 Norihide Miyamura
Phasing a Synthetic Aperture Telescope Using Image-based Adaptive Optics

f-3 Jun.6/Tus. 11:00-12:40
Missions 3

The Large Meeting Room 3 (5F)
Chairs: K. Okuyama, R. Armando Rodriguez Leon

11:00 2023-f-10 Ren-ichiro Oka
Development of Osaka Sangyo University 1U Cubesat OSU-1 with 1J/1W Pulsed Plasma Thruster Systems for Powered Flight, and R&D Project of Nano-Satellite & Probe OSU-2, 3 and 4

11:20 2023-f-11 Hiroto Kishi
Development of a Wooden Cube Satellite Called LignoSat

11:40 2023-f-12 Giovanna Ramírez
Satellite Surveyance to Diagnose Nutrition and Diseases for Coffee Crops in Colombian Fields

12:00 2023-f-13 Kei-Ichi Okuyama
Completion of the Development of Ten-Koh 2 Spacecraft

12:20 2023-f-14 Rafael Armando
Rodriguez Leon Ten-Koh 2 – Using the Lessons Learned from a Micro-satellite Development in the Optimization and Improvement of a Nano-satellite Mission

f-4 Jun.6/Tus. 14:00-15:40
Missions 4: Lunar and Interplanetary Missions

The Large Meeting Room 3 (5F)
Chairs: S. Nakajima, R. Funase

14:00 2023-f-15 Tatsuaki Hashimoto
In-orbit Operation of CubeSat Moon Lander OMOTENASHI

14:20 2023-f-16 Junji Kikuchi
Trajectory Design and Flight Operation of Nano Moon Lander OMOTENASHI

14:40 2023-f-17 Ryu Funase
Initial Operation Results of Artemis-1 CubeSat EQUULEUS

15:00 2023-f-18 Isamu Moriai
Initial Flight Operation of AQUARIUS: Water Resistojet Thruster on 6U EQUULEUS

15:20 2023-f-19 Shintaro Nakajima
System Design of 50kg-class Microsatellite with High Thrust Propulsion System

f-5 Jun.6/Tus. 16:00-17:40
Missions 5

The Large Meeting Room 3 (5F)
Chairs: R. Funase, S. Nakajima

16:00 2023-f-20 Shintaro Nakajima
Conceptual Design for Small Probe on the Comet Interceptor Mission

16:20 2023-f-21 Dongha Park
Miniaturized Hall Thruster System for 2U CubeSat K-HERO

16:40 2023-f-22 Guy Pignolet
Energy Management for the Payankeu Solar Sailcraft Prototype

17:00 2023-f-23 Chen-Yu Chan
Operation Consideration of a Time Delay Integral (TDI) Imaging Mission

17:20 2023-f-24 David Moroni
Research In Outer Space - Facilitating access to Space Supporting Scientific and Technological Advancement

f-6 Jun.7/Wed 9:00-10:50
Guidance, Navigation, and Control 1

The Large Meeting Room 3 (5F)
Chairs: N. Miyamura, Y. Sakamoto

9:00 2023-f-25 Felix Eichstaedt
Simplifying Avionics Design and Demonstration: A Unified Module Framework for Spacecraft Avionics

9:20 2023-f-26 Hirotaka Sekine
Development of Software-In-the-Loop Simulator and Hardware-In-the-Loop Simulator of AOCS Module for CubeSats

9:40 2023-f-27 Toshihiro Suzuki
Magnetic Test Result of AOCS Module and 6U CubeSat

10:00 2023-f-28 Katsuki Tashiro
An Algorithm of Star Tracker for Large Angle Attitude Change

10:20 2023-f-29 Masayasu Ishida (Invited)
Nano-satellite Symposium Special Talk

f-7 Jun.7/Wed 11:00-12:40
Guidance, Navigation, and Control 2

The Large Meeting Room 3 (5F)
Chairs: H. Koizumi, N. Miyamura

11:00 2023-f-30 Huu Quan Vu
Vector-FDA – A Spherical Compact Three-Axis Attitude Control System for Small Satellites based on Liquid Metal

11:20 2023-f-31 Youngho Eun
Preliminary Results on the Nanosatellite Attitude Stabilization Using Electropermanent Magnetorquer

11:40 2023-f-32 Hiroyoshi Yasuhira
Performance Evaluation on Micro Thruster of Propulsion Systems for Microsatellite

12:00 2023-f-33 Hiroyuki Koizumi
Mission Analysis and Lifecycle Value of Multimode Water Propulsion for Collision Avoidance and Drag-compensation of CubeSats

12:20 2023-f-34 Takumi Saito
Simulation Evaluation of Re-entry Control Technique for Small Satellite ELS-R100

f-8 Jun.7/Wed 16:00-17:20
Satellite Design and Development 1

The Large Meeting Room 3 (5F)
Chairs: Y. Sakamoto, K. Miyata

16:00 2023-f-35 Kazuki Takashima
On-Orbit Verification of Operation Scenarios Designed by an Integrated Power Balance Analysis Platform

16:20 2023-f-36 Rafiki Yves NDAYISHIMIYE
Comparison of CPLD and FPGA Interfaces for Configurable Backplane between CubeSat Bus and Mission Payload

16:40 2023-f-37 Yiming Liu
Novel Rigid Origami-based Design for CubeSat Paraboloid High Gain Antenna Reflector

17:00 2023-f-38 Yukihisa Otani
Improvement of Standard Back Plane Board for 1U and 2U CubeSats

f-9 Jun.8/Thu. 9:00-10:40
Satellite Design and Development 2

The Large Meeting Room 3 (5F)
Chairs: H. Masui, I. Fajardo Tapia

9:00 2023-f-39 Naoto Usami
Exploratory Approach of Efficient SEE Evaluation of Multiple and/or Complex COTS Devices with Graphical Current Monitoring and Control System

9:20 2023-f-40 Isai Fajardo Tapia
Validation Methodology for the Adoption of Microelectronic Devices for Nanosatellites

9:40 2023-f-41 Yusuke Takeuchi
Investigation of Micro Bio Space Lab with Micro Imaging Devices for Space Bio Experiments

10:00 2023-f-42 Hirokazu Masui
Thermal Design and Analysis of 6U Satellite "KITSUNE" for High Precision Camera

10:20 2023-f-43 Yuta Kawazoe
Improvement of Thermal Contact Resistance Model for Thermal Design of Nano-Satellites

f-10 Jun.8/Thu. 11:00-12:40
Structures and Materials

The Large Meeting Room 3 (5F)
Chairs: Y. Sakamoto, H. Masui

11:00 2023-f-44 Polimey IM
Design and Simulation Table Shape to Optimize SRS Level in the 3-axis Direction

