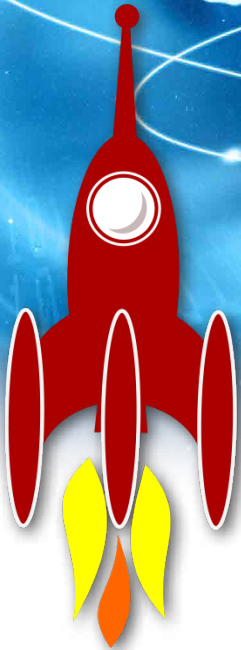




IAF Global Networking Forum

69th IAC 2018 | Programme

Bremen Exhibition & Conference Center
Bremen, Germany



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GERMANY



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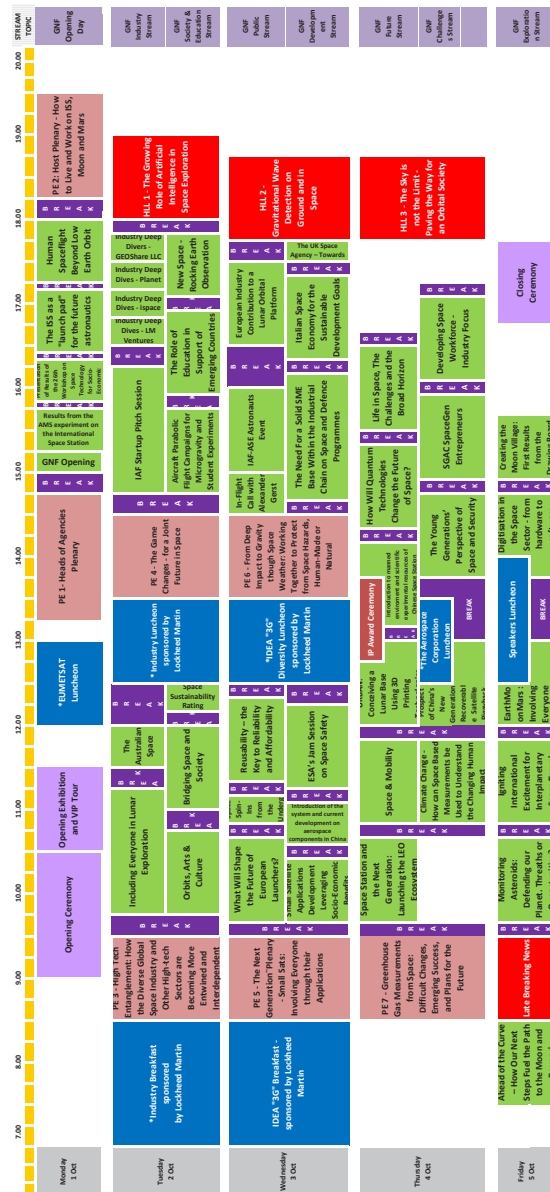
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GNF at a Glance



Monday 1 October

GNF Opening Day
Room: DLR Hall

15:00 - 15:15 GNF Opening

Location: Bremen Conference Center – DLR Hall

Message from the President of the International Astronautical Federation (IAF)

As President of the International Astronautical Federation, it is a great honour and a real pleasure for me to welcome you here in Bremen, at the Global Networking Forum.

The Global Networking Forum – GNF – was created in 2012 by the IAF, in line with its motto *“Connecting @All Space People”* and above all its mission of promoting partnerships in the space community, advancing international development, sharing knowledge and preparing the workforce of tomorrow.

Today, the GNF represents one of the Federation’s most successful endeavours involving stakeholders, policy-makers and decision-makers, experts and young professionals in the global conversation about the future of space activities.

This year’s International Astronautical Congress includes a unique and exciting GNF Programme, touching upon the most recent and hottest topics in space. With more than 40 sessions, the GNF at IAC2018 will give all participants the opportunity to learn all about recent developments and future endeavours in this field.

We are looking forward to welcoming you among the active participants, either on the stage or in the audience. It is the interaction, the critical-constructive dialogue we want to foster through the IAF Global Networking Forum: **Meet. Share. Connect.**

Thank you.



Jean-Yves Le Gall
President,
International Astronautical Federation (IAF),
France

Message from the Vice President for Science & Academic Relations and Global Networking Forum

Dear Colleagues,

Welcome to the 69th International Astronautical Congress and to a new edition of the Global Networking Forum. It is my pleasure to welcome you in my capacity of Vice-President for Science & Academic Relations and Global Networking Forum.

Since its creation in 2012, the GNF has experienced an important growth, and represents today one of the major platforms within the Federation used to promote international cooperation in the space community. The IAF is proud and grateful for this success and certainly wishes to thank all the organizers and sponsors that are playing a vital role in securing a broad and active participation to the Forum.

The GNF was created not only to give an opportunity for IAF Members to have a platform to showcase their latest developments, but also to actively engage the audience by providing a less technical approach to very relevant and innovative topics. This year's intense GNF programme foresees over 46 sessions on a variety of subjects, distributed by topical streams throughout the entire IAC week. This diversity of events demonstrates how the space sector, and the GNF with it, is reaching out more and more to different sectors of society such as technology, innovation, economics, sustainable development as well as art and culture.

I strongly encourage you to take advantage of the opportunities offered by the GNF, by networking with peers and experts, discussing with colleagues and sharing your knowledge with the community. This is how we can truly Meet, Share and Connect.



Gabriella Arrigo
VP for Science & Academic Relations
and Global Networking Forum,
International Astronautical
Federation (IAF),
Italy

15:15 - 15:45 Results from the AMS Experiment on the International Space Station

Location: Bremen Conference Center – DLR Hall

The Alpha Magnetic Spectrometer (AMS), is a large magnetic spectrometer operating on the ISS since May 2011, searching for antimatter particles and dark matter signals in cosmic rays. AMS has collected so far more than 120 billion cosmic ray particles providing for the first time a wealth of high precision data on the flux of the different species of cosmic rays from GeV up to TeV region. The talk will present the results obtained so far and the physics implications.

Organized by:

Italian Space Agency (ASI)



Speaker:



Roberto Battiston
President,
Italian Space Agency (ASI),
Italy

Roberto Battiston is the President of the Italian Space Agency (ASI) and Chair of Experimental Physics at the University of Trento, Italy.

He has worked for over 30 years in international collaborations in the field of experimental physics and fundamental interactions: Strong interactions, Electroweak interaction physics, Search for antimatter and dark matter in Cosmic Rays. He is also the founder of a research group working in the field of frontier detectors and technologies to be used in fundamental physics research – ground based and space based. In particular in 1994 he founded SERMS (Laboratory for the Study of the Effects of the Radiation on Special Materials), devoted to the characterization of materials and devices to be used in space conditions. He has been until 2014 Deputy spokesperson for the AMS experiment, the first fundamental physics experiment approved on the International Space Station, already successfully flown during the STS91 Shuttle flight in June 1998 and installed on the ISS in 2011.

Prof. Battiston has been the European proposer of the LIMADOU experiment, to develop an energetic particle payload for the Chinese CSES satellite, operating in orbit since February 2018 to study correlations between magnetosphere and lithosphere. He has been the Coordinator of the SR25 EU project (2013 – 15) to develop active magnetic shielding techniques for interplanetary flights. Author of more than 420 papers published on international scientific journals, and organizer of several workshops devoted to space science and to advanced technologies (Trento 1999, Elba 2002, Washington 2003, Beijing 2006, CERN 2012).

He graduated at Scuola Normale di Pisa (1979), Doctorate (Troisième Cycle), University of Paris IX, Orsay, 1982. He has been the Chair of General Physics at the Engineering Faculty of the Perugia University, Faculty of Engineering, (1992 – 2012). Since 2012 he is Chair of Experimental Physics at the Physics Department of the Trento University. Laurea honoris causa from the University of Bucharest (2000), Chevalier de la Légion d'Honneur (2016), Vladimir Syromiatnikov Prize (2017).

15:50 - 16:20 Presentation of Results of the 26th Workshop on Space Technology for Socio-Economic Benefits: Industry, Innovation and Infrastructure for Development (3Is4D)

Location: Bremen Conference Center – DLR Hall

The role of industry in the access to space is increasing, and strengthening the cooperation with the space industry is a way to increase the opportunities for developing countries to access space technologies and services. The workshop is expected to discuss and provide inputs on potential areas for partnerships considering the needs of developing countries, least developed countries and landlocked developing countries. The workshop shall also propose actions to progress in the definition of pilot projects that could foster partnership.

Organized by:

United Nations Office for Outer Space Affairs (UNOOSA)



Speakers:



Cenani Al-Ekabi
Projects Manager,
International Astronautical Federation (IAF),
France

Mr. Cenani Al-Ekabi recently joined the International Astronautical Federation (IAF) Secretariat as a Projects Manager. Prior to joining the IAF, Cenani worked as a Research Fellow at the European Space Policy Institute (ESPI) in Vienna, Austria since 2011, after completing two advanced studies LL.M. degrees in Air & Space Law and in European & International Business Law from Leiden University in the Netherlands, and participating in the ISU Space Studies Program in 2016.

He is a specialist in current and historical evolutions in the civil, military, industry and commercial space domains, and has conducted macroeconomic and microeconomic assessments for ESPI's stakeholders in the European space sector. At ESPI, he was responsible for the management and production of ESPI's Yearbook on Space Policy book series and its Space Policies, Issues and Trends report series, including their related databases and other projects addressing the stakes for European commercial spacecraft industry competitiveness, challenges for Europe to maintain autonomous access to space, and measuring the future benefits of space exploration.



Pontsho Maruping
Chair,
Science and Technical Subcommittee, UNCOUOS,
Austria

Ms Maruping's career spans both private and public sector at executive level as well as a working knowledge of various sectors. She currently heads up commercialization at Square Kilometer Array (SKA) where she is responsible for driving the transfer of technologies developed for the MeerKAT project into different applications. In addition to this, Ms Maruping is the chairperson of the Council for Space Affairs (SACSA) which is responsible for regulating space activities in South Africa. She chairs the Science and Technology Subcommittee of the United Nations Committee on Peaceful uses of Outer Space for 2018-2019.

Prior to joining SKA, she was an executive at the Technology Innovation Agency (TIA) responsible for Innovation Funding and Pre-commercialization Support. Her other previous roles include as the CEO of the Mine Health and safety Council and a Chief Director for space science and technology at the department of Science and Technology (DST). While at the DST, she spearheaded the establishment of the South African National Space Agency.

Her educational qualifications include an Executive Masters in Business Administration (IMD, Switzerland), Masters in Space Systems Engineering (TU Delft, Netherlands), Bachelor of Science (Hons.) in Management of Technology (University of Pretoria), Bachelor of Science (Eng.) in Mineral Processing (University of Witwatersrand).



Joachim Post
International Relations,
German Aerospace Center (DLR),
Germany

Dr. Joachim Post is manager of the relations to United Nations System entities and International Development Cooperation cluster at the International Relations Department of the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt e. V.; www.DLR.de). From 2014 to 2017 he has been a seconded national expert at the United Nations Office for Outer Space Affairs (UNOOSA) and its United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UNSPIDER) Programme at the Bonn office, Germany. There he was responsible for Earth Observation and Disaster Risk Reduction and Climate Change and worked in the areas of technical advisory support to developing countries, capacity development and knowledge management. He holds a diploma in environmental sciences from University of Trier (Germany, 2002) and a Ph. D. in natural sciences (Geoeology) from University of Potsdam (Germany, 2006) obtained while working for the Potsdam Institute for Climate Impact Research (PIK). He studied also at Utrecht University (Netherlands) and University of Aberdeen (UK). From 2006 to 2014 he has been a research scientist at the Earth Observation Center of the German Aerospace Center (DLR) and was responsible for risk assessment research and early warning systems. There he worked on developing and implementing tsunami risk assessment and knowledge for early warning in Indonesia (GITEWS project), as a principal investigator in several projects dealing with applied risk analysis research, e.g. CLIMB (www.climb-fp7.eu) in Europe, Flood Risk map study Singapore, SASSCAL (www.sasscal.org) and WASCAL (www.wascal.org) projects in Africa on climate change and sustainable land management, Multi-Risk Information System in Chile project and at the DLR Center for Satellite Based Crisis Information ZKI (www.zki.dlr.de) as rapid mapping coordinator. Internationally he strongly cooperates with Tohoku University (Japan) and the National University of Singapore. He is an expert in environmental and natural hazards risk and vulnerability assessments, early warning, climate impact research, earth observation and simulation modelling. His main interest lies in the Science, Technology and Innovation interface to policy and international development cooperation.

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY



Shirish Ravan
Senior Programme Officer,
United Nations Office
for Outer Space Affairs
(UNOOSA),
Austria

Dr. Shirish Ravan is Senior Programme Officer at the United Nations Office for Outer Space Affairs, based in Vienna, Austria. In addition his responsibilities for the Programme on Space Applications, he coordinates the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) globally. The UN-SPIDER has offices in Vienna, Bonn (Germany) and Beijing (China) and is supported by a network of 21 regional support offices. He has extensively worked with the countries in Asia, the Pacific and Africa to offer technical advisory services, institutional strengthening and outreach programmes.

Prior to this assignment, he has worked in UN-SPIDER Beijing Office and the UN Office on Drugs and Crime in Afghanistan. He brings in a vast experience in use of earth observation and geospatial technologies in the diverse areas of thematic applications. He holds Bachelor degree in Horticulture, Master in Environmental Sciences and Doctorate in Forest Ecology. He has over 40 scientific publications to his credit.



MODERATOR
Simonetta Di Pippo
Director,
United Nations Office
for Outer Space Affairs
(UNOOSA),
Austria

UNOOSA Director, Ms. Simonetta Di Pippo, leads the Office's strategies, policies and activities, ensuring that they are implemented in accordance with the mandates of the General Assembly, the Committee on the Peaceful Uses of Outer Space (COPUOS), and the established policies of the United Nations. She supervises the United Nations Programme on Space Applications and UN-SPIDER.

Ms. Di Pippo advises the Secretary-General of the United Nations and Director-General of UNOV and provides expertise on matters relating to the peaceful uses of outer space, and the use of space science and technology for sustainable development and disaster risk reduction. Ms. Di Pippo also discharges the Secretary-General's obligations under international space law, including overseeing the United Nations Register of Objects Launched into Outer Space. She serves as Secretary of COPUOS and manages the arrangements and coordination of UN-Space.

Alongside her team in the Office of the Director, Ms. Di Pippo co-ordinates and oversees reports on budgetary and programme performance matters as well as public information and outreach activities to promote the benefits of outer space for humanity.

16:25 - 17:10 The ISS as a « Launch Pad » for the Future Astronautics: Innovative Technologies, Open Architecture, and International Cooperation for Deep Space Missions.

Location: Bremen Conference Center – DLR Hall

The International Space Station (ISS) utilization is a key point of the ISS partners' human spaceflight programme until 2024 and, most likely, for the entire next decade. Roscosmos and NASA, as Governmental entities of Russian Federation and the United States of America, as well as Energia and Boeing, as major industrial contributors to the ISS Program, work hard to make the ISS a « launch pad » for the future human space missions beyond the Low Earth Orbit (LEO). They cooperate in the area of the ISS elements integration and utilization, ensuring operation and maintenance of the onboard facilities and systems, testing and application of innovative technologies aboard the ISS, which is a great open-architecture technological platform in space.

The ISS paves the way to the deep space. In this connection the partners face the future of human space flight and cooperate in development of a variety of novel space systems and complexes including: Cis-Lunar habitats, docking systems of new generation for spacecraft, new efficient solar arrays, and also in the area of commercial flights into the LEO.

The philosophy of cooperative efforts of the partners is: careful selection of the best (primarily simple and reliable) technical solutions, flexibility at designing and development of the space infrastructure's elements, application of new technologies at their manufacturing. All these will ensure reliability and effectiveness of the space systems operation and utilization.

Organized by:

S.P. Korolev Rocket and Space Corporation Energia



Speakers:



Evgeny Mikrin
General Designer,
RSC Energia,
Russian Federation



Mark Mulqueen
ISS Program Manager,
The Boeing Company,
United States



William Gerstenmaier
Associate Administrator for
Human Spaceflight,
National Aeronautics and
Space Administration (NASA),
United States



Sergey Krikalev
Executive Director for Human
Spaceflight,
ROSCOSMOS,
Russian Federation



MODERATOR
Lena De Winne
Deputy Head of Administration,
ASGARDIA,
Austria

17:15 - 18:00 Human Spaceflight Beyond Low Earth Orbit

Location: Bremen Conference Center – DLR Hall

In recent years, several private companies and national governments have set their sights on the Moon. This renewed lunar focus has various drivers including space tourism, colonization, and resource mining. Northrop Grumman has been actively engaged in a detailed architecture and vehicle design study for NASA's Next Space Technologies for Exploration Partnerships (NextSTEP) program. A major architectural element derived from this study is a cislunar module design based on Northrop Grumman's Cygnus spacecraft. Cygnus currently provides cargo resupply services to the International Space Station. This session will detail how Northrop Grumman is taking advantage of this human-rated and operational system to develop and deploy an affordable and reliable vehicle supporting the Cislunar Gateway objectives within the next few years. Designed to perform long duration missions in cislunar space, the Northrop Grumman Cislunar Module is extensible and evolvable to support future exploration missions.

Key topics will include:

- An overview of Northrop Grumman's progress to date towards a cislunar vehicle
- Design features that allow the vehicle to be reconfigured to perform a variety of functions and services at the Gateway including habitat functions, the logistics transportation function, and science utilization
- Key partnerships between NASA, international space agencies and commercial industry from across the world that will enable development and operation of the Gateway.

Organized by:

Northrop Grumman

Speaker:



Robert T. Richards
Vice President, Strategy and Business Development,
Advanced Programs Division,
Northrop Grumman,
United States

Tuesday 2 October 2018

GNF INDUSTRY STREAM

Room: DLR Hall

GNF SOCIETY & EDUCATION STREAM

Room: CCB Hansesaal

09:45 - 11:15 Including Everyone in Lunar Exploration

Location: Bremen Conference Center – DLR Hall

The international space community is focusing its attention on the challenge and excitement of establishing a permanent human presence beyond LEO. Now 50 years after the first Apollo mission, the idea of humans inhabiting the moon is becoming a reality. The Orion Spacecraft's journey to the Moon in 2019, NASA's plans for the Deep Space Gateway, and a wide array of private initiatives are just a few examples of work that's well underway. The current international focus on lunar missions is fueling innovation – necessitating support from reusable lunar landers, In-Situ Resource Utilization (ISRU) facilities, and possibly even the European concept of a Moon Village as an open architecture where all players contribute. NASA and ESA are open to investigating the role of commercial companies to provide payload delivery services to the lunar surface. Today's global space industry sector – traditional companies and new space – holds the keys to technology, talent, resources, and capabilities needed to usher in this next phase of human space exploration. Collaboration between international enterprises, both large and small, will be essential to achieve these goals. Lunar exploration is the global enterprise that will inspire young students to choose an aerospace career and be a crucial part of this great vision. The session moderator will set the stage by describing how the "lightning round" speakers will cover all aspects of lunar exploration – technology, programmatic, policy, economic/societal, and education/workforce. The series of speakers– representing large and small companies, educators, and venture capitalists will offer fast-paced presentations in their area of expertise, and the moderator will facilitate questions from the audience in the last half hour.

Organized by:

IAF Industry Relations Committee (IRC)



Speakers:



Juergen Ackerman
General Secretary,
ArianeGroup,
France



Kyle Acierno
Managing Director,
ispace Europe,
Luxembourg



Dominic "Tony" A. Antonelli
Director, Advanced Programs
Commercial Civil Space,
Lockheed Martin Space Systems
Company,
United States



Robert Boehme
Founder and CEO,
PTScientists,
Germany



Ahsan Choudhuri
Director, NASA MIRO Center
for Space Exploration & Tech
Research,
University of Texas at El Paso,
United States



Nicolas Faber
COO,
Blue Horizon,
Luxembourg



Oliver Juckenhoefel
Vice President On-Orbit Services
and Exploration,
Airbus Defence and Space,
Germany



Peter McGrath
Global Sales and Marketing
Director, Space Exploration,
The Boeing Company,
United States



Maria Antonietta Perino
Director of Relations with Space
Associations,
Thales Alenia Space,
Italy



MODERATOR
Eric Stallmer
President,
Commercial Spaceflight
Federation,
United States

Organized by:

IAF Committee for the Cultural
Utilisation of Space (ITACCUS)



Speakers:



Nelly Ben Hayoun
Director,
NBH Studios,
France



Rob La Frenais
Curator,
United Kingdom



Melanie King
Director,
Lumen Studios,
United Kingdom



Nahum Romero Zamora
Director,
KOSMICA Institute,
Mexico



Aoife Van Linden Tol
Artist,
United Kingdom



MODERATOR
Bernard Foing
Director ILEWG, Prof. VU
Amsterdam, ITACCUS Vice Chair,,
European Space Agency (ESA),
The Netherlands

09:45 - 10:45 Orbits, Arts & Culture

Location: Bremen Conference Center – CCB Hansesaal

The Committee for the Cultural Utilisation of Space (ITACCUS) will present a panel with a selection of its current members to challenge the traditional view that space activities are owned by national space agencies and the private sector. This panel will include a series of performative presentations to show how artists and cultural practitioners have always shaped the way we envision our future on Earth and beyond.

