19 APRIL

Space Resources Week 2023

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WEDNESDAY	Time	Duration	Room	Chair	What's happening	Name	Institution	Working title
	08:00	01:00	Lobby		Registration and coffee			
OPENING SESSION	09:00	01:25	Main	Lisa Burke	Welcome and introduction	Lisa Burke		
						Franz Fayot	Luxembourg Ministry of Economy	
						Bill Nelson	NASA	
						Josef Aschbacher	ESA	
						Bernhard Hufenbach	ESA	
						Kathryn Hadler	ESRIC	
						Gerald Sanders	NASA	
						Kyeong Ja Kim	Korea Institute of Geoscience and Mineral Resources	
						Matthias Maurer	European Astronaut Centre	
Coffee break	10:25	00:45	Lobby		UK Space Agency partnership			
ACCELERATING COOPERATION IN THE FIELD OF SPACE RESOURCES				Lisa Burke	Individual presentations	Giorgio Magistrati	ESA	
						Charles Hibbitts	Johns Hopkins University	NASA STMD LSII ISRU Focus Group Update and Path Forward
						Dale Boucher		Engaging Terrestrial Mining sector via Spin in and spin out
						Clive Neal	University of Notre Dame	International Lunar Resource Evaluation Campaign - Update and Next Steps
					Research Overviews	Dennis Harries	ESRIC	
						Angel Abbud Madrid	Colorado School of Mines	
						Usui Tomohiro	JAXA	
						Stanley Starr	Imperial College London	
						Philipp Reiss	Technical University of Munich	
						David Karl	Technical University of Berlin	
						Paul Zabel	German Aerospace Center	
						Bertrand Baratte	EURO2MOON	Leverage lunar resources exploration to foster international collaboration and benefit sustainability in Space and Earth
Lunch	13:10	01:00	Lobby		DoraHacks partnership			
EARTH-SPACE SYNERGIES	14:10	01:55	Main		Space mining roundtable			
						Advenit Makaya	ESA	Space based solar power: a space resource for the benefit of Earth and a potential enabler for an in-space resource market
						Julian Schroth & Christian Walter	ESA	Lunar Economy on how opportunities in space can improve business and life on earth (MOONLIGHT project)
						Pascal Barbier	AirLiquide	Development of novel structured adsorbent to increase trapping efficiency for H2O and CO2
						Nancy C. Wolfson	University of Minnesota	Space Resources Synergies for Sustainability and New Space Markets
						Arthur Woods	Astrostrom	The Greater Earth Lunar Power Station
						Ben Bussey	Intuitive Machines	Intuitive machines: commercially enabling international lunar scientific exploration
						Claudio Rossi	University Politechnica de Madrid	ROBOMINERS: from deep underground to deep space
Community Q&A				Kathryn Hadler	Roundtable discussion			
Group photo	16:05	00:10	Outside					
Coffee break	16:15	00:30	Lobby		EURO2MOON partnership			
ESA-ESRIC CHALLENGE	16:45	01:15	Main	Franziska Zaunig and Aidan Cowley	Introduction and context			
					Individual presentations	Hendrik Kolvenbach	ETH Zurich	
						Tristan Schnell	FZI	
						Grzegorz Gawdzik	PIAP	
						Miguel Olivares Mendez	SnT Luxembourg	
						Matt Cross	Mission Control	
					Roundtable discussion			
					Conclusions and next call for ideas			
Poster networking	18:00	01:30:00	Lobby					

