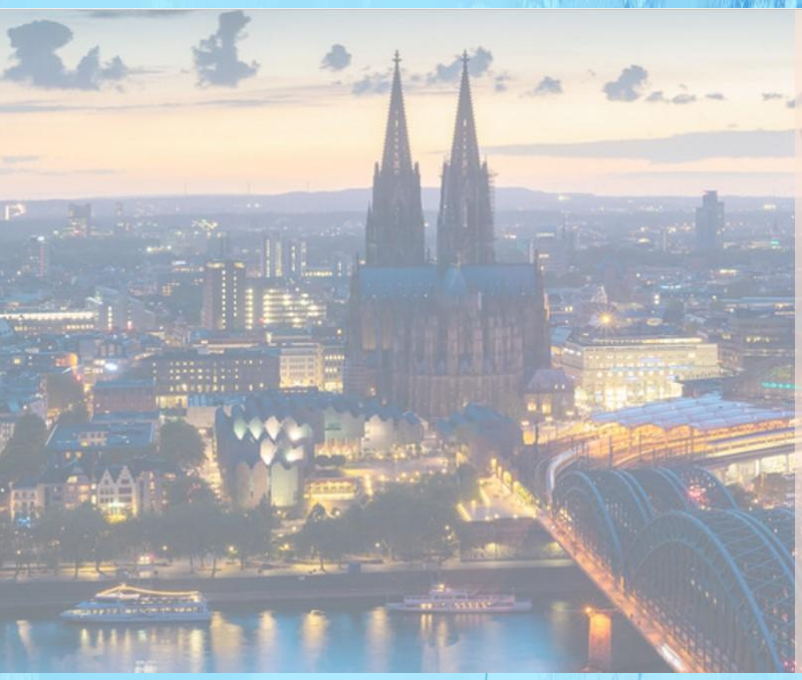


PRELIMINARY PROGRAMME

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German Space Agency at DLR | Institute of Robotics and Mechatronics

Joint Symposium

i-SAIRAS / iSpaRo

Cologne – Germany

03 – 06 November 2026

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Date: 07.10.2026



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7. DLR LABTOUR



PROGRAMME OVERVIEW

Tue. 3.11.26 - Confex

09:00 09:00 Opening General Chairs (T. Wolf, A. Wedler)
09:10 Welcome Message BMFTR
09:20 Welcome Message RFA at DLR (W. Pelzer)
09:30 Presentation DLR F&E (A. Albu-Schäffer)
10:00 Presentation ESA HRE (D. Neuenschwander)

10:30 Coffeebreak @ Expo

11:00 Agency-Update CSA (M. Picard)
11:20 Agency-Update DLR (T. Wolf)
11:40 Agency-Update ESA (M. Azkarate)
12:00 Agency-Update JAXA (S. Yamaguchi)
12:20 Agency-Update NASA (A. Rahmati)

13:00 Lunch

14:00 TS 1 | TS 2 | TS 3 | TS 4 | TS 5

15:30 Coffeebreak @ Expo

16:00 TS 6 | TS 7 | TS 8 | TS 9 | TS 10

17:30 **Welcome Reception**
17:30 - 20:30

Wed. 4.11.26 - Confex

Keynote I: Matthias Maurer (ESA)

TS 11 | TS 12 | TS 13 | TS 14 | TS 15 | TS 16

Coffeebreak @ Expo

PD 1 | TS 17 | TS 18 | TS 19 | TS 20 | TS 21

Lunch

Keynote II: Jonathan M. Rogers (NASA/JSC)

Common Poster Session

TS 22 | TS 23 | TS 24 | TS 25 | TS 26 | TS 27

Galadinner
Exclusive Show & Dine Experience
17:00 – Bus departure for Düsseldorf
19:00 – Start of the programme
22:00 End of the offical programme,
followed by the return bus transfer.
buses at several times to confex

Thu. 5.11.26 - Confex

Keynote III: Kazuya Yoshida (JP/Tohoku)

TS 28 | TS 29 | TS 30 | WS 1A | WS 2A | WS 3A

Coffeebreak @ Expo

PD 2 | TS 31 | TS 32 | WS 1B | WS 2B | WS 3B

Lunch

Keynote IV: Julie Townsend (NASA/JPL)

TS 33 | TS 34 | TS 35 | WS 4A | WS 5A | WS 6A

Coffeebreak @ Expo

TS 36 | TS 37 | TS 38 | WS 4B | WS 5B | WS 6B

Brewery - Stapelhaus
19:00 - 23:00

* TS - Technical Session
* PD - Panel Discussion
* WS - Workshops



OPENING SESSION (Tue 03.11.2026, Room P+Q)

09:00 Opening
General Chairs **T. Wolf, A. Wedler**

09:10 Welcome Message Federal Ministry of Research, Technology and Space

09:20 Welcome Message German Space Agency at DLR
General Director **W. Pelzer**

09:30 Presentation DLR Institute of Robotics and Mechatronics
Director **A. Albu-Schäffer**

10:00 Presentation ESA Human and Robotic Exploration
Director **D. Neuenschwander**

10:30 Coffee-Break

11:00 Agency-Update CSA (**M. Picard**)
11:20 Agency-Update DLR (**T. Wolf**)
11:40 Agency-Update ESA (**M. Azkarate**)
12:00 Agency-Update JAXA (**T. Yoshimitsu**)
12:20 Agency-Update NASA (**A. Rahmati**)



KEYNOTES (Room P+Q)

Keynote I: Wed 04.11.2026 09:00 – 09:30
Matthias Maurer, ESA Astronaut

Keynote II: Wed 04.11.2026 14:00 – 14:30
Jonathan M. Rogers, Chief - Robotic Systems Technology Branch, NASA Johnson Space Center

Keynote III: Thu 05.11.2026 09:00 – 09:30
Kazuya Yoshida, Professor and Head of Space Robotics Laboratory, Tohuko University

Keynote IV: Thu 05.11.2026 14:00 – 14:30
Julie Townsend, Robotics Systems Engineer, NASA JPL



PANEL DISCUSSIONS (Room P+Q)

PD1: Wed 04.11.2026 11:30-13:00
Artificial Intelligence (AI)
moderated by Sandra Unruh

Panelists:
Becky Castano, JPL/NASA
David Rijlaarsdam, Ubotica
Patrick McKeen, MIT
Nico Hochgeschwender, Universität Bremen
Samantha Chapin, U.S. Naval Research Laboratory

PD2: Thu 05.11.2026 11:30-13:00
Act in Space: In-Space Operations and Services (ISOS)
moderated by Daniel Nölke

Panelists:
Thomas Schervan, iBOSS GmbH
Sabrina Andiappane, ClearSpace
Nikhil Balasubramanian, OrbitAID
Stéphanie Behar-Lafenetre, Thales Alenia Space
Tiago Soares, ESA



WORKSHOPS (Thu 05.11.2026)

Morning Session (09:30 – 13:00)

WS1A/WS1B (Room S):
Sustainable Space Activities through Robotic Pre-deployment and Autonomous Operations

WS2A/WS2B (Room T):
Open Space Robotics: Software and Hardware Solutions

WS3A/WS3B (Room R):
Robotics & Automation needs - Manufacturing in Space

Afternoon Session (14:30 – 17:30)

WS4A/WS4B (Room S):
Enabling Modularity and Interoperability in Space Robotics

WS5A/WS5B (Room T):
1st Workshop on Multi-Agent Systems Strategies for Space (MASS)

WS6A/WS6B (Room R):
Special session Topic Group on Space Robotics – euRobotics



WORKSHOPS
Thu 05.11.2026 09:30 – 13:00

WS1A/WS1B: Sustainable Space Activities through Robotic Pre-deployment and Autonomous Operations

Organizers: Hiroki Kato (JAXA), Neal Y. Lii (DLR), Shaun Azimi (NASA), Seiko Piotr Yamaguchi (JAXA), Tilo Wüsthoff (DLR)

Abstract: Human space exploration is entering a phase where sustainability, rather than short-term mission success, defines progress. Future lunar and Martian exploration require robotic systems that can autonomously pre-deploy infrastructure—power systems, habitats, ISRU facilities, and logistics networks—before crew arrival and maintain them with minimal intervention. This represents a paradigm shift from "reach-and-complete" missions to persistent, infrastructure-driven exploration. This workshop aims to explore how space robotics can enable such sustainable operations, focusing on autonomous systems, multi-agent cooperation, and scalable architectures for pre-deployment and long-term maintenance. It will bring together experts from major space agencies (JAXA, DLR, NASA), academia, and industry to discuss lessons learned from current missions and define future research priorities. The workshop directly supports iSpaRo2026 themes by addressing autonomy, in-space servicing, surface robotics, and human–robot collaboration

WS2A/WS2B: Open Space Robotics: Software and Hardware Solutions

Organizers: Pedro Roque (Caltech), Zachary Manchester (MIT), Jessica Todd (Caltech), Benjamin Riviere (NYU), Keenan Albee (USC), Brian Coltin (NASA ARC), Jean-Pierre de la Croix (JPL), Amir Rahmani (JPL), Jules Noirant (ESA), Andrej Orsula (Univ. of Luxembourg)

Abstract: This workshop will bring together contributors from across the space robotics community to discuss and demonstrate open software and hardware solutions spanning the full robotics stack, from simulation and digital twins to guidance, navigation, and control, to the operating systems and fault-tolerant schedulers that run on real flight and ground hardware. Through a mix of invited keynotes, short spotlight talks from accepted contributors, and a panel discussions and a tutorial session, the workshop will highlight publicly released frameworks and testbeds, address common challenges in building reproducible and accessible space robotics infrastructure, and explore how hardware-in-the-loop and software-in-the-loop approaches can bridge the gap between simulation and on-orbit or planetary deployment. Lastly, we hope that attendees bring home a working example of an open-source software stack which they can deploy on open-source hardware and build autonomy solutions on top.

