8:00 — **REGISTRATION DESK**

AUDITORIUM

9:00 — **Opening Ceremony**

Chloé AUDAS (MELiSSA Project Manager, ESA)

Stefaan DE MEY (Strategy Team Lead, ESA)

Geraldine NAJA (Director of Commercialisation, Industry and Procurement, ESA)

Dietmar PILZ (Director of Technology, Engineering and Quality, ESA)

Sara GARCÍA ALONSO (Reserve Astronaut, ESA)

Juan CARLOS CORTÉS (Director of the Spanish Space Agency, AEE)

10:30 — **Keynote Lecture**

From Low Earth Orbit to the Moon and Mars Horizons: The Evolution of Habitats and Life Support System

Cesare LOBASCIO (Space Exploration and Science Innovation Lead, Thales Alenia Space, Italy)

11h15 — **COFFEE BREAK**

	AUDITORIUM	FARADAY	CINE 3
	Track 1: Eating and Breathing in Space **1.1 Air Revitalisation**	Track 2: Valorising Wastes, Recovering Water and Drinking in Space **2.1 Waste Management, Recycling and Valorisation**	Track 3: Paving the Path to Circular Systems for Space and Earth **3.1 Advanced Life Support Systems Modelling, Simulation and Control**
	Chairs: Carolina Arnau Jimenez (Universitat Autónoma de Barcelona), Fazil Uslu (Beyond Gravity)	**Chairs:** Heleen de Wever (VITO), Dries Demey (Red Wire)	**Chairs:** Philippe Fiani (Sherpa Engineering), Eric Landel (Eric Landel Consulting)
11h45	Photosynthetic Performance of Two Microalgae Species Tested during Ax-3 Mission: Physical and Molecular Dynamics under Microgravity **Berat HAZNEDAROGLU, Bogazici University, Turkey**	Closing the Loop: Innovations in Waste Valorization for Circular by Design Materials and Products **Heather WRAY, TNO, Netherlands**	Advanced Control as a Key to Efficient Multitrophic Food Production – From Earth to Space **Jonathan RAECKE, Chemnitz University of Technology, Laboratory for Automatic Control and System Dynamic, Germany**
12h15	Snow Algae Plasticity and Metabolic Shifts Under Simulated Lunar Light Cycles and Gravity Conditions: Implications for Biological Life Support Systems **Carla RUIZ GONZALEZ, University of Edinburgh, Scottish Association for Marine Science, UK**	Microbial Degradation of Cellulose Containing Waste – a Key Process in Life Support System at Earth and Long-Term Space Missions **Hristo NAJDENSKI, The Stephan Angeloff Institute Of Microbiology, Bulgarian Academy Of Sciences, Bulgaria**	Microclimate in Microgravity: Understanding Canopy-Level Environmental Conditions for the Growth of Soybean in Space **Louise FLEISCHER, Université Clermont Auvergne / CNES, France**
12h30	Exploring Perchlorate Tolerance in Freshwater Microalgae for Martian Applications **Katarína MOLNÁROVÁ, Mendel University, Czech Republic**	Effect of Feeding Regime and pH on the First Compartment of the MELiSSA Loop **Laia VULART, Universitat Autònoma de Barcelona, Spain**	Advanced, Intelligent, and Functional Environmental Control for Managing Regenerative Plant Gas Exchange Fluxes in Bioregenerative Life Support Systems **Alberto BATTISTELLI, National research council, Italy**
12h45	MVIPER – The Magnetohydrodynamic Vortex-Inducing Photobioreactor Experiment **Luisa METTEN, Technical University of Munich, Germany**	Roadmap for Advancements for Menstrual blood Management in reduced gravITY (AMMITY) **Marion DUGUÉ, ETH Zürich, Switzerland**	Sustainable Farming Beyond Earth: Growing Plants Anywhere, Anytime **Georgina RIU PUCHE, ISAE-SUPAERO, France**
13h00	Design and Testing of Cyanobacterium Photobioreactors for Mars In-Situ Resource Utilisation **Guillaume GÉGO, KU Leuven, Belgium & ZARM, University of Bremen, Germany**	The microbiomes of human excrement composting: toward safe human waste cycling for closed-system horticulture **Gregory CAPORASO, Northern Arizona University, USA**	Passive Thermal Module for Space-Based Bioregenerative Life Support Systems **Vincent GARREAU, The Spring Institute for Forests on the Moon, France**
13h15	Optimisation of Plasmas Assisted Oxygen Production for Mars with Transfer Learning **Tarek BEN SLIMANE, Instituto Superior Tecnico, Portugal**	The Potential of Insects in Bioregenerative Systems for Space **Angiola DESIDERIO, ENEA, Italy**	