11:20 2023-f-45 Saori Endo
The Utilization of Wood for a CubeSat Structure

11:40 2023-f-46 Yuji Sakamoto
System Analysis and Pre-flight Evaluation of Deployable Solar Panels for 3U CubeSat HOKUSHIN-1

12:00 2023-f-47 Toma Kazuki
Structural Design and Validation of its Versatility of 6U CubeSat Bus ISSL6U

12:20 2023-f-48 Taichi Oshino
Deployment of Membrane Array Antenna in Space Using 3U CubeSat, OrigamiSat-2

g-1 Jun.7/Wed 16:00-17:20
Flight Experiments 1

The Medium Meeting Room 1 (4F)
Chairs: S. Ishimoto, W. Sarae

16:00 2023-g-01 Silas Eichel
CALLISTO Reusable Rocket Stage Demonstrator: Getting Ready for Implementation

16:20 2023-g-02 Lukas Opp
Hydraulic and Thermal 1D Modelling of the LH2-Tank within the CALLISTO Project Using EcoSim Pro/ESPSS

16:40 2023-g-03 Adrian Thomas Esteban Krieger
Numerical Investigation of Cryogenic LH2 Tank Pressurization in Callisto

17:00 2023-g-04 Thomas Lienart
Robot for Managing safety-critical Operations of the CALLISTO Reusable Demonstrator in Landing Zone

g-2 Jun.8/Thu. 9:40-10:40
Flight Experiments 2

The Medium Meeting Room 1 (4F)
Chairs: K. Kinefuchi, K. Mizobata

9:40 2023-g-05 Satoshi Nonaka
Flight Demonstration and Repeated Operation of Reusable

Vehicle Experiment RV-X

10:00 2023-g-06 Tsuyoshi Ifuku

Numerical Simulation on Aerodynamic Characteristics of Reusable Vehicle Experiment RV-X : Effect of Turbulence Model

10:20 2023-g-07 Hiroya Omori

Helicopter Drop Test of Recovery System for Experimental Winged Rocket WIRES#015

g-3 Jun.8/Thu. 11:00-12:20
Flight Experiments 3

The Medium Meeting Room 1 (4F)

Chairs: S. Nonaka, T. Fujikawa

11:00 2023-g-08 Kanata Shimizu

Ground Effects in Aerodynamics of a Small-scale Supersonic Flight Experiment Vehicle with a Cranked Arrow Main Wing

11:20 2023-g-09 Shun Sasaki

Flow Structure on Aerodynamics of a Small-scale Supersonic Flight Experiment Vehicle Being Developed at Muroran Institute of Technology

11:40 2023-g-10 Kazuhide Mizobata

Prediction of Rolling Response of a Small-scale Supersonic Flight Experiment Vehicle by 6-Degree-of-Freedom Flight Simulation with Measured Aerodynamics

12:00 2023-g-11 Fumihiro Inoue

Experimental Verification of Hybrid Drive Climber for Space Elevator Assuming Operation in Space Environment

g-4 Jun.8/Thu. 14:00-15:20
Reusable Launch Vehicles / Orbital Transfer Vehicles

The Medium Meeting Room 1 (4F)

Chairs: C. Elisa, Y. Maru

14:00 2023-g-12 Shinichiro Uno

Conceptual Study on Rocket-Based Three-Stage To Orbit (ThSTO) Fully Reusable Space Transportation System

14:20 2023-g-13 Tadayoshi Shoyama

Innovative Space Transportation System and its Key Technologies to Realize Frequent Accesses to Space

14:40 2023-g-14 David Moroni

In-Orbit Transportation - Facilitating Access to Space Through OTVs

15:00 2023-g-15 Yusuke Oki

A Study on Interorbital Network from Earth to Moon Using Orbital Transfer Vehicle

g-5 Jun.8/Thu. 16:00-17:00
Solid-propellant Rockets / Hybrid-propellant Rockets

The Medium Meeting Room 1 (4F)

Chairs: K. Kitagawa, M. Yoshida

16:00 2023-g-16 Naoki Morishita

Design of a Laser Ignition System for DESTINY+ Kick Stage

16:20 2023-g-17 Yasuaki Matsuoka

Development of Solid Rocket Motors for Commercial Launch Vehicle

16:40 2023-g-18 Masayuki Katayama

A Study on the Thrust Control of Hybrid Rockets Applied for Launcher Booster Recovery

h-1 Jun.8/Thu. 9:00-10:40
Thermophysical Property

The Medium Meeting Room 3 (4F)

Chairs: S. Matsumoto, S. Ando

9:00 2023-h-01 Chihiro Koyama

The Electrostatic Levitation Furnace onboard the International Space Station (ISS-ELF)

9:20 2023-h-02 Masahito Watanabe

Oscillation Phenomena of Compound Droplet by Molten Oxide and Liquid Fe under Microgravity

9:40 2023-h-03 Naoki Minagawa

Measurement of Ablation Thrust by CW Laser Using Electrostatic Levitation Furnace and Investigation of Thrust Generation Model

10:00 2023-h-04 Yusaku Seimiya

Effect of Oxygen Adsorption on Surface Tension of Liquid Aluminum

10:20 2023-h-05 Riku Sugahara

Surface Tension of Molten Fe-Cu alloys Measured by Oscillating Droplet Method Using Electromagnetic Levitation

h-2 Jun.8/Thu. 11:00-12:00
Combustion Science

The Medium Meeting Room 3 (4F)

Chairs: M. Watanabe, S. Matsumoto

11:00 2023-h-06 Akira Tsunoda

L3-FLAME: Low-speed Low-Lewis-number Counterflow Flame Experiment for Unified Combustion Limit Theory- Preliminary Airplane-based Microgravity Experiments and Computational Study-

11:20 2023-h-07 Shion Ando

Analysis of Cool and Hot Flame Ignition of Millimeter-Sized n-Decane Droplet Pairs based on the Damköhler Number

11:40 2023-h-08 Taro Takemata

Effects of Gravity on Limiting Oxygen Concentration (LOC) of PMMA Rods under Hypergravity Environments of a Centrifuge

h-3 Jun.8/Thu. 14:00-15:20
Fluid Science

The Medium Meeting Room 3 (4F)

Chairs: C.Koyama, S. Matsumoto

14:00 2023-h-09 Taishi Yano

3-D Reconstruction of Tracer Particles Seeded in a Thermocapillary Liquid bridge by Optical Tomography

14:20 2023-h-10 Satoshi Matsumoto

Gravity Effects on Bubble Behaviour during Electrolysis for Water Purification

14:40 2023-h-11 Suguru Shiratori

Multiphase Mixture Model for Simulation of Melting and Permeation Process of Lunar Regolith for Production of Exterior Walls

15:00 2023-h-12 Bahar Karahan

Recent results of Ferrofluid ISS Experiments to enable Sustainable Space Activities

h-4 Jun.8/Thu. 16:00-17:20
Exploration & Technology

The Medium Meeting Room 3 (4F)