20 APRIL

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THURSDAY	Time	Duration	Room	Chair	What's happening	Name	Institution	Working title
	08:30	00:30	Lobby		Registration and coffee			
MISSIONS AND MISSIONS PLANNING	09:00	01:45		Abigail Calzada Diaz	Individual presentations	Matt Cross	Mission Control	Enabling autonomous surface prospecting and mining with lunar rovers
						Su Meng	Origin Space	The Progress of Asteroid Mining Plans at Origin Space
						Ben Jackson	Blue Origin, Honeybee Robotics, Colorado School of Mines	Mars Water Ice Prospecting mission
						Lanré Logan	ESA	The Status of the ESA Elements within the ESA-NASA Mars Sample Return Campaign and the Space Resource Significance
						Clairet I. Guerra	Colorado School of Mines	Advancing the knowledge of martian hydrated minerals from their current state to a proven reserve: scientific mission concept
						Jim Hondros	Deimos Space Resources	Shifting the paradigm in off-Earth resource development
						David Binns	ESA	ISRU Demonstration mission
						Jorge Alves		Pilot plant CDF
Coffee break	10:45	00:30	Lobby		University of Luxembourg partnership			
TECHNOLOGY SHOWCASE 1.1	11:15	00:40	Main		Individual presentations	Luke Griffiths	Norwegian Geotechnical Inst.	Using digital twins to bring geotechnical testing to the lunar surface
						Alex Jerves		
						Kyle Acierno	OffWorld	Offworld's celestial and terrestrial swarm robotic and ISRU System
						Aliz Zemeny	ESA / ECSAT	Lunar Highland simulant selection of the Luna Analogue Facility Dust Chamber for future missions
						Piotr Kulinowski	University of Krakow	The Rod Scraper Conveyor - efficient lunar regolith transportation device
						Hannah Sargeant	University of Central Florida & University of Leicester	Icy Simulants for Testing PSR Technologies
						Susana del Carmen Fernandez	University of Oviedo	Exploring mining resources of the Moon regolith: lithium
Community Q&A	11:55	00:15		Advenit Makaya	Roundtable discussion			
TECHNOLOGY SHOWCASE 1.2	12:10	00:35			Individual presentations	Igor Drozdovskiy	ESA / EAC	Identifying minerals with the PANGAEA mineralogical database and multi spectral ML classification
						Yu Yue	Imperial Collage London	Theory for particle motion in electrostatic traveling wave fields
						René Prissang	Free University Berlin	Operative Deposit Modelling „AI a useful tool for future space mining ventures
						Rodolfo Marin	University of Leicester	Metal extraction from meteorite proxies of metal-rich asteroids in a deep eutectic solvent
						Cristina Luna	GMV	Using AI to enable human and robotic planetary resources utilisation
Community Q&A	12:45	00:15		Advenit Makaya	Roundtable discussion			
Lunch	*13:00*	01:00	Lobby		Polimak partnership			
ENABLING INFRASTRUCTURE 1.1	14:00	00:25	Main		Individual presentations	Connor Geiman	OrbiFab	Building the lunar storable propellant supply chain
						David Rodriguez	Ecole Polytechnique Federale de Lausanne	Design of a lunar reconnaissance drone for exploration and high-resolution mapping of extreme, hardly accessible locations
						Roberto Torre	ESA	Low binder content bricks: a regolith-based solution for sustainable surface construction on the Moon ESA
Community Q&A	14:25	00:10		Beth Lomax	Roundtable discussion			
ENABLING INFRASTRUCTURE 1.2	14:35	00:55			Individual presentations	Daniel Inocente	Blue Origin	Enabling permanent lunar architecture
						Robert Lindner	ESTEC / ESA	Facilities at ESTEC
						Juergen Schlutz	ESA / DLR	Preparing for Lunar Exploration: The ESA-DLR LUNA Analogue Facility in Cologne
						Jonathan Slavik	Astrobotic	Low energy use construction for the moon and mars
						Douglas Morrison	Centre for Excellence in Mining Innovation - Canada	Lunar Surface Station Architecture
Community Q&A	15:30	00:10			Roundtable discussion			
Coffee break	15:40	00:30	Lobby		Robominers partnership			
COMMERCIALIZATION 1.1	16:10	00:50	Main		Introduction to Commercialization	Lari Cujko		
					Individual presentations	Mateusz Józefowicz	European Space Foundation	MIRORES far-IR spectrometer consortium service packages for Earth and space mining industries
						Allice Miller	Helios	Paving the way to space with a green steel road
						Joost van Oorschot	MaanaaElectric	
						Dennis Williams	Lunar Station	Lunar Station builds ground-up Lunar Intelligence (LUNINT) Platform; MoonHacker™
						Bill Chang	Heliox	Asteroid to Interplanetary Spaceship Concept
						Stela Tkatchova	European Commission, European Innovation Council	Funding in-space solar energy harvesting solutions for innovative space applications
Community Q&A	16:50	00:20	Main	Lari Cujko	Roundtable discussion			
COMMERCIALIZATION 1.2	17:10	01:20			Introduction to ESRIC's Start-up Support Programme	Lari Cujko		
					Individual presentations	Sam Ximenes	Astroport	
						Marek Wilgucki	Four Point	
					Focus on SSP2 - presentations		Lightigo Space	
							Lunar Outpost	
							Orbital Assembly	
							Terra Luna Resources	
							Aurora Connect	
					Individual presentation		ESA	BSGN accelerator
Networking cocktail	18:30	01:30:00	PiriPiri		OffWorld partnership			