WS3A/WS3B: Robotics & Automation needs - Manufacturing in Space

Organizers: Radhika Gudipati (ARIA), Jeremy Hadall (Satellite Applications Catapult)

Abstract: The key goal is to bring together life science, material science, space and robotics communities together to discuss the automation challenges for 'Manufacturing in Space' as the topic is multidisciplinary and not often the communities get together. The organising team can bring in their know-how, knowledge and experience of the challenges from life science and material science in-orbit experiments, i.e., the current in orbit experimental workflows still require human-in-the-loop and are difficult to automate with current state-of-the-art space robots. This would trigger a useful conversation among the audience to identify potential Robotics & Automation solutions that can contribute to the efficiency, robustness and velocity of in-orbit life sciences and material science experiments



WORKSHOPS
Thu 05.11.2026 14:30 – 17:30

WS4A/WS4B: Enabling Modularity and Interoperability in Space Robotics

Organizers: Mini Chakravarthini Rai (Orbit Rise), Marco De Stefano (DLR), Manu Harikrishnan Nair (University of Manchester)

Abstract: Scaling in-space missions into commercial services requires a new generation of autonomous robots capable of operating across diverse platforms, missions, and service providers. This vision depends on embedding modularity and interoperability into the design, development, and operation of space robotic systems and supporting infrastructure. Despite significant advances in robotic manipulation, autonomy, and servicing technologies, the lack of common interfaces, standards, and interoperable architectures remains a key barrier to scalability and commercial adoption. This workshop will address technical, operational, and regulatory challenges, and explore opportunities for standardization and cross-sector collaboration to enable scalable, costeffective, and sustainable in-space robotic ecosystems

WS5A/WS5B: 1st Workshop on Multi-Agent Systems Strategies for Space (MASS)

Organizers: Amrita Suresh (University of Bremen), Mehmed Yüksel (DFKI), Raul Dominguez (DFKI), Manuel Meder (DFKI)

Abstract: The workshop aims to bring together researchers, facilitate collaborations, and to discuss future directions in multi-agent systems for space applications. The design and cooperative operation of different variations of multi-agent systems (MAS) in a challenging environment within the described setup are the core questions to be discussed within the MASS workshop. Strategies for multi-agent systems can tackle fields like planning, exploration, distributed communication and appear to particularly benefit from advancement in the field of artificial intelligence, as well as modern approaches to autonomous collaboration in space. The insights and outcomes are intended to benefit the robotics community by advancing MAS methods applicable for space and with potential transfer to terrestrial applications.

WS6A/WS6B: Special session Topic Group on Space Robotics – euRobotics

Organizers: Reinhard Lafrenz (euRobotics), Javier Luque (euRobotics), Miguel Olivares (University of Luxembourg), Carlos Perez del Pulgar (University of Malaga)

Abstract: The goal and scope of the Space Robotics topic group is to influence and drive the research, development and operative deployment of robotics in Space. We do so by organizing workshops to connect stakeholders and discuss challenges, success stories and next steps between domains and throughout value chains. Moreover, we coordinate input from the Space Robotics robotics community in Europe to highlight needs, possibilities and challenges regarding in-space activities.

Technical Sessions

TS01 Intelligence and Autonomy for Orbital Space Systems I

Date 03.11.2026 Start: 14:00 End: 15:30 **Room Room P+Q**

MainChair SecondChair

14:00 i-SAIRAS	14:15	Domain-Aware Conformal Prediction for Trustworthy Spacecraft Pose Estimation under Sim-to-Real Shift	Speaker: Dr Nidhal Eddine Chenni Insitution: University of Luxembourg
14:15 iSpaRo	14:30	Resilient Power Pointing for CubeSats under Solar-Array Faults: A Supervisory Reinforcement-Learning Guidance Architecture Validated in an Orbital Digital Twin	Speaker: Óscar Barberá Sáez Insitution: Universidad de Alicante
14:30 i-SAIRAS	14:45	An Event-Driven Approach to Satellite Constellation for Continuous Line-of-Sight Access	Speaker: Alexander Bülow Insitution: Luleå university of technology
14:45 i-SAIRAS	15:00	Towards Responsive Autonomy: Edge AI for Novel Observing Strategies	Speaker: Dr Michele Faragalli Insitution: Mission Control
15:00 iSpaRo	15:15	Privileged Critic Training Enables Sensor-Free Thruster Fault Adaptation in End-to-End RL	Speaker: Ricard Marsal I Castan Insitution: University of Luxembourg
15:15 iSpaRo	15:30	Transformer-Based Warm-Starting for Feasible and Optimal Terminal Approach to Tumbling Objects with Space Manipulators	Speaker: Maximilian Adang Insitution: Stanford University

TS02 Intelligence and Autonomy for Planetary Exploration Robots I

Date 03.11.2026 Start: 14:00 End: 15:30 **Room Room M**

MainChair SecondChair

14:00 i-SAIRAS	14:15	Software Architecture Overview and Status of a Semi-Autonomous Lunar Rover: Lunis	Speaker: Hilmi Dogu Kücüker Insitution: DFKI Robotics Innovation Center Bremen
14:15 i-SAIRAS	14:30	Advancement of the Modular HiveR Rover for Geological Field Studies: A Terrestrial Use Case on Vulcano Island	Speaker: Ricardo Pena Insitution: Neurospace GmbH
14:30 iSpaRo	14:45	Large Language Model Explainability for Planning Lunar Rover Trajectories under Uncertainty	Speaker: Michelle Ho Insitution: Stanford University Aeronautics and Astronautics Dept Stanford Intelligent Systems Lab (SISL)
14:45 i-SAIRAS	15:00	Distributional Reinforcement Learning for a Lunar Exploration Rover: Robot Control in Environments with Sparse Landmarks	Speaker: Dr Fumito Uwano Insitution: Institute of Engineering
15:00 iSpaRo	15:15	Multivariate Subspace Analysis for Sensor Fusion in Subsurface Planetary Drilling Fault and Anomaly Detection	Speaker: Dr Rene Mai Insitution: University of Michigan

15:15 iSpaRo	15:30	LithoSLAM: Object-Based Stereo Visual SLAM for Planetary Rover Localization and Hazard Mapping	Speaker: Insitution:	Ludovica Cavalieri Sapienza University of Rome

TS03 Prox Ops/Rendevous/Docking I

Date 03.11.2026 Start: 14:00 End: 15:30 **Room Room N**

MainChair SecondChair

14:00 i-SAIRAS	14:15	Supplementing the successfully proven LIDAR-based RVS® 3000 Product Family by µRVS Development of a Compact Solution for Space RPO Applications	Speaker: Insitution:	Max Moeller Jena-Optronik GmbH
14:15 i-SAIRAS	14:30	Inflatable Docking Mechanism	Speaker: Insitution:	Naito Kai Tokyo University of Science
14:30 iSpaRo	14:45	Time-Adaptive Finite-Burn Trajectory Optimization for Spacecraft Rendezvous and Proximity Operations	Speaker: Insitution:	Kosuke Mori Tohoku University
14:45 i-SAIRAS	15:00	Robust Vision-Based Pose Estimation utilizing Shadow Boundaries for Spacecraft Proximity Operations	Speaker: Insitution:	Daiki Tsuzuki The University of Tokyo
15:00 iSpaRo	15:15	Visibility-Aware Multiphase Trajectory Optimization for Autonomous On-Orbit Inspection and Docking	Speaker: Insitution:	Prof. Kwangki Kim Inha University
15:15 i-SAIRAS	15:30	Simultaneous Thrust and Torque Execution of Shared-Authority Guidance with a Minimal Symmetric Thruster Set	Speaker: Insitution:	Dr.-Ing. Gabriele Fedeli University La Sapienza

TS04 Space Robotic Locomotion I

Date 03.11.2026 Start: 14:00 End: 15:30 **Room Room S**

MainChair SecondChair

14:00 i-SAIRAS	14:15	TransRoPorter: Progress on a highly flexible, reconfigurable utility rover for planetary exploration	Speaker: Insitution:	Dr.-Ing. Martin Görner DLR Institute of Robotics and Mechatronics
14:15 iSpaRo	14:30	Safety Critical Attitude Tracking With Torque Constrained Reference Modification	Speaker: Insitution:	Debasmita Majumdar Indian Institute of Technology, Bombay
14:30 iSpaRo	14:45	Applying a Tile-Coded linear TD(λ) Controller with Q(σ)-style updates to train the Continuity Rover on Simulated Lunar Terrain	Speaker: Insitution:	Giorgio Clivio Edinburgh Napier University
15:00 iSpaRo	15:15	End-to-End Reinforcement Learning for Quadrupedal Point-to-Point Jumping in Lunar Gravity	Speaker: Insitution:	Levin Müller ETH Zürich
15:15 i-SAIRAS	15:30	Feasibility Analysis and Mission Design for Small Rover Exploration in Harsh and Resource-Constrained Planetary Environments	Speaker: Insitution:	Dr Takao Maeda Tokyo Univ. of Agri. and Tech.