Chairs: T. Yano, S. Matsumoto

16:00 2023-h-13 Yuto Nakagawa
Dynamics Analysis of Throw-and-Catch Sample Transfer for Deep Space Sample Return Mission

16:20 2023-h-14 Masayuki Anyoji
Development of a Prototype of an Artificial Gravity Generator for Space Life Science Experiments

16:40 2023-h-15 Manfred Ehresmann
An Innovative Wearless Attitude Control Actuator based on Ferrofluid Manipulation to be tested on the ISS

17:00 2023-h-16 Shuma Sugimoto
Mission Concept and System Design for 0.5U CubeSat Form Factor On-Obit Experiment Module Adaptable from Nano-ISS to Micro-ISS

i-1 Jun.7/Wed 9:00-10:20 Thermal Control

The Small Meeting Room 1-2 (4F)
Chairs: H. Nagano, K. Odagiri

9:00 2023-i-01 Takeshi Yokouchi
Thermal Design of a Small Re-entry Capsule during Re-entry

9:20 2023-i-02 Maho Yasue
Thermal Performance of a Heat Pipe with Multiple Condensers Embedded in High Thermal Conductivity CFRP Under Vacuum Condition

9:40 2023-i-03 Atsuhiro Gomi
Visualization and Void Fraction Measurement of Condensation Flow in Nitrogen-Charged Cryogenic Loop Heat Pipes

10:00 2023-i-04 Maximilian Kob
In-orbit Verification of a Thermal Switch in ISS microgravity

i-2 Jun.7/Wed 11:00-12:20 Thermal Design

The Small Meeting Room 1-2 (4F)
Chairs: K. Odagiri, H. Nagano

11:00 2023-i-05 Yuki Kusano
The On-orbit Demonstration and the Evaluation of the Thermal Mathematical Models in Multiple Missions of CubeSats Using the Same Bus System

11:20 2023-i-06 Delburg Panes Mitchao
Thermal Design Exploration for Active Phased Array Antennas on Space Deployable Membranes

11:40 2023-i-07 Masaki Aoi
Verification of Thermal Design Model Using Flight Data for Small Satellite Izanagi with Synthetic Aperture Radar

12:00 2023-i-08 Hiroto Tanaka
Uncertainty Quantification of Thermal Analysis Using POD-PIML Thermal Surrogate Model

j-1 Jun.9/Fri. 9:00-10:20 Space Navigation

The Small Meeting Room 1-2 (4F)
Chairs: I. Takahashi, T. Ikegami

9:00 2023-j-01 Anne Bettens
AI Domain Bounding as a Solution to Autonomous Navigation on Robotic Platforms in Space

9:20 2023-j-02 Ippei Takahashi
Feasibility Study of an Autonomous Navigation System Using Optical Inter-Satellite Ranging Technology

9:40 2023-j-03 Joshua Julian Robert Critchley-Marrows
Autonomous Orbit Determination for Lunar Satellite Infrastructure in View of Continuity and Assurance

10:00 2023-j-04 Hisatoshi Kimura
GNSS-free Relative Distance Measurement between Satellites Using Software Defined Radio Interferometry

j-2 Jun.9/Fri. 11:00-12:20 Propagation

The Small Meeting Room 1-2 (4F)
Chairs: T. Kan, TBD.

11:00 2023-j-05 Tomoshige Kan
Comparison of Shadowing Environments Due to Differences in Urban Structures in Ka-band Mobile Satellite Communications

11:20 2023-j-06 Takuya Okura
Basic Study to Evaluate the Effect of Aircraft on the Antenna Radiation Pattern

11:40 2023-j-07 Kaito Shinozaki
Consideration about Communication Test Using Small Shield Box for Nano-satellite

12:00 2023-j-08 Akira Akasaka
Measurements and Simulation of Radio Propagation on the Luner Surface

j-3 Jun.9/Fri. 14:00-15:20 Components and Systems

The Small Meeting Room 1-2 (4F)
Chairs: M. Kojima, Y. Takayama

14:00 2023-j-09 Nobuyuki Kaya
Development of MMIC for Three Dimensional Phased Array Antenna

14:20 2023-j-10 Yijun Huang
A Data over Power Bus Design Using WI-FI COTS Components

14:40 2023-j-11 Ayumu Takeuchi
Packet Transmission Experiment in the 430 MHz Band Using the KOSEN-1 Satellite

15:00 2023-j-12 Sumio Morioka
A Highly Reliable Key Synchronization Framework in Information Theoretically Secure Wireless Communication for Small Spacecrafts

j-4 Jun.9/Fri. 16:00-17:20 Systems

The Small Meeting Room 1-2 (4F)
Chairs: T. Ikegami, M. Kojima

16:00 2023-j-13 Tatsuki Ikeuchi
Investigation of Pointing Technology for Deep Space Optical Communication Downlink

16:20 2023-j-14 Mitsugu Ohkawa
A Study of Adaptive Coding and Modulation Scheme suitable for Flexible Satellite Communication System

16:40 2023-j-15 Takahiro Ebihara
A Study on the Effect of Improving Data Rates by Adaptive Coding and Modulation for High-Throughput Satellite in Time-Varying Communication Environments

17:00 2023-j-16 Peeramed Chodkaveekityada

First Prototype and Demonstration of Disasters Early Warning System in Thailand By Using Quasi-Zenith Satellite System

k-1 Jun.7/Wed 16:00-16:40
ISS and Future Human Space Mission and their Technologies

The Medium Meeting Room 3 (4F), Chairs: TBD

16:00 2023-k-01 Naoki Sato

JAXA International Space Exploration Scenario

16:20 2023-k-02 Andre Luebken

Wireless Compose-2: Experiment Results of an Ultra-Wideband Wireless Sensor Network with a Ballistocardiography Smart-Shirt for the ISS Columbus Laboratory

k-2 Jun.8/Thu. 9:00-10:40
Lunar Surface Environment and Related Technologies

The Small Meeting Room 1-2 (4F)

Chairs: J. Carlton Mankins, TBD

9:00 2023-k-03 Gary Pearce Barnhard

Telerobotic Universal Xcavator - TUX

9:20 2023-k-04 Ryuki Shimada

Path Planning with Cable-obstacles Avoidance for a Tethered Mobile Robot in Unstructured Environments

9:40 2023-k-05 Daisuke Suzuki

Introduction of Tottori Sand Dunes Lunarization Project

10:00 2023-k-06 Keisuke Takehana

Evaluation of Topography and Sand Mechanics in Tottori Sand Dunes and Moon

10:20 2023-k-07 Masato Adachi

Electrodynamic Dust Shield for Cleaning Lunar Regolith under the Effect of Vibration

k-3 Jun.8/Thu. 11:00-12:40
Lunar Resources and their Utilizations

The Small Meeting Room 1-2 (4F)