21 APRIL

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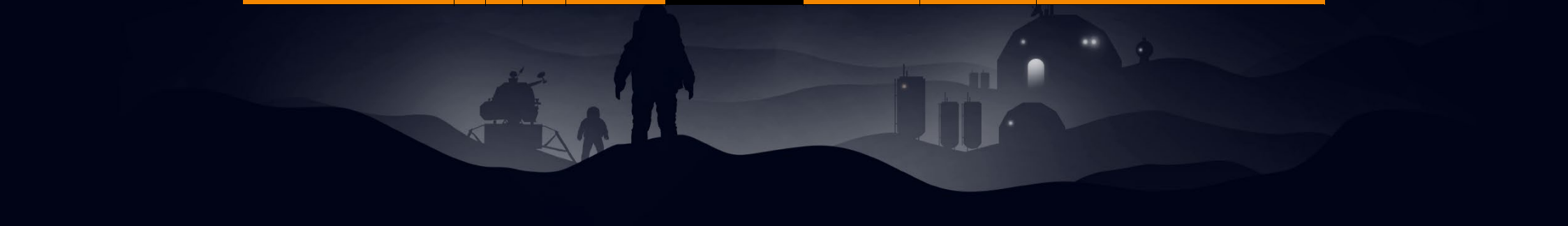
FRIDAY	Time	Duration	Room	Chair	What's happening	Name	Institution	Working title
	08:30	00:30	Lobby		Registration and coffee			
Welcome and introduction to the day	09:00	00:05	Main		Introduction to the day	Lisa Burke		
EXTRACTING AND USING SPACE RESOURCES 1.1	09:05	00:50			Individual presentations	Victoria Levy	Open University	Updates on the development of a CubeSat compatible system to supplement lunar prospecting missions
						Jeff Plate	WGM Canada	Lunar Geological Depositional Modelling Insights for Prospecting and Exploration of Water and Volatile Resources
						Mayuko Shinohara	Chiyoda Corporation	Lunar water analysis module with direct measurement
						Veneranda Lopez Dias	LIST	Heading towards a sustainable water management on Earth, the Moon and beyond: theoretical and experimental O-H water ice isotope fractionation during sublimation under lunar polar harsh environment.
Community Q&A	09:55	00:10		**Maher Kalaji**	Roundtable discussion			
EXTRACTING AND USING SPACE RESOURCES 1.1	10:05	00:40				Alberto Maulu	ESRIC	Multi-Attribute Decision Making (MADM) method for the evaluation of ISRU-enabling technology
						Stefan Linke	TU Berlin and Laserzentrum Hannover	Recent Advances of the MOONRISE FM payload for demonstration of Regolith laser melting on the lunar surface
						Beth Lomax	ESA	Sintering regolith pellets for FFC molten salt processing
						John Vrublevskis	Thales Alenia Space	Challenges for technology demonstration of In-Situ Resource Utilisation breadboards for the Metalysis FFC process for electrochemical reduction of lunar regolith into a metallic powder and oxygen in a molten salt bath
Community Q&A	10:55	00:10		**Maher Kalaji**	Roundtable discussion			
Coffee break	10:55	00:30	Lobby					
EXTRACTING AND USING SPACE RESOURCES 1.2	11:25	00:40			Individual presentations	Pia Swatkowski	Blue Horizon	3D printing from renewable resources for future deep space missions
						Arturo Pajares	Flemish Institute for Technological Research	Can we use Martian regolith as catalyst for the CO2 conversion?
						Kim Minkwan	University of Southampton	Development of an All-in-One in-situ resource utilisation system for future Mars exploration missions
						Kyla Edison	Colorado School of Mines	Lunar regolith casting for construction materials manufacturing
Community Q&A	12:05	00:10		**Abigail Calzada Diaz**	Roundtable discussion			
EXTRACTING AND USING SPACE RESOURCES 1.2	12:15	00:20				James Cole	Open University	Water Extraction from Icy Lunar Simulants using Low Power Microwave Heating
						Dorian Leger and Fardin Ghaffari	Spaceship EAC, ESA & Connectomix	Modelling the energy requirements for oxygen production on the Moon
						Farzaneh Gholami	Gradel	Robotic additive manufacturing implementation into in-space manufacturing process
						Michele Hollist	OxEon Energy	Scale-up and coupling of the MOXIE solid oxide electrolyzer for mission scale lunar and martian applications
Community Q&A	12:35	00:10	Main	**Abigail Calzada Diaz**	Roundtable discussion			
REGULATORY SESSION	12:45	00:45		**Dovile Matuleviciute**	Individual presentations	Giuseppe Reibaldi	Moon Village Association	Global Expert Group on Sustainable Lunar Activities – Recommended Framework
						Masashi Sato	ispace inc.	Space Resources legislation in Japan – lessons learnt and opportunities for the future
						Andrzej Misztal & Steven Freeland	Working Group on Space resource Activities	COPUOS
TERRESTRIAL PILOT PLANT	13:30	00:45		**Brigitte Lamaze**				
CONCLUSION AND NEXT STEPS (posters awards)	14:15	00:10				James Carpenter	ESA	
						Kathryn Hadler	ESRIC	
Bubbles and bites	*14:20*	01:30	Lobby		ispace partnership			