11:00 - 12:00 Bridging Space and Society: Strategies of Space Agencies to Foster the Uptake of Satellite-Based Services

Location: Bremen Conference Center – CCB Hansesaal

Space agencies worldwide are promoting the creation and use of increasingly effective and accessible satellite-based services that contribute addressing social, economic and environmental challenges. The success of their endeavors will depend on their ability to seize final users' needs and to reach out to public and private user organizations at the national, regional and local levels.

Indeed, to make satellite data and signals available to the public is not enough to actually transfer the potential benefits of space to society. For this to happen, such data and signals need to suit the needs of final users, to be embedded in their operations, and to finally enable the provision of better services to the public.

Eurisy proposes the organization of a roundtable to discuss the strategies adopted by space agencies to transfer the potential benefits of satellite applications to society.

The session will bring together representatives of space agencies, with the following objectives:

- Identifying best practices in the mechanisms and programmes designed by space agencies and supra-national organizations to promote the development and operational use of satellite-based services;
- Analyzing the challenges that the space community still faces to effectively reach out to civil society;
- Stimulating discussion on how to overcome the challenges and transfer the good practices identified to other contexts.

Speakers will give a short introduction on their activities, describing a case in which they successfully supported a public administration or a non-space private company to embed satellite-based services into their operations.

The moderator will ask them to analyze the main features of such experiences. In particular, the moderator will try to pinpoint some of the challenges that public and private organizations face to access and use satellite-based services, and to identify good practices that could be transferred to other contexts.

Organized by:

Eurisy



Speakers:



Carlo Des Dorides
Executive Director,
European GNSS Agency (GSA),
Czech Republic



Simonetta Di Pippo
Director,
United Nations Office
for Outer Space Affairs
(UNOOSA),
Austria



Isabelle Duvaux-Béchon
Head of the Member States
Relations and Partnerships
Office,
European Space Agency (ESA),
France



Naoto Matsuura
Senior Chief Officer of Satellite
Applications,
Japan Aerospace Exploration
Agency (JAXA),
Japan



MODERATOR
Toby Clark
Secretary General,
Eurisy,
France

11:30 - 12:00 The Australian Space

Location: Bremen Conference Center – DLR Hall

During the Opening Ceremony of IAC 2017 in Adelaide, it was announced that the Australian government had approved the establishment of a new Space Agency. In less than one year, that announcement became a reality on July 1, 2017. In one of her first interviews on the international stage, Dr. Megan Clark will discuss the strategic vision of the Australian Space Agency. And she will describe how the Agency will support and build the space industry of Australia and collaborate with traditional and new industrial leaders around the globe.

Organized by:

IAF Industry Relations Committee (IRC)



Speaker:



Megan Clark
Head,
Australian Space Agency,
Australia



MODERATOR
Pamela A. Melroy
Director of Space Technology
and Policy,
Nova Systems,
Australia

12:10 - 12:30 Space Sustainability Rating – New Way of Addressing the Orbital Debris Challenge

Location: Bremen Conference Center – CCB Hansesaal

The significant rise in space debris poses an increasing threat to economically vital orbital regions, threatening to substantially impact not only the space sector, but the whole international community. The Space Sustainability Rating framework will support long-term sustainability of the space environment by increasing transparency of actors' debris mitigation efforts.

Organized by:

World Economic Forum



Speaker:



Nikolai Khlystov
Lead, Aerospace Industry,
World Economic Forum,
United States

Nikolai Khlystov is the Aerospace Industry Lead at the World Economic Forum, the international organization for public-private collaboration with the mission of improving the state of the world. He also manages the Global Future Council on Space Technologies, which brings together global multi-stakeholder experts in the space sector. Besides being responsible for the Aerospace sector at the Forum, Nikolai is working on the development of the Space Sustainability Rating, a non-binding industry mechanism that would help promote responsible and sustainable development of the sector. Nikolai is also a member of the Socio-Economic Panel that supports the Hague International Space Resources Governance Working Group. Nikolai is a graduate of the Global Leadership Fellows Master programme of the Forum; he also holds a Master degree in international business management from University of Geneva and a Bachelor degree in commerce from Carleton University in Ottawa.

14:45 15:45 Aircraft Parabolic Flight Campaigns for Microgravity and Student Experiments

Location: Bremen Conference Center – CCB Hansesaal

Aircraft parabolic flight is well known as test opportunity for experiments in zero-g and partial-g conditions since many years.

Aircraft parabolic Flight covers the areas of fundamental research, spaceflight equipment test, human spaceflight training as well as educational purposes. The film industry uses zero-g aircraft for special effects and meanwhile even private individuals can book tickets for zero-g flights.

A few nations provide parabolic flight opportunities with large aircraft (Boeing, Airbus) mainly paid and organized by space agencies (ESA, DLR, CNES, NASA, etc.). In addition there are several providers with smaller aircraft.

Aircraft parabolic flight is a perfect example of international and global cooperation and networking since the number of providers worldwide is rather low. Student campaigns are highlights in national and international education programs and are very attractive. Last not least the growing commercial space market can benefit from zero-g and partial-g flight opportunities.

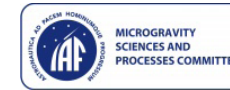
The panel discussion will address the following topics:

- The past, the present and the future of parabolic flight
- Student programs: What can be learned with parabolic flight programs?
- What makes parabolic flight attractive as test platform for scientific research and testing
- The perspective of parabolic flight in a changing “space market” – chances for private enterprises

The panel consists of speakers from space agencies, program managers, scientists and providers.

Organized by:

IAF Microgravity Sciences and Processes Committee



Speakers:



Markus Braun
Head of Space Life Sciences
Programme,
German Aerospace Center (DLR),
Germany

Dr. Markus Braun studied biology at the University of Bonn, Germany. He received his PhD in 1984 in biology with special focus on gravitational biology and gravity sensing mechanisms. From 1994 to 1999 he conducted studies on gravitropic signaling pathways and the role of cytoskeletal elements in gravity-sensing cell types as a Research Assistant at the Australian National University, Canberra, and at the Institute of Plant Molecular Cell Biology at University of Bonn, Germany. In 1999 he was appointed University Bonn Faculty Scholar (Habilitation) at the Institute of Plant Molecular Physiology and Biotechnology in Bonn, Germany. He earned the Thora Halstead Young Investigatory Award of ASGSB in 2002. In 2006 he joint Space Administration of the German Aerospace Center DLR as Project Manager for Space Life Sciences activities. Since 2014, he is Head of the German Space Life Sciences Programme at DLR Space Administration. He also serves as Germany’s delegate of the Human Spaceflight, Microgravity and Exploration Programme Board (PB-HME) and the Exploration and Utilization Board (EUB) of the European Space Agency ESA.



Derek Gawanlock
Test Flight Engineer,
National Research Council,
Canada

Mr. Derek (Duff) Gowanlock is a Qualified Flight Test Engineer within the Flight Operations group at the Flight Research Laboratory. A graduate of the National Test Pilot School and the University of Tennessee (M.A.Sc in Aerodynamics), Derek has 20+ years of experience in flight test and certification working on a diverse number of programs within the Royal Canadian Air Force. He has led flight test teams in a variety of different programs including the development of a new fly-by wire helicopter, in-the-field development and compliance testing of large UAVs, and the airworthiness certification of newly acquired jet aircraft. Since joining the National Research Council, Derek has led the Council’s Microgravity Research activities and is currently the Facility Manager for the Falcon 20 Microgravity Research Aircraft.



Jean-Baptiste Renard
Scientist,
The National Center for
Scientific Research (CNRS),
France

Dr. Jean-Baptiste RENARD, 53 years old, is a senior scientist at the LPC2E-CNRS laboratory, Orléans (France). He works on the optical properties of solid aerosols and dust in the Earth atmosphere and in the solar system. He has developed several instruments dedicated to the laboratory studies and to the in-situ detection in atmosphere of such particles. In particular, he conducts measurements with the imaging polarimeter PROGRA2 instruments during parabolic flights since 1993, to retrieve the scattering function of dust at different wavelengths (www.icare.univ-lille1.fr/progra2/). He has participated to 60 parabolic flight campaigns with CNES and ESA and has done more than 4200 parabolas.



Nigel Savage
Programme Coordinator for
Gravity-Related University
Student Experiments,
European Space Agency (ESA),
The Netherlands

Nigel Savage is a Cell Biologist and Immunologist who has published over 25 papers, two of which in Nature. Between 1992 and 2011, Nigel's academic career was spent in several universities, namely Manchester University, Imperial College London, Edinburgh University, Washington University in St Louis, USA and Leiden University in the Netherlands. Since 2011, Nigel has worked at the European Space Agency on the educational programmes and payloads on the International Space Station and for the past 4 years on gravity-related university student experiments. In this latest capacity, Nigel coordinates all the aspects of ESA Academy programmes that involve hands-on gravity-related research which include the following programmes: Spin Your Thesis!, Drop Your Thesis!, Spin Your Thesis! Human Edition, Orbit Your Thesis! and the student parabolic flight programme Fly Your Thesis!.



Hanns Selig
Project Manager MIGROP
Parabolic Flight,
GERADTS GMBH,
Germany

After his degree in physics and astrophysics at the University of Hamburg and some work at the Observatory Hamburg-Bergedorf and DESY, he moved to Bremen to work on payload tests for the MICROSCOPE space mission and to improve the microgravity quality at the Drop Tower at ZARM/University of Bremen. Since 2017 he is employee at GERADTS GMBH – an aerospace company in Bremen – as head of a new department (MIGROP – Microgravity Operations) which develops new zero-g and partial-g flight opportunities in the frame of an EU funded project.



MODERATOR
Vladimir Pletser
Space Operations Training
Director,
Blue Abyss,
Belgium

Vladimir Pletser (PhD, MSc, MEng) is currently Director of Space Training Operations at Blue Abyss, a company in UK proposing a new approach for astronaut training. He was previously Visiting Professor and Scientific Adviser from 2016 until 2018 at the Technology and Engineering Centre for Space Utilization of the Chinese Academy of Sciences in Beijing, China, supporting Chinese Space Station and aircraft parabolic flight microgravity experiments. From 1985 until 2016, he was senior Physicist-Engineer at the European Space Research and Technology Centre of the European Space Agency, managing ISS microgravity payload development and ESA parabolic flight programme. He logged 7350 parabolas at 0g (equivalent to 39h 30m of weightlessness, or 26 Earth orbits), at Mars-g (53 min) and at Moon-g (53 min) on 12 airplanes (Guinness world record) during 90 campaigns on European, US and Russian aircraft, supervising 1000 experiments and participating actively in 175 physical and life sciences experiments. He was Flight instructor for public Discovery Parabolic Flights from 2013 till 2017. Astronaut candidate for Belgium, he spent two months in training in 1995 at NASA's Johnson Space Center in Houston and was Astronaut Training Instructor for parabolic flights and Spacelab missions. Selected in 2001 by The Mars Society, he participated in three Mars mission simulation campaigns in the Arctic in 2001 and the Utah Desert in 2002 and as Crew Commander in 2009. He is visiting Professor in 20 universities in Europe, USA, Canada, Africa, Israel, and China. He has more than 600 publications, including 16 books or chapter in books, 60 articles in refereed journals and 132 articles in international conferences proceedings. He is member of the International Astronautical Academy and of several other academies and scientific organizations.

14:45 - 16:15 IAF Startup Pitch Session

Location: Bremen Conference Center – DLR Hall

The IAF Startup Pitch Session is an event where startups will be able to present their companies in front of an audience and get feedback from a panel of world renowned judges.

The 10 startups with the most compelling applications will be short-listed and notified on September 10th. On October 2nd, Each start-up will have 5 minutes to pitch their idea or business and 2 minutes to answer questions from the judges. The winning startup of this Pitch Session, will get access to exclusive coaching sessions from Airbus Bizlab and from Boeing Horizon X, and will receive an IAF Certificate and goodies bag. Lockheed Martin will award the winning startup with up to three free registration to the IAC2019.

In addition, OHB will be awarding the two startups with the most amount of public votes, with the following:

- 2nd Prize: diploma and bag of goodies
- 1st Prize: diploma, bag of goodies, consultancy session with OHB Venture Capital (with 300€ to partially cover any travel costs), and a second pitch opportunity at the OHB Fostering Innovation Session in the OHB Booth on Wednesday at the IAC.

The IAF will also provide the two startups with the most amount of public votes with IAF goodies bags.

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The 10 Startups that have been selected to participate in the IAF Startup Pitch Session are:

- Space Products and Innovation (SPiN)
- Sensovo GmbH
- Dawn Aerospace
- AlphaLink
- Insitek
- Precious Payload Inc.
- Manastu Space Technologies Pvt Ltd
- Virtual Space Systems
- Valispace
- SPACE WALKER Inc.

Organized by:

IAF Industry Relations Committee (IRC)



Masters of Ceremony:



Victoria Alonsopez
Founder,
Chipsafer,
Uruguay



Kyle Acierno
Managing Director,
ispace Europe,
Luxembourg

Judges:



Antje Bulmann
Manager and Coach,
Airbus BizLab – Aerospace
Accelerator,
Germany

Antje is a Startup Coach specialised in Business Development in the Airbus BizLab campus in Hamburg, where she also leads the design of the Acceleration Program. She understands her role as ambassador for entrepreneurial mindset and innovative thinking.

Airbus BizLab is a global aerospace accelerator, where Startups and Airbus intrapreneurs speed up the transformation of innovative ideas into valuable businesses. Prior to her current position Antje led the Change Management for an Airbus merger and worked in Marketing and Business Development in the Airbus Customer Service area. Before entering Airbus she worked in Investor Relations in the WestLB in Düsseldorf. Antje founded a FinTech Startup on her own and led it successful until the exit. Antje holds a Diploma in International Management; she has studied and worked in UK, France, Germany and Argentina. Antje lives with her family in Hamburg Sankt Pauli.



Bruno Correia Da Costa
Accelerator Director,
Starburst,
France

Bruno Correia Da Costa currently manages the startup acceleration activities in Europe of Starburst. He is responsible for scouting, qualifying and developing world-class startups that bring innovative solutions to the current challenges in the Aviation, Aerospace and Defence industries.

Prior to Starburst, Bruno was the Aerospace Engineer responsible for Ariane6 mission and performance analyses, the European next-generation rocket launcher developed by Ariane Group. There, Bruno developed a strong expertise in large-scale industrial programs and experienced first-hand the importance of key enabling technologies to solve high-stakes challenges. Passionate about challenging the state-of-the-art, Bruno enjoys contributing to a large array of innovation-related ventures and actively supports open innovation events in the Paris area such as start-up weekends and hackathons.

Bruno received his Master of Sciences in Engineering from the Ecole Centrale in Paris France, with a Major in Aerospace and Project Management. Before graduation, he developed and tested innovative techniques for turbojet engine design at Cambridge University and in a London-based start-up.



Ahsan Choudhuri
Director, NASA MIRO Center
for Space Exploration & Tech
Research,
University of Texas at El Paso,
United States

Dr. Ahsan Choudhuri is Associate Vice President for Strategic Initiatives at the University of Texas at El Paso (UTEP). He is the founding Director of the UTEP NASA MIRO Center for Space Exploration and Technology Research (cSETR) and holds the endowed Mr. and Mrs. MacIntosh Murchison Chair II in Engineering.

Dr. Choudhuri is currently overseeing the development of UTEP Applied Research Institutes (ARI) and leads the university's academic, research and economic development expansions in the eastern region of El Paso. The strategic focus of the ARI is to catalyze a regional talent and technology development ecosystem by providing strategic capabilities in Aerospace and Defense Technologies and Advanced Manufacturing.

As a Department Chair from 2010 to 2018, Dr. Choudhuri led the transformation of the Mechanical Engineering Department to a nationally preeminent education and research program. Under his leadership, the enrollment in mechanical engineering graduate and undergraduate programs grew from 482 to 1426 students. During this time the department also became of the top producer of extramural research funding within the university, Dr. Choudhuri led the development of mechanical engineering doctoral program. Under the direction of Dr. Choudhuri, cSETR performs frontier research in aerospace and energy engineering while developing regional talents. cSETR supports an average of 100 students.

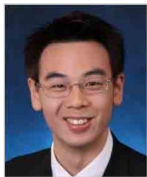
In his leadership role, he also formed strategic collaborations and partnerships with NASA, DOE, DOD, aerospace and defense industries, and other universities. This is reflected in the more than \$30 million in external grants, contracts, and capital funding generated by his effort. Dr. Choudhuri has mentored 7 Research Assistant Professors, been the research supervisor of 20 PhD and 73 MS graduates, and co-authored more than 150 technical publications. Many of these students have been recruited to the job market obtaining positions within academia, federal agencies, and aerospace and defense industries.

Dr. Choudhuri's academic career has evolved within the paradigm of UTEP's access and excellence mission. He is a part of UTEP's strategic vision to create abundant educational opportunities to ensure social mobility for the residents of Paso Del Norte region. Dr. Choudhuri has received numerous awards and recognitions including recognition for Faculty Award for Research Innovation from NASA and an Outstanding Leadership Award from UTEP. Dr. Choudhuri received a B.S. in Engineering from Khulna University of Engineering and Technology Department of Mechanical Engineering and an M.S. and Ph.D. from the University of Oklahoma School of Aerospace and Mechanical Engineering.



Michael Grasso
Economic Advisor,
Luxembourg Ministry of
Economy Space Resources
Initiative,
Luxembourg

Michael Grasso is Economic Advisor at the Luxembourg Space Agency and Luxembourg Ministry of the Economy in Luxembourg. Michael is tasked with advising Luxembourg on the execution of its commercial space strategy, space investment fund, and development of financial instruments to support its burgeoning space industry. Prior to his current position, Michael served as an Engagement Manager at the Avascent Group, the leading aerospace and defense management consulting company. In this capacity, Michael served as a leader in Avascent's commercial and government space practices, where he assisted clients in private equity, at Fortune 500 companies, and at NASA on strategic growth, M&A, organizational design, and capture engagements



Jonathan Hung
President,
Singapore Space and
Technology Association
(SSTA),
Singapore

Mr. Hung is President of the Singapore Space and Technology Association (SSTA), Singapore's lead, industry association focused on developing the space technology industry.

His international work experience includes senior management roles with the Contraves Group, a Rheinmetall Defense & Boustead JV, CAE Inc and Flex, where he's credited for establishing and leading their successful Advanced Incubation Centre in Singapore. Prior to CAE, he managed Business Development and Strategic Partnerships at Singapore Technologies Electronics (Satcom & Sensor Systems) and ST (Satellite Systems).

Earlier in his career, Mr. Hung was the Centre Director for Middle East & North Africa Operations at the Singapore Economic Development Board (EDB). There, he handled portfolios in aerospace, marine/offshore and super yacht sectors. In particular, he led the development of the space incubator unit that is presently EDB's space office.

Mr. Hung currently serves on the Board of the Air Transport Training College, Synspective Pte. Ltd., Space Generation Advisory Council, International Lunar Observatory Association, and is an ExCom Member of the Asia Pacific Regional Space Agency Forum.

He also serves as:

- Vice-President of the Singapore Institute of Aerospace Engineers (SIAE)
- Co-Chair of the Republic of Singapore Air Force (RSAF) Aerospace Technology & Engineering Conference

- Advisor to Transcelestial Technologies Pte. Ltd.
- Strategic Advisor (Singapore) to UK-based Seraphim Capital
- Impact Partner to Hong-Kong based Fresco Capital
- Industry Mentor for FocusTech Ventures
- Member, Singapore Tourism Board's Conference Ambassador Programme
- Member, International Astronautical Federation (IAF) Commercial Spaceflight Safety Committee
- Member, Ngee Ann Polytechnic Aerospace Technology Advisory Committee

Jonathan graduated Magna Cum Laude from Embry-Riddle Aeronautical University, double majoring in Aerospace Science and Aviation Business Administration.