Chairs: H. Kawamoto, T. Iwata

11:00 2023-k-08 Kenta Shirode

Granular Vibration Pumping System for Transporting Lunar Regolith

11:20 2023-k-09 Hiroyuki Kawamoto

Capture and Delivery Technologies of Water Ice on Moon

11:40 2023-k-10 Kosei Toyokawa

Magmatic water on the Moon observed by SELENE

12:00 2023-k-11 Seiya Tanaka

Oxygen Generation from Metal Oxides by Molten Salt Electrolysis Using Oxide Electrode

12:20 2023-k-12 John Carlton Mankins

Lunar Energy Requirements and Opportunities for Space Solar Power to Meet the Needs of Future Activities

k-4 Jun.8/Thu. 14:00-15:20
Lunar Subsurface Exploration and Utilizations

The Small Meeting Room 1-2 (4F), Chairs: TBD, S. Tanaka

14:00 2023-k-13 Junichi Haruyama

Mission Goals and Objectives of UZUME

14:20 2023-k-14 Kodai Ikeya

Light Environment Estimation for a Lunar Subsurface Cavern with a Skylight Hole

14:40 2023-k-15 Hitoshi Nozawa

Subsurface Structure of Mare Tranquillitatis Revealed by SELENE/LRS

15:00 2023-k-16 Takahiro Iwata

A Study to Realize a Low-frequency Radio Interferometer with the Maximum Baseline of over 100 km

k-5 Jun.8/Thu. 16:00-17:20
Explorations for Mars and its Moons

The Small Meeting Room 1-2 (4F)

Chairs: B. Sarli, M. Kobayashi

16:00 2023-k-17 Bruno Sarli

NASA Capture, Contain, and Return System (CCRS): Bringing Mars Samples to Earth

16:20 2023-k-18 Yasuhiro Kawakatsu

Martian Moons eXploration (MMX) Overview and Development Status

16:40 2023-k-19 Masanori Kobayashi

Engineering Model of Circum-Martian Dust Monitor to be aboard MMX

17:00 2023-k-20 Kazuhisa Fujita

Planetary Protection Implementation Status of Martian Moons Exploration (MMX)

k-6 Jun.9/Fri. 9:00-10:40
Deep Space Sciences and Technologies

The Medium Meeting Room 3 (4F)

Chairs: D. J. Scheeres, M. Kanamaru

9:00 2023-k-21 Daniel J Scheeres

Apophis Mass Distribution Estimation Across its Flyby

9:20 2023-k-22 Sho Sasaki

Space Weathering Simulation with UV Irradiation - Rapid Changes of Reflectance Spectra

9:40 2023-k-23 Masanori Kanamaru

Thermophysical Model Development for Hera Mission to Simulate Non-Gravitational Acceleration on Binary Asteroid

10:00 2023-k-24 Yuto Takei

Storable Delta Docking Mechanism for Deep Space Rendezvous-Docking Missions

10:20 2023-k-25 Masafumi Edamoto

Development of a Prototype Autonomous Underwater Vehicle with a Thermal Drilling and Wireless Communication system for Icy Moon Exploration Missions

m-1 Jun.9/Fri. 9:00-10:20
Flight Experiment Using Scientific Balloon and Sounding Rocket

The Medium Meeting Room 1 (4F)

Chairs: Y. Maru, Y. Nagata

9:00 2023-m-01 Kouichiro Tani

The Analysis of Flight Trajectory of S-520-RD1

9:20 2023-m-02 Satoshi Hirakida

Development and Flight Test Results of Guidance Control System for S-520-RD1

9:40 2023-m-03 Noboru Itouyama
The Challenge of In-space Demonstration of a Cylindrical Rotating Detonation Using Liquid Propellants by a Sounding Rocket S-520 Launching

10:00 2023-m-04 Natsuki Matsuoka
The Overview of the equipped systems in the Medium-class Stratospheric Balloon to Capture the Scenery of the Earth with a Flame

m-2 Jun.9/Fri. 11:00-12:20
Research and Development Related to Balloon Flight Test System

The Medium Meeting Room 1 (4F)
Chairs: D. Akita, Y. Mizumura

11:00 2023-m-05 Hideyuki Fuke
Operation Concept of the GAPS Thermal Control System

11:20 2023-m-06 Shun Okazaki
Balloon Flight Tests of Low-Temperature Radiator

11:40 2023-m-07 Yasuhiro Shoji
Development and Evaluation of the Pointing System for the Balloon-born Telescope FUJIN-2

12:00 2023-m-08 Yoshitaka Saito
Flight Performance of Super-Pressure Balloons for LODEWAVE

m-3 Jun.9/Fri. 14:00-15:00
Basic Technologies to Support Small Flight Vehicle Experiments

The Medium Meeting Room 1 (4F)
Chairs: K. Tani, N. Itouyama

14:00 2023-m-09 Masahiro Yamatani
Pointing Error Calibration of Balloon Tracking Antennas Using the NOAA Satellite

14:20 2023-m-10 Yoshitaka Mizumura
Development of a Flight Control Simulator for Balloon Operations

14:40 2023-m-11 Tatsushi Isono
Development and Operation of Ground Air-Conditioning System for Sounding Rocket

m-4 Jun.9/Fri. 16:00-17:20
Development of Onboard Device for Flight Experiments

The Medium Meeting Room 1 (4F)
Chairs: Y. Saito, Y. Shoji

16:00 2023-m-12 Rintaro Atsuta
A Design of Pressure Gauge for Sounding Rocket Experiment

16:20 2023-m-13 Taiga Adachi
Atmospheric Density Measurement by Dynamic Pressure Gauge aboard S-520-32 Sounding Rocket

16:40 2023-m-14 Hiroki Takayanagi
Research and Development of Flight Measurement System for Free Flight Experiments

17:00 2023-m-15 Yusuke Maru
Development Study of Parachute Ejection System Using Gas Generator

n-1 Jun.5/Mon. 16:00-17:40
ALOS-2 and Future Missions

The Medium Meeting Room 3 (4F)
Chairs: S. Sobue, T. Imai

16:00 2023-n-01 Shinichi Sobue
ALOS-2 PPP Demonstration Projects Overview

16:20 2023-n-02 Yohei Kojima
ALOS-4 Development Status

16:40 2023-n-03 Masanobu Shibata
SAR System Design of ALOS-4

17:00 2023-n-04 Yohei Kojima
Concept Study on ALOS-4 Follow-on Mission with L-band SAR and AIS

17:20 2023-n-05 Tadashi Imai
Development Status of Spaceborne Lidar MOLI

n-2 Jun.6/Tus. 9:00-10:40
ALOS-2 Applications and Disaster Mitigations

The Medium Meeting Room 3 (4F)
Chairs: T. Tadono, K. Imaoka

9:00 2023-n-06 Takeo Tadono
Generation and Public Release of ALOS-2/PALSAR-2 CARD4L Compliance Product