Technical Sessions

TS05 Multi-Robot Cooparation/Collaboration I

Date 03.11.2026 Start: 14:00 End: 15:30 **Room Room T**

MainChair SecondChair

14:00 i-SAIRAS	14:15	Formal Skill-Based Architecture for Safe On-Orbit Assembly with Crawling Robots	Speaker: Insitution:	Dr.-Ing. Mathieu Rognant ONERA/DTIS
14:15 i-SAIRAS	14:30	Satellite Guidance for Beam-Tracking with Distributed Space Antennas	Speaker: Insitution:	Seang Shim The Graduate University for Advanced Studies
14:30 iSpaRo	14:45	Liquid Cooling of a Frameless BLDC Motor for High-Torque Operation in Vacuum	Speaker: Insitution:	Susan McLain The University of Texas at Austin
14:45 iSpaRo	15:00	A Mixed-Integer Linear Programming Approach to the Multi-Agent Path Finding and Task Assignment Problem in Space Structure Assembly.	Speaker: Insitution:	George Burns University of Bristol
15:00 i-SAIRAS	15:15	Development and Applications of the VISPA Robotic Space Manipulator	Speaker: Insitution:	Dr Elie Allouis Airbus Defence and Space
15:15 iSpaRo	15:30	Leader Election for Autonomous Decision-Making (LEAD) for Coordinating CADRE's Team of Lunar Rovers	Speaker: Insitution:	Dr Sriramya Bhamidipati NASA Jet Propulsion Laboratory

TS06 Intelligence and Autonomy for Orbital Space Systems II

Date 03.11.2026 Start: 16:00 End: 17:30 **Room Room P+Q**

MainChair SecondChair

16:00 iSpaRo	16:15	Learning-Based Adaptive MPC for Magnetorquer-Only Satellite Attitude Control	Speaker: Insitution:	Patrick Schwartz Johns Hopkins University
16:15 i-SAIRAS	16:30	Autonomous Mission Planning with an Onboard Vision-Language Model	Speaker: Insitution:	Dr Patrick McKeen MIT
16:30 iSpaRo	16:45	Illumination-Aware Active Perception for Spacecraft Inspection	Speaker: Insitution:	Sagarika Rao Valluri New York University
16:45 i-SAIRAS	17:00	On-Orbit Demonstration of Neural Network-Based Autonomous Operational Scheduling on a Commercial Earth Observation Spacecraft	Speaker: Insitution:	David Rijlaarsdam Ubotica Technologies B.V.
17:15 i-SAIRAS	17:30	LEOspace's Cybertronic vision for the exploration of Space	Speaker: Insitution:	Dr Franz Georg Hey LEOspace

Technical Sessions

TS07 Intelligence and Autonomy for Planetary Exploration Robots II

Date 03.11.2026 Start: 16:00 End: 17:30 **Room Room M**

MainChair SecondChair

16:00 i-SAIRAS	16:15	Beyond Rover Line of Sight: Cross View DEM Completion for Occluded Planetary Terrain Using UAV Monocular Imagery	Speaker: Nathan Ornstein Insitution: TU Delft
16:15 iSpaRo	16:30	Informative Path Planning for Autonomous Lunar Rover Exploration: A Terrain and Computational Cost-Aware Benchmarking Framework	Speaker: Hans Mertens Insitution: University of Hawai‘i at Mānoa
16:30 i-SAIRAS	16:45	Lighting-Robust Absolute Localization in Lunar Polar Regions Using Digital Twins with Domain Randomization	Speaker: Dr Benjamin Wu Insitution: NVIDIA
16:45 iSpaRo	17:00	Risk-Conditioned Offline Reinforcement Learning for Visual Planetary Rover Navigation	Speaker: Anton Bjørndahl Mortensen Insitution: Aalborg Univeristy
17:00 i-SAIRAS	17:15	ARES - Autonomous Rotorcraft for Exploration and Sampling: A Foldable Y6 Coaxial Rotorcraft Testbed for Planetary Exploration	Speaker: Lennart Puck Insitution: European Space Agency
17:15 iSpaRo	17:30	Fleet-To-Lab: A Transfer Learning Framework For Lunar Rover Slippage Estimation Via Model Fusion	Speaker: Riccardo Viviano Insitution: University of Luxembourg – SnT (SpaceR)

TS08 Prox Ops/Rendevous/Docking II

Date 03.11.2026 Start: 16:00 End: 17:30 **Room Room N**

MainChair SecondChair

16:00 iSpaRo	16:15	Towards Interaction State Recognition in Sensorized Gecko Interfaces for Orbital Servicing	Speaker: Eduart Abdullahu Insitution: University of Luxembourg
16:15 iSpaRo	16:30	Lie Group-based Dual-Task Control of 9-DOF Free-Floating Space Manipulator using Reaction Null Space	Speaker: Younghoon Choi Insitution: Hanyang University Korea Institute of Industrial Technology
16:30 iSpaRo	16:45	HyPR: Safety- and Fuel-Aware Motion Planning and Replanning for Autonomous SmallSat Servicing	Speaker: Jakob Gorisek-Gazze Insitution: University of Michigan, Ann Arbor
16:45 i-SAIRAS	17:00	Minimum Impulse Bit Aware Allocation for Manipulator Mounted Spacecraft Thrusters	Speaker: William Schwend Insitution: University of Colorado Boulder

17:00 iSpaRo	17:15	Can Learned Models Enhance Spacecraft Docking and Refueling in a Self-Sustaining Space Economy?	Speaker: Insitution:	Aman Arora University of Luxembourg Luxembourg
17:15 iSpaRo	17:30	Effective-Mass-Aware Posture Optimization for Low-Impact Contact in Space Robotic Manipulators using MPC	Speaker: Insitution:	Teruhiro Kataonami Tohoku University Kuwahara Laboratory, Engineering Laborat

TS09 Space Robotic Locomotion II

Date 03.11.2026 Start: 16:00 End: 17:30 **Room Room S**

MainChair SecondChair

16:00 iSpaRo	16:15	Path-Following Control and Terramechanics Analysis for Planetary Rovers Under Wheel-to-Wheel Traction Asymmetry	Speaker: Insitution:	Ryuya Matsuoka Tohoku University School of Engineering Department of Aerospace Engineering
16:15 i-SAIRAS	16:30	High-Speed Lunar Surface Mobility with Passive Torsion Bar Suspension: Locomotion Concept and Analogue Validation	Speaker: Insitution:	Raphaël Boitte Space Applications Services
16:30 iSpaRo	16:45	Graph-Based Simultaneous Path and Foothold Planning for Multi-Limbed Intra-Vehicular Robots in Space Stations	Speaker: Insitution:	Masazumi Imai Tohoku University Graduate School of Engineering Department of Aerospace Engineering
16:45 i-SAIRAS	17:00	Challenges and Progress Toward Lunar Surface Logistics and Cargo Mobility	Speaker: Insitution:	Kaizad Raimalwala Mission Control
17:00 iSpaRo	17:15	Design and Characterization of an SMA-Actuated Continuum Limb for Space Applications	Speaker: Insitution:	Kristina Andreyeva University of Southern California
17:15 i-SAIRAS	17:30	Imitation Learning for Optimal Control for Low-Level Locomotion Modes of Planetary Rovers	Speaker: Insitution:	Dr Valerio Auriemma University of Rome Tor Vergata

TS10 Multi-Robot Cooparation/Collaboration II + Spacecraft/Satellite Technology

Date 03.11.2026 Start: 16:00 End: 17:30 **Room Room T**

MainChair SecondChair

16:00 i-SAIRAS	16:15	Lunar Cave Exploration by Multi-Robot Cooperation	Speaker: Insitution:	Prof. Dr. TAKASHI KUBOTA Meiji University