Rolf Janovsky
Director of Predevelopment,
OHB System AG,
Germany

Born 1962 in Hürth/Germany, married, one daughter

1982-1988 study of mechanical engineering with specialization on aerospace systems at the University RWTH Aachen

1988-1994 research assistant at the institute for aeronautics and astronautics at the University RWTH Aachen

1994 PhD at the institute for aeronautics and astronautics at the University RWTH Aachen on "Analysis and assessment of horizontal take-off space transportation systems"

Since 1994 – employee of OHB System in different positions. Presently responsible for the directorate "Pre-development, space systems and proposals" with five departments at two sites with focus on the system definition phases of all kinds of space systems

Since 2013 consultant of European space agency ESA for their technology harmonization programme

Since 2013 consultant of German space management DLR for research in space environment

Since 2016 presidium member of the German aerospace association DGLR



Michael Lohnert
Investing Director,
Boeing HorizonX,
United States

Michael Lohnert as Investing Director for Boeing HorizonX Ventures identifies and invests in startups from around the world that are developing revolutionary concepts and business models. Lohnert is current board member or board observer with C360 Technologies, Gamma Alloys, Cuberg, Myriota, and Aylstor, a peta-scale computational storage company among others in the HorizonX Ventures' portfolio.

Prior to his current role, Lohnert was a senior strategist for the Boeing Company responsible for emerging business opportunities, corporate strategy, and mergers & acquisitions and partnerships. He was also program manager and instructor for Boeing's enterprise strategy training course. Outside of Boeing, Lohnert is on the board of directors of Pasadena Angels, ranked by Forbes as a top ten angel investor group, a cleantech startup, and director emeritus for a financial services firm.

Prior to Boeing, Lohnert was director of energy investments for a private equity group where he invested in the alternative energy, natural gas, and electrical generation sectors, as well as led turnarounds of portfolio investments. He was also involved in the acquisition of several operating companies that bolstered the group's ability to maximize the returns of its portfolio. Lohnert has held strategy and M&A responsibilities for a specialty chemicals division of a major oil company and while living in Zürich, a global financial services company. He has also worked on a foreign currency trading desk and the treasury group for a Fortune 500 utility.

Lohnert received his MBA from the Fisher College of Business at the Ohio State University where he concentrated in Investment Management and Strategy. His bachelor degree is also from Ohio State with dual majors in Finance and a Real Estate Finance. Lohnert also has also completed programs at the Massachusetts Institute of Technology Sloan School of Management, the Swiss Federal Institute of Technology, the Swiss Banking Institute at the University of Zürich, and University of California Haas School at Berkeley.



Chris Moran
Vice President, Corporate
Development & Executive
Director and General Manager,
Lockheed Martin Ventures,
United States

John Christopher "Chris" Moran is the Executive Director and General Manager of Lockheed Martin Ventures; the venture capital investment arm of Lockheed Martin Corporation. In this capacity, he is responsible for leading the Corporation's investments in small technology companies which support Lockheed Martin's strategic business objectives.

Prior to joining Lockheed Martin, Mr. Moran served in a variety of increasingly responsible positions at Applied Materials, Inc., Santa Clara, CA. He served most recently as the head of the Business Systems and Analytics group in the Applied Global Services Organization. Mr. Moran was with Applied for over 32 years. Prior to his most recent role, Mr. Moran was head of Corporate Strategy and General Manager of Applied Ventures LLC; the strategic investing arm of Applied Materials.

Mr. Moran is a graduate of the Massachusetts Institute of Technology where he obtained both his Bachelor's and Master's degrees in Mechanical Engineering.



Grégory Pradels
Chief Executive Officer,
Newspace Factory,
France

After 10 years working as project manager for various space missions, Grégory has focused his interest on space economy and developed specific assets on innovation management and business analysis. First position as PhD in physics at the French Aerospace Laboratory (ONERA), Grégory worked on the MICROSCOPE space mission to assess disruptive on orbit calibration methods for the embedded payload. The thesis has been awarded by an international prize, delivered by the IAF. Second position at the French Space Agency (CNES), to develop ground segments and satellite units for various scientific space missions.

During these years, Grégory developed very good knowledge of space engineering, collaborating with various experts from all over Europe and major countries involved in space activities. He has delivered numerous papers and conferences in international congresses. After a MBA devoted to innovation management, Grégory took a new position at Aerospace Valley cluster to support the development of small satellites market. In 2017 he creates a group called Newspace Factory to launch a new dynamic within the French space ecosystem. The members are small companies, very agile due to their size and very experienced thanks to the strong heritage of the French R&D in space technology



Thomas Snitch
Director of Federal and
Government Programs,
Bowling Green State
University,
United States

Dr. Thomas Snitch is Director of Federal and Government Relations as well as counsellor to the President of Bowling Green State University. During his 43 years in Washington, DC, he has served at NASA, the US Department of State, the White House and the National Academy of Science. In addition, Dr. Snitch spent 10 years as the Senior Advisor to the CEO of Geoeye.

His research work at Bowling Green focuses on using high resolution satellite imagery, UAVs, and mathematical modeling to address transnational criminal activity including rhino and elephant poaching in Africa, illegal fishing in the Pacific Ocean, and global human trafficking.

Dr. Snitch holds a BA in Chinese, an MA and PhD in International Economics, an MA in Japanese and did his postdoctoral work in nuclear and reactor physics. He is a member of the IAA, AIAA, the British Royal Astronautical Society and the Chinese Society of Astronautics.

15:55 - 16:55 The Role of Education in Support of Emerging Countries

Location: Bremen Conference Center – CCB Hansesaal

The UN Agreement on the Sustainable Development Growth (SDG) adopted in 2015 highlights that international collaboration is becoming increasingly important as it is one of critical factors to improve the welfare of people. This is especially relevant for developing countries through education activities in order to have a more important role to play in inspiring and motivation the next generation, capacity building and promoting the use of space technology for sustainable socioeconomic development. Space agencies can be catalysers in preparing with joint education activities the future works force for the space sector as well as other sectors.

In this regard, the GNF will engage space agencies leaders and experts in reflecting on role of education in support of emerging countries and promote the initiative of IAF members' collaboration to enhance the utilization of space technology to enhance capabilities of emerging space nations.

Organized by:

IAF Committee for Liaison with International Organisations and Developing Nations (CLIODN)



Speakers:



Roberto Battiston
President,
Italian Space Agency (ASI),
Italy



Simonetta Di Pippo
Director,
United Nations Office for Outer
Space Affairs (UNOOSA),
Austria



Driss El Hadani
Director,
Centre Royal de Télé-détection
Spatiale (CRTS)
Morocco



Jörg Feustel-Büechli
Advisor,
Bavarian State Ministry for
Economic Affairs and Media,
Energy and Technology
(MWMET),
Germany



Seishiro Kibe
*Senior Advisor of International
Relations and Research
Department,*
Japan Aerospace Exploration
Agency (JAXA),
Japan



**Francisco Javier Mendieta
Jiménez**
Director General,
Mexican Space Agency (AEM),
Mexico



Kai-Uwe Schrogl
*IISL President and Chief Strategy
Officer,*
International Institute of Space
Law (IISL),
European Space Agency (ESA),
France



MODERATOR
Christina Giannopapa
Head of Political Affairs,
European Space Agency (ESA),
France



MODERATOR
Valanathan Munsami
Chief Executive Officer,
South African National Space
Agency (SANSA),
South Africa

16:30 - 16:50 Industry Deep Dives: Lockheed Martin Ventures

Location: Bremen Conference Center – DLR Hall

Organized by:

Lockheed Martin



Speaker:



Chris Moran
*Vice President, Corporate
Development & Executive
Director and General Manager,*
Lockheed Martin Ventures,
United States

John Christopher "Chris" Moran is the Executive Director and General Manager of Lockheed Martin Ventures; the venture capital investment arm of Lockheed Martin Corporation. In this capacity, he is responsible for leading the Corporation's investments in small technology companies which support Lockheed Martin's strategic business objectives.

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Mr. Moran is a graduate of the Massachusetts Institute of Technology where he obtained both his Bachelor's and Master's degrees in Mechanical Engineering.



MODERATOR
Robie I. Samanta Roy
*Vice President for Technology
and Innovation,*
Lockheed Martin Space
Systems Company,
United States

16:50 - 17:10 Industry Deep Dives: ispace's First Commercial Lunar Missions: Launcher, Lander, and Roadmap

Location: Bremen Conference Center – DLR Hall

ispace is a lunar exploration company developing micro-robotic systems to explore the Moon for water and other resources. ispace raised nearly \$95M USD in its Series A funding round, which will be used to fund its first two lunar missions. Kyle Acierno, Managing Director of ispace's subsidiary in Europe, will dive deeper into the recently announced details of ispace's upcoming missions and its roadmap toward its envisioned 2040 "Moon Valley".

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Organized by:
ispace Europe



Speaker:



Kyle Acierno
Managing Director,
ispace Europe,
Luxembourg

Kyle Acierno is the Managing Director of ispace Europe. He is responsible for executing business strategies with a specific focus on the lunar mining missions conducted in Luxembourg as a part of the Space Resources Initiative.

Kyle has been working for ispace for two years as the Global Business Development Manager. In this role he secured a number of space agency and commercial agreements while starting new offices in Europe and the USA. Kyle specializes in lunar commerce and in 2015 won the Space Generation Advisory Council's Space Leader award.

Kyle holds a Masters in Space Studies from the International Space University and a Bachelors in International Security from Simon Fraser University, Canada. He is a member of The Hague Space Resources Working Group and the Moon Village Association.



MODERATOR
Robie I. Samanta Roy
Vice President for Technology
and Innovation,
Lockheed Martin Space
Systems Company,
United States

17:05 - 17:50 New Space – Rocking Earth Observation

Location: Bremen Conference Center – CCB Hansesaal

Space based Earth observation has become a unique success story, as evidenced by the European Copernicus programme. However, Earth observation is currently undergoing fundamental changes that epitomise the New Space approach and that are addressed by the concept of Space 4.0. Major trends comprise the exponential growth in availability of Earth Observation data; the impact of big data and cloud processing, novel data analytics and the use of platform solutions. This has led to significant overlap between Earth observation and the domains of Internet of Things (IoT), Artificial Intelligence (AI) and Machine Learning. Further technological trends are constituted by satellite constellations – often of small and low cost sensors – , formation flying and convoys, as well as by High Altitude Platforms.

The event will inform the wider space community about these structural changes and offer the possibility to discuss the resulting implications. Contributions will be provided by speakers from various domains like public institutions, commercial entities and industry.

Organized by:

European Space Agency (ESA)



Speakers:



Rafał Modrzewski
Chief Executive Officer (CEO),
Iceye,
Finland



Peter Platzer
Chief Executive Officer (CEO),
Spire Global,
United States



Yasu Yamazaki
Brand Manager,
Axelspace,
Japan



MODERATOR
Josef Aschbacher
Director of Earth Observation
Programmes and Head of
ESRIN,
European Space Agency (ESA),
Italy

17:10 - 17:30 Industry Deep Dives: Earth Observation to the Power of Hundreds – the Story of Planet

Location: Bremen Conference Center – DLR Hall

Planet designs, builds, and launches satellites faster than any company or government in history by using lean, low-cost electronics and design iteration. Their Doves, which make up the world's largest constellation of Earth-imaging satellites, "line scan" the planet to image the entire Earth daily. They launch new satellites into orbit every three or four months. Agnieszka Lukaszczyk, Planet's Senior Director for European Affairs, will dive deeper into the notion of the agile space that Planet operates by and the game changer small satellites have been to the Earth observation ecosystem.

Organized by:

Planet



Speaker:



Agnieszka Łukaszczyk
Senior Director – European Policy,
Planet,
Belgium

Agnieszka Łukaszczyk is a Senior Director for European Affairs at Planet. A Polish/American national, has worked at the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs, Space Data for Societal Challenges and Growth Unit. She also worked at the Directorate General for Enterprise and Industry, Space Policy and Research Unit. Before she joined the Commission, Agnieszka was the Brussels Office Director for the Secure World Foundation. In addition, she is the former Chairperson and the former Executive Director of the Space Generation Advisory Council in Support of the United Nations Programme on Space Applications. Agnieszka also worked at the European Space Policy Institute as a research fellow. Agnieszka serves as the Vice President – Europe for the World Space Week And Sits on the Board Of Directors for the Women in Aerospace-Europe. She is currently pursuing a PhD in Space Security at the Polish Defence Academy. She holds a Bachelor's degree from the Warsaw School of Economics in Management of Space in New Economies and a Master's degree from the American University School of International Service in International Politics plus a Bachelor degree in Political Science from the University of Tennessee. She also studied at the Universite Catholique de Louvain in Brussels, Belgium; the Jagiellonian University in Krakow, Poland and the World Trade Institute in Berne, Switzerland. She gained professional experience at the Political Section of the Polish Embassy in Washington DC, American Electronics Association in Brussels, European Department of the Polish Senate in Warsaw and the Warsaw Business Journal.



MODERATOR
Robie I. Samanta Roy
Vice President for Technology and
Innovation,
Lockheed Martin Space Systems
Company,
United States

17:30 - 17:50 Industry Deep Dives: Affordable, Accessible, Accelerated – The MILO Space Science Institute

Location: Bremen Conference Center – DLR Hall

The MILO Space Science Institute is a non-profit research collaborative dedicated to making deep space missions affordable and accessible to universities and space agencies around the world. Affordability is achieved by sharing mission costs across a significant member base. Institute members participate in all aspects of space missions from development to operation, at a fraction of the total cost. Participation accelerates space industry growth by giving organizations first access to new data and a platform for technology development. The Institute views education as an integral part of its program to enable unprecedented exploration and scientific discovery while

fostering economic growth. The MILO Space Science Institute is led by Arizona State University Research Enterprise, with support from GEOshare LLC and Lockheed Martin Space. Together, these entities shape mission objectives, and will be available to advise participants on satellite design and engineering to achieve a successful mission.

Organized by:
GEOshare LLC



Speakers:



Jim Bell
School of Earth and Science
Exploration, Director, ASU
Space Technology and Science
("NewSpace") Initiative,
Arizona State University,
United States

Dr. Jim Bell is a Professor in the School of Earth and Space Exploration at Arizona State University in Tempe, Arizona, an Adjunct Professor in the Department of Astronomy at Cornell University in Ithaca, New York, and a Distinguished Visiting Scientist at NASA's Jet Propulsion Laboratory in Pasadena, California. He received his B.S. in Planetary Science and Aeronautics from Caltech, his M.S. and Ph.D. in Geology & Geophysics from the University of Hawaii, and served as a National Research Council postdoctoral research fellow at NASA's Ames Research Center. Jim's research group primarily focuses on the geology, geochemistry, and mineralogy of planets, moons, asteroids, and comets using data obtained from telescopes and spacecraft missions.

Jim is an active planetary scientist and has been heavily involved in many NASA robotic space exploration missions, including the Near Earth Asteroid Rendezvous (NEAR), Mars Pathfinder, Comet Nucleus Tour, Mars Exploration Rovers Spirit and Opportunity, Mars Odyssey Orbiter, Mars Reconnaissance Orbiter, Lunar Reconnaissance Orbiter, and the Mars Science Laboratory Curiosity rover mission. Jim is the lead scientist in charge of the Panoramic camera (Pancam) color, stereoscopic imaging system on the Spirit and Opportunity rovers, is the Deputy Principal Investigator of the Mastcam camera system on the Curiosity rover, and is the Principal Investigator for the Mastcam-Z cameras on NASA's upcoming Mars-2020 rover. As a professional scientist, Jim has published 35 first-authored and more than 180 co-authored research papers in peer reviewed scientific journals, has authored or co-authored nearly 600 short abstracts and scientific conference presentations, and has co-edited or edited two scientific books for Cambridge University Press (one on the NEAR mission: "Asteroid Rendezvous"; the other on Mars: "The Martian Surface: Composition, Mineralogy, and Physical Properties"). He has been an active user of the Hubble Space Telescope, and of a number of ground based telescopes, including several at Mauna Kea Observatory in Hawaii.

Jim is also an extremely active and prolific public communicator of science and space exploration, and is President of The Planetary Society, the world's largest public space education and advocacy organization. He is a frequent contributor to popular astronomy and science magazines like Sky & Telescope, Astronomy, and Scientific American, and to radio shows and internet blogs about astronomy and space. He has appeared on television on the NBC "Today" show, on CNN's "This American Morning," on the PBS "Newshour," and on the Discovery, National Geographic, Wall St. Journal, and History Channels. He has also written many photography-oriented books that showcase some of the most spectacular images acquired during the space program: Postcards from Mars (Dutton/Penguin, 2006), Mars 3-D (Sterling, 2008), Moon 3-D (Sterling, 2009), and The Space Book (Sterling, 2013).

Jim's latest book is "The Interstellar Age: Inside the 40 Year Voyager Mission" (Dutton, 2015). Jim has a main belt asteroid named after him (8146 Jimbell). He and teammates have received more than a dozen NASA Group Achievement Awards for work on space missions, and he was the recipient of the 2011 Carl Sagan Medal from the American Astronomical Society, for excellence in public communication in planetary sciences.



Lisa Callahan
Vice President and General Manager Commercial Civil Space,
Lockheed Martin,
United States

Lisa B. Callahan is Vice President and General Manager of the Commercial Civil Space line of business for Lockheed Martin Space. In this role, she is responsible for all aspects of execution and growth for Commercial and Civil markets in human and robotic deep space exploration, communications and weather and remote sensing. Ms. Callahan is also responsible for Michoud Operations and related activity at Stennis Space Center.

In her previous role as Vice President of Corporate Internal Audit of Lockheed Martin Corporation – reporting directly to the Lockheed Martin Audit Committee of the Board of Directors – Ms. Callahan provided independent, objective assurance and advisory activity to improve the Corporation's operations. Under her leadership, Corporate Internal Audit determined the adequacy and effectiveness of the Corporation's network of risk management, internal control, and governance processes as designed and represented by management.

Her prior leadership roles also include Vice President and General Manager of the Mission Systems & Training Undersea Systems line of business for Lockheed Martin Corporation, Vice President of Lockheed Martin Corporation's Maritime Ballistic Missile Defense Program, and Program Director for Lockheed Martin's Simulation Training and Support business.

Ms. Callahan graduated from Virginia Polytechnic Institute and State University with a Bachelor of Science in Electrical Engineering. Currently, she is a member of the Dean of Engineering Advisory Board.



Lon Levin
President and CEO,
GEOshare,
United States

Lon is the President and Chief Executive Officer of GEOshare, a wholly owned subsidiary of Lockheed Martin. Lon Levin is an executive and entrepreneur with over 30 years' experience in telecommunications, new media, and aerospace industries. Prior to joining GEOshare, Lon was the President of SkySevenVentures, which invested in, operated, and advised new technology companies including businesses in commercial satellites, cyber security, Internet music streaming and video messaging, launch vehicles, and investment banking. Lon speaks at industry, academic, and government conferences on technology business management, policy, and finance. Lon mentors many people in space, satellite, and other industries.

Lon is the cofounder of XM Satellite Radio and played an integral executive role in the formation and development of other media, satellite, and wireless companies including Mobile Satellite Ventures, XM Canada, Motient Corporation, American Mobile Satellite Corporation, and TerreStar Networks. Before his corporate career, Lon was a partner in the law firm of Gurman, Kurtis, Blask & Freedman, where he specialized in media, aerospace, and wireless matters. He started his career as an attorney at the Federal Communications Commission. Throughout the 1990s, Lon served as a U.S. Delegate negotiating technology treaties at many United Nations International Telecommunication Union conferences. Lon holds five telecommunication satellite patents.

Lon is a member of the Human Exploration and Operations Committee of the NASA Advisory Council and was a member of the Defense Business Board of the Department of Defense from 2008 to 2018. Lon is a member of the Board of Directors of the Space Foundation, where he has served on the Executive Committee in a number of roles including Chair, Vice-Chair, Treasurer, and At-Large. Lon is a member of the Board of Directors and Treasurer of The Planetary Society. He is a founding board member of the Satellite Industry Association and was its Co-Chair from 1996 to 1998. Lon is a member of the Board of Governors of the National Space Society. Lon was on the Board of Directors from 2001 to 2008 of the Cultural Development Corporation of Washington, D.C., which helps artists secure affordable housing and work places. Lon is member of the New York State and Washington, D.C. Bars



MODERATOR
Robie I. Samanta Roy
Vice President for Technology and Innovation,
Lockheed Martin Space Systems Company,
United States

Wednesday 3 October 2018

GNF PUBLIC STREAM
Room: DLR Hall

GNF DEVELOPMENT STREAM
Room: CCB Hansesaal

09:40 - 10:40 What Will Shape the Future of European Launchers?