Posters

Space Resources Week 2023

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TITLE	AUTHOR
Earth-Space Cross-pollination: Exploring potential synergies between the terrestrial raw materials value chain and the development of space resources	Aaron Sediles Martinez
In-Situ Lunar and Asteroid Propellants for Hall Thrusters	Adam Parks
Trade-off study for critical lunar infrastructure - landing pads	Alexandra Adiaconitei
Investigation of vibrational conveyor parameters to transport lunar regolith	Alessandro Giovanni Scudeler
A Comprehensive Lunar Industrial Ecosystem	Alex Ellery
New Technological Approach for Improving the Thermionic Energy Conversion Efficiency for Space-Power Applications and Deep Space Exploration	Alexander Lukin
The Moon Factory	Alexandra Radl
Electrowinning of metals from lunar regolith by using new types of ionic liquids	Andreas Dietz
Compression of Deep Neural Networks for Space Autonomous Systems	Carl Shneider
Exergy analysis of a propellant-generating architecture on the moon	Casper Vissers
In-situ and post operando investigations of additively manufactured pure lunar regolith simulants parts	Caterina Iantaffi
Lunar Cargo	Charis Kosmas
Review of Water Capturing Devices for Lunar ISRU	Christoph Kalis
Enabling Infrastructure Ecosystem for Space Resources	Erik Kulu
Holistic system modeling: A path towards the design of scalable ISRU architectures	Francisco J. Guerrero-Gonzalez
Welcome to #TheMoon	Frank Koch
Resource mapping of the Moon's south pole	Freja Thoresen
Lunasonde: Cartographers of the Space Age	Haleigh Kling
Geo-spatial information requirements for the use of lunar resources in ground human settlements development	Ivan Sanchez Alva
Application of laser technology for scanning lunar soil simulants	Jacek Katzer

TITLE	AUTHOR
Virtual lunar regolith simulant for testing designs in reduced gravity	Joe Louca
Mapping Hazards to Infrastructure from Lunar Regolith Ejecta	Joshua Menges
Investigation of Regolith-Metal-Composite Materials	Julian Baasch
Lunar development and test facility	Koorosh Araghi
Deploying Lunar In-Situ Resource Utilisation Plants with Explicit Consideration of Uncertainty	Kosuke Ikeya
Optimization of lunar regolith beneficiation for the production of an Ilmenite-rich feedstock	Kunal Kulkarni
Design investigation of Lunar water extraction	Luca Kiewiet
Study of the atomic hydrogen generation by a high energetic plasma source to assist a direct reduction of lunar regolith raw materials for H2O production	Marko Sikiric
Expanding close-spaced sublimation thin film photovoltaics to space applications	Mykhailo Koltsov
Defining the architecture of the lunar ISRU Pilot Plant using MBSE	Nadia Pougnet
On-board eXplainable AI models for in situ Lunar and Martian images	Olivier Parisot
Reducing weight, speed, and torque in drillstring applications	Patrick Harkness
Analysis of the Behaviour of Lunar Dust in aqueous Solutions	Rieke Freer
Additive Manufacturing using Molten Lunar Regolith - System Progress and First Tests	Simon Stapperfend
Value chain for Pyrite based solar panel production and application	Taavi Raadik
Logistical Infrastructure for an ISRU-based Sunshade Concept to Support Climate Action	Tharshan Maheswaran
Advances in metal extraction from highland regolith using molten salt electrolysis	Timon Schild
Mission Space's system for space weather now- and forecasting	Vasily Petrov
Selection of Lunar Water Simulant and interrelated Lunar Water Purification System	Victoria Pesch
Space Situational Awareness Leveraging Thermal Infrared Imagery	Vincent Gaudilliere
Electrocatalyst for Reversible Hydrogen Fuel Cells	Vishnu Pullangatil