9:20 2023-n-07 Takeo Tadono
ALOS-2's Ground-Breaking Contributions to Sustainable Development Goals – Making Operational Early Warning and Near Real-Time Forest Loss Assessment a Reality Today

9:40 2023-n-08 Mio Matsumoto
Initial Study on Estimation of Surface Soil Moisture in Paddy Fields Using the Full Polarization of the Advanced Land Observing Satellite-2 (ALOS-2)

10:00 2023-n-09 Arnob Bormudoi
An analysis Using an Index Based Method for Relative Soil Moisture Estimation with Sentinel 1 SAR Data for Disaster Mitigation

10:20 2023-n-10 Toshiro Sugimura
Extraction of Topographical Feature Patterns in the Kanto-Koshin Region and Use for Wide-Area Disaster Mitigation

n-3 Jun.6/Tus. 11:00-12:40
Satellite Data Applications

The Medium Meeting Room 3 (4F)
Chairs: S. Sobue, M. Kachi

11:00 2023-n-11 Sunbin Yoo
Ghost-town and High-Speed Railways: Evidence from Satellite Data

11:20 2023-n-12 Toshiro Sugimura
Recent Urbanization and Greening in Dammam, Saudi Arabia

11:40 2023-n-13 Keenan Alexsei Aamir Chatar
Onboard Image Classification and Segmentation for Nanosatellites to Detect Water Bodies

12:00 2023-n-14 Sackdavong Mangkhaseum
Change detection in optical satellite imagery Based on Transformer-based Siamese Network

12:20 2023-n-15 Jargalsaikhan Margad-Erdene
Multi-temporal Monitoring for the Grazed and Ungrazed

Vegetation Dynamics of Mongolian Grassland Using PlanetScope Imagery

n-4 Jun.6/Tus. 14:00-15:40 GCOM Series

The Medium Meeting Room 3 (4F)
Chairs: R. Shimada, T. Kawaguchi Akitsu

14:00 2023-n-16 Misako Kachi
Current Status and Future Plan of the Global Water Cycle Observation by the Advanced Microwave Scanning Radiometer (AMSR) Series

14:20 2023-n-17 Yuya Nomo
Investigation of Methods for Removing Radio Frequency Interference in Low Frequency Microwave Bands

14:40 2023-n-18 Rigen Shimada
Development of the Polar Ice Sheet Surface Melt Detection Algorithm for GCOM-W/AMSR2

15:00 2023-n-19 Tomoko Kawaguchi Akitsu
How Useful Are the GCOM-C/SGLI Ecological Indices (PRI, NDVI, and LAI)?

15:20 2023-n-20 Toshiyuki Tanaka
Evaluation of GCOM-C/SGLI Cloud Product with Spaceborne Cloud Radar and Lidar

n-5 Jun.6/Tus. 16:00-17:40 Earth Observation Technologies and Validations

The Medium Meeting Room 3 (4F)
Chairs: J. Kasuya, H. Hirose

16:00 2023-n-21 Junko Kasuya
On-orbit Characterization of TANSO-FTS-2 onboard GOSAT-2

16:20 2023-n-22 Yung-Fu Tsai
Progress of GNSS Reflectometry Mission in Taiwan

16:40 2023-n-23 Yosuke Takeo
Image Matching Strategy with other Satellite Imageries for Geostationary Earth Observation Satellite (2nd Report)

17:00 2023-n-24 Hitoshi Hirose
Improvement of the GSMaP Cloud Moving Vector Using a Tracking Technique of Cloud Clusters

17:20 2023-n-25 Vaibhav Katiyar
Ground Measurements of Atmospheric Properties for Radiometric Validation at YUCARS of Yamaguchi University

q-1 Jun.5/Mon. 16:00-17:00 Space Power Technologies

The Medium Meeting Room 1 (4F)
Chairs: H. Toyota, K.Tanaka

16:00 2023-q-01 Hari Ram Shrestha
Study on the Optimization of 1U and 3U CubeSats Power Generation with Small Solar Cells

16:20 2023-q-02 Tetsuya Nakamura
Electrical Characterization of Solar Array Panels by Absolute Electroluminescence Intensity

16:40 2023-q-03 Hiroyuki Toyota
On-orbit Radiation Damage Evaluation Plan for Inverted Metamorphic Triple-junction Solar Cells Onboard DESTINY^{+}

q-2 Jun.6/Tus. 9:00-10:40 Technologies Related to Solar Power Satellites

The Medium Meeting Room 1 (4F)
Chairs: K.Ijichi, K. Tanaka

9:00 2023-q-04 Miki Kaneko
Thermal Design of Light Weight Hybrid Structure of Tethered-SPS

9:20 2023-q-05 Shuji Higashigawa
Evaluation of Hybrid Structure Combining Thin Film and Bulk Part of Solar Power Satellite

9:40 2023-q-06 Takahiro Ohnishi
Development of Antenna Integrated with Solar Array for Wireless Power Transfer

10:00 2023-q-07 Yoshiyuki Fujino
Ground Receiving System and Antenna Pattern Reconstruction Method for SPS Demonstration Satellite

10:20 2023-q-08 Richard Alexander Romano
Distance Simulation Method for Space Applications of Laser Wireless Power Transfer

q-3 Jun.6/Tus. 11:00-12:20 Solar Power Satellite

The Medium Meeting Room 1 (4F)
Chairs: K. Fujita, K. Tanaka

11:00 2023-q-09 John Carlton Mankins
Space Solar Power for Earth: Recent Advances in International Efforts

11:20 2023-q-10 Patrick Collins
Dual-Use Platform in Equatorial Orbit for European SPS Programmes

11:40 2023-q-11 Makoto Ito
Investigation of waste heat recovery for a ground site of Space Solar Power Systems

12:00 2023-q-12 Hiroki Yanagawa
The Outline and the Current Status of the Power Transmission System Development Project for the Realization of the SSPS

q-4 Jun.6/Tus. 14:00-15:40 Power System on the Moon

The Medium Meeting Room 1 (4F)
Chairs: J.C. MANKINS, K. Ijichi

14:00 2023-q-13 Atsushi Uchida
Energy Supply and Hydrogen/oxygen Utilization System on the Moon

14:20 2023-q-14 Koichi Ijichi
Introduction of the Electrical Power System Study for the Moon Base Human Activities

14:40 2023-q-15 Yoshihiro Kawakami
Solar Power System on the Moon

15:00 2023-q-16 Kazuhisa Fujita
Laser Power Transmission on the Moon Using Multibeams of Single-Mode Fiber Lasers as Wireless and Optical Fibers as Wired

15:20 2023-q-17 Koichi Ijichi
Feasibility Study on Microwave Power Transmission System Deployed on the Moon Surface

q-5 Jun.6/Tus. 16:00-17:00 Energy System for Lunar

The Medium Meeting Room 1 (4F)
Chairs: K. Tanaka, K. Ijichi

16:00 2023-q-18 Koji Tanaka
Wireless Power Transmission System from Lunar Orbit

16:20 2023-q-19 Niklas Aksteiner
Freezing through the Lunar Night: A Power System Concept for Small Lunar Experiments to Survive Multiple Day/Night Transitions

16:40 2023-q-20 Gary Pearce Barnhard
End-to-End Frequency Agnostic Remote Power and Ancillary Services: Genesis of the Lunar Power & Light Company

r-1 Jun.8/Thu. 14:00-15:40
Space Debris, Observation, Modelling

The Large Meeting Room 3 (5F)
Chairs: Y. Akiyama, Z. Su

14:00 2023-r-01 Julian Guinane
Feasibility and Performance of the CROSS Star Tracker for Resident Space Object Detection.