16:15 i-SAIRAS	16:30	Sustainable, reconfigurable, modular robotic approaches for planetary applications	Speaker: Insitution:	Niels Will Deutsches Forschungszentrum für Künstlic Robotics Innovation Center
16:30 iSpaRo	16:45	Who Went Where When on the Lunar Surface: Forensic Trajectory Analysis to Identify Byzantine Rovers	Speaker: Insitution:	Lachlan Holden Adelaide University
16:45 i-SAIRAS	17:00	HIDA-S: A Conceptual Framework for Hierarchical Decision-Making in Multi-Robot Space Missions	Speaker: Insitution:	Dr Shuhei Shigeto JAXA
17:00 i-SAIRAS	17:15	Decentralized Swarm Exploration and Field Validation for Hazardous Subsurface Environments with Small Robots	Speaker: Insitution:	Prof. Dr. Yasuharu Kunii Chuo University
17:15 i-SAIRAS	17:30	Swarms for Detection of Life in Caves on Earth and in Space	Speaker: Insitution:	Iris Underhill Bristol Robotics Laboratory

TS11 Artificial Intelligence

Date 04.11.2026 Start: 09:30 End: 11:00 **Room Room P+Q**

MainChair SecondChair

09:30 i-SAIRAS	09:45	Geometry-Optimized Trimmed Helicoid Soft Manipulators with JEPA World Models and Closed-Form Continuous-Time Neural Network Control for Space Robotic Applications	Speaker: Insitution:	Ali Golozar Politecnico di Milano
09:45 i-SAIRAS	10:00	AstroPIE-53: Towards Understanding Failure Modes of Human Pose Estimation in Space	Speaker: Insitution:	Stephanie Käs RWTH Aachen University Visual Computing Institute Computer Vision
10:00 i-SAIRAS	10:15	Image-Based Grain Size Analysis for the ExoMars Rosalind Franklin Rover: The GRAINS System	Speaker: Insitution:	Cristina Luna GMV
10:15 i-SAIRAS	10:30	AI Roadmapping for Space Robotic Missions and Services	Speaker: Insitution:	Prof. Dr.-Ing. MINI RAI ORBIT RISE LTD
10:30 i-SAIRAS	10:45	AI-Participatory Control Architecture for Space Robotic Operations: State, Authority, and Evidence in Human-Agent Teams	Speaker: Insitution:	Masato Nemoto Kouya LLC
10:45 i-SAIRAS	11:00	Exploiting the Semantic Latent Space of Self-Supervised Vision Foundation Models for Zero-Shot Earth Observation OOD Detection	Speaker: Insitution:	Dr.-Ing. Unai Izagirre Mondragon University

TS12 Intelligence and Autonomy for Planetary Exploration Robots III

Date 04.11.2026 Start: 09:30 End: 11:00 **Room Room M**

MainChair SecondChair

09:30 iSpaRo	09:45	Hardware-Accelerated Instance Segmentation for Resource-Constrained Space Robotics with Criticality Analysis	Speaker: Insitution:	Siddhant Shete DFKI Robert-Hooke-Straße 1, 28359 Bremen-Horn Bremen
09:45 i-SAIRAS	10:00	Challenging visual place recognition with planetary analogues of moon and mars	Speaker: Insitution:	Peer Neubert University of Koblenz
10:00 iSpaRo	10:15	Towards Mars Exploration: Robust Communication Architecture for Teleoperated Rovers	Speaker: Insitution:	Johannes Frithjof Koch German Aerospace Center (DLR)
10:15 i-SAIRAS	10:30	ExoMars Science Knowledge Programme Field Trials	Speaker: Insitution:	Vincent Schaeffer Airbus Defence and Space Ltd.
10:30 iSpaRo	10:45	Traversability-Constrained Kinodynamic RRT* for Cargo Rovers under Varying Payload Conditions	Speaker: Insitution:	Taisei Nishishita Keio University
10:45 i-SAIRAS	11:00	A Hybrid Quantum-Classical Architecture for Multi-Objective Planetary Rover Pathfinding	Speaker: Insitution:	Vincenzo Rallo Politecnico di Torino

TS13 Prox Ops/Rendevous/Docking III

Date 04.11.2026 Start: 09:30 End: 11:00 **Room Room N**

MainChair SecondChair

09:30 iSpaRo	09:45	Nonlinear Optimization-Based Trajectory Planning for Safe Final Approach to a Tumbling Spacecraft with Geometry-Aware Keep-Out Zones	Speaker: Insitution:	Kenta Iizuka Tohoku University Graduate School of Engineering Department of Aerospace Engineering
09:45 iSpaRo	10:00	A Lightweight Coilable Deployable Mechanism with Asymmetric Torsional Stiffness	Speaker: Insitution:	Zahra Golsorkhi The University of Osaka
10:00 iSpaRo	10:15	Decentralized Guidance and Control for Rendezvous and Docking with a Tumbling Target using Multiple Servicers	Speaker: Insitution:	Jonathan Jönsson Luleå University of Technology
10:15 iSpaRo	10:30	Control Barrier Functions for Safe Free-Flying Robotic Spacecraft Operations in Tumbling Target Capture	Speaker: Insitution:	Alexander Meinert e:fs TechHub GmbH
10:30 iSpaRo	10:45	Experimental Characterization of Reaction-Force-Induced Disturbance Propagation in a Multi-Arm Robotic System for In-Orbit Assembly	Speaker: Insitution:	Praveen Elavazhagan Cranfield university

10:45 iSpaRo	11:00	Pose-Level Uncertainty Propagation from Learned Anisotropic Keypoint Distributions for Monocular Relative Navigation of Uncooperative Spacecraft	Speaker: Insitution:	Safa Mesut BOSTANCI Middle East Technical University

TS14 Space Robotic Locomotion III

Date 04.11.2026 Start: 09:30 End: 11:00 **Room Room S**

MainChair SecondChair

09:30 iSpaRo	09:45	Active Center-of-Mass Control for Wheel Load Redistribution for Lunar Rovers on Granular Slopes Using Terramechanics-Aware Reinforcement Learning	Speaker: Insitution:	Danishi Ai Tohoku University
09:45 iSpaRo	10:00	Microgravity Landing and Stance Stabilization via a Hybrid Reaction-Wheel-Actuated Legged System (ReWArm)	Speaker: Insitution:	Pierluigi Vergari Politecnico di Torino
10:00 i-SAIRAS	10:15	Stuck-Resistant Traversal of Four-Wheeled Rover on Rough Terrain via Contact-Force-Based Traction Switching	Speaker: Insitution:	Yusei Fukuo Space and Astronautical Science course Graduate Institute for Advanced Studies
10:15 iSpaRo	10:30	Toward Lunar Legged Robots: Field Deployment Lessons at LUNA	Speaker: Insitution:	Adrian Fuhrer ETH Zürich Robotic Systems Lab
10:30 iSpaRo	10:45	Field-Measured Anisotropic Energy-Cost Maps for Planetary Rovers on Lunar-Analogue Regolith	Speaker: Insitution:	Andreja Malus Universty of Ljubljana Faculty of Mechanical Engineering
10:45 i-SAIRAS	11:00	Leg Design and Terrain Performance Evaluation for a Lunar Micro-Rover	Speaker: Insitution:	Oğuzhan Şahan Middle East Technical University

TS15 Robotic Manipulation and ISRU for Planetary Missions I

Date 04.11.2026 Start: 09:30 End: 11:00 **Room Room T**

MainChair SecondChair

09:30 i-SAIRAS	09:45	Design, Development and Verification of Robotic Joints for the STA Arm	Speaker: Insitution:	Dr Francesco Cavenago Leonardo s.p.a.
09:45 i-SAIRAS	10:00	Integration and Testing of the Mars Sample Transfer Arm Engineering Model	Speaker: Insitution:	Davide Viviani Leonardo s.p.a.
10:00 iSpaRo	10:15	Optimization of Current-Based Force Estimation for Impedance Control in Tendon-Driven Actuators on FPGAs	Speaker: Insitution:	Johannes Krämer DLR Institute of Robotics and Mechatroni

10:15 iSpaRo	10:30	Lessons Learned from the ESA ESRIC Space Resources Challenge 2025: Robotics and Excavation Subsystem of Team BREMEN	Speaker: Insitution:	Dr.-Ing. Mehmed Yüksel DFKI GmbH
10:30 i-SAIRAS	10:45	Particle-Scale Simulation of Tool-Regolith Interaction for Planetary Surface Activities and ISRU Applications: Coupling Mechanics and Space Environment Effects	Speaker: Insitution:	Sabrina Lanfranco Politecnico di Milano
10:45 iSpaRo	11:00	Autonomous Vision-Based Grasping for an Open-Source Rover in Space Robotics Research	Speaker: Insitution:	Andreas Vollert DLR Institute of Robotics and Mechatronics