Location: Bremen Conference Center – DLR Hall

Acknowledging that launchers have always been the hyphen between Earth and space, this GNF event will enable interesting exchanges on how Europe sees its space transportations' future evolutions and what could be the potential roadmap to face and contribute to the upcoming changes and challenges. Next to expansion of space sciences and human experiences in Outer Space including future space logistics the new challenges will embrace eco-efficient "greener in space" transportation from Europe.

The launchers' landscape is about to experience a radical reshuffling with a new generation expected by the next decade, in Europe and worldwide. What would be the future missions and their impact for the European launchers sector?

From the one-way ticket for satellites, to the back and forth trip needed by Moon-based activities, today's Space launch services have to face future space logistic challenges with some similarities with today's Earth based logistics.

With regard to such future space logistics it is obvious that the protection of Space Environment becomes an important issue. Europe's vision should be to utilize green launcher systems for transporting in space and maintaining other space assets by on-orbit servicing and refueling.

Organized by:

Ministry of Economic Affairs,
Labour and Ports of Bremen

Ministry of Economic Affairs,
Labour and Ports



Speakers:



Alain Charmeau
Chief Executive Officer,
ArianeGroup,
France



Martin Guenther
Senator of Economic Affairs,
Labour and Ports,
Bremen Senate,
Germany



Stéphane Israël
Chief Executive Officer,
Arianespace,
France



Thomas Jarzombek
Member of German Parliament
and Federal Government
Coordinator of German
Aerospace Policy,
German Parliament,
Germany



Matthias Maurer
Astronaut,
European Space Agency (ESA),
Germany



Hans Steininger
Chief Executive Officer,
MT-Aerospace,
Germany



Jan Wörner
Director General,
European Space Agency (ESA),
France



MODERATOR
Dirk Lorenzen
Science Journalist,
Senior Science Reporter German
Public Radio,
Germany

09:40 - 10:25 Small Satellite Applications Development Leveraging Socio-Economic Benefits

Location: Bremen Conference Center – CCB Hansesaal

China HEAD Aerospace is inviting executive level speakers to have an in-depth discussion during the session, speakers will include government and private stakeholders along the satellite value chain. The panel will focus on the exchanges of data and service requirements based on small satellite technology. What is the prospective in terms of market demand and market offer in satellite-based application in a global context? What are the common interests and needs of this region in data and application requirement? We are inviting end-users to share with us their needs in application and how the space technology can bring social economic benefits to support sustainable development. On the other hand, HEAD Aerospace which is commercialising the Chinese Earth observation data and will operate its commercial AIS/IoT constellation will share its perspective in the space infrastructure development and the China's 'One Belt & One Road' initiative. Speaker representing the service providing market will share the experience in market needs/demand and the trends in certain vertical market.

Organized by:

China HEAD Aerospace



Speakers:



Kammy Brun
Head of Global Business Development, China HEAD Aerospace, China

Mrs Kammy Brun comes originally from Hong Kong, China. She is currently based in the Paris subsidiary of the group to lead the global business development division of China HEAD Aerospace Technology Group (HEAD).

Prior to joining HEAD Aerospace, she worked in Airbus Defense & Space (previous EADS) within the strategic business growth division and in Astrium Services in Paris. She has deep experiences in strategic market analysis when she was used to be consultant at Euroconsult, a private consulting firm in Paris specialized in the Space sector. She is specialized in analyzing the world government space program, commercial Earth observation and small satellite market. Kammy had been in charge of organizing Euroconsult's World Satellite Business Week – Summit on Earth Observation Business for seven years.

Kammy is also the co-chairwoman of the Women in Aerospace – Europe (WIA-E) Paris local group. Kammy holds a bachelor in Applied Physics Engineering in Hong Kong, a Master of international business affairs in France, and a master in legal commercial translation in France. She is native in Chinese (Cantonese & Mandarin), bilingual in English and French.



Jorge Del Rio Vera
Space Application Section, United Nations Office for Outer Space Affairs (UNOOSA), Austria

Mr. Jorge Del Rio Vera is a telecommunication engineer and have PhD in earth observation. Since he can remember, he had been interested in space, in particular in how space technology can improve our lives on Earth. He started his career in the Group of Physical Oceanography of the University of Malaga where he used remote sensing to study the Mediterranean Sea, during this period he had research stays in the Colorado State University, the University of British Columbia and the NASA Goddard Space Flight Centre which gave him better insights on how satellites were used which were the techniques used to process their data. After that, he joined the European Space Agency, working on Envisat, the largest earth observation satellite ever built, and Copernicus, the biggest European earth observation programme. He has also worked for the NATO Underwater Research Centre applying space knowledge to underwater systems and the European Maritime Safety Agency using satellites to catch polluters red-handed. After that, he moved to the European Global Navigation Satellite Systems Agency, the agency in charge of the exploitation of Galileo, the European global navigation satellite system, where he worked setting up the operations of the Galileo Security Monitoring Centre until he joined the Office for Outer Space Affairs in the United Nations as a scientific affairs officer, promoting international cooperation in the peaceful uses of outer space.



Driss El Hadani
Director, Centre Royal de Télédétection Spatiale (CRTS), Morocco

I have been working during more than 30 years in the area of Remote Sensing and Space Technologies. As Director of the CRTS, the Moroccan agency in charge of RS applications and development, I developed sharp expertise and knowledge of this sector as well as at national level or with international cooperation agencies and mechanisms.

June 2000 to June 2004: First Vice-president of the United Nations Committee for the Peaceful uses of Outer Space (COPUOS)

October 2002-October 2004 Vice-president of the International Astronautical Federation (IAF).

GEO Principal for Morocco since 2005

Member of the Executive Committee of the Group on Earth Observation (GEO)

Member of the Eurisy Association Council.

Member of the UN-OOSA Working Group in charge of strategy for the integration of space technique in risk and natural disaster management (DMISCO)

July 2005: member of the IGOL team (Integrated Global Observation for Land); a subcommittee of IGOS (Integrated Global Observing Strategy)

Member of the Scientific committee of the African Centre for Catastrophic Risks; created by the African Insurance Organisation.



Valanathan Munsami
Chief Executive Officer, South Africa National Space Agency (SANSA), South Africa

Dr Valanathan Munsami was appointed as the Chief Executive Officer of the South African National Space Agency (SANSA) on 3 January 2017. Dr Munsami has held a number of positions within the Department of Science and Technology, with the latest position held being the Chief Science and Technology Representative of the Department of Science and Technology since February 2016. Dr Munsami has a clear understanding of the space industry and has engaged with SANSA on a number of occasions. Among Dr Munsami's achievements, he was involved in the Strategy and Policy development for the South African national space programme. Dr Munsami currently Chairs the African Union Space Working Group, which developed the African Space Policy and Strategy that was approved by the African Heads of State in January this year. As the Chief Specialist for Astronomy, during his employment at the Department of Science and Technology, Dr Munsami was involved in the development of a National Multi-Wavelength Astronomy Strategy and the SKA Readiness Strategy.

Dr Munsami's academic background includes a BSc in Physics & Mathematics, BSc Honours in Physics, and a PhD in Physics from the University of KwaZulu Natal. Dr Munsami has completed a Program in Business Leadership (PBL) and subsequently obtained his Masters in Business Leadership (MBL) through the University of South Africa.



MODERATOR

Steve Bochinger

COO,
Euroconsult,
France

Steve Bochinger is the Chief Operating Officer of Euroconsult, based in Paris, France. In his 15 years working in the space sector, he has advised a wide range of clients including government organizations and commercial actors along the space value chain. As COO, Steve leads the corporate organizational processes and development. He was instrumental Euroconsult's corporate development by setting up Euroconsult's Canadian and US offices in 2008 and 2010.

Prior to joining Euroconsult, Steve worked at the European Space Agency's legal department. He has a Masters of Law from McGill University's Institute of Air and Space Law in Montreal, and a Masters of International Law from La Sorbonne in Paris.

Whether he's travelling overseas or browsing downtown Montreal, you will often find Steve searching for rare '70s LPs. He also enjoys practicing the drums with little skill.

10:35 - 11:05 Introduction of the System and Current Development on Aerospace Components in China

Location: Bremen Conference Center – CCB Hansesaal

China aerospace components has an integrated industrial system in terms of manufacture and quality assurance. In recent years, the development of technological ability has been improved especially in the field of components engineering technical service. We would like to seek opportunities to exchange and cooperate with international counterparts on the themes of radiation hardened components and ICs design. Moreover, our international collaboration aims to jointly create innovative programme in the future.

Organized by:

China Academy of Space Technology (CAST)



China Aerospace Components Engineering Center (CACEC)



Speakers:



ZHANG Lei

Assistant of Director,
China Academy of Space
Technology (CAST),
China



MODERATOR

LI Ming

Vice President,
China Academy of Space
Technology (CAST),
China

10:50 - 11:10 Space Spin-Ins from the Underground – CERN's Aerospace Applications

Location: Bremen Conference Center – DLR Hall

CERN, the European Organization for Nuclear Research based in Geneva (CH), has a worldwide reputation in the field of High Energy Physics and it is mainly known for the Large Hadron Collider, the most powerful particle accelerator and one of the biggest and most complex machines on Earth, built to probe the fundamental structure of the universe and study the basic constituents of matter.

However, the technologies and facilities developed in order to reach its core scientific objectives find short-term tangible applications in many other domains, from medicine to aerospace.

In line with IAC 2018 theme "Involving Everyone", this presentation will show the impact that a non-space organization can have in the aerospace field through examples of past, present and future projects ranging from large scientific instruments devoted to the study of cosmic rays to CubeSat payloads for technology demonstration. Beyond purely technological aspects, successful translational projects are always the result of partnerships and multilateral cross-fertilizing exchanges, fostered by CERN's Knowledge Transfer Group through an original open innovation approach."

When it comes to developing solutions for expanding the limits of human knowledge, the efforts dedicated to explore the largest and the smallest structures of the Universe can ultimately converge.

Organized by:

European Organization for Nuclear Research (CERN)



Speaker:



Enrico Chesta

Aerospace Applications
Coordinator, Knowledge
Transfer Group,
European Organization for
Nuclear Research (CERN),
Switzerland

11:15 – 12:15 ESA's Jam Session on Space Safety

Location: Bremen Conference Center – CCB Hansesaal

It is becoming more and more important for the Space Community to tackle Space Safety which addresses the protection of humanity, of our planet and assets in space and on Earth from dangers (man-made and natural) originating in Space, and includes three segments:

- Planetary defence (NEO threat detection and analysis – incl. characterisation, follow-up

observation, modelling; deflection techniques; warnings and mitigation measures)

- Space Weather (solar and beyond)
- Debris and Cleanspace (debris – detection, tracking, mitigation and removal, intelligent systems leading to autonomous collision avoidance, clean systems, including regulatory aspects – space traffic management, ...)

Space Safety is a topic that no nation, no agency, no space actor can tackle alone. Global collaboration is a must. International cooperation is seen today but there is space for more.

Space Safety is not a single project or activity but a series of projects and activities contributed from players worldwide towards the vision of a resilient society safe from dangers originating in space.

ESA DG Jan Wörner together with his Programme Advisor, Chiara Manfletti, wishes to discuss the role and importance Space Safety is going to have in the future. Jan Wörner will give a short overview about the topic and would like to engage the audience in an open discussion. The opinion on this matter is of high importance for shaping of future activities. Therefore, everyone is invited to give his/her comments and remarks on Space Safety. Only no comments are stupid comments.

Organized by:

European Space Agency (ESA)



Speakers:



Chiara Manfletti
*Programme Advisor to the
Director General,
European Space Agency (ESA),
France*



Jan Wörner
*Director General,
European Space Agency (ESA),
France*

11:20 – 12:20 Reusability: The Key to Reliability and Affordability

Location: Bremen Conference Center – DLR Hall

In the dynamic landscape of today's aerospace industry, reusability has emerged as a major differentiator to achieving highly reliable, affordable access to space. This presentation explores the development of reusability at SpaceX and the ways in which reusability has revolutionized the company's business model. Although SpaceX is a relatively new player compared to other providers, it has already had a profound impact on the industry due to its rapid innovation, with a core focus on reusability. The first stage of its Falcon 9 launch vehicle has landed 25 times as of July 2018—both on land and at sea on autonomous spaceport drone ships. These recovered first stages have been refurbished and flown again on 13 missions, successfully demonstrating the true reusability of the design. In early 2018, SpaceX demonstrated a simultaneous landing of both Falcon Heavy side boosters at Landing Zone 1 at Cape Canaveral in Florida.

Reusability is also a fundamental feature of SpaceX's Dragon spacecraft, the cargo capsule that supplies the International Space Station. In fact, four previously flown Dragon spacecraft have been used on resupply missions for the National Aeronautics and Space Administration (NASA). Other projects in work include fairing reusability for Falcon vehicles. SpaceX's reusability initiative also provides invaluable flight data to further refine flight environment analysis models and, in turn, vehicle design. Data from each first stage can be stored onboard—enabling multiple cameras and additional high-speed data—and post-flight inspections allow SpaceX to track and control any fatigue-related effects. Observations are logged over multiple flights and facilitate an accurate assessment of a first stage's flight readiness. With these intrinsic benefits and far-reaching efficiencies, reusability has become a principle technology that will increase the launch rate, reduce the launch cost and ultimately enable more reliable vehicles.

Organized by:

SpaceX



Speaker:



Hans Koenigsmann
*Vice President of Build and
Flight Reliability,
SpaceX,
United States*

Dr. Hans Koenigsmann leads the Build and Flight Reliability team at SpaceX. In this role, he is the executive leader of SpaceX's quality engineering and process development teams and oversees the launch readiness process during launch campaigns. He also provides an independent assessment of launch risks, identifying and resolving anomalies that occur during integration and launch.

As a member of SpaceX since the company's inception in 2002, Hans built up the Avionics, Software and Guidance, Navigation and Control (GNC) departments and developed the launch readiness process SpaceX currently uses during each launch campaign. He also designed the SpaceX risk mitigation process and initiated the risk database, establishing a similar process for system-level changes to the vehicle and ground systems.

Hans has a Ph.D. in aerospace engineering and production from the University of Bremen and a Master of Science in aerospace engineering from the Technical University of Berlin.

14:45 - 15:05 IAC2018 Public Day: In-Flight Call with Alexander Gerst

Location: Bremen Conference Center – ÖVB Arena

On the occasion of the IAC 2018 Public Day, the Congress audience and participants will tune-in live to the International Space Station, ISS for a live session with Alexander Gerst, who will be the second ESA and first German commander of the International Space Station in the twenty years of its existence. Gerst launched to the International Space Station (ISS) on 6 June 2018 for his mission 'Horizons – Knowledge for Tomorrow', his second mission to work on the largest international technology project in the history of humankind. In this scientific laboratory, the major spacefaring

nations are joining forces to develop solutions for the global challenges of our society: 'Health, Environment and Climate Change', as well as 'Digitalisation, Industry 4.0, Energy Supply and Mobility of Tomorrow'. He will carry out 65 European experiments – the German Aerospace Center contributes to 41.

Alexander Gerst will assume command of the ISS on 3rd October 2018 during the week of IAC, and will be connecting live from the Station on that same day, to interact and answer questions from the audience.

Organized by:

European Space Agency (ESA)
German Aerospace Center (DLR)



Speakers:



Jim Bridenstine
Administrator,
National Aeronautics and Space
Administration (NASA),
United States



Pascale Ehrenfreund
Chair of Executive Board,
German Aerospace Center (DLR),
Germany



Alexander Gerst
Astronaut,
European Space Agency (ESA),
Germany



Thomas Jarzombek
*Member of German Parliament
and Federal Government
Coordinator of German
Aerospace Policy,*
German Parliament,
Germany



Matthias Maurer
Astronaut,
European Space Agency (ESA),
Germany



Jan Wörner
Director General,
European Space Agency (ESA),
France



MODERATOR
Maggie Aderin-Pocock
Space Scientist,
British Broadcasting
Corporation (BBC),
United Kingdom

15:05 - 16:05 IAC2018 Public Day: IAF-ASE Astronauts Event

Location: Bremen Conference Center – ÖVB Arena

New Space also means that the astronaut profession undergoes changes and new astronauts' stories are being told. On stage in Bremen astronauts from all over the world will share their views on their unique professional careers with the audience. Can we really go to Moon and Mars faster, better? What role does safety play in private space missions? Are the international crews on ISS a role model for future spaceflights? Tag up with people who have the combined experience of years in space in a fleet of spacecraft vehicles!

Organized by:

International Astronautical Federation (IAF)

Association of Space Explorers (ASE)



Speakers:



Michael Lopez-Alegria
Principal,
MLA Space, LLC,
United States



Matthias Maurer
Astronaut,
European Space Agency (ESA),
Germany



Pamela A. Melroy
*NASA Space Shuttle Commander,
Director of Space Technology
and Policy,*
Nova Systems,
Australia



Ernst Messerschmid
Professor,
University of Stuttgart,
Germany



Thomas Reiter
*ESA Astronaut, Interagency
Coordinator and Advisor to the
Director General,*
European Space Agency (ESA),
France



Koichi Wakata
*Vice President; Director General
of Human Spaceflight Technology
Directorate,*
Japan Aerospace Exploration
Agency (JAXA),
Japan



MODERATOR
Maggie Aderin-Pocock
Space Scientist,
British Broadcasting
Corporation (BBC),
United Kingdom



MODERATOR
Reinhold Ewald
*European Astronaut, Professor,
Institute of Space Systems,
University of Stuttgart,
Germany*

14:40 - 16:10 The Need For a Solid SME Base Within the Industrial Chain on Space and Defence Programmes

Location: Bremen Conference Center – CCB Hansesaal

Start-up and scale-up firms are important drivers of economic growth and thus for the creation of jobs. During recent years, professional, scientific and technical activities have represented the sector with the highest share of high-growth firms.

SME firms play an steadily increasing role within the industrial chain working for space and defence programmes, the analysis of which is subject of this presentation and panel session. On the other hand, within the new space and defence industries there are also companies opting for an approach having most production under one roof.

The public procurement authorities provide industrial policy reflections/directives on the share of the involvement of SME companies within the space and defence contracts. In addition to this, public procurement authorities can play an increasingly important role by providing supporting measures to the SME in many different forms(e.g. improving SME visibility, networking opportunities, supply chain integration and ability to bid for contracts).

The respective views will be presented by the 3 important actors involved i.e. the Public Procurement Authorities, Large System Integrators, SME companies and their representative bodies.

As the topic is relevant worldwide, high level representatives from different continents, with a special role for SME's, will participate to this session.

Key questions to be addressed during this panel/presentation sessions are:

- Which are the advantages and responsibilities for Large System Integrators/Prime contractors to have a solid SME industrial base, instead of a company owned vertically integrated industrial structure.
- Which are the views of the SME community that their actual share in development contracts is much below their share of winning space technology contracts and what should be done about this.
- What is the present role of the Public Procurement Authorities and how should this role further evolve in the future?

Organized by:

European Space Agency (ESA)



Opening Address:



Marco Fuchs
Chief Executive Officer,
OHB SE / OHB System AG,
Germany

Marco Fuchs was born in 1962 in Hamburg.

Fuchs went to Law school at the Freie Universität Berlin and Universität Hamburg. After completing his Law degree and the Second State Exam he practiced as an Attorney in Hamburg. After completing a postgraduate master degree (LLM) at New York University, he was admitted to the New York Bar as an attorney at-law.

From 1992 to 1995, Mr. Fuchs practiced law with the U.S. firm Jones Day in New York and later in Frankfurt.

From 1995 to 2000, Mr. Fuchs held various management positions at OHB System AG and from 1998 on as Managing Director. In 2000 he was appointed as the Chairman of the Management Board of OHB SE, the holding company of the group.

Under his leadership the company completed an IPO at the Frankfurt Stock Exchange in March 2001.

The OHB Group is Germany's first listed space and technology company with approximately 2.500 employees in i.a. Germany, Italy, France, Belgium, Sweden and Luxembourg.