14:20 2023-r-02 Yuki Akiyama
Attitude Motion Estimation based on Particle Swarm Optimization by SLR data

14:40 2023-r-03 Hideaki Hinagawa
Orbit Prediction Capability Using PATHFINDER Density Model and Future Update

15:00 2023-r-04 Toshiya Hanada
Update of NEODEEM the Near-earth Orbit Debris Environmental Evolution Model

15:20 2023-r-05 Yuya Ariyoshi
Area-to-mass Ratio Distribution Modeling Using Bayesian Hierarchical Model

r-2 Jun.8/Thu. 16:00-17:40
Space Debris, Protection, Hypervelocity Impact, Mitigation

The Large Meeting Room 3 (5F)
Chairs: T. Hanada, M. Higashide

16:00 2023-r-06 Masahiro Nishida
Effects of Electron Beam on Hypervelocity Impact Behavior of Anti-atomic Oxygen Coating/Polyimide CFRP

16:20 2023-r-07 Ziyi Su
Characteristics of Ejecta Resulting from Hypervelocity Impact on Al/Mg Explosion Welding Clad Materials

16:40 2023-r-08 Nagisa Inokuchi
Investigation into Fragmentation of the Russian EKRAN 2 Spacecraft

17:00 2023-r-09 Masahiro Kinoshita
Mitigation and Evaluation of Slag Generated from Solid Rocket Motors in Japan

17:20 2023-r-10 Nobuaki Minato
Examination of the Taxation Mechanism on Space Debris for Space Environment Protection

r-3 Jun.9/Fri. 9:00-10:40
Space Debris, Re-entry, Reuse, ADR

The Large Meeting Room 3 (5F)
Chairs: T. Muranaka, H. Hirayama

9:00 2023-r-11 Daniel Galla
Demise Instrumentation Verification of the CubeSat SOURCE with Plasma Wind Tunnel Experiments

9:20 2023-r-12 Takeharu Toyoda
Trajectory Optimization for Space Debris Re-entry Considering Land Security by Evolutionary Algorithm

9:40 2023-r-13 Margot Clauss
Recycling and ReUsing Spacecraft Solar Panels: A Planned Experimental Research Approach

10:00 2023-r-14 Alfredo Puente-Flores
Design of a Variable Stiffness Soft Gripper for On-orbit Grasping of Tumbling Objects

10:20 2023-r-15 Kenichiro Takahashi
A Study of Adaptive Capture Mechanism Based on Thigmotropism of Vine for Capturing Non-Cooperative Target

r-4 Jun.9/Fri. 11:00-12:00
Space Debris, ADR

The Large Meeting Room 3 (5F)
Chairs: Y. Ariyoshi, T. Sasaki

11:00 2023-r-16 Midori Takezaki
Multi-Objective Optimization for Effective Debris Detumbling Using Laser Ablation via Surrogate-Assisted Evolutionary Algorithms

11:20 2023-r-17 Brian Davis
Laser Ablation Propulsion Potential of Common Orbital Debris Metals

11:40 2023-r-18 Hiroshi Hirayama
Stochastic Analysis of Survivability of Triple Net Tether

r-5 Jun.9/Fri. 14:00-15:00
Space Environment

The Large Meeting Room 3 (5F)
Chairs: H. Miyake, K. Koga

14:00 2023-r-19 Shoya Iwata
Ground Experiments and Hydrocode Simulations for Verifying Hypervelocity Microparticle Impact Measurements on the First Smart MLI Sensors in Space

14:20 2023-r-20 Simon Maillot
Mapping the Cosmic Dust Distribution across the Earth-Moon Region for the Payankeu Mission

14:40 2023-r-21 Ayane Yamamoto
Development of a Quick Estimation Method of Geosynchronous Satellites Surface Potential by Charging Analysis Tool for Charging Alert System

s-1 Jun.8/Thu. 9:00-10:15
Finalist Student Session 1

The Medium Meeting Room 2 (4F)
Chairs: T. Nakano, K. Nakashino

9:00 2023-a-58 Jumpei Tachibana
Performance Evaluation of Busemann Intake for Reusable Sounding Rocket at Transonic Speeds

9:15 2023-b-82 Soichiro Tsuji
Performance Enhancement of Microwave Discharge Cathode by External Gas Injection System

9:30 2023-b-83 Shogo Uozumi

Experimental Study on Aging Degradation of Microwave Discharge Ion Thrusters

9:45 2023-b-84 Koki Takagi

Performance Evaluation and Modelling of Ion Extraction for Porous Electrospray Thrusters

10:00 2023-c-38 Saori Tanaka

Experimental Estimation of Sliding Amount at Backlash Joints Based on Time-frequency Analysis of Nonlinear Vibration of Extensible Truss

s-2 Jun.8/Thu. 11:00-12:15 Finalist Student Session 2

The Medium Meeting Room 2 (4F)

Chairs: D. Akita, T. Sasaki

11:00 2023-ｄ-65 Yuta Imoto

In-plane Deployment Analysis of Satellite Constellation Using Atmospheric Drag

11:15 2023-ｄ-66 Shota Ito

Research to Archive a Lunar Sub-Recurrent Orbit

11:30 2023-e-41 Ken Fujino

Direct Numerical Simulation of Flowfield around Transonic Airfoil at Low Reynolds Number for Mars Exploration

11:45 2023-e-42 Yoshikatsu Furusawa

Propeller Scale Effect on Fixed Wing within Propeller Slipstream at Low Reynolds Number

12:00 2023-f-50 Yusaku Ozeki

An Investigation of Multi-point Earth Observation Applying Variable Shape Attitude Control

s-3 Jun.8/Thu. 14:00-15:15 Finalist Student Session 3

The Medium Meeting Room 2 (4F)