TS16 Manipulation in Space I

Date 04.11.2026 Start: 09:30 End: 11:00 **Room Room R**

MainChair SecondChair

09:30 iSpaRo	09:45	Launch Adapter Ring Detection and Pose Estimation for Robotic Grasping of In-Orbit Targets	Speaker: Insitution:	Supuni Kaveendya Kirimamuni SpaceR/ SNT University of Luxembourg
09:45 i-SAIRAS	10:00	SpacEAAL CAPTURE: A Compliant Electro-Adhesive Gripper for Unprepared Spacecraft Capture	Speaker: Insitution:	Riccardo Mazzotti Adaptronics srl University of Bologna
10:00 i-SAIRAS	10:15	Multi-Arm Robotic Control Architecture and Strategies for Space Debris Extraction: The DEXTER Project Approach	Speaker: Insitution:	Prof. Dr. Jorge Pomares University of Alicante
10:15 i-SAIRAS	10:30	Experimental Validation of Physics-Informed Neural Networks for Torque-Controlled Floating-Base Manipulators	Speaker: Insitution:	Ruth Euniki Vraka Delft University of Technology Ubotica Technologies
10:30 i-SAIRAS	10:45	Development of an Extended Reality Environment for Astronaut Training in ESA's Orbital Robotics Laboratory	Speaker: Insitution:	Eline De Groote European Space Agency
10:45 i-SAIRAS	11:00	Toward a Scalable Design Method for Mobile-Manipulator Wrist Mechanisms: A Variable-Stiffness 6-DOF Spring Structure with Positioning-Error Accommodation, Overload Protection, and Separable Coupling	Speaker: Insitution:	Dr Tori Shimizu Japan Aerospace Exploration Agency

TS17 Intelligence and Autonomy for Planetary Exploration Robots IV

Date 04.11.2026 Start: 11:30 End: 13:00 **Room Room M**

MainChair SecondChair

11:30 i-SAIRAS	11:45	UWB-based Positioning System with Robustness to Direction Dependent Ranging Errors for Small Exploration Robots: An Experimental Study	Speaker: Insitution:	YUTO KAGEYAMA Chuo University Graduate School of Science and Engineering

11:45 i-SAIRAS	12:00	Domain-Aware Curriculum Learning for Lunar Rover Rock Detection Under Realistic Illumination Conditions	Speaker: Insitution:	Dr Martina Burgisi University of Pisa Sapienza University of Rome
12:00 iSpaRo	12:15	OS-Rover: An Open-Source Planetary Rover for Resource Prospecting with Drill-Assisted Sampling and Multimodal Teleoperation	Speaker: Insitution:	Yuchen Li Technical University of Munich
12:15 iSpaRo	12:30	Ensemble Orchestration Pattern for Robust and Efficient Space Telerobotic Operations	Speaker: Insitution:	Florian Lay DLR
12:30 i-SAIRAS	12:45	Path Planning for a Robot with Multiple Locomotion Modes Considering Uncertainty	Speaker: Insitution:	Hiroki Inoue The University of Tokyo
12:45 iSpaRo	13:00	Terrain-Aware Autonomous Planetary Exploration for Exteroceptive-Proprioceptive Mapping with Quadruped Scouts	Speaker: Insitution:	Carlos Alberto Sánchez Delgado Italian Institute of Technology - IIT University of Genova

TS18 Prox Ops/Rendevous/Docking IV

Date 04.11.2026 Start: 11:30 End: 13:00 **Room Room N**

MainChair SecondChair

11:30 iSpaRo	11:45	Contact Approach Strategy for Moment of Inertia Identification of Uncooperative Spacecraft Using Instantaneous Contact Forces	Speaker: Insitution:	Yuta Muto Tohoku university
11:45 iSpaRo	12:00	More than a Manipulator: Planning Propellant-Free Attitude Maneuvers for Free-Floating Spacecraft	Speaker: Insitution:	Harsh Bhundiya University of Maryland
12:00 iSpaRo	12:15	Dual-Actuation Emulation of Scaled Relative Orbital Dynamics on a Free-Flyer	Speaker: Insitution:	Elias Krantz KTH Royal Institute of Technology
12:15 iSpaRo	12:30	Design of Robotic Interfaces for Swappable Modules to Enable Serviceable Spacecraft	Speaker: Insitution:	Hector Campoy Cranfield University
12:30 iSpaRo	12:45	FPGA-Implementation and Performance Analysis of a SORN-based Inverse Kinematics Accelerator for Space-Robotics	Speaker: Insitution:	Nils Hülsmeier Hamburg University of Applied Sciences
12:45 iSpaRo	13:00	Cooperative Force Control of a Multi-Arm Floating-Base Robot for Crew Intra-Vehicular Activity	Speaker: Insitution:	Mariko Inazawa Japan Aerospace Exploration Agency

TS19 Space Robotic Locomotion IV

Date 04.11.2026 Start: 11:30 End: 13:00 **Room Room S**

MainChair SecondChair

11:30 i-SAIRAS	11:45	WEAR AND FATIGUE STUDY ON HTR ALL METAL FLEXIBLE LUNAR WHEELS	Speaker: Insitution:	Dr.-Ing. vassilios papantoniou HTR SA
11:45 i-SAIRAS	12:00	The E-Walker Robot: A Case Study on Technology Transfer from Orbit to Fusion Reactor	Speaker: Insitution:	Dr Manu Nair University of Manchester
12:00 iSpaRo	12:15	Encoder-Aided Inertial Navigation and Visual Odometry Validation for Wind-Driven Mars Rovers	Speaker: Insitution:	Giovanni Cozzolongo Friedrich-Alexander-Universität Erlangen Team Tumbleweed
12:15 i-SAIRAS	12:30	Development of planetary exploration rover with rim-driven wheels	Speaker: Insitution:	Dr Masatsugu Otsuki Japan Aerospace Exploration Agency
12:30 i-SAIRAS	12:45	Active Suspension Design for Locomotion and Payload Positioning on BEER (Berlin Experimental and Educational Rover)	Speaker: Insitution:	Simon Stapperfend Technische Universität Berlin Chair of Space Technology
12:45 iSpaRo	13:00	Friction aware Sliding Locomotion Model Predictive Control for Robust Planetary Exploration	Speaker: Insitution:	Lukas Rust University of Bremen DFKI Robot Innovation Center Bremen

TS20 Robotic Manipulation and ISRU for Planetary Missions II

Date 04.11.2026 Start: 11:30 End: 13:00 **Room Room T**

MainChair SecondChair

11:30 i-SAIRAS	11:45	Mission-Aware Reinforcement Fine-Tuning of an Imitation Policy for Lunar Rover Shelter Coupling	Speaker: Insitution:	Taehwa Kim Gachon University
11:45 iSpaRo	12:00	Sinkage and Energy-Aware Field Evaluation of a Lunar Rover with Bucket Drum Wheel for Simultaneous Regolith Excavation and Mobility	Speaker: Insitution:	Abdulla Hil Kafi Kyushu Institute of Technology
12:00 iSpaRo	12:15	Design and Preliminary Experimental Evaluation of a Magnet-Embedded Excavation Bucket Drum toward ISRU	Speaker: Insitution:	Kota Saito Keio University Department of Mechanical Engineering
12:15 i-SAIRAS	12:30	Selected results of the PETER PFC experiment in lunar gravity: data analysis and soil – excavator model correlation	Speaker: Insitution:	Dr Karol Seweryn Space Research Centre PAS (CBK PAN)
12:30 i-SAIRAS	12:45	Towards Robotic Regolith Surveying: Vacuum Testing of an Electrostatic-Vibration Actuated Sampler for Lunar ISRU Applications	Speaker: Insitution:	Dr Serena Pirrone ESRIC, LIST

12:45 i-SAIRAS	13:00	Stability Margin–Driven Payload Transfer for ATHLETE-Inspired Rover–Manipulators on Slopes	Speaker: Insitution:	Longlong Wang Cranfield University

TS21 Manipulation in Space II

Date 04.11.2026 Start: 11:30 End: 13:00 **Room Room R**

MainChair SecondChair

11:30 i-SAIRAS	11:45	Development and Microgravity Verification of the Hyper-Redundant Light Inspection and Servicing Arm (LISA) for On-Orbit Servicing	Speaker: Insitution:	Maximilian von Unwerth TU Berlin Chair of Space Technology
11:45 i-SAIRAS	12:00	Safe Use of Foundation Models for Dual-Arm Manipulation in Space Robotics	Speaker: Insitution:	Dr.-Ing. Sebastian Bartsch YardStick Robotics GmbH
12:00 i-SAIRAS	12:15	A Modular Laser Space Welding Machine for In-Orbit Truss Assembly	Speaker: Insitution:	Siim-Joosep Saulep Moliri
12:15 i-SAIRAS	12:30	Model-Free Grasping of Uncooperative Orbital Objects Using Open Vocabulary Foundation Model Pipelines	Speaker: Insitution:	Pandu Raditya Rohman Monash University
12:30 i-SAIRAS	12:45	An analysis on the contribution of robotic manipulation to the space beaming applications	Speaker: Insitution:	Ilhan Kaan Turkover Politecnico di Torino