In 2008, Mr. Fuchs was appointed as the Honorary Consul of Italy in the Federal State of Bremen. He is married and has two children.

Speakers:



Nicolas Chamussy
Executive Vice President Space
Systems,
Airbus Defence and Space,
France

Nicolas Chamussy became Executive Vice President Space Systems in the Airbus Defence and Space Division on 1st July 2016.

Prior to assuming this position he was the Chief of Staff to Airbus Group CEO Tom Enders since July 2012.

He served as Head of Mission Air Systems leading UAV programmes in the former EADS Cassidian Division from 2008, and was the Automated Transfer Vehicle (ATV) Programme Manager for the former Astrium space Division from 2004 to 2008. From 2002 to 2004, Chamussy was Director of Ground Infrastructure for Astrium and started with the Group in 1999 as Director of the Satellite Business for EADS in Paris.

Nicolas Chamussy began his career in 1992 as an engineer on space matters at Phillips Laboratory (US Air Force). He went on to work for France's Direction générale de l'armement (DGA) as a Deputy Programme Manager for reconnaissance satellite in 1993, followed by positions as an Advisor to the French Minister of Defence and as Deputy Head of Bureau at the French Ministry of Finance.

Nicolas Chamussy holds degrees from École polytechnique, École Nationale Supérieure de Techniques Avancées, and Institut d'Etudes Politiques de Paris.

Nicolas Chamussy, born in July 1967, lives in Toulouse, is married and has 3 children



Iain Christie

*Executive Vice President,
Aerospace Industries
Association of Canada,
Canada*

Iain Christie has been Executive Vice President of the Aerospace Industries Association of Canada (AIAC) since June 2013. He came to AIAC with a long history of achievement in the space industry, having spent 22 years with Neptec Design Group, a small spaceflight engineering company. Iain joined Neptec in its first year of operation, in 1991, as a student. He left the company as President and CEO in 2013.

Iain was a member of AIAC's Board of Directors from 2010 to 2013 and served as the Vice Chair of the industry-led Space Working Group during the Aerospace Review. He joined the AIAC management team as Executive Vice President in June 2013. In this role, he is responsible for managing all of AIAC's policy efforts as well as overseeing the day to day operations of the association. He also has direct responsibility for the Association's space, small business, and public procurement files.

Iain holds a PhD in Physics from University of Ottawa, a M.Sc. in Physics from Dalhousie University and B.Sc. Honours from University of King's College.



Jeff Cullen

*Director of Procurement
Program Operations,
National Aeronautics and
Space Administration (NASA),
United States*

Jeff Cullen became the Director of the Program Operations Division at the NASA Headquarters Office of Procurement in January 2017. He is responsible for providing guidance, support and tools to NASA Centers, geographically dispersed across the United States, NASA Headquarters Mission Directorates and Mission Support Offices in planning, conducting and processing major complex procurement actions, and analyzing and recommending approval of key critical acquisition documents that require approval of senior Headquarters officials.

Mr. Cullen began his career in Procurement for the US Air Force at Kelly Air Force Base in 1986. He joined NASA Johnson Space Center in 1990 as a Contract Specialist.

He has served in progressively responsible positions including Contracting Officer for Space Shuttle Procurement and Mission Operations Procurement; Procurement Analyst at NASA Headquarters; Deputy Director, Johnson Space Center Office of Procurement; and Director of the Procurement Analysis Division at NASA Headquarters.

Mr. Cullen earned a Bachelor of Business Administration/Finance from the University of Texas at Austin and a Masters of Business Administration (MBA) from the University of Houston—Clear Lake.



Thibaud Delourme

*Team Leader for Copernicus
User Uptake,
European Commission,
Belgium*

Thibaud Delourme joined the European Commission in 2013, where he worked in the Chief Economist unit of the Directorate General for Industry and Internal Market (DG GROW). He is now team leader for Copernicus user uptake in the unit on Space Data for Societal Challenges and Growth. His team develops initiatives to increase the use of Copernicus and to foster innovation in the space data sector, notably by developing trainings, funding instruments or acceleration programmes for start-ups. Thibaud Delourme studied Economics at the University of Oxford.



Eric Morel

*Director of Industry,
Procurement and Legal Services,
European Space Agency (ESA),
France*

Eric Morel de Westgaver took up duty as Director of Industry, Procurement and Legal Services (D/IPL) on 1 November 2013. He was appointed Head of HQ Paris on 1 October 2016.

Eric Morel de Westgaver graduated in Economics from the Catholic University of Louvain, Belgium. He joined ESA in 1987 as Industrial Policy Officer in the Directorate of Administration. In 2001, he became Head of the Industrial Policy and Cost Analysis Department in the Directorate of Industrial Matters and Technology Programmes.

Before his current appointment, he had been Director of Procurement, Financial Operations and Legal Affairs since April 2011 and before that, Head of the Procurement Department since October 2004 in the Directorate of Resources Management and Industrial Matters. In addition to this responsibility he was nominated Associate Director for Industrial Matters by the Director General in February 2010.



Ernst Pfeiffer

*Chief Executive Officer,
HPS GmbH,
Germany*

Dr. Pfeiffer undertook his university degree & his PhD at the Technical University of Munich (Aerospace Engineering).

6 years at Kayser-Threde GmbH as Assistant to Board of Directors (1996 – 2002).

Appointed to Managing Director of HPS GmbH, Germany in 12/2002, currently almost 50% shareholder.

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY

Foundation of first subsidiary 2007: HPS Lda. located in Porto (Portugal), sold in April 2018.
Foundation of second subsidiary in March 2016: HPS S.R.L. located in Bucharest (Romania).
Spokesperson of German SME Association since 2015.



Matt Tetlow
Chief Executive Officer,
Inovor Technologies,
Australia

Matthew performed his PhD research at the Space Systems Institute in Stuttgart on advanced guidance algorithms for application on future launch systems.

Matthew then worked on tactical weapon navigation algorithms and several work packages for the Australian Scramjet program. This was followed by further defence projects in Systems Engineering for capability development; stand-off and close air support weapon modelling; submarine design optimisation; and CFD analyses of aircraft stores.

In 2012 Matthew founded Inovor Technologies to work closer with defence and to develop nano-satellite technologies, with a particular focus on small satellite platforms, Space Situational Awareness, Earth observation and Remote Sensing.

Presenters:



Luca del Monte
Head of the Industrial Policy &
SME Division,
European Space Agency (ESA),
France

Mr. del Monte is a senior manager at the European Space Agency with strong background in international cooperation, governmental relations and advanced technologies. He is the Head of the Industrial Policy and SME Division focusing on frameworks and mechanisms capable to foster innovation and the development of a new generation of European space Entrepreneurs, new Public-Private Partnerships concepts, and the socio-economic-environmental impact assessment of space activities.

He is also in charge of cybersecurity projects to protect ESA space missions, and responsible for the business development of the ESA European Space Security and Education Centre.

Mr. del Monte holds a master in Aerospace Engineering School from University La Sapienza in Rome, and he is also a graduate of the French National Defence Procurement College, and of the HEC Montreal School of Management of Innovation. He is author of more than 30 peer-reviewed publications and Member of the International Astronautical Federation Committee on Space Security.



Leo Loiacono
Senior Director, Program
Management Value Stream
Lead-Aerospace Business,
Valcor Engineering Corporation,
United States

Mr. Loiacono has 22 years of engineering and management experience with the design, development and production of aerospace fluid controls, specializing in solenoid valves, pressure regulators, relief valves, fill and drain valves and accumulators. Mr. Loiacono has served as Program Manager for major development programs in the aerospace industry (commercial, military and space). He has led the program management team at Valcor Engineering Corporation for over 15 years and is the Value Stream Leader for the Aerospace Group.

Mr. Loiacono holds Bachelor's and Master's Degrees in mechanical engineering and has a Master's Degree in Business Administration, with a focus on strategic management. He is a licensed professional mechanical engineer in the State of New Jersey.



Sias Mostert
Executive Chairman,
SCS Aerospace Group,
South Africa

Dr. Sias Mostert is the Executive Chairman of SCS Aerospace Group and has been an active member of the space industry in since 1992. He started his career in space engineering as Development Manager on the SunSat programme at Stellenbosch University from 1992 and was one of the founding members of SunSpace in 2000.

In 2008 he co-founded SCS Holdings that went on to establish Space Advisory Company (Pty) Ltd, NewSpaceSystems (Pty) Ltd and SCS Space (Pty) Ltd.

Dr. Mostert has a keen interest in bridging the digital divide with space technology and is passionate about using space technology as a catalyst for development.



MODERATOR
Pieter van Beekhuizen
Senior Consultant,
Bexperience,
The Netherlands

Pieter van Beekhuizen has worked his whole professional life since 1972 in the space domain, first with ESRO and as from 1975 with ESA, and has occupied during this period a large variety of different functions and responsibilities within ESA (Finance, Facility Management, Director's staff office, ATV project – Jules Verne).

In 2002 he became responsible for the ESA Industrial Costs Audits which has included many audits and programme reviews for the ESA Launcher Directorate (Ariane and VEGA) .

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In 2015 he was nominated Head of ESA Industrial Cost Auditing and Return Division for which position he moved to the ESA Head Office in Paris . During the last years he has also been actively involved in the European initiatives for commercialisation opportunities/ projects of the International Space Station (ISS).

He retired from ESA at the end of 2017.

After 45 years in the Space domain acquiring an in-depth knowledge of the functioning of ESA , and having gained during the last 15 years a thorough understanding and experience of the European Space industrial landscape and of the ESA industrial return related aspects, he has started his own consultancy company (Bexperience.nl) in 2018, providing consultancy services for various clients.



RAPPOREUR

Karina Miranda Sanchez

Head of the Industrial Audit Section,
European Space Agency (ESA),
Luxembourg

Karina Miranda is the Head of the Industrial Audit Section at the European Space Agency (ESA) performing cost analysis and auditing related activities in support of ESA procurement process.

She is also in charge of the organization of an Expert Group together with European National Audit Authorities to present and discuss industrial auditing and accounting matters as well as policies relevant to the implementation of industrial audits having an impact into the ESA regulatory framework.

Previously she worked as an Audit Manager specializing in Financial and Internal Audits, Sarbanes Oxley 404 projects and Financial Due Diligences within Commercial and Public sectors.

Ms. Miranda holds a university degree in Accounting majoring in Auditing and Finance, an MBA and an additional qualification as a Certified Chartered Accountant.

16:20 - 17:20 Italian Space Economy for the Sustainable Development Goals

Location: Bremen Conference Center – CCB Hansesaal

The workshop will focus on the tools that the Italian space economy is providing in support of the goals of the UN Agenda 2030 for sustainable development.

The evolution of new space systems with the possibility to conceive and realize, through miniaturization of on board functions, advanced digital communication processors and space based radars, new generation optical sensors and cost effective microsatellite constellations and satellite formations is paving the way to a new class of space services and applications. This “new space” economy is developing new business models and technologies and promoting the growth of the space sector in general.

Italy is at the fore front of this process and is expanding its space capacity, both in terms of infrastructure and data sources, also through international cooperation, to create a wider portfolio

of products and services, that offer new and better tools to address several sustainable development issues.

In the field of Earth observation, for example, the integration of “traditional” space systems with new satellites, equipped with new generation sensors, is paving the way to a complete new class and generation of geospatial services and applications.

The workshop will show the role of the main actors of the Italian space economy in this process, from that of the Italian Space Agency to that of the of Italian space-related companies represented within the three main associations.

Organized by:

Italian Space Agency (ASI)



Speakers:



Roberto Battiston

President,
Italian Space Agency (ASI),
Italy

Roberto Battiston is the President of the Italian Space Agency (ASI) and Chair of Experimental Physics at the University of Trento, Italy.

He has worked for over 30 years in international collaborations in the field of experimental physics and fundamental interactions: Strong interactions, Electroweak interaction physics, Search for antimatter and dark matter in Cosmic Rays. He is also the founder of a research group working in the field of frontier detectors and technologies to be used in fundamental physics research – ground based and space based. In particular in 1994 he founded SERMS (Laboratory for the Study of the Effects of the Radiation on Special Materials), devoted to the characterization of materials and devices to be used in space conditions. He has been until 2014 Deputy spokesperson for the AMS experiment, the first fundamental physics experiment approved on the International Space Station, already successfully flown during the STS91 Shuttle flight in June 1998 and installed on the ISS in 2011.

Prof. Battiston has been the European proposer of the LIMADOU experiment, to develop an energetic particle payload for the Chinese CSES satellite, operating in orbit since February 2018 to study correlations between magnetosphere and lithosphere. He has been the Coordinator of the SR2S EU project (2013 – 15) to develop active magnetic shielding techniques for interplanetary flights. Author of more than 420 papers published on international scientific journals, and organizer of several workshops devoted to space science and to advanced technologies (Trento 1999, Elba 2002, Washington 2003, Beijing 2006, CERN 2012).

He graduated at Scuola Normale di Pisa (1979) , Doctorate (Troisième Cycle), University of Paris IX, Orsay, 1982. He has been the Chair of General Physics at the Engineering Faculty of the Perugia University, Faculty of Engineering, (1992 – 2012). Since 2012 he is Chair of Experimental Physics at the Physics Department of the Trento University. Laurea honoris causa from the University of Bucharest (2000), Chevalier de la Legion d’Honneur (2016), Vladimir Syromniatnikov Prize (2017).



Massimo Comparini

Representative,
Federazione Aziende Italiane
per l'Aerospazio, la Difesa e la
Sicurezza (AIAD),
Italy

He began his career in the space industry in 1983 at Selenia Spazio (later Alenia Spazio), holding positions of increasing responsibility, up to that of Chief Technology Officer. In the joint venture Thales Alenia Space, he took up the role of Deputy Chief Technical Officer. In 2013 he was appointed Chief Technical Officer and excom member at Telespazio. In 2015 he is appointed Chairman of EarthLab Luxembourg a Joint Venture between Telespazio group and local players (Post Luxembourg, InTech, HiTec) for Earth Observation services and applications in support to risk and insurance market.

In 2016, he has been appointed Director of Line of Business Geo Information, Telespazio, and Chief Executive Officer of e-GEOS, ASI/Telespazio Joint Venture, having the mission to commercialize world-wide COSMO-SkyMed radar Constellation data, applications and services and to provide multimission Geospatial integrated solutions, based on innovative satellite data and advanced information technology processing chain.

Author of more than 90 papers and published works in the field of space and microwave technologies, innovation and technology management. He seats in many steering committees and board of scientific associations and international conferences. He has been appointed for a number of Academic positions having the chair of space electronics (University of Perugia), electronics for telecom system (Alma Mater studiorum University of Bologna) and in the economic field the Chair of ICT and Economy of new technologies (LUISS, Roma). In 2016 has been honoured with the Star for labour merit from the President of Italian Republic.



Simonetta Di Pippo

Director,
United Nations Office for Outer
Space Affairs (UNOOSA),
Austria

UNOOSA Director, Ms. Simonetta Di Pippo, leads the Office's strategies, policies and activities, ensuring that they are implemented in accordance with the mandates of the General Assembly, the Committee on the Peaceful Uses of Outer Space (COPUOS), and the established policies of the United Nations. She supervises the United Nations Programme on Space Applications and UN-SPIDER.

Ms. Di Pippo advises the Secretary-General of the United Nations and Director-General of UNOV and provides expertise on matters relating to the peaceful uses of outer space, and the use of space science and technology for sustainable development and disaster risk reduction. Ms. Di Pippo also discharges the Secretary-General's obligations under international space law, including overseeing the United Nations Register of Objects Launched into Outer Space. She serves as Secretary of COPUOS and manages the arrangements and coordination of UN-Space.

Alongside her team in the Office of the Director, Ms. Di Pippo co-ordinates and oversees reports on budgetary and programme performance matters as well as public information and outreach activities to promote the benefits of outer space for humanity.



Lorenzo D'Onghia

President,
Association for Space-based
Applications and Services
(ASAS),
Italy

Eng. Lorenzo D'Onghia, President of ASAS (Association for Space-based ICT Technologies, Applications and Services), has a long experience in the industrial world. Among others, he held the position of Deputy General Manager and Chief Commercial Officer in Telespazio, a Leonardo-Finmeccanica/Thales company, and General Manager in Vitrociset. He is currently Vice President of ESRI Italia and of the Rome Chapter in AFCEA – Armed Forces Communications & Electronics Association.



Luca Rossetini

President,
Association of Italian Space
Enterprises (AIPAS),
Italy

Luca Rossetini is a serial entrepreneur, seeking a profitable and sustainable expansion of the human kind in space. In 1998 Luca quits his Airborne Officer career and got a master in Aerospace Engineering in Italy (2003). After a year working in a US research lab on nanotechnologies applied to space propellant, he came back to Europe, where, in 2005, he successfully concluded a master in Strategic Leadership Towards Sustainability. During his Ph.D. studies in Advanced Space Propulsion – concluded in 2008 with honors – Luca founded IRTA (startup providing advanced vision and slow motion tracking techniques). In 2006 he co-founded The Natural Step Italia (The Natural Step is an international NGO that helps corporations and communities to pursue their objectives within a strategic sustainability framework), where the idea of applying strategic sustainability concepts to the space sector originated. In 2008 he applied for the European Astronauts Corp among 10,000 candidates. He went through the whole selection and positioned among the first two hundred. Nevertheless, his motivation pushed Luca to find another access to space. In 2009 Luca won a Fulbright scholarship and in 2010 obtained a Certificate in Technology Entrepreneurship in Silicon Valley, California. After an internship position at NASA Ames Research Center, Luca Rossetini went back to Italy and founded D-Orbit, developing a solution for Space Debris. Since June 2017, Luca Rossetini is AIPAS (Italian Space Companies Association) president.



MODERATOR

Andrea Zanini

Communication,
Italian Space Agency (ASI),
Italy

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16:30 - 17:30 European Industry Contribution to a Lunar Orbital Platform

Location: Bremen Conference Center – DLR Hall

The next step in human spaceflight could be the establishment of a human presence in cislunar space through the operations and the deployment of a Lunar Orbital Platform-Gateway. This gateway would be central to advancing and sustaining human space exploration, and would be the unifying single stepping off point in architecture for human cislunar operations, lunar surface access and missions to Mars. Airbus is working for the European Space Agency on two studies for this programme. This industrial framework will be introduced and discussed with the audience during this Global Network Forum (GNF).

Organized by:

Airbus Defence and Space



Speaker:



Detlef Wilde

Program Manager for Suborbital Missions, Airbus Defence and Space, Germany

Detlef Wilde is an experienced space systems engineer working at Airbus Space Systems as a programme manager for Suborbital Rockets and the project manager for the Lunar Orbital Platform Habitat study. In previous positions, he managed Robotics Engineering, GNC and Functional Avionics programmes as well as ISS Exploration projects.

Organized by:

The UK Space Agency



Speaker:



Graham Turnock

Chief Executive, UK Space Agency, United Kingdom

Graham has been Chief Executive of the Better Regulation Executive, a unit within the Department for Business, Energy and Industrial Strategy, since 2011. He has a BA and a PhD in Particle Physics from Cambridge University for theoretical work on collision experiments at CERN. He also holds a diploma in public administration from the École Nationale d'Administration (ENA).

Graham has extensive experience across Whitehall and at a European level – a key priority for the Agency's head. He has worked in the European Commission and held several other posts in the UK Civil Service with a strong European element, including the Treasury's lead on the EU budget.

Recently he has been the BEIS representative on the Met Office board while outside of work he is a trustee of the Youth Hostels Association and a keen cyclist.

17:30 - 17:45 The UK Space Agency – Towards 2030

Location: Bremen Conference Center – CCB Hansesaal

The UK space sector is growing. The UK Space Agency is driving this growth through the UK Government's Industrial Strategy, with an ambition to secure 10% of the future global market by 2030.

International partnerships and the '2030 Agenda for Sustainable Development' are vital to the UK Space Agency achieving its own 2030 goals. In collaboration with industry, academia and non-profit entities, its largest programme funds projects which use space solutions to make a positive and practical impact on the lives of those living in emerging and developing economies.

This session therefore provides an opportunity to hear direct from the UK Space Agency's Chief Executive, Dr Graham Turnock, about progress in achieving its 2030 growth target; the priorities, opportunities and challenges lying ahead for the UK space sector; and how his vision aims to both manage and maximise them.