Chairs: Y. Takaku, K. Nakashino

14:00 2023-g-19 Tomohiro Mamashita

Numerical Analysis and Wind Tunnel Testing of Experimental Reusable Vehicle RV-X Aerodynamics at 90° Angle-of-Attack

14:15 2023-h-17 Shogo Uzawa

Development of Peristaltic Transfer System to Transport Feces in Space: Proposal of Drive Method Using Air Inflow into the Transfer Channel

14:30 2023-j-17 Sota Kano

Preliminary Design of X-band Noise-cancelling Receiver Front-end with Radiation-Hardened 130nm SiGe BiCMOS Process for Deep Space Probes

14:45 2023-k-26 Yusuke Shimoda

Development of Postural Maintenance Training device for Anti-Gravity Muscle Training

15:00 2023-m-16 Hideto Takasawa

Flight Demonstration for Reentry Capsule with Thin Aeroshell Using Rubber Balloon

s-4 Jun.8/Thu. 16:00-17:15 Finalist Student Session 4

The Medium Meeting Room 2 (4F)

Chairs: H. Sakamoto, A. Senba

16:00 2023-n-26 Amandangi Wahyuning Hastuti

Sea Level Rise-Induced Coastal Flooding and Its Potential Impacts in Bali Province, Indonesia

16:15 2023-q-21 Charleston Dale Macutay Ambatali

Analysis of the Microwave Wireless Power Transfer Efficiency of a Furoshiki Space Solar Power Station in Geostationary Orbit

16:30 2023-r-25 Sakura Okano

Evaluation of PMD Strategy with Less Functional Requirements for Satellites

16:45 2023-t-10 Shun Katsube

A Health Index for Satellite Power Systems Based on Periodicity and Multimodality

17:00 2023-u-12 Ryota Yamamoto

A Small Hybrid Rocket Launch Experiment in 18th Noshiro Space Event

t-1 Jun.5/Mon. 16:00-17:00 Satellite System Design and Data Application

Studio 4F-2, Chairs: K. Masanori, M. Ioki

16:00 2023-t-01 Samir Khan

Opportunities with Causal Representation Learning for Spacecraft Applications

16:20 2023-t-02 Masanori Kawamura

Value Creation Based on Sand Observation Using Satellites

16:40 2023-t-03 Motoki Moritani

Practical Application and Evaluation of System Complexity Index in the Development Process of Nano-Satellites

t-2 Jun.6/Tus. 10:00-10:40 Satellite Operations Management

Studio 4F-2, Chairs: M. Ioki, TBD

10:00 2023-t-04 Yutaro Ito

FDIR Design and Implementation to Manage Complex Missions and Reduce Operational Effort

10:20 2023-t-05 Shunichiro Nomura

Operation Plan Management System (OPMS): Software for the Safe Operations of Satellites

t-3 Jun.6/Tus. 11:00-12:20 Systems Engineering for Satellite Design

Studio 4F-2, Chairs: H. Yoshikazu, M. Ioki

11:00 2023-t-06 Janis Sebastian Häseker

Demonstration of Round-trip Engineering between Capella System Model and Low-Level Electronics Design for Avionic Power Controllers

11:20 2023-t-07 Daisuke Toyama

Challenge of Applying model-based Development to Attitude Control Design in Large-scale and Complex Systems

11:40 2023-t-08 Takeyuki Tsurusaki

Investigation of Software Defined Architecture for Aerospace Systems

12:00 2023-t-09 Qin Xu

Replenishment Cost Assessment and Optimization Based on Analysis of Space System Characteristics

u-1 Jun.4/Sun. 11:00-12:20 Space-based Training Methods for Engineers

The Small Meeting Room 1-3 (4F)
Chairs: K. Kitamura, Y. Wada

11:00 2023-u-01 Chiao-Ying Jill Chou
Taiwan's Space Talent Cultivation: Strategies and Implementation

11:20 2023-u-02 Maximilien Berthet
The Culture Map: a Useful Tool for Effective Teamworking in Small & Diverse Space Projects?

11:40 2023-u-03 Tatsuhito Fujita
Comprehensive Capacity-Building Initiatives and International Contribution through the CubeSat Deployment from ISS, Kibo

12:00 2023-u-04 Akihiro Iwasaki
Effectiveness Verification of the "Edu-tainment" Material for Communication Improvement within Spacecraft Development Team

u-3 Jun.4/Sun. 14:00-15:00
New Space Technologies for Space Education

The Small Meeting Room 1-3 (4F)
Chairs: A. Iwasaki, Y. Kawabata

14:00 2023-u-05 Riichi Ohta
The Development of Saccharide Fuel Hybrid Rocket Engine

14:20 2023-u-06 Seita Koike
The Design of CubeSat TCU-01

14:40 2023-u-07 Pema Zangmo
Development of a Hybrid Ground Sensor Terminal to Enhance Academic and Research Experience in the Universities Using LoRa and Wi-Fi Modules

u-2 Jun.4/Sun. 15:20-16:40
Space Education Approaches Using CubeSat

The Small Meeting Room 1-3 (4F)
Chairs: S. Hara, S. Koike

15:20 2023-u-08 Elise Denis
IGOSat – an Educational Nanosatellite Project for Measuring the Total Electron Content in the Ionosphere and Detecting Gamma-rays

15:40 2023-u-09 Hideki Uchiyama
Educational Practice for Junior High and High School Students Using Materials Simulating CubeSat to Improve the Quality of Interest in Science

16:00 2023-u-10 Kentaro Kitamura
Practical Space Science Mission Program for Under-graduate Students in Cooperation of Science and Engineering Faculties

16:20 2023-u-11 Makoto Wakabayashi
Development of Space Related Human Resources through Collaboration between Space Academia 2021 and the All KOSEN Space Contest

v-1 Jun.6/Tus. 14:00-15:40
Space Law, Policy and History

Studio 4F-2, Chairs: H. Watanabe, Y. Hashimoto

14:00 2023-v-01 Hirotaka Watanabe
Japan's Space Policy and the End of the Cold War: To Strengthen the Japan-U.S. Alliance

14:20 2023-v-02 Yasuaki Hashimoto
Civilian Space Assets in Russia's Invasion of Ukraine

14:40 2023-v-03 Souichirou Kozuka
Formation of Japan's Space Law

15:00 2023-v-04 Masahiko Sato
Examination of the Formation Process of Space Law in the Artemis Era

15:20 2023-v-05 Feng-Tai Hwang
A Step Towards Sound Space Development - Legislation and Implementation of Taiwan's Space Laws

v-2 Jun.6/Tus. 16:00-17:40
Space Business and Governance

Studio 4F-2, Chairs: S. Kozuka, M. Sato

16:00 2023-v-06 Misuzu Onuki
Space Investment to Encourage to Sustainable Growth of Space Economy

16:20 2023-v-07 Ikuko Kuriyama
Introduction of the JAXA's Basic Policy on the Sustainable Development Goals