TS22 Intelligence and Autonomy for Orbital Space Systems III

Date 04.11.2026 Start: 16:00 End: 17:30 **Room Room P+Q**

MainChair SecondChair

16:00 iSpaRo	16:15	Markerless Multi-Modal Autonomous Robotic Inspection of Large Space Structures	Speaker: Insitution:	Prof. Carlos Perez del Pulgar University of Malaga
16:15 iSpaRo	16:30	Learning Safe Pressure-Based Capture and Stabilization of Tumbling Space Debris	Speaker: Insitution:	Álvaro Belmonte Baeza University of Alicante
16:30 i-SAIRAS	16:45	Autonomous Multi-Phase GNC and Visual SLAM for Small-Body Approach, Proximity Operations and Characterization	Speaker: Insitution:	Pietro Califano Politecnico di Milano
16:45 iSpaRo	17:00	A learning-accelerated framework for space robot trajectory optimization and replanning in cluttered environments	Speaker: Insitution:	Matteo D'Ambrosio Politecnico di Milano
17:00 i-SAIRAS	17:15	Autonomous robotic inspection and repair of large space structures	Speaker: Insitution:	Prof. Dr.-Ing. David Rodríguez University of Málaga
17:15 i-SAIRAS	17:30	Reliability-Aware Domain Adaptation for Vision-Based Spacecraft Detection in Proximity Operations	Speaker: Insitution:	Hamza Mujtaba The University of Texas at Austin CDUS

TS23 Intelligence and Autonomy for Planetary Exploration Robots V

Date 04.11.2026 Start: 16:00 End: 17:30 **Room Room M**

MainChair SecondChair

16:00 iSpaRo	16:15	From Traversability Mapping to Real-Time Predictive Control on Planetary Irregular Terrains: A Safety-Optimal Framework	Speaker: Francisco Castro Insitution: Instituto Superior Técnico
16:15 i-SAIRAS	16:30	Ground Analog Testing of a Planetary Exploration Rover: Phased Development and Demonstration of a Long-Term Survival Rover on an Active Volcanic Remote Island	Speaker: Prof. Yoji KURODA Insitution: Meiji University
16:30 i-SAIRAS	16:45	A Segment-Guided Visual Tracking Front-End for Planetary Navigation	Speaker: Prof. Dr.-Ing. Kyuman Lee Insitution: Kyungpook National University
16:45 iSpaRo	17:00	Slope-Informed Gravity Compensation Using Real-Time Onboard Ground Plane Fitting for 2-DOF Pendulum-Driven Spherical Robots Traversing Planetary Craters	Speaker: Derek Pravecek Insitution: Texas A&M RAD Lab
17:00 i-SAIRAS	17:15	A comparative framework for absolute localization in Martian environments using data restoration	Speaker: Levin Gerdes Insitution: University of Malaga
17:15 iSpaRo	17:30	RGB-Driven Hyperspectral Synthesis for Robotic Mineralogical Mapping	Speaker: Dr Srinivasan Vijayarangan Insitution: Carnegie Mellon University The Robotics Institute

TS24 Orbital Servicing and Debris Removal I

Date 04.11.2026 Start: 16:00 End: 17:30 **Room Room N**

MainChair SecondChair

16:00 i-SAIRAS	16:15	In-Space Servicer Reinforcement Learning Locomanipulation: Simulation Training and Ground Testing	Speaker: Dr Samantha Chapin Insitution: U.S. Naval Research Laboratory
16:15 i-SAIRAS	16:30	Identification of Capture Regions in Non-Cooperative Targets by Image-Based Measurement of Characteristic Structures	Speaker: Sakura Hayakawa Insitution: Tokyo University of Science
16:30 iSpaRo	16:45	Robust Leveling Control for a Mobile Free-Floating Testbed	Speaker: Jakob Middelberg Insitution: DFKI GmbH
16:45 i-SAIRAS	17:00	Momentum-Consistent Configuration-Time Sampling-Based Planner for Dynamic Debris Avoidance in Free-Floating Space Manipulator Capture	Speaker: Efe Can Batur Insitution: Istanbul Technical University Istanbul/Sariyer

17:00 iSpaRo	17:15	Active Motion Absorption in Space Debris Capture Using an Admittance-Controlled Transformable Frame Net	Speaker: Insitution:	Tatsuya Oyama Kyushu Institute of Technology Graduate School of Engineering Space Robotics Laboratory
17:15 iSpaRo	17:30	Closed-Form Identification Framework of Captured Payload Inertia for a Free-Floating Space Manipulator	Speaker: Insitution:	Gajitha Nanayakkara Kyoto Universty of Advanced Science

TS25 Human Robotic Interaction

Date 04.11.2026 Start: 16:00 End: 17:30 **Room Room S**

MainChair SecondChair

16:00 i-SAIRAS	16:15	Toward Task-Grounded, Memory-Augmented Human-Space Robot Interaction for Satellite Servicing	Speaker: Insitution:	Nicolas Mahr Frankfurt University of Applied Sciences
16:15 i-SAIRAS	16:30	Human-Agent-Robot Teaming for Earth-Independent Anomaly Triage	Speaker: Insitution:	Ignacio Lopez-Francos NASA
16:30 i-SAIRAS	16:45	Multi-Operator Planetary Robotics: Designing for Efficient Human-Robot Operations	Speaker: Insitution:	Dr.-Ing. Thomas Krueger European Space Agency
16:45 i-SAIRAS	17:00	Adaption Human Fine Motor Control to Microgravity and Hypergravity: the Role of Active Exoskeleton Training	Speaker: Insitution:	Julia Habenicht Universität Duisburg Essen
17:00 i-SAIRAS	17:15	Effect of real microgravity and simulated microgravity on the electromyogram by means of an active exoskeleton	Speaker: Insitution:	Marc Tabie DFKI GmbH - Robotics Innovation Center
17:15 i-SAIRAS	17:30	Designing Transparent Control Mode Transitions for Delayed Teleoperation of Mobile Manipulators in Space Applications	Speaker: Insitution:	Davide Ragogna Aalborg University

TS26 Robotic Manipulation and ISRU for Planetary Missions III

Date 04.11.2026 Start: 16:00 End: 17:30 **Room Room T**

MainChair SecondChair

16:00 i-SAIRAS	16:15	Robotic Lunar Crane for Payload Offloading from the Argonaut Lander	Speaker: Insitution:	Iulia Tinca COMOTI
16:15 i-SAIRAS	16:30	Reinforcement-Learning-Based Active Slosh Suppression for Planetary Rovers Using a Manipulator and High-Fidelity CFD Co-Simulation	Speaker: Insitution:	Dr Dinara Zhussupova Institute of Math and Math Modelling

16:30 i-SAIRAS	16:45	Overview of various robotic technologies for potential use in the Artemis lunar mission	Speaker: Insitution:	Wiebke Brinkmann DFKI GmbH - Robotics Innovation Center
16:45 i-SAIRAS	17:00	Interface-Agnostic Robotic Grasping for Lunar Infrastructure Operations	Speaker: Insitution:	Trevor Jerome NASA Johnson Space Center
17:00 i-SAIRAS	17:15	Challenges in Roboticising Lunar In-Situ Resource Utilisation Payloads	Speaker: Insitution:	Prof. Alex Ellery Carleton University Mechanical & Aerospace Engineering
17:15 i-SAIRAS	17:30	Head-Tracking System for controlling robot during Extra Vehicular Activities for In-Situ Resource Utilization tasks	Speaker: Insitution:	Vaishnavi Mendu Westphalian Uni of Applied Sciences Department of Electrical Engineering and Applied Physics