13:30 — **LUNCH**

	AUDITORIUM	FARADAY	CINE 3
	Track 1: Eating and Breathing in Space **1.1 Air Revitalisation**	Track 2: Valorising Wastes, Recovering Water and Drinking in Space **2.1 Waste Management, Recycling and Valorisation**	Track 3: Paving the Path to Circular Systems for Space and Earth **3.1 Advanced Life Support Systems Modelling, Simulation and Control**
	Chairs: Carolina Arnau Jimenez (Universitat Autónoma de Barcelona), Fazil Uslu (Beyond Gravity)	**Chairs:** Heleen de Wever (VITO), Dries Demey (Red Wire)	**Chairs:** Philippe Fiani (Sherpa Engineering), Eric Landel (Eric Landel Consulting)
14h30	Potential for CO_2 Fixation and Novel Food Production in Purple Non-Sulphur Bacteria: Exploratory Study in Low-Cost Bag Photobioreactors under Controlled and Resource-Scarce Analog Conditions **Guillaume GÉGO, University of Mons (UMONS), Belgium**	Bioconversion of Plastic Waste into Edible Protein: A Bio-Inspired Solution for Circular Life Support in Space **Nathalie BEREZINA, Norbite (NBTech AB), Sweden**	Modelling Nutrient Dynamics in Hydroponic Lettuce Production using Source-separated Urine **David WEISSBRODT, Norwegian University of Science and Technology, Norway**
14h45	Adaptive Laboratory Evolution of Cyanobacteria for Perchlorate Resistance in the Context of Martian ISRU **Lucie THIBAUD, ZARM, University of Bremen, Germany**	From Plant Biomass and Sidestreams to Tissue Engineering and Biocomposite Production **Sophie LABONNOTEWEBER, NTNU Samfunnsforskning, Norway**	Design Options for a Lunar Greenhouse Module using the SERENITY Methodology **Lucie POULET, Université Clermont Auvergne, France**
15h00	Aquatic Mosses for Bioregenerative Life Support Systems in Space: A Study on Radiation Tolerance and Biofiltering Potential	Integrating Microbial Radioresistance into the MELiSSA Loop: A Pathway Towards Opportunistic Radiation Shielding for Deep Space Exploration	Heat and Mass Transfer Studies using Leaf Replicas for Future Space Plant Systems: Effects of Angle, Airflow and Gravity

	Chiara AMITRANO, Università degli Studi di Napoli Federico II, Italy	**Guillaume GÉGO, HRE-HS, ESA-ESTEC, The Netherlands**	**Joanna KUZMA, Université Clermont Auvergne, France**
15h15	Influence of Atmospheric Pressure and of the Partial Pressures of Carbon Dioxide and Dinitrogen on the Productivity and Mass-Efficiency of Biological ISRU Systems Based on Diazotrophic Cyanobacteria **Cyprien VERSEUX, ZARM, University of Bremen, Germany**	Hydroponic Crop Production with High Nutrient Use Efficiency from Organic Waste for Space Applications **Icíar GIMENEZ DE AZCARATE BORDONS, ETH Zurich, Switzerland**	Data Management Strategies within the MELiSSA Plant Characterization Unit **Carlos BATHICH, Université Clermont Auvergne, France**
15h30	DRAFT: Dynamic Regolith Air Filtration Technology **Álvaro ROPERO LÓPEZ, The Spring Institute for Forest on the Moon, France**	Persistence of Foodborne Pathogens in Hydroponic Lettuce Cultivated on Urine-derived Nutrients **David WEISSBRODT, Norwegian University of Science and Technology, Norway**	MELiSSA System Study – Full Loop Model Integration and What-if Scenario Simulations **Marco GATTI, Enginsoft, Italy**
15h45	Oxygen Separation Technology for the PaCMan PCU – Overview and Future Perspectives **Erik MAZZOLENI, Enginsoft, Italy**	Microbial Electrochemical Cell Integration in the MELiSSA Loop: Enhancing Carbon Conversion for Improved Waste Treatment **Florent BOUCHON, UGent-CMET, Belgium**	Advancements in ESA's ALISSE Tool: Development of Version 2 and Roadmap Towards a Comprehensive ECLSS Evaluation Framework **Thomas FILI, Thales Alenia Space, Italy**
16h00	Assessment of Airflow, CO2 Accumulation and Thermal Stress in Lunar Modules Using CFD **Margarita BELALI, National Technical University of Athens, Greece**	Degradation of Surfactants and Microbial Community Succession in Anaerobic Membrane Bioreactor for Hygiene Wastewater Treatment in Controlled Ecological Life Support Systems **Libing ZHENG, Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences, China**	Benchmarking ALSSAT with ALiSSE: Aligning Life Support System Optimization with Ecosystem Efficiency and Closed-Loop Sustainability **Chukwuemeka UKAGA, TU WIEN, Austria**
16h15	Probing the Timescales of Cyanobacterial Photoprotection, **Michal GWIZDALA, Barcelona Institute of Science and Technology, Spain**		Quantitative Water System Model for Local Decision Making and Circularity: the Caux Seine Territory Case Study **Luke PILACHE, CentraleSupélec – Industrial engineering lab, France**
16h30			A Computational Study and Biosafety Assessment of a Hybrid Microbial Fuel Cell and Compost Heat Recovery System for Decentralized Rural Energy Applications **Gianandrea SCALA, Università di Siena, Italy**
16:45	**POSTER SESSION AND COFFEE BREAK**		
	AUDITORIUM		
17:45	**Keynote Lecture** MELiSSA Across Art and Science: Closed Loops, Computation and Cultural Imagination **Angelo VERMEULEN**, SEADS (Space Ecologies Art and Design) & Delft University of Technology, Netherlands		
	EXHIBITION		
18:30 20:00	**"Touch the Sky – Explore Space"** Conference participants will have free access to the "Touch the Sky" exhibition, provided they wear their badge clearly visible at all times. Please note that two areas inside the Museum, the Astronomical Planetarium and the Biodomo Pavilion, require separate tickets.		

Our sponsors

Colasse Led Lighting Solutions

ThalesAlenia Space a Thales / Leonardo company

ENGINSOFT

sener

SHERPA engineering

UCA Université Clermont Auvergne