Thursday 4 October 2018

GNF FUTURE STREAM
Room: DLR Hall

GNF CHALLENGES STREAM
Room: CCB Hansesaal

09:40 - 10:40 Space Station and the Next Generation: Launching the LEO Ecosystem

Location: Bremen Conference Center – DLR Hall

Space Station: Next Generation celebrates the 20th anniversary of the start of the International Space Station and the bold future ahead. Today the ISS serves as the launch destination of commercial human spaceflight, including Boeing's Starliner, and operates as the only laboratory that provides government and industry a firm foundation for research and commercialization opportunities in low Earth orbit. As the largest structure ever built in orbit, the ISS provides flexibility in its scientific capabilities and plays a central role as customer in the development of an Earth orbit economy. The Station also acts as a producer in the arena of conducting foundational research. With early steps made to enhance the ISS role in space commerce, this event will examine what steps are needed to open the Station further to commercial use, what markets may most benefit from its use and how to provide more opportunities for private and government astronauts to capitalize on its unique capabilities. Speakers will share their perspectives in a TED-talk format followed by a roundtable of Q&A from the audience on the following topics

- The ISS Destination: The impact, importance and the future Off the Earth, For the Earth
- The ISS Crew Transportation: Launching Boeing Starliner and Commercial Travel to Space
- The ISS Next Generation: Private Astronaut Preparation Opening up the New Space Ecosystem

Following the Topics, a Q&A Round table with all Presenters that will be moderated.

Organized by:

The Boeing Company



Speakers:



Chris Ferguson
Boeing Starliner Astronaut,
The Boeing Company,
United States



John Mulholland
CST-100 Starliner Program
Manager,
The Boeing Company,
United States



Mark Mulqueen
ISS Program Manager,
The Boeing Company,
United States

10:50 - 11:50 Space & Mobility

Location: Bremen Conference Center – DLR Hall

Present and future mobility systems and mobility concepts are not conceivable without (German) space know-how.

Many examples illustrate this : Autonomous driving – in its eventual mature state – is only possible if navigation data is reliably, highly precise and continuously available.

Satellite navigation ensures that transport solutions can be operated efficiently and safely.

Satellite technology helps to make transportation networks more efficient, saving billions of euros in costs and contributing to climate protection by avoiding traffic.

The panel will demonstrate the usefulness of space exploration for everyday applications, especially in the area of mobility.

It will introduce highly innovative urban air mobility solutions by Airbus Defence and Space as well as Volocopter GmbH and discuss the following questions:

- How do space and mobility providers work together?
- What do both sides expect from each other?
- How will future mobility solutions look like?

Organized by:

Ministry of Economic Affairs,
Labour and Ports of Bremen

Ministry of Economic Affairs,
Labour and Ports

Freie
Hansestadt
Bremen

Speakers:



Hansjörg Dittus
Executive Member for Space
Research and Technology,
German Aerospace Center (DLR),
Germany



Marco Fuchs
Chief Executive Officer,
OHB SE / OHB System AG,
Germany



Stefan Klocke
Chairman of the Advisory Board,
Volocopter GmbH,
Germany



MODERATOR
Rommy Arnd
News Anchorwoman,
n-tv-German Private News
Television,
MDR Aktuell German Public News
Radio,
Germany

Speakers:



Charlotte Bewick
Systems Engineer, Earth
Observation Predevelopment,
OHB System AG,
Germany



John Burrows
Director of the Institute of
Environmental Physics,
University of Bremen,
Germany



MODERATOR
Timo Stuffer
Director Business Development,
OHB System AG,
Germany

10:50 - 11:50 Climate Change – How Can Space Based Measurements Be Used to Understand the Changing Human Impact on the Sources and Sinks of Greenhouse Gases and Global Climate Change?

Location: Bremen Conference Center – CCB Hansesaal

In this roundtable, young professionals are welcome to participate in an open roundtable discussion with senior experts, to express their concerns and discuss on how the future can be improved using space technologies.

Building up from the IAC 2018 “Plenary 7: Greenhouse Measurements from Space – Difficult Challenges, Emerging Success, and Plans for the Future”, the young professionals, those who will face the difficult consequences of Climate Change and might need to more aggressively work against it, will sit with senior experts to discuss about which are the main challenges and priorities to focus in the near and mid-term future.

Since the birth of the space age in 1957 and in particular in the past 40 years, space-based technologies have evolved to provide the knowledge needed to enhance our scientific understanding of planet Earth in many ways. The Earth system and its climate have been modulated by natural phenomena since the Earth was created. However, since the industrial revolution, the growing exploitation of fossil fuel combustion for energy and land use change has led to a rapid growth in population (i.e. from 1 Billion to 7.6 Billion), over 50% of population living today in urban areas.

The increase in the atmospheric abundance of the two most important greenhouse gases, carbon dioxide, CO₂, and methane, CH₄, is well recognised to have direct and negative impacts on climate, environment, ecosystem services, agriculture, human health, and ultimately in economy.

Global leaders are developing environmental policies (e.g. the United Nations Framework Convention on Climate Change) to regulate and mitigate the impact of man on the climate and environment to achieve ultimately sustainable development, but how young professionals can influence the future?

Organized by:
OHB System AG



12:00 – 13:00 URBAN: Conceiving a Lunar Base Using 3D Printing Technologies

Location: Bremen Conference Center – DLR Hall

Human exploration and permanent settlement on the Moon surface is the one of the most attractive and next logical goals in space. The key to any sustainable presence in space is the ability to manufacture necessary structures and spares in situ and on demand reducing the cost, volume, and up-mass constraints that could prohibit launching everything needed for long-duration missions from Earth. Additive Manufacturing (AM) has been identified as having the potential to provide a number of sustainability advantages. These advantages include the generation of less waste during manufacturing; the capability to optimize geometries and create lightweight components that reduce material and energy consumption; the subsequent reduction in transportation in the supply chain; and inventory waste reduction due to the ability to create spare parts on-demand.

The topic of the event will be focused on Conceiving a Lunar Base Using 3D Printing Technologies via an interactive brainstorming session.

A keynote presentation will introduce the session. 4 tables will be established on 4 different topics (each with a rapporteur):

1. Permanent and long lasting items to be printed for Moon base
2. Print-on demand
3. Waste as resource
4. Additive manufacturing process feasibility from a lunar perspective.

Organized by:
OHB System AG



Speakers:



Advenit Makaya
*Materials and Processes Section
TEC-MSP,
European Space Agency (ESA),
The Netherlands*

Advenit Makaya is an Advanced Manufacturing Engineer at the European Space Research and Technology Centre of the European Space Agency. He supports the development of promising advanced materials and processes for space applications, in various fields which include surface treatments, joining technologies, additive manufacturing, advanced polymers and in-situ resource utilisation. Advenit previously worked as a Lifting Technologist for Rolls-Royce plc in the U.K., performing structural analysis and life assessments of critical parts for large civil aircraft engines. Prior to this industrial experience, Advenit was a postdoctoral researcher at the National Institute of Advanced Industrial Science and Technology in Nagoya, Japan, supported by the Postdoctoral Fellowship for Foreign Researchers of the Japan Society for the Promotion of Science. This research consisted of the development of a semi-solid synthesis process for bulk metallic glass matrix composites. Advenit received a PhD in Materials Processing from the Royal Institute of Technology in Stockholm Sweden, performing his thesis on the synthesis of porous metals and rapidly solidified metals. Advenit holds a MSc in Materials Processing from the Royal Institute of Technology and an Engineering degree from Ecole Centrale de Lyon, France.



Matthias Sperl
*Group Leader Granular Matter,
German Aerospace Center (DLR),
Germany*

2000: Diploma in Physics, Technical University of Munich, Germany
2003: PhD, Technical University of Munich, Germany
2004-2006: Postdoc, Duke University, Durham, USA
since 2007: Scientist, Institute for Materials Physics in Space, German Aerospace Center (DLR), Cologne, Germany
2008/9: Lectureship (Lehrauftrag), University of Düsseldorf, Germany
2009: Professor/Acting Chair (Lehrstuhlvertretung), University of Göttingen, Germany
since 2011: Group Leader Granular Matter, German Aerospace Center (DLR), Cologne, Germany
since 2016: Professor for Physics of Granular Matter, Institute for Theoretical Physics, University of Cologne, Germany



MODERATOR
Marco Berg
*Head of Human Spaceflight &
Exploration,
OHB System AG,
Germany*



RAPPORTEUR
Anna Dauriskikh
*System Engineer for ALM,
Sonaca Space GMBH,
Germany*



RAPPORTEUR
Antonella Sgambati
*Human Spaceflight Senior
System Engineer,
OHB System AG,
Germany*



RAPPORTEUR
Robert Davenport
*Senior Systems Engineer,
LIQUIFER Systems Group,
Austria*



RAPPORTEUR
Peter Weiss
*Space Department Manager,
Comex,
France*

12:00 - 13:00 Prospect of China's New Generation Recoverable Satellite Piggyback Service

Location: Bremen Conference Center – CCB Hansesaal

China will launch its first commercial recoverable satellite in 2019. During 2019-2025, 15 missions are planned, creating new prospects of commercial space services for flying and returning payloads/satellites from orbit, and a potential new commercial niche for China in the burgeoning commercial space economy. This new system is highly improved in microgravity, flying duration, power supplying, and payload interface. It will compete in the market with commercial return services currently offered from the International Space Station, and eventually with future commercial space stations and research laboratories. Potential commercial customers may include the agriculture industry, space materials, space pharmacy, new tech demonstration, and microgravity science/life science research, returning commercial payloads by parachute, within a new system developed from the previously-flown Shijian-10 mission architecture. The panel will share some details of the new recoverable satellite system, and coordinate an open discussion on promoting piggyback payload opportunities and markets for agencies, research institutes, industry and governments.

Organized by:

Global Aerospace and Telecom Consulting Ltd. (GATC)
Chinese Society of Astronautics (CSA)



Speakers:



John Horack
Professor and Neil Armstrong
Chair,
The Ohio State University,
United States



LI Ming
Vice President,
China Academy of Space
Technology (CAST),
China

Panellists:



Jeffrey Manber
Chief Executive Officer,
NanoRacks,
United States



Alfred Ng
Deputy Director, Space Science
& Technology,
Canadian Space Agency (CSA),
Canada



ZHU Linqi
Chief Executive Officer,
Global Aerospace and Telecom
Consulting Ltd. (GATC),
China



MODERATOR
YU Dengyun
Deputy Director of S&T Steering
Committee,
China Aerospace Science and
Technology Corporation (CASC),
China

13:10 - 14:10 Introduction to Manned Environment and Scientific Experimental Resources of Chinese Space Station

Location: Bremen Conference Center – DLR Hall

The China Manned Space Engineering Office, on behalf of Chinese government, has made a strategic framework with United Nations Office for Outer Space Affairs to offer opportunities on crew participation and scientific experiments of Chinese Space Station to members of United Nations. Technical characteristics of manned environment of Chinese space station are introduced. Some key factors, including space experimental conditions, experimental resource for intravehicular and extravehicular, micro-gravity level, attitude and space environment are also described. It is helpful to know manned environment and experiments can be performed on Chinese Space Station, making a good fundament for international cooperation.

Organized by:

China Academy of Space
Technology (CAST)



Speaker:



YANG Hong
Chief Designer,
China Academy of Space
Technology (CAST),
China



MODERATOR
LI Ming
Vice President,
China Academy of Space
Technology (CAST),
China

13:45 - 14:45 The Young Generations' Perspective of Space and Security

Location: Bremen Conference Center – CCB Hansesaal

The Global Network Forum (GNF) for Space Safety and Security – in and from Space – will be held during the IAC 2018 in Bremen. This GNF is expected to be an excellent occasion to promote IAF activities for space safety and security.

In this regard, the GNF will engage key space actors in reflecting on their views on space safety and security in and from space.

This GNF invites panellists to reflect on the nature of space safety and security and its important role in space activities. This debate will focus on security in and from space, what the priorities of governments, industry and space agencies are.

Organized by:

Space Generation Advisory Council (SGAC)
European Space Agency (ESA)



SPACE GENERATION
ADVISORY COUNCIL



Speakers:



Ntorina Antoni
PhD in Space and Security,
Eindhoven University of
Technology,
The Netherlands

Ms. Antoni is a PhD candidate at the University of Eindhoven, conducting a research project in space security. She is also an attorney at law registered at the Athens Bar Association in Greece. She holds a Law Degree from the University of Athens, an LLM in International and European law from Tilburg University and an Advanced LLM in Air and Space law from Leiden University. Ntorina has previously worked at the Strategy Department of the European Space Agency as strategy and policy analyst, and at a Swiss private aerospace company as legal counsel.



Aline Decadi
Rocket Scientist,
HE Space Operations BV,
The Netherlands

My name is Aline Decadi. I am a rocket scientist at HE Space Operations BV. I have been working for the European Space Agency in Paris for 6 years on the development of the future European Ariane 6 launch system. I am a Dependability and Safety engineer in charge of developing a safe design; preventing from catastrophic failure conditions that could endanger the people and facilities on ground or in-flight.

I am fond by space exploration and I am a former delegate of the SGAC within the Exploration Working Group. I have published two papers on the development of future space transportation systems. In particular, I focus my research on the Safety criteria to be defined for crew survival in the frame of the future Human-rated space exploration missions.

I am also part of the Mars Society and the Austrian Space Forum. In this context, I have been part of a Mars analog simulation early this year as a field crewmember. My mission has been to bring my experience to reach an acceptable of safety for what concern the crew, the spacesuit and the operations.



Yann Gouy
Deputy Head of the Space Tug Team,
Airbus Defence and Space,
France

Yann is currently in charge developing the business of On-Orbit Services, covering In-Orbit Refuelling, partially Space Situational Awareness, Active Debris Removal and In-Space Logistics.

Prior to that he was Programme Manager leading the Business Development for Space Surveillance and Tracking and Space Traffic Management on the European Market in what is now ArianeGroup.

Proud EU citizen (French and German) with an entrepreneur mindset, Yann is excited by the development of an orbital economy.



Eleanor Morgan
Reserve Officer and Pilot,
U.S. Air Force,
United States

Major Eleanor E. Morgan is a U.S. Air Force Reserve officer and pilot whose 12-year active duty career has included leadership positions and combat flight operations in both manned and unmanned aircraft. During her most recent assignment she has served as an Evaluator Pilot, Electronic Combat Officer, and Mission Director for Remotely Piloted Aircraft (RPA).

As a Mission Director at the Air Force's Persistent Attack & Reconnaissance Operations Center, Major Morgan was responsible for supervising 24/7 combat operations across three combatant commands and five geographic theaters, integrating both USAF and Coalition RPA missions, and directing global RPA mission execution as tasked by the Secretary of Defense and President of the United States. As an Electronic Combat Officer, she serves as a systems matter expert on the use of the electromagnetic spectrum and satellite networks for military RPA operations. Prior to her RPA assignment, Major Morgan served as a C-17A Aircraft Commander where she flew rapid global mobility missions in support of the War on Terror, completing multiple deployments and logging over 700 combat hours.

Major Morgan graduated from the U.S. Air Force Academy in 2006 and holds a bachelor of science degree in systems engineering and a master of science degree in space studies. She has been a member of the Space Generation Advisory Council since 2014 and was an organizing committee member for the 2017 Space Generation Congress in Adelaide, Australia. In 2018 she was selected to participate in NASA's Human Exploration & Research Analog (HERA) program at Johnson Space Center where her 4-member crew completed a 45-day simulated space exploration mission aimed to assess the physiological and psychological effects of isolation, confinement, and sleep deprivation.



Narayan Prasad
Co-Founder,
satsearch.co,
Germany

Narayan Prasad is a cofounder at satsearch.co and has previously entrepreneurial experiences in India and the United States. He also serves as an Associate Fellow at the European Space Policy Institute where he is leading activities on Europe – India space cooperation. He is a recipient of the International Astronautical Federation's Emerging Space Leaders award and a member of the International Institute of Space Law.



Kai-Uwe Schrogl
IISL President and Chief Strategy Officer,
International Institute of Space Law (IISL),
European Space Agency (ESA),
France

Prof. Dr. Kai-Uwe Schrogl is the Chief Strategy Officer of the European Space Agency (ESA, Headquarters in Paris, France). From 2007 to 2011 he was the Director of the European Space Policy Institute (ESPI) in Vienna, Austria, the leading European think tank for space policy. Prior to this, he was the Head of the Corporate Development and External Relations Department in the German Aerospace Center (DLR) in Cologne, Germany. Previously he also worked with the German Ministry for Post and Telecommunications and the German Space Agency (DARA) in Bonn, Germany.

He has been a delegate to numerous international forums and has served from 2014 to 2016 as chairman of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space, the highest body for space law making, comprising 73 Member States. He also was chairman of various European and global committees (ESA International Relations Committee and two plenary working groups of the UNCOUOS Legal Subcommittee, the one on the launching State and the other on the registration practice, both leading to UN General Assembly Resolutions). He presented, respectively testified, at hearings of the European Parliament and the U.S. House of Representatives.

Kai-Uwe Schrogl is the President of the International Institute of Space Law, the professional association of space law experts from 48 countries, Member of the International Academy of Astronautics (recently chairing its Commission on policy, economics and regulations) and the Russian Academy for Cosmonautics as well as Corresponding Member of the French Air and Space Academy. He holds a doctorate degree in political science and lectures international relations as an Honorary Professor at Tübingen University, Germany.

Kai-Uwe Schrogl has written or co-edited 17 books and more than 140 articles, reports and papers in the fields of space policy and law as well as telecommunications policy. He launched and edited until 2011 the "Yearbook on Space Policy" and the book series "Studies in Space Policy" both published by ESPI at SpringerWienNewYork. He sits on editorial boards of various international journals in the field of space policy and law (Space Policy, Zeitschrift für Luft- und Weltraumrecht, Studies in Space Law/Nijhoff; previously also Acta Astronautica).



MODERATOR

Christina Giannopapa
Head of Political Affairs,
European Space Agency (ESA),
France



MODERATOR

Christopher Vasko
Research Fellow, Young ESA,
European Space Agency (ESA),
France

Organized by:
OHB System AG



Speakers:



Hansjörg Dittus
Executive Member for Space
Research and Technology,
German Aerospace Center
(DLR),
Germany



Harald Hauschildt
Programme Manager, Scylight
Programme,
European Space Agency (ESA),
The Netherlands



Christoph Marquardt
Group leader Quantum
Information Processing Group,
Max Planck Institute of Light
(MPL),
Germany



MODERATOR
Andrea Jaime
Business Development
Manager, OHB Quantum
Technologies Working Group,
OHB System AG,
Germany

14:55 - 15:55 SGAC SpaceGen Entrepreneurs Forum

Location: Bremen Conference Center – CCB Hansesaal

The SpaceGen Entrepreneurs Forum is an event organised by the Space Generation Advisory Council as part of the Global Networking Forum during IAC. It is designed to connect entrepreneurs and potential entrepreneurs with start-up veterans and Venture Capitalists, Investors, Business Angels and Business Incubators. SGAC's SpaceGen Entrepreneurs Forum will be held at CCB Hansesaal at Messe Bremen on Thursday, 4 October 2018 at 14:55, followed by a networking cocktail at 15:55h at CCB GauB. This event is set to attract proactive and high-calibre entrepreneurs that are passionate about commercial space (both upstream and downstream) and are looking to meet with mentors/VCs/Investors.

Organized by:
Space Generation Advisory Council (SGAC)



14:20 - 15:20 How Will Quantum Technologies Change the Future of Space?

Location: Bremen Conference Center – DLR Hall

Quantum Technologies is a cross and multidisciplinary area which has possibly disruptive impact on many fields relevant to the space industry. The so-called second quantum revolution is now about to come, and the way the space sector works and approach solutions might change sooner than later affecting all industries worldwide.

Quantum Technologies applications in the space sector range from Earth Observation, GNSS, Telecommunications, and many others. 2017 has witnessed the publication of the Quantum Manifesto and the announcement of the Quantum Flagship by the European Commission, the first satellites using QKD were launched in China and Japan and are successfully proving the technology, and many governments around the world are keeping an eye on the developments of Quantum Computing and quantum technologies, especially for security reasons.

The panel will offer an overview of the current status of the developments of Quantum Technologies, highlighting those with a relevancy for the space sector; as well as tackle the needs to push forward these technologies and how agencies/organisations are pursuing this to adapt to the future.