TS27 Telerobotics and Planetary Simulation

Date 04.11.2026 Start: 16:00 End: 17:30 **Room Room R**

MainChair SecondChair

16:00 i-SAIRAS	16:15	Translation Matrix: Terrestrial Surgical Robotics to Autonomous Space Medicine Applications	Speaker: Insitution:	Dr Preeti Sawant Jaslok Hospital and Research Centre
16:15 iSpaRo	16:30	A Fuzzy Game-Theoretic Shared Autonomy Strategy for Bilateral Robotic Teleoperation	Speaker: Insitution:	Alessandro Bartesaghi Politecnico di Milano
16:30 iSpaRo	16:45	Investigating Gesture Based Robotic Teleoperation for Space Applications	Speaker: Insitution:	Prof. Dr. Pradipta Biswas Indian Institute of Science Indian Institute of Science Indian Institute of Science
16:45 i-SAIRAS	17:00	Reduced Model-Based Teleoperation of Robotic Contact Tasks with Variable Delay	Speaker: Insitution:	Charles Sirois McGill University
17:00 i-SAIRAS	17:15	Predictive Teleoperation Interface for Lunar Rover Operation Under Earth-Moon Communication Latency	Speaker: Insitution:	Oscar Cárdenas Gómez Kyushu Institute of Technology
17:15 i-SAIRAS	17:30	Terrain Forge: A Modular High-Fidelity Toolkit for the Rapid Generation of Scale-Accurate Lunar Terrains for Robotics Testing	Speaker: Insitution:	Will Booth Airbus Defence and Space

TS28 In-Space Operations and Services (ISOS)

Date 05.11.2026 Start: 09:30 End: 11:00 **Room Room P+Q**

MainChair SecondChair

09:30 i-SAIRAS	09:45	A Common Standardization Layer for Multi-Actor Space Robotic Operations	Speaker: Insitution:	Dr Akiko Otsuka JAXA
09:45 i-SAIRAS	10:00	Conceptual Design of an Environmental Monitoring System for the ISS Kibō Module Using a Free-Flying Robot Equipped with a Compact Environmental Sensor	Speaker: Insitution:	Hikaru Oi Tokyo University of Science
10:00 i-SAIRAS	10:15	Shaping a Standard Interface: SIROM Interface Advancements Based on Lessons Learned from Experimental Validation	Speaker: Insitution:	Alejandro Lazaro Sener Aeroespacial
10:15 iSpaRo	10:30	Orbital Servicing Logistics and Scheduling in LEO-MEO: A Hybrid MINLP Framework for In-Space Operations and Services	Speaker: Insitution:	Dr Goffredo Scanga Politecnico di Milano
10:30 iSpaRo	10:45	Generalized-Coordinate Backup Control Barrier Function Safety Filtering for Free-Flying Service Robots in Space Station Environments	Speaker: Insitution:	Junsik Kim Hanyang University
10:45 i-SAIRAS	11:00	Relocatable Robotic Manipulator and Modular Toolset for In-Orbit Servicing and Assembly: Development and Laboratory Validation	Speaker: Insitution:	Dr Mathieu Deremetz Space Applications Services

TS29 Intelligence and Autonomy for Planetary Exploration Robots VI

Date 05.11.2026 Start: 09:30 End: 11:00 **Room Room M**

MainChair SecondChair

09:30 i-SAIRAS	09:45	Autonomous Navigation Stack for Lunar Rover : Design and Tests in a Representative Environment	Speaker: Insitution:	Dr Isabelle Maroger Magellium
09:45 i-SAIRAS	10:00	Observation-Policy-Aware Localizability of Lunar South-Pole Rovers Using Star Occultation by Lunar Terrain	Speaker: Insitution:	Kent Mizunuma The University of Tokyo Department of Electrical Engineering and Graduate School of Engineering
10:00 i-SAIRAS	10:15	Wheel Odometry Reliability on Compacted Lunar Regolith Simulant: Field Evidence from an Analog EVA at Lunares Research Station	Speaker: Insitution:	Alok Srivastav Embry-Riddle Aeronautical University Lunares Research Station
10:15 iSpaRo	10:30	Deep Reinforcement Learning-Based State-Improvement Control Policy Under Limited Observations for an Exploration Two-Wheeled Rover	Speaker: Insitution:	Yuuki Katayama TUAT
10:30 i-SAIRAS	10:45	NOMAD: A Modular Autonomy Architecture for Fast Multi-Mode, Multi-Range Lunar Rover Navigation	Speaker: Insitution:	Steven Kay GMV UK
10:45 i-SAIRAS	11:00	Frame-Rate Stable Semantic Mapping for Repeated Lunar Rover Observations	Speaker: Insitution:	jaeyoung Lee Gachon university

Technical Sessions

TS30 Robotic Testing Facilities, Simulation Frameworks, Digital Twins I

Date 05.11.2026 Start: 09:30 End: 11:00 **Room Room N**

MainChair SecondChair

09:30 iSpaRo	09:45	MarsLab: A Martian Rover Simulator for Planetary Rover Autonomous Navigation	Speaker: Insitution:	Beomsu Kim DGIST
09:45 iSpaRo	10:00	Simulation for Planetary Robotic Perception and Autonomy: A Concise Survey of Recent Capabilities and Gaps	Speaker: Insitution:	Hoyun Kim DGIST
10:00 i-SAIRAS	10:15	Development and Testing of a Lunar Rover Thermal Demonstrator	Speaker: Insitution:	Leon Spies University of Applied Sciences Aachen
10:15 iSpaRo	10:30	Scientifically Grounded Lunar Terrain Generation for High-Fidelity Rover Perception and Navigation Simulation	Speaker: Insitution:	Dr Marek Kraft Poznan University of Technology
10:30 iSpaRo	10:45	Soil Contact Dynamics Models for EAC-1A Lunar Regolith Simulant	Speaker: Insitution:	Antoine Pignède German Aerospace Center (DLR) Institute of Robotics and Mechatronics
10:45 i-SAIRAS	11:00	Development and Validation of a High-Fidelity Digital Twin for Rover-ARM System Using Isaac Sim	Speaker: Insitution:	Dr Kevin Stamenkovski Politecnico di Torino

TS31 Intelligence and Autonomy for Planetary Exploration Robots VII

Date 05.11.2026 Start: 11:30 End: 13:00 **Room Room M**

MainChair SecondChair

11:30 i-SAIRAS	11:45	Autonomous Post Landing and Egress Operations for the Exomars Rosalind Franklin Mission	Speaker: Insitution:	Chiara Lombardi EUROPEAN SPACE AGENCY
11:45 i-SAIRAS	12:00	Real-time RRT-based path planning for autonomous rover navigation on the GR740 in Rust	Speaker: Insitution:	Dr Fredrik Hellman Rapidity AB
12:00 i-SAIRAS	12:15	Rover Autonomy as a Product: ARGON Evolution and Capabilities	Speaker: Insitution:	Robert Marc Airbus Defence and Space Ltd.
12:15 i-SAIRAS	12:30	Real-Time Ground Normal Vector Estimation for Spherical Mobile 3D Mapping using LiDAR-Inertial Odometry	Speaker: Insitution:	Fabian Arzberger Julius-Maximilians-Universität Würzburg Informatik XVII: Robotik
12:30 i-SAIRAS	12:45	Single-Anchor Localization based on UWB Measurements under LOS and NLOS Conditions for Lunar Exploration Robots	Speaker: Insitution:	Dr Yamato Suzuki Chuo University

12:45 i-SAIRAS	13:00	Impact-based estimation of ground stiffness using planetary probes	Speaker: Insitution:	Haruto Seto The Graduate University for Advanced Studies

TS32 Robotic Testing Facilities, Simulation Frameworks, Digital Twins II

Date 05.11.2026 Start: 11:30 End: 13:00 **Room Room N**

MainChair SecondChair

11:30 i-SAIRAS	11:45	Procedural Synthesis of High-Resolution Lunar Terrains for Robotic Exploration	Speaker: Insitution:	Giovanni Pio Parracino Politecnico di Milano
11:45 iSpaRo	12:00	Parametric Discrete Element Method study and an Advanced Method for Estimating Added-Mass Effect toward Dynamic Granular Modeling	Speaker: Insitution:	Rio Makino Tokyo University of Agriculture and Tech
12:00 iSpaRo	12:15	Robotic Six-Axis Testbed for Validation of In-Space Refuelling Capture Interfaces	Speaker: Insitution:	Dr Dimitris Xydas Satellite Applications Catapult
12:15 iSpaRo	12:30	Validating the MoonRanger Lunar Rover's State Estimator	Speaker: Insitution:	Tushaar Jain Carnegie Mellon University
12:30 i-SAIRAS	12:45	Digital Twin-Centric Payload Logistics with autonomous Robotic Verification for Commercial Space Stations	Speaker: Insitution:	Shriabhay Shriharsha Monash University
12:45 iSpaRo	13:00	mjorbit: A Simulation Framework for Space Robotics	Speaker: Insitution:	John Zhang MIT

TS33 Mission Planning + Orbital/Planetary Missions I

Date 05.11.2026 Start: 14:00 End: 15:30 **Room Room P+Q**

MainChair SecondChair

14:30 iSpaRo	14:45	He3-Seeker: Robotic Information Planning for Lunar Helium-3 Distribution Mapping	Speaker: Insitution:	Yuchen Li Technical University of Munich
14:45 i-SAIRAS	15:00	Field testing of the ispace Tenacious lunar rover across multi-terrain analogue sites	Speaker: Insitution:	Dr Philippe Ludivig ispace
15:00 i-SAIRAS	15:15	A System-Level MBSE Approach to Future Lunar Surface Transportation Logistics	Speaker: Insitution:	Rael Taylor-Sezgin Cranfield University European Space Agency
15:00 i-SAIRAS	15:15	Design of the Robotic Servicing of Geosynchronous Satellites (RSGS) Robotic Satellite Servicer	Speaker: Insitution:	Dr Carl Henshaw US Naval Research Laboratory