16:40 2023-v-08 Yuki Kokubo
Information Sharing Framework for Ensuring Safety of On-Orbit Servicing

17:00 2023-v-09 Yangzi Tao
Analysis of the Tendency of Global Space Governance

17:20 2023-v-10 Tetsuhito Fuse
Transition of Open Innovation Systems in the Space Agencies

w-1 Jun.7/Wed 9:00-10:20
Quality Evaluation of COTS and New EEE Parts

Studio 4F-2, Chairs: R. Kobayashi, K. Oga

9:00 2023-w-01 Hiroaki Kawara
The Outline of COTS Parts Evaluation in JAXA

9:20 2023-w-02 Kensuke Shiba
The Latest Activities related to the Passive Parts in JAXA

9:40 2023-w-03 Shouichi Terada
Evaluation Method for Space Applicability of COTS Integrated Circuits

10:00 2023-w-04 Koichi Morikawa
Feasibility Study on Quality assurance method for "Minimal Fab"

w-2 Jun.7/Wed 11:00-12:00
Reliability of Assembly Technology

Studio 4F-2, Chairs: K. Oga, H. Shindo

11:00 2023-w-05 Koichi Shinozaki
High-Speed Signal Characteristics of a Standard Type of the Ceramic BGA Package for Space Application

11:20 2023-w-06 Shinichiro Ichimaru
Study on Tin Whisker Growth And Mitigation By Conformal Coating On-Orbit

11:40 2023-w-07 Tsuyoshi Nakagawa
Efforts Regarding Development of Soldering Standards for Space

w-3 Jun.7/Wed 16:00-17:20
Advanced Activities of S&MA

Studio 4F-2, Chairs: K. suzuki, H. Shindo

16:00 2023-w-08 Yoshitsugu Suzuki
Observations and Findings of Safety Assessment for

Development of Space Transportation System: Comparison between the NASA CCP model and the JAXA model

16:20 2023-w-09 Ryoji Kobayashi

Assessment of System Safety in terms of Risk Assessment

16:40 2023-w-10 Tomohisa Suzuki

Anomaly Analysis and Application of Lessons Learned from on Orbit Demonstration Missions

17:00 2023-w-11 Masanori Sakaino

Mechanical Evaluation Activities to Ensure Design Quality of Metal Additive Manufacturing Lattice Structures for Spacecraft Weight Reduction

Poster Session Jun.8/Thu. 17:40-19:00

Foyer of Kurumeza (3F)

2023-b-70 Tsubasa Ito

Measurement Evaluation of Rarefied Electric Propulsion Propellant Flow -Static and Dynamic Pressure Distribution-

2023-b-72 Moe Otsuka

Ion Energy Distribution Measurement for Miniaturized Low-Power Hall Thrusters

2023-b-73 Kenta Yanagihara

Evaluation of Hollow Anode Geometries for Miniaturized Low-Power Hall Thrusters

2023-b-74 Shunsuke Kodaira

UV-LED Microthruster through Interaction of Ultraviolet Photons and Solid Polymers

2023-b-75 Takumi Kobayashi

Surface Analysis for Thrust Generation Mechanism through Interaction of Ultraviolet Light-emitting Diodes and Solid Polymers

2023-b-76 Jaejun Lee

Development of Heaterless Hollow Cathode for 700 W-class Hall Thrusters

2023-b-77 Keisuke Nakata

Measurement of Thruster Plume Potential Distribution for 10 cm-class Microwave Discharge Ion Thruster in Laboratory Experiments

2023-b-78 Taichi Ishikawa

Investigation of Interference Mechanisms in Racetrack Anode-layer SBS Operation

2023-b-79 Seongsu Kim

Discharge Characteristics of 100 W-class Hall Thruster with a Thoriated Tungsten Filament Cathode for a 2U CubeSat

2023-b-80 Yoshiyuki Takao

Study of Electrical Neutralization for Microwave Discharge Ion Engine

2023-b-81 Yoshinori Nakayama

Preliminary Study on a Visualized Cylindrical Hall Thruster

2023-c-36 Kenji Asakawa

Application of Composite Tow Steering to Stiffened Panels

2023-c-37 Lian-Jie Wang

Ballistic Performance Analysis of Module Structure Ceramic Combined with Stainless Steel

2023-d-57 Shumpei Hosokawa

Attitude Stability Analysis of Spin-stabilized Microspacecraft Propelled by Hybrid Rocket

2023-d-58 Shoma Fukudome

Attitude Estimation of CubeSats from Solar Panel Output Using Genetic Algorithm

2023-d-59 Jordan H. Hsieh

Miniature Low-Cost Two-Axis Digital Sun Sensor with a Correction Error Table

2023-d-60 Xinbo Gu

Satellite Formation Flying Achieved by Radiation Pressure by Coupling Orbit and Attitude Considering Eclipse in Low Earth Orbit

2023-d-61 Sirin Yakupoglu Altuntas

Time-varying Residual Magnetic Moment Modelling and Estimation for a Nanosatellite

2023-d-62 Takefumi Kosaka

Vertical Descent Control Law for a Lunar Lander with On-off Input Constraint via Model Predictive Control Theory

2023-d-63 Daiki Ukita

Magnetic Torque Caused by Magnetic Substance Considering Three-dimensional Attitude Dynamics

2023-d-64 Yoshiki Fujita

Relative Orbit Determination of Satellites by Radio Waves Considering Attitude Motion

2023-e-36 Yuta Tsukamoto

Comparison of Leading Edge VGs on SC(2)-0518 and OAT15A Airfoils for Transonic Buffet Suppression

2023-e-37 Asahi Morimoto

Investigation of the Vorticity Estimation Method Based on the Shock Wave Configuration

2023-e-38 Keita Suzuki

Grid Resolution Study on Numerical Analysis of Propeller-Wing Interaction

2023-e-39 Kyoungjin Kim

System Modeling of Microscale Explosive Ignition Devices for Space Pyrotechnic Systems

2023-e-40 Naoki Takada

Validation of 3D CFD simulation of Flow Separation over an Airfoil for Deep Reinforcement Learning-based Closed-Loop Flow Control

2023-f-49 Olivier Charles Pons

Satellite Swim Lane

2023-q-21 Hitoshi Naito

Evaluation for Space Lithium Ion Cells Operated under Low Temperature Condition

2023-r-23 Hiroya Adachi

Applicability of Conventional Ballistic Limit Equation to Titanium Alloy Curved Plate and Energy Distribution of the Fragments after Perforation

2023-r-24 Takanobu Muranaka

Active Debris Removal Using Electric Propulsion: Charging Mitigation on Target Debris in Docking Sequence

2023-w-12 Juliette Cliquet

Medical Adaptation of the Therapeutic Properties of Centella Asiatica to Space Activities, via the ISS

The latest programme can be found here.

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