Panellists:



Adnan Al Rais
Director, Remote Sensing Department, Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates

As a director of the Remote Sensing Department in Mohammed Bin Rashid Space Centre (MBRSC), Adnan and his team are responsible for all downstream activities of MBRSC space missions. This includes the Ground Networks Operations and maintenance, Satellite Operations, Satellite data processing, Applications and value-added products development, Interfacing with the end users; locally and internationally, as well as commercializing MBRSC products and services. Currently, he is working on the preparation of the ground segment to support MBRSC upcoming missions: KhalifaSat and Emirates Mars Mission – Hope. Adnan was part of the team that built the first ground station at the Emirates Institution for Advanced Science & Technology (EIAST) in 2007 and also worked with the team building the ground segment of the DubaiSat satellite series, introducing commercial ground support services and antenna hosting services at EIAST’s Ground Station in Dubai.

In addition, Adnan is managing the Mars 2117 strategy, working on setting up the strategy to build a full settlement on Mars and send human to Mars by 2117. Adnan has published and presented a number of papers in the areas of remote sensing and satellite image applications. He holds a Bachelor’s in Computer Engineering from Khalifa University, Sharjah



Robert Boehme
Founder and CEO, PTSScientists, Germany

Robert Boehme is founder and CEO of PTSScientists. He took his childhood passion for science fiction to the next level when, together with six friends, he founded the “Part-Time Scientists” and entered the Google Lunar XPRIZE. Over the past decade he has grown the team from a small group of passionate volunteers, to a full-fledged new-space company, employing over 50 people.

Robert wants to increase access to space and enable non-traditional players to take part in lunar exploration. His vision for the future involves developing reusable infrastructures on the Moon that could be used as a blueprint for enabling deeper exploration of the solar system.

Before taking the leap from “part-time scientist” to full time CEO, Robert spent his time as an IT Security specialist working with the German government. He’s probably the only person (foreign agencies aside!) to successfully to hack all eight generations of the so-called “Merkel Phone”, the secure phone that German politicians use – but thankfully he was just testing for security flaws.



Chris Boshuizen
Operating Partner, Data Collective VC, United States

Chris is an Operating Partner at Data Collective VC, a boutique investment firm specialising in deep tech and data-driven science and engineering companies. In 2014 Chris was won an Advance award in the manufacturing category, and also the overall Global Australian of the Year award winner. He has subsequently become a member of the Advance Board of Directors.

Chris was the co-founder of Planet Labs, a company providing unprecedented daily, global mapping of our changing planet from space. As the company’s CTO for five years he took the company from the drawing board to having launched more satellites into space than any other group in history, completely transforming the space industry along the way. Fundamental to Chris’s approach is a dedicated investment in people, especially youth and recent graduates, to create a powerful, connected global workforce capable of achieving anything.

Chris was previously a Space Mission Architect at NASA Ames Research Center. After working on a number of traditional spacecraft programs at NASA, Chris co-created Phonesat, a spacecraft built solely out of a regular smart phone. The cost was so low, and the concept so simple, that space exploration is now within grasp of the everyday person, and many other groups around the world are pursuing their own low-cost space programs as a consequence.

Whilst also at NASA, he established Singularity University, a school for studying the consequences of accelerating technological development. Initially fulfilling the role of Interim Director, Chris helped raise over \$2.5 million to establish the university, assembling the faculty and serving as co-chair for the University’s Department of Space and Sciences. He was also previously the Executive Director of the Space Generation Advisory Council, and co-led the organizing committee for 5 Space Generation Congresses.

Chris received his Ph.D. in Physics and BSc. with honours from the University of Sydney. He is also an avid musician and released his first commercial album, VHS, in September 2018



MODERATOR
Manny Shar
Head of Analytics, Bryce Space and Technology, United Kingdom

Manny is an expert in the UK commercial space sector, previously working as an analyst at UK’s largest satellite company, Inmarsat, as well as for leading investment banks including Goldman Sachs and Barclays. With experience working across industries from early stage investment to commercial model development, Manny managed analysis for a multi-billion-dollar portfolio of assets. He has supported cross-functional strategic business development activities and work in international consulting for complex business environments including Fortune 500, FTSE-100, and mid-size firms in the U.S. and Europe. Manny is actively involved with the Space Generation Advisory Council (SGAC) and advises numerous space start-ups, providing strategic business and technical insight. Manny now leads consulting engagements for government and commercial clients at Bryce Space and Technology.

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15:30 - 16:30 Life in Space: the Science, the Challenges, and the Broad Horizon

Location: Bremen Conference Center – DLR Hall

This event will showcase our current understanding of life in space, including the potential for extraterrestrial life and the search for life in our solar system (Ehrenfreund), and the potential for live humans to capably and safely deal with the fundamental challenges of spaceflight, including: biomedical (Mukai); long-duration life support (Mankins); and the projection of individual human capabilities and presence on the surface of another world (Newman). A clarification of these life-related issues will be provided by these distinguished panelists, and via (live) audience engagement.

Organized by:

The SETI Institute



Speakers:



Pascale Ehrenfreund
Chair of Executive Board,
German Aerospace Center (DLR),
Germany

Pascale Ehrenfreund is the Chair of the Executive Board of the German Aerospace Center. She is also a Research Professor of Space Policy and International Affairs at the Space Policy Institute in Washington DC. She was a lead Investigator of the NASA Astrobiology Institute with a focus on Solar System exploration.



John C. Mankins
President,
Mankins Space Technology, Inc.,
United States

John C. Mankins is Vice President of the Moon Village Association, Founder and President of Mankins Space Technology, Inc., and President of Artemis Innovation Management Solutions LLC. He is a member of the IAA and the National Space Society. While at NASA, he served as Chief Technologist for Human Space Flight and received the Medal for Exceptional Technology Achievement.



Chiaki Mukai
Vice President,
JAXA Astronaut,
Tokyo University of Science (TUS),
Japan

Chiaki Mukai is Japan's first female astronaut, and currently a JAXA Senior Advisor and Vice President of the Tokyo University of Science. She is also the Chair of the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses for Outer Space. Dr. Mukai flew as a Payload Specialist on the Space Shuttle Columbia (STS-65/IML-2) in 1994, and on the Space Shuttle Discovery (STS-95) mission in 1998, conducting various life science and space medicine experiments.



Dava J. Newman
Apollo Program Professor,
Massachusetts Institute of
Technology,
United States

Dava Newman is the Apollo Program Professor of Astronautics at the Massachusetts Institute of Technology, a Harvard-MIT Health, Sciences, and Technology faculty member, and former Deputy Administrator of NASA receiving NASA's highest honor, the Distinguished Service Medal. She is also a MacVicar Faculty Fellow (awarded for contributions to undergraduate education). As the past Director of MIT's Technology and Policy Program (TPP), she led the Institute's largest multidisciplinary graduate research program. She is the Director of the MIT Portugal Program 2030. She has been PI on four spaceflight experiments to investigate astronaut performance on the Shuttle, Mir Space Station and ISS, and is known for her revolutionary BioSuit™ Mars spacesuit.



MODERATOR
John D. Rummel
Senior Scientist,
SETI Institute,
United States

Dr. John Rummel is a Senior Scientist with the SETI Institute, and chairs the Institute's Science Advisory Board. He has previously worked at NASA Headquarters as NASA's Senior Scientist for Astrobiology and as the Planetary Protection Officer. He is a Fellow of the American Association for the Advancement of Science (1990), the recipient of the Life Sciences Award from the International Academy of Astronautics (2005), and was awarded the NASA Exceptional Performance Award in 2008.

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16:05 - 17:05 Developing Space Workforce – Industry Focus

Location: Bremen Conference Center – CCB Hansesaal

Attracting of skilled workforce for space industry is always a challenge. There are few important issues to consider: lack of motivation of young people to study engineering subjects, aging of workforce in space industry especially in Europe, scarcity of certain professions as for example system engineering, product assurance etc.

The panellists will discuss the specific problems space industry faces today: scarcity of certain professions, aging of workforce and capture of knowledge accumulated as well as discuss the way forward. The panellists are invited from major prime industrial companies from USA, Europe, China as well as academia and space agencies.

Organized by:

IAF Global Workforce
Development Subcommittee



Speakers:



Andrew Herd
Senior Engineer Knowledge Management,
European Space Agency (ESA),
The Netherlands

Andrew Herd was born in Lincoln, United Kingdom in 1965. He studied Mechanical Engineering at The City University, London, graduating in 1988 with Honors. In 1996, he studied at Loughborough University, graduating with an Executive Masters in Business Administration in 1999.

In 1988, he started a career in engineering, firstly with Hawker Siddeley Engineering, making 100 diesel electric locomotives with novel computer-based power distribution control, and a decade later in 1998 with NASA developing and operating science hardware for Increment 3 on the newly established International Space Station (ISS). In 2003 he brought his ISS experience to the European Space Agency (ESA), establishing the discipline of payload operations safety at ESA, and then directly supporting the newly established ESA Payload Safety Review Panel.

In 2013, Andrew moved to the Standardization and Engineering Knowledge Management Office, working as part of the Executive Secretariat of the European Cooperation for Space Standardization. In 2015 he was nominated as a directorate Knowledge Management Point of Contact and then, in 2017, was subsequently requested to support the corporate-level efforts in knowledge management at ESA.



Lisa La Bonté
Founder & CEO,
Arab Youth Venture Foundation,
United Arab Emirates

Career roots in Silicon Valley aerospace and info systems, for the past 25 years overseas, Lisa has built businesses and advised multi-nationals (i.e. Raytheon, SK, Lockheed Martin) within 21 nations (Asia, Mid East, EU). As a start-up expert and business strategist, Lisa has launched businesses for Royalty, sovereign wealth funds, UHNWs/ family ofcs, and VVIPs.

A venture financier since 1997, Lisa has invested in 76 companies (internet, medical device, software). Exits incl. 18 IPOs, 8 M&A. Lisa has raised over \$225MM in capital, advised 100+ SMEs, and served as advisor to industry focused start-up incubators.

From Dubai, Lisa created and served as lead investor and CEO of the Arab Youth Venture Foundation, the first NGO to introduce extra-curricular STEM and space education to the GCC, introducing the STEAM acronym to the public domain in 2007, the A for Aerospace, Astronautics, Aviation, and Astronomy for “inspired STEM”. In 2009 AYVF secured an historic NASA Int’l Space Act Agreement bringing NASA education actively into the region. AYVF launched the model for NASA’s international internships, with the first non-American NASA funded by the Abu Dhabi, UAE government.

Lisa and sponsors strategic workforce development and STEM infrastructure as a staunch advocate for innovation, start-ups, and space training for youth and serves on numerous space boards and committees globally.

Lisa holds an MBA in International Business, a Master of Science in Internet Strategy & Technology Management, and has been an adjunct professor of Asian Business Strategy at the Graduate level.



Vera Mayorova
Professor and Director of Youth Space Centre,
Bauman Moscow State University (BMSTU),
Russian Federation

Head of Projects of Student Satellite Programs in BMSTU.

Developer of the system of continuous aerospace education – high-school/university/post-graduate/industry. Contributed to sustained high level of aerospace education in Russia.

Head of annual International Workshop “Space Development: Theory and Practice” hold in Moscow.

Member of Educational Outreach Committee of International Astronautical Congress.

National Coordinator and Member of the Board, World Space Week Association.

Full member of International Academy of Astronautics.

Full Member of K. Tsiolkovsky Russian Academy of Cosmonautics.



Maria Antonietta Perino
Director of Relations with Space Associations,
Thales Alenia Space,
Italy

Maria Antonietta got a Degree in Nuclear Engineering at the Politecnico di Torino. In 1988 she attended the first Summer Session of the International Space University (M.I.T., Boston, USA) and then she became a Faculty member.

Since 1986 she has been working at Thales Alenia Space – Turin, as Program Manager of major ESA and ASI activities related to exploration like ExoMars, Mars Sample Return, and the Aurora Core Program. In 2010 she was appointed Director for Advanced Exploration Programs.

In the last years she has been Director Marketing & Sales for the ESA Exploration & Science Programs, and recently Director for System Supplies Operations.

Maria Antonietta is involved in different activities promoting the development of young professionals in the space industry.

She is author of several publications, papers, and reports, and Acta Astronautica Co- Editor.

Maria Antonietta is a member of different scientific committees, of the EuroScience Open Forum (ESOF), and of Women in Aerospace. She is member of the Académie de l'Air et de l'Espace and of the International Academy of Astronautics, and former Vice President of the International Astronautical Federation Bureau responsible for Technical Activities and IAC Evolution.



Mary Snitch
Senior Staff, Global S&T Organizations,
Lockheed Martin,
United States

Her 30-year professional career includes ten years at the U.S. Department of State and the Arms Control and Disarmament Agency. She joined the private aerospace sector in 1983 with TRW and in 1985 joined the Jet Propulsion Laboratory in Pasadena, CA as Manager, Legislative and International Affairs. Mary returned to Washington in 1990 to join Lockheed Martin Corporation.

Mary Snitch is an impactful contributor to the aerospace and STEM education community. She actively serves on Committees of the Board for the American Institute for Aeronautics and Astronautics (AIAA) and the University of Maryland Aerospace Engineering Industrial Advisory Board. She is an elected Full Member of the International Academy of Astronautics (IAA) and a Corporate Member of the International Astronautical Federation. Mary serves on the Board of Future Space Leaders and represents Lockheed Martin on the Local Organizing Committees for IAC 2017, IAC 2019 and the COSPAR Scientific Assembly 2018.



YANG Yuguang
Professor,
China Aerospace Science &
Industry Corporation Limited
(CASIC),
China

Yang Yuguang, Professor from CASIC, mainly engaged in space system design and spacecraft design, also being engaged in preliminary study of China's manned space program and deep space exploration projects. He is also good at orbital dynamics and numerical simulation. Yang is very active in international space cooperation and communication and already has more than 600 friends in international space field. He is the only founding member of Moon Village Association from China. He is now the secretary of IAF space transportation committee, acting as cooperator of space transportation Symposium during IAC. He has chaired deep space transportation Solution sessions for four times during IAC. Yang is also very enthusiastic on popularization of space technology. He was always invited by China Central Television as technical expert during live coverage of important space missions of China. He has attended 149 live coverages and studio interviews on CCTV. Yang has already written more than 200 articles for almost all the important medias of China, introducing space technology to the public.



MODERATOR
Olga Zhdanovich
Standardisation Engineer and SEOC Vice-Chair Workforce Development,
Modis for European Space Agency,
The Netherlands

Since June 2010, Olga Zhdanovich is a Standardisation Production Engineer via Modis both for ESA and European Cooperation for Space Standardisation organisation. Prior to this assignment she was an Increment and Mission Integration Consultant at RheaTech for the Human Spaceflight Directorate of the European Space Agency. Olga, in 1990 graduated with Cum Laude from the Moscow Institute of Engineers in Geodesy, Aerial Surveying and Cartography, Russia as engineer. In 1996 she participated in the ISU SSP Program. She received MSc degree in Environmental Science and Policy from Central European University /University of Manchester, UK in 1997. During more than twenty five years of her professional career she worked as consultant on commercial application of space technologies in earth observation, satellite navigation and telecommunication, and educational projects. She is elected member of the ISU Academic Council, Faculty member of the International Space University. Olga is recipient of number of awards and scholarships that includes a scholarship from the Royal Netherlands Academy of Arts and Sciences for the International Institute of Applied Systems Analysis Young Scientist Program (1995) and holds the award from the European Space Agency (1998). She is authored number of publications as chapters in books and conference papers on various applications of space technology.

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Friday 5 October 2018

GNF EXPLORATION STREAM Room: DLR Hall

07:30 - 08:30 Ahead of the Curve – How Our Next Steps Fuel the Path to the Moon and Beyond

Location: Bremen Conference Center – DLR Hall

Humanity is moving out into the solar system, starting with a return to the Moon. In this GNF, Lockheed Martin will build on last year's session which introduced the role of the lunar-orbiting Gateway in preparation for an orbital Mars Base Camp. By using the Gateway as a lunar outpost for deep space exploration, NASA and its international partners are establishing a unique scientific, commercial, and exploration infrastructure which can fuel an Earth/Moon economy and allow humanity to embark on its first mission to the Red Planet. The forum will describe how the collaboration of government and commercial partners lay the foundation for the Moon in preparation for Mars, with a detailed vision for an inner solar system where astronauts and their robotic partners are conducting science, testing deep space systems, and refining operations for long duration missions. Near-term lunar objectives include telerobotic and crewed exploration of the Moon, including resource prospecting to enable a sustainable Earth/Moon economy. In meeting these objectives humans will be living and working in deep space for longer durations than ever before, requiring significant changes in the way we operate in orbit and new capabilities for operating on the lunar surface. We also explore how today's activities are establishing the framework for tomorrow's Earth/Moon economy on the path to Mars, and conclude with commercial steps Lockheed Martin is taking to make this future a reality.

Organized by:

Lockheed Martin



Speakers:



Dominic "Tony" A. Antonelli
*Director, Advanced Programs
Commercial Civil Space,*
Lockheed Martin Space Systems
Company,
United States

Tony Antonelli is the Director of Advanced Programs for the Commercial Civil Space line of business for Lockheed Martin Space. In this role, he provides leadership for the strategic expansion of Commercial Civil Space programs and capabilities, including innovation and development of space exploration programs, human space flight, weather satellites, and launch systems.

Tony is a retired Navy Captain and former NASA Astronaut who has accumulated over 4,700 flight hours in over 40 different kinds of aircraft and served as the pilot for two Space Shuttle missions: STS-119 and STS-132. While serving at NASA, Tony's leadership roles within the Astronaut Office included the Space Launch System, Commercial Crew, Capsule Communicator (CAPCOM), and Space Shuttle Propulsion.

He earned a Bachelor of Science degree in Aeronautical and Astronautical Engineering from the Massachusetts Institute of Technology and a Master of Science degree in Aeronautical and Astronautical Engineering from the University of Washington. He is also a Distinguished Graduate of the USAF Test Pilot School.

Tony has been honored with numerous awards, including a Defense Superior Service Medal, Defense Meritorious Service Medal, two NASA Space Flight medals, a Navy Meritorious Service Medal, NASA Exceptional Service Medal, and the NASA Return-to-Flight Award.



Timothy Cichan
Space Exploration Architect,
Lockheed Martin Space Systems
Company,
United States

Timothy Cichan is the Space Exploration Architect at Lockheed Martin, where he leads a multi-disciplinary team of engineers who figure out how to help astronauts and robots visit the Moon, asteroids, and Mars. He previously was the Orion System Architect. Timothy joined Lockheed Martin in 2002, and has worked for both human spaceflight and commercial communication satellite teams, in optimal trajectory design, mission analysis, subsystem development, and systems engineering. He has a Master's and Bachelor's degree in Aerospace Engineering from Penn State.



Rob Chambers
*Director, Human Spaceflight
Strategy and Business
Development,*
Lockheed Martin Space Systems
Company,
United States

Rob Chambers is the director of Human Spaceflight Strategy and Business Development for Lockheed Martin's Corporation's Space Systems Company.

In this role, he is focused on Lockheed Martin's blueprint for deep space exploration, leveraging the company's proven heritage in robotic and human spaceflight to extend humanity's understanding of our solar system to answer fundamental questions about where we come from, where we're going, and whether we're alone in the universe.

Rob has been with Lockheed Martin since 1993 and has worked on a variety of Space Systems Company programs including Earth remote sensing satellites, the Space Shuttle, Orion, and deep space habitats.

Rob has bachelor's and master's degrees in Aeronautical and Astronautical Engineering from Purdue University. Throughout his career, Rob has led the development of guidance and controls subsystems, avionics, and flight software.



Danielle Richey
Systems Engineer, Advanced Programs,
Lockheed Martin Space Systems Company,
United States

Danielle Richey is a systems engineer at Lockheed Martin, where she focuses on defining and enabling the future path of human exploration to the Moon, Mars, and beyond. She joined Lockheed Martin in 2008 and has worked on multiple projects in Defense related to cybersecurity and early missile warning and Civil Space, including Orion and the NextSTEP Habitat program. Danielle has a Bachelor's and Master's of Science in Aerospace Engineering from the University of Colorado, with an emphasis in Bioastronautics.

09:40 - 10:40 Monitoring Asteroids: Defending our Planet. Threats or Opportunities?

Location: Bremen Conference Center – DLR Hall

Shooting stars are wish makers, everybody is certainly excited about seeing one crossing the sky. These are tiny little pieces of meteoroids, dust and/or space debris that burn into the atmosphere. However, imagining that one of the millions of bigger pieces that are orbiting in our universe close to our planet decides their orbit collides with Earth's one: that wish-maker will certainly become a real nightmare. Earlier species that inhabited Earth, such as dinosaurs, faced a complete extinction due to the impact of one of those asteroids, and the Earth, although protected by its atmosphere, is still very fragile if bigger rocks cross our skies.