15:15 i-SAIRAS	15:30	D-Spine: A Deployable Tensegrity-Based Mechanism with Anisotropic Torsional Stiffness for Lunar Surface Applications	Speaker: Insitution:	Chiranthan Krishnappa The University of Osaka
15:15 iSpaRo	15:30	Multi-Objective Graph-Based Path Planning Using Decomposition Methods for Planetary Exploration Rovers	Speaker: Insitution:	Dr Abigail Breitfeld Carnegie Mellon University

TS34 Perception/Vision Sensors I

Date 05.11.2026 Start: 14:00 End: 15:30 **Room Room M**

MainChair SecondChair

14:00 iSpaRo	14:15	Analysis of Stereo Matching Methods for Thermal Infrared Stereo Vision-Based Motion Estimation of Uncooperative Spacecraft	Speaker: Insitution:	Toma Takahashi Tohoku University
14:15 i-SAIRAS	14:30	ECLIPSE: Event-Based Crater-Referenced Lunar Navigation and Landing Site Assessment under Challenging Illumination Conditions	Speaker: Insitution:	Atakan Durmaz METU-Turkiye, Ankara
14:30 iSpaRo	14:45	A Minimal Optical-Flow Representation for Vision-Based Tactile Load-Direction Classification for Contact-Rich Robotic Manipulation in Microgravity	Speaker: Insitution:	Oscar Martinez-Bernal University of Luxembourg
14:45 iSpaRo	15:00	Evaluating Depth-Augmented Visual Features for Cross-Dataset Lunar Traversability Estimation	Speaker: Insitution:	Dr Bartosz Ptak Poznań University of Technology
15:00 i-SAIRAS	15:15	The unexplored potential of single-photon imaging in space robotics	Speaker: Insitution:	Prof. Carlos Perez del Pulgar University of Malaga
15:15 iSpaRo	15:30	A Symmetry-based Observer for Relative Navigation of Orbital Modules	Speaker: Insitution:	Rishav Mani Sharma University of würzburg

TS35 Robotic Testing Facilities, Simulation Frameworks, Digital Twins III

Date 05.11.2026 Start: 14:00 End: 15:30 **Room Room N**

MainChair SecondChair

14:00 iSpaRo	14:15	Ground Validation of Contact-Aware Intra-Vehicular Mobile Manipulation for Astronaut Task Support	Speaker: Insitution:	Dr Akihiko Honda Japan Aerospace Exploration Agency
14:15 i-SAIRAS	14:30	Distributed Software Infrastructure for Future Space Systems	Speaker: Insitution:	André Kupetz RIF e.V.
14:30 iSpaRo	14:45	A Real-Time-Capable Star Tracker Sensor Model for Ground-Based Verification of On-Orbit Servicing Applications	Speaker: Insitution:	Tobias Paul Hermann Kamp Institute of Robotics and Mechatronics German Aerospace Center (DLR)

14:45 iSpaRo	15:00	A Reproducible Reconstruction and Evaluation Framework for Photorealistic Lunar Analog Scene Reconstruction Toward Digital Twins	Speaker: Insitution:	Antar Mazumder Colorado School of Mines, Golden, CO, US
15:00 i-SAIRAS	15:15	How Time-Triggered Architectures and TTEthernet enable Model-Based Design and Deterministic Simulation Frameworks for Safety-Critical Control Applications	Speaker: Insitution:	David Hofer TTTECH Computertechnik AG
15:15 i-SAIRAS	15:30	Adapting Spherical Air Bearings for Accessible Free-Floating Space Robotics Testing	Speaker: Insitution:	Matthew Deans University of Glasgow

TS36 Mission Planning + Orbital/Planetary Missions II

Date 05.11.2026 Start: 16:00 End: 17:30 **Room Room P+Q**

MainChair SecondChair

16:00 i-SAIRAS	16:15	DIANA-Software: An Integrated Software Ecosystem for Planetary Rover Development, Testing and Field Operations	Speaker: Insitution:	Dr Anna Roma Politecnico di Torino Team DIANA
16:15 iSpaRo	16:30	RoughSense: Lightweight Terrain-Induced Rover Vibration Prediction Using Point Clouds and IMU Feedback	Speaker: Insitution:	Dr.-Ing. Gabriel Garcia University of Luxembourg/SnT - SpaceR
16:30 i-SAIRAS	16:45	Multi-Agent Constellation Network Coordination for Composite Earth Observation Services	Speaker: Insitution:	Fabrizio Maccari Politecnico di Milano
16:45 i-SAIRAS	17:00	LunarCobot: Microrover Technologies for Multi-Robot Operation on the Lunar Surface	Speaker: Insitution:	Moritz Gewehr University of Stuttgart Institute of Space Systems
17:00 iSpaRo	17:15	Evaluation of Accumulated Angular Momentum in Combined Service and Target Spacecraft Configurations for On-Orbit Servicing	Speaker: Insitution:	Kenichiro Takahashi Institute of Science Tokyo
17:15 i-SAIRAS	17:30	EUROSPACE TACHELES on Artemis 2: Qualifying Core Lunar Rover Electronics and Advancing a Unified Platform for Earth, Orbit, and Moon	Speaker: Insitution:	Maximilian von Unwerth NEUROSPACE GmbH

TS37 Perception/Vision Sensors II

Date 05.11.2026 Start: 16:00 End: 17:30 **Room Room M**

MainChair SecondChair

16:00 i-SAIRAS	16:15	An AI-Driven Multi-Camera Autonomous Segmentation and Tracking (MAST) Framework for Safe Cargo Transfer	Speaker: Insitution:	Dr Sriramya Bhamidipati NASA Jet Propulsion Laboratory
16:30 iSpaRo	16:45	ExtremeLunar: A Dataset and Benchmark for Lunar South-Pole Rock-Segmentation Degradation	Speaker: Insitution:	Jiayu He King's College London

16:45 iSpaRo	17:00	Efficacy of Monocular Depth Estimation in Lunar Environments	Speaker: Insitution:	Dr Michael Lanighan TRACLabs Inc
17:00 iSpaRo	17:15	Clock Synchronization and Antenna Delay Estimation for UWB-based Lunar Rover Networks	Speaker: Insitution:	Alexander James Becoy Delft University of Technology
17:15 iSpaRo	17:30	Risk-Aware RGB-D Terrain Perception for Embedded Lunar Rover Traversability Assessment in Lunar Simulation	Speaker: Insitution:	Raihana Shams Islam Antara Kyushu Institute of Technology

TS38 Robotic Testing Facilities, Simulation Frameworks, Digital Twins IV

Date 05.11.2026 Start: 16:00 End: 17:30 **Room Room N**

MainChair SecondChair

16:00 i-SAIRAS	16:15	Hardware-in-the-Loop Simulation of Small Satellite Docking Using a Series Impedance–Admittance Control Architecture	Speaker: Insitution:	Balthasar Jäger TU Berlin
16:15 iSpaRo	16:30	High Fidelity Hardware-in-Loop Simulation of Autonomous Spacecraft Rendezvous and Docking using Dual-Robot Platfom Track	Speaker: Insitution:	Sri Aditya Deevi Indian Space Research Organization
16:30 iSpaRo	16:45	Dynamic Characterization of the Motion Suspension System for Space Manipulator Gravity Offloading	Speaker: Insitution:	Ferdinand Elhardt German Aerospace Center (DLR)
16:45 i-SAIRAS	17:00	Physics-Based Optical Crosstalk Simulation for Operational Optimization of Multi-Lidar Systems within the ViTOS Testbed	Speaker: Insitution:	Dr.-Ing. Jörn Thieling RWTH Aachen (MMI)
17:00 iSpaRo	17:15	Study on High-Precision Horizontal Thrust Control by Center of Mass Shift on an Air Bearing Table	Speaker: Insitution:	Itsuki Fujiwara The University of Tokyo
17:15 i-SAIRAS	17:30	Development of C2Dyn: A Contact-and-Capture Dynamics Test Platform for On-Orbit Servicing	Speaker: Insitution:	Yuki Ikeda Japan Aerospace Exploration Agency

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DLR LABTOUR (Fri 06.11.2026)

approx. 9:30 - 12:30

Bus Transfer from/to Confex

Guided Tour to the DLR Headquarter in Cologne with selected DLR institutes and research facilities, including:

- MUSC
- :envihab
- Solar furnace
- LUNA Analog Facility