Raising awareness about Asteroids can help not only be ready to protect our planet, but also learn more about the origin of the Universe and to exploit those for a common benefit. In other words, asteroids are both: threats and opportunities.

This panel will talk about these two faces of Asteroids, covering the topics of resources exploitation and planetary defence.

Panellists will talk about their national programmes and strategies to protect planet Earth from asteroids, which are the remaining challenges ahead, and which initiatives exist already in place.

And in addition, the discussion will also address whether commercial initiatives to exploit asteroids can also be used by governments to deflect/destroy those that pose a threat to Earth. Are there any synergies and services currently offered in that direction from the commercial sector?

Organized by:

OHB System AG



Speakers:



Ian Carnelli
ESA General Studies Program Manager,
European Space Agency (ESA),
France



Fritz Merkle
Representative of the Executive Board,
OHB SE,
Germany



William Crowe
Chief Executive Officer,
High Earth Orbit Robotics,
Australia



MODERATOR
Marc Scheper
Head of Exploration Programme in Predevelopment,
OHB System AG,
Germany

10:50 - 11:50 Igniting International Excitement for Interplanetary Space Travel

Location: Bremen Conference Center – DLR Hall

For the first time in history, NASA and ESA are joining forces to launch the first of a series of missions to send astronauts beyond the moon. This bold endeavor will ignite the next generation of space exploration that will include a journey to Mars and future interplanetary expeditions throughout our solar system.

NASA's next generation spacecraft – Orion – will be the first human-spacecraft to venture this far since the last Apollo mission in 1972. Exploration Mission-1 will be an uncrewed flight test that will launch atop the new Space Launch System rocket from NASA's Kennedy Spaceport in Florida for a 21-day mission to the far side of the moon and back. This flight will be the most exciting human spaceflight launch since the first International Space Station module was launched in 1998 to become the renowned orbiting laboratory it is today.

The ESA/NASA/Industry team is coordinating international communications and outreach initiatives through innovative social media campaigns, eye-catching graphics, captivating multimedia productions, supporting hundreds of community and educational events, garnering thousands of news headlines around the world, and fostering positive morale among employees with fun and engaging internal communications and events. Strategic partnerships with Peanuts Worldwide, Cinemark and other well-known organizations will so generate excitement and interest in space exploration, inspiring today's youth to study and seek careers in STEAM fields – science, technology, engineering, art and math.

Orion's first flight test – Exploration Flight Test-1 – generated thousands of news stories and over 3.8 billion social media impressions for Orion, with the #1 Trending hashtags on Dec. 5, 2014. On launch day, NASA TV's YouTube site reached more than 1.2 million people – nearly twice the number

reached on the seven days surrounding Curiosity's Mars landing in 2012. We expect Exploration Mission-1 to generate twice that excitement. Come hear and see how.

Organized by:

Lockheed Martin



Speakers:



Siegfried Monser

Communications Business Partner,
Airbus Space Systems,
Germany

Siegfried Monser coordinates the communication activities for the Space Systems Business of Airbus.

He has been with Airbus and its predecessor for 23 years and started as a Human Resources Manager in charge of organizational and personal development programmes.

Following the foundation of European Aeronautic Defence and Space Company (EADS) in 2000 he was Head of Internal Communication & Editorial of Astrium, Europe's no. 1 space Company. After the merge with Airbus in 2013 he was Head of Employee Communication for Airbus' Defence and Space Division before he took over the communication responsibility for Space Systems.

Siegfried Monser is based at Airbus Bremen, where the European Service Module of the Orion Spaceship is built.



Thomas Reiter

ESA Astronaut, Interagency Coordinator and Advisor to the Director General,
European Space Agency (ESA),
France

After completing military jet training at Sheppard Air Force Base, Texas, Thomas flew the Alpha Jet in a fighter-bomber squadron based in Oldenburg, Germany. He was involved in the development of computerised mission planning systems and became a flight-operations officer and deputy squadron commander. After test pilot training Class 2 at the German flight test centre in Manching during 1990, Thomas was involved in several flight test projects and conversion training on the Tornado aircraft. Thomas attended the Class 1 test pilot training at ETPS, Boscombe Down, in 1992. His flight experience includes more than 2300 hours in 15 types of military combat jet aircraft.

Thomas Reiter was also involved in ESA studies of the Hermes crewed space shuttle and development of equipment for the Columbus space laboratory, one of Europe's main contributions to the International Space Station.

In 1992, he was selected to join ESA's European Astronaut Corps, based at the European Astronaut Centre in Cologne, Germany. After completing basic training, Reiter was selected for the Euromir 95 mission and started training at Star City near Moscow, Russia, in August 1993, as an engineer, including spacewalk training and operations of the Soyuz spacecraft. The Euromir 95 experiments training was organised and mainly done at the European Astronaut Centre.

In March 1995, he was assigned as flight engineer for the Euromir 95 mission that lasted a record-breaking 179 days from 3 September 1995 to 29 February 1996 that included two spacewalks.

After his Euromir 95 mission from October 1996 to July 1997, Thomas trained on the Soyuz-TM spacecraft to learn undocking, atmospheric reentry and landing. He was awarded the Russian 'Soyuz Return Commander' certificate that qualifies him to command a three-person Soyuz capsule during its return from space.

Furthermore, he worked with ESA's team who developed the European Robotic Arm and its ground test- and mission control equipment.

From September 1997 to March 1999, Thomas was detached to the German Air Force as Operational Group Commander of a Tornado fighter-bomber wing. After his return to ESA he supported the Automated Transfer Vehicle team and the European Robotic Arm programme. He continued training at the Russian Cosmonaut Training Centre in Star City from June 1999 until March 2000 for the Russian parts of the International Space Station.

On 1 April 1999 he resumed his activities at the European Astronaut Centre. Two years later Thomas was assigned to an advanced training class to prepare for the first European long-duration mission to the International Space Station.

In September 2004, he was assigned a long-duration mission to the International Space Station.

After his active astronaut career, Thomas Reiter was named on 8 August 2007 as a member of the Executive Board of the German Aerospace Center, DLR, responsible for Space Research and Technology.

From April 2011 to December 2015 he was Director of ESA's Directorate of Human Spaceflight and Operations, managing Europe's contribution to the International Space Station, the Agency's human spaceflight activities and the operations of ESA's satellite missions and of the ground segment. Thomas is now ESA Interagency Coordinator and Advisor to the Director General.



Rosita Suenson

Communication Programme Officer for Human Spaceflight,
European Space Agency (ESA),
The Netherlands

Rosita Suenson is a communications specialist with project management experience running large international outreach programs encompassing both Space and Non-Space industries.

In her daily work she is responsible for the social media campaigns, web articles, special events, communication plans, PR activities, creating crisis communication plans. Moreover, she serves as an interface with ESA and industry stakeholders and complementary projects, to raise the profile of the European Space Agency, internally as well as externally.

Currently she works in close cooperation with NASA and partners on the Orion programme and the Exploration Mission-1 mission, which will be their first in a series of missions for ESA, NASA and partners.

Ms. Suenson has more than 25 years of experience as a communication expert, spending 5 years to build up the communication department for Shell Lubricant in Stockholm.

In 1991 she moved with her family to Netherlands, where she started the Connected Women, an non-profit organization to provide support to Women looking for new career opportunities and acting as an interface to newcomers in Netherlands.

She has been working at the European Space Agency since 2000, first as a Country Manager for the Nordic Countries. A few years later she also got the position as a Programme Office for the Directorate of Human Spaceflight and Exploration.



Barbara Zelon
Strategic Communications Manager,
National Aeronautics and Space Administration (NASA),
United States

Barbara Zelon is currently the Communications Manager for the Orion Spacecraft Program at NASA's Johnson Space Center. Ms. Zelon came to NASA in 1998 as the director of Public Affairs and has served as a strategic communications manager and advisor in the Safety, Technology Transfer, Space Flight Awareness and Advanced Planning Directorates.

Prior to joining NASA in 1998, she was Director of Communications and Public Relations for United Space Alliance, the prime contractor for NASA's space shuttle operations. She served as president of Planet 10, a nonprofit organization established to generate educational products regarding the benefits of space exploration. Prior to joining United Space Alliance, Zelon was manager of Communications and External Affairs for Rockwell Space Operations Company in Houston, Texas.



MODERATOR
Linda Singleton
Communications & Integration Manager,
Lockheed Martin,
United States

Linda Singleton leads integrated projects, strategic communications and public affairs initiatives for the Orion Spacecraft Program, one of Lockheed Martin's largest and most visible programs. Orion completed its first space flight test in December 2014 and is now in production for Exploration Mission-1, which will be the first of a series of missions for NASA's new era of human exploration beyond the Moon.

Singleton has more than 25 years of experience managing campaigns for small startup businesses as well as global corporations including IBM, Lufthansa Airlines, Columbia/HCA and Exxon reaching local, regional and international audiences. Her space-based experience dates back to the mid 1980s when she supported NASA's Space Station Freedom campaign for what is now known as the International Space Station. She also worked for the Manned Space Flight Education Foundation that established Space Center Houston. She later joined NASA Johnson Space Center's Public Affairs Office in 2002 where she created and spearheaded national outreach and public awareness programs for the space agency.

Singleton is a member of the International Women's Leadership Association and serves on advisory boards for SpaceCom and the Bay Area Houston Economic Partnership. She holds a bachelor's degree in Journalism from the University of Texas at Austin and has continued post-baccalaureate studies in international business management at the University of Houston. Throughout her career, she has earned myriad communication industry awards including a PRSA Silver Anvil, the Space Foundation's Douglas S. Morrow Public Outreach Award, PRSA Excalibur Awards, IABC Quill Awards, Fleishman-Hillard CEO's Team Player Award and NASA's Silver Snoopy Spaceflight Awareness Award.

Singleton resides in Houston, Texas, and enjoys traveling, and volunteering with Girls, Inc., Lockheed Martin's Women's Impact Network, and the Houston Livestock Show & Rodeo.

12:00 - 13:00 EarthMoonMars: Involving Everyone

Location: Bremen Conference Center – DLR Hall

It is time to debate how to involve everyone as a Global community to benefit from Earth. Moon and Mars space activities. The panelists will review recent EarthMoonMars key space missions and projects. They will discuss potential EarthMoonMars research (Earth observations, science and environment monitoring, planetary & space science, human spaceflight, astrobiology, astrophysics, technologies, life support, operations, technical validation and development). They will debate benefits and values of an EarthMoonMars approach for engaging everyone. The panel will address various aspects & questions from the community e.g.:

1. What are current EarthMoonMars missions & plans for different space agencies and space actors?
2. Why EarthMoonMars? How to engage Earth community to support and invest in space?
3. How to promote EarthMoonMars data and science for new users groups, public and youth?
4. What are Knowledge Gaps and precursor robotic missions for MoonMars and how do they build on activities on Earth or Earth orbit?
5. How do MoonMars activities contribute to address Earth problems and bring benefits?
6. How to make EarthMoonMars missions contribute to Global Sustainable Development Goals
7. What technical & research synergies between space missions around Earth , on the Moon or Mars?
8. What infrastructures in Earth-Moon sphere, on the Moon or Mars surface to benefit multiple users?
9. What is the role of small or emerging space countries and new partners? How to use cubesats?
10. How to collaborate effectively between countries, agencies and new stakeholders?

Organized by:
European Space Agency (ESA)



MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY

MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY

Speakers:



Maria Grulich
SGAC Scholarships Coordinator,
German Aerospace Center
(DLR),
Germany



Andrea Jaime
Business Development Manager,
OHB Quantum Technologies
Working Group,
OHB System AG,
Germany



Agata Kołodziejczyk
Neuroscientist & LunAres
Founder,
Space Garden,
Poland



Chiaki Mukai
Vice President,
JAXA Astronaut,
Tokyo University of Science (TUS),
Japan



Henk Rogers
Chairman,
Blue Planet Foundation,
HiSeas and International Moon
Base Alliance,
United States



MODERATOR
Bernard Foing
Director ILEWVG, Prof. VU
Amsterdam, ITACCU Vice Chair,
European Space Agency (ESA),
The Netherlands

13:45 - 14:45 Digitization in the Space Sector – from Hardware to Software

Location: Bremen Conference Center – DLR Hall

Our modern societies are undergoing a fundamental transformation of our life-styles that is largely based on a technological revolution from analogue to digital processes – commonly referred to as digitization. This development where information and communication technology is enabling simplified, streamlined, fast and connected products is also increasingly affecting the space sector that traditionally has a large part of high-technology manufactured products relying on robust hardware. In the last years however, research has also lend an eye to this new development and started to see the benefits of its application. New companies have entered the space market and gained success using methods and products of a digitized world.

The overall trend of digitization is thus manifesting itself in the space sector – upstream and downstream. In the upstream sector, rocket and satellite manufacturing is being streamlined and new technologies as wireless communication is replacing cables to simplify the handling of the satellite and reducing its weight. But also in the downstream sector digitization is bringing new benefits to customers and challenges to developers: multi-temporal global earth observation, real time observation, independent exploration missions through machine-learning, or citizen sciences go in hand with the challenge to manage, analyze and process large and heterogeneous amounts of data. Institutions such as ESA have picked up this topic, coined it “Space 4.0” and put it on the

agenda. In Germany, an initiative from companies, universities and research institutes have brought forward a paper this year “Departure for Space 4.0: Software Defined Satellite” which highlights the increasing relevance of software in the space domain.

Thus the need for an even greater adaption of the whole sector is required. This panel seeks to bring attention to this fundamental development, map challenges, explore solutions and discuss the necessity for a software strategy in the space sector that would allow to make future space missions more secure, more flexible and cheaper.

Organized by:

German Aerospace Center (DLR)



Speakers:



Robert Axmann
Head of DLR Program Strategy,
Executive Board Division Space
Research and Technology &
Acting Director Institute of Data
Science,
German Aerospace Center
(DLR),
Germany

Dr. Robert Axmann is the Head of DLR Program Strategy Space and acting Director of the DLR Institute of Data Science. He holds a PhD in Aerospace Engineering of TU Munich as well as an MBA of FU Hagen and is working since more than 15 years for DLR in areas like satellite operations, strategy development space and data science. As the head of DLR Program Strategy Space he is responsible for the development of the research strategy together with the involved DLR institutes and the members of the board.



Frank Dannemann
Head of the Department of
Avionics Systems,
German Aerospace Center
(DLR),
Germany

Dr. Frank Dannemann is the head of the Department of Avionics Systems at the DLR Institute of Space Systems. He is holding a Diploma in Physics and a PhD in Computer Science. He has over 15 years of software engineering experience in the space sector and is DLRs representative in the ESA SAVOIR initiative. His research focus is on model-based, scalable and intelligent avionics architectures for future space systems.



Christina Giannopapa
Head of Political Affairs,
European Space Agency (ESA),
France



Dietmar Ratzsch
President and CEO,
Jena-Optronik GmbH,
Germany

Born on June 27th, 1958 in Wurzen (Germany), studied at Technical University in Dresden in the field “Technical Cybernetics and Control Engineering” and graduated in Information Technology.

He is President and CEO of the space company Jena-Optronik GmbH since 2002. He achieved the development of the Thuringian space company to a globally leading supplier and a very reliable, respected partner for the major space companies and space agencies.

Furthermore he is a member of different associations of German space industry, e.g.: Forum “Space” and working group “Space” of the German Aerospace Industries Association; Representative of the industry as appointed member of the program committee “Earth Observation” of German Aerospace Centre DLR; Board Member of “Competence Centre for Aerospace Saxony/Thuringia”.



MODERATOR
Antonio Martelo
Head of the Department of CEF,
German Aerospace Center
(DLR),
Germany

14:55 – 15:40 Creating the Moon Village: First Results from the Drawing Board

Location: Bremen Conference Center – DLR Hall

The workshop will feature MVA President and Vice-President giving an overview of the main lines of the Association’s activities (total 10 minutes).

This will be followed by a panel discussion (total 20 minutes), moderated by Oleg Ventskovsky, with selected presentations (about 3 minutes each) by two of MVA’s institutional members and two of the MVA working group leads, including both world-known and well-established space companies, start-ups and NGOs. They will describe their Moon-related activities and explain the preliminary

results of the MVA working groups and their relevance for the implementation of the Moon settlement. Also, an official announcement of results of the International Moon Pitch Competition 2018, in cooperation with Newspace2060, will be made and first MVA awards given to the winners.

This panel will include audience participation with questions and answers for the panel (15 minutes).

Organized by:

The Moon Village Association



Speakers:



John C. Mankins
Vice President,
Moon Village Association
(MVA),
United States



Giuseppe Reibaldi
President,
Moon Village Association
(MVA),
Italy

Panellists:



Kate Arkless Gray
Head of Communications and
Outreach,
PTScientists,
United Kingdom



Yoshifumi Inatani
Professor, Department of Space
Systems and Astronautics,
Institute of Space and
Astronautical Science (ISAS)/
Japan Aerospace Exploration
Agency (JAXA),
Japan



Chris Johnson
Space Law Advisor,
Secure World Foundation,
United States



Jim Keravala
Chief Executive Officer,
OffWorld, Inc.,
United States



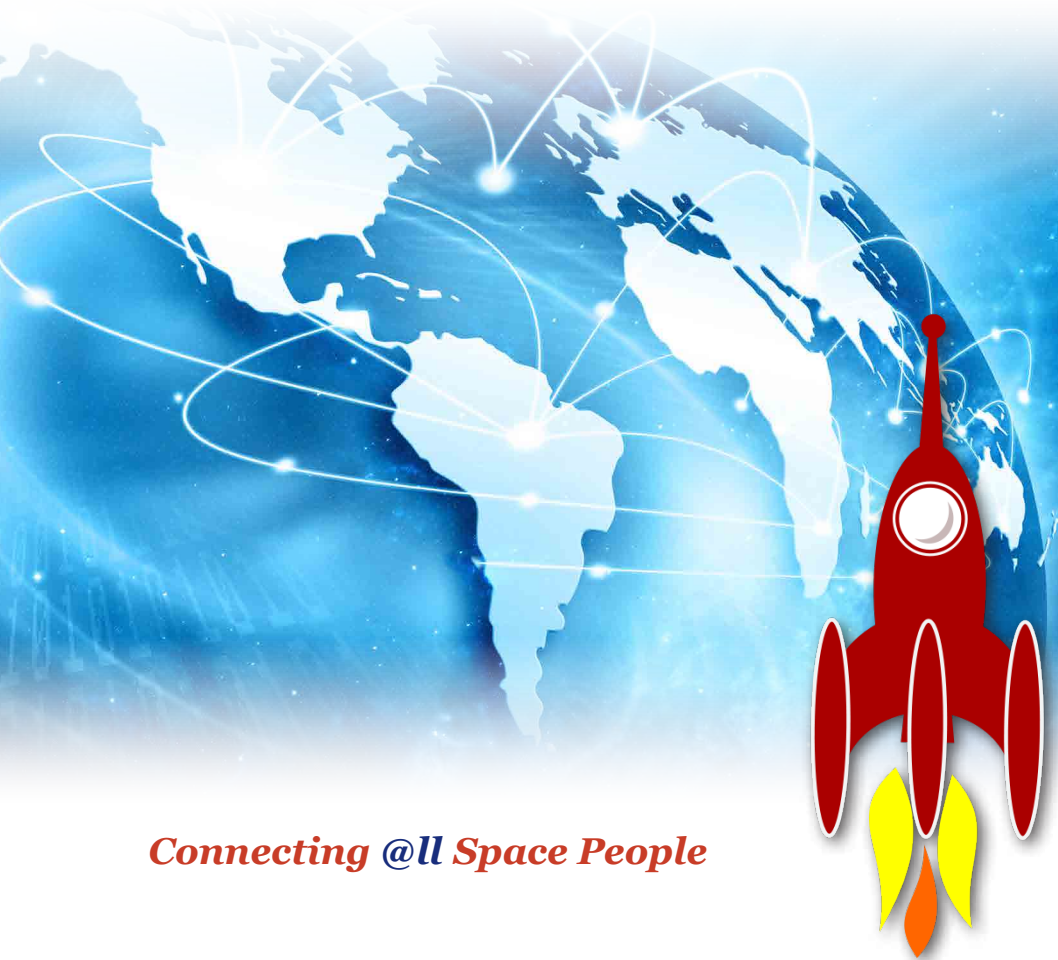
MODERATOR
Oleg Ventskovsky
Director of the European
Representation in Brussels,
Yuzhnoye Design Office,
Ukraine

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