IAF Global Networking Forum
67th IAC
Guadalajara Hall 8
Expo Guadalajara
2016 GNF Official Sponsors

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# Table of Contents

## Monday, 26 September
- GNF Opening  
- Heads of Agency Press Conference  
- The Development of Commercial Remote Sensing Satellites and LEO Communication Constellation  
- Russian Cosmonautics: International Aspects

## Tuesday, 27 September
- GNF Industry Day - Late Breaking News  
- How Europe is paving the future with Ariane 6 and Vega C  
- Shifting the Landscape for Global Space Industry - Growing Partnerships in a Competitive Environment - Systems Integration to Big Data  
- New Dimensions of Space – What’s Next?

## Wednesday, 28 September
- Space: new paths towards a balanced and inclusive development  
- Science – the fundament and promoter of space activities  
- ITU World Radiocommunication Conference (WRC-15) allocates spectrum for future innovation, Challenges and Opportunity  
- UNISPACE +50 and the Future of Space  
- Making the Moon Village and Mars Journey Accessible and Affordable for All  
- Disruptive Space Technology  
- Space for Global Challenges

## Thursday, 29 September
- Space Technology for Emerging Countries - for Latin and South America  
- 4 Subjects 180 Days CELSS Integration Experiment and Manned Deep Space Exploration  
- Technology Transfer – How to Make the Most of It?  
- Success of commercial space ventures – An inspiration for the next generation  
- Aiming at a resilient and sustainable space security system  
- Space Norway - Space as platform for industrial and business development  
- Space Medicine and Tourism Space Transportation

## Friday, 30 September
- Rosetta – controlled impact on comet 67P/ Churyumov Gerasimenko  
- Astronauts Event  
- Space Architecture and Systems Engineering: different disciplines or the same?  
- Space Science From Earth Observatories At UNAM  
- Stardust – a fresh look at planetary defense and space debris removal  
- Chine Manned Space Programme and Opportunity for Cooperation
Monday, 26 September

15:15- 15:30   GNF Opening

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

The motto ‘Connecting Space People’ is guiding the development of strategic activities of the IAF with the goal of fostering collaboration between space agencies, industry and research.

In line with the IAF’s mission of promoting partnerships in the space community, of advancing international development, sharing knowledge and preparing the workforce of tomorrow, the Federation decided to create a global, comprehensive and appealing platform, targeting students, young professionals, experts, decision & policy makers and all actors that could contribute to the networking spirit of such a platform.

Hence, the Federation developed the concept of the IAF Global Networking Forum (GNF) and was proud to introduce it during the IAC 2012 in Naples. Given the IAF’s diverse stakeholder portfolio, outreach activities of the Federation are tailored according to the respective needs. Not only at the IAC but also at the Spring Meetings, the GNF format is successfully used for involving stakeholders, weaving together requirements of different target groups and services offered by the IAF.

We are looking forward to welcoming you in Guadalajara 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.

Kiyoshi Higuchi
IAF President
International Astronautical Federation
15:30-16:15 Heads of Agency Press Conference

The Heads of Agencies Press conference will give the audience (mainly press representatives) the opportunity to directly address the Heads of Agencies asking relevant and challenging questions.

**Charles Bolden**  
Administrator,  
National Aeronautics and Space Administration (NASA), United States

**Igor Komarov**  
Head,  
ROSCOSMOS  
Russian Federation

**Johann-Dietrich Woerner**  
Director General,  
European Space Agency, (ESA), France

**Naoki Okumura**  
President,  
Japan Aerospace Exploration Agency (JAXA), Japan

**S. Somanath**  
Director,  
Liquid Propulsion System Center (LPSC) - (ISRO)  
India

**Sylvain Laporte**  
President,  
Canadian Space Agency (CSA), Canada

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

**MODERATOR**  
Franco Bonacina  
Director General's Spokesperson and Head of the Protocol Office Director General's Cabinet  
European Space Agency (ESA)
16:15-17:15  The Development of Commercial Remote Sensing Satellites and LEO Communication Constellation

China Aerospace Science and Technology Corporation (CASC) announced to start the construction of commercial remote sensing satellites constellation on September 2015, including 16 optical satellites with 0.5m GSD, 4 optical satellites with 0.3m GSD, 4 SAR satellites with 0.5m GSD and a certain amount of video satellites. Once completed, the constellation will be able to acquire global high resolution optical data and radar remote sensing data quickly.

The 4 optical satellites with 0.5m GSD developed in the first stage of this project are scheduled to launch at the end of 2016 and the beginning of 2017. Based on mature technology, the satellites meet the needs for professional and quantitative application. The camera’s MTF is better than 0.15, with digital quantization of 11bit and the nadir swath width more than 12km. Its great agile capability contributes to target imaging, stereo imaging and five-strip imaging.

These 4 satellites are developed by DFH Satellite Co., Ltd (DFHSat), a subsidiary of China Academy of Space Technology (CAST) which belongs to CASC. At the end of 2015, the company has launched 59 satellites, among which 37 satellites launched during the past 5 years and 52 satellites still in orbit. DFHSat also established small and micro satellite platform types covering levels from 1kg to 1000kg. The VRSS-1 developed by DFH was the first commercial optical remote sensing satellite of China exported to Venezuela.

Other than commercial remote sensing satellites, DFHSat is planning to develop Data Collection Satellite System and low orbit mobile communication satellite constellation. As a stock shared company, DFHsat is full open to space organizations all over the world, conducting deep cooperation concerning satellite delivery, engineering training, joint development and so on.

Organized by:
DFH Satellite CO., Ltd, CAST

DFH SATELLITE CO., LTD
Zhang Lihua, born in 1970, is a chief designer of DFH Satellite Co. Ltd. He got his Bachelor degree from Beijing Institute of Technology (BIT) in 1992, then he continued his study at Chinese Academy of Space Technology (CAST) where he got his Master and Doctor degree major in spacecraft system engineering. After working as a system engineer at Beijing institute of spacecraft system engineering (ISSE) for three years, he became an employer of DFH satellite Co. Ltd. when it was founded. At DFH, he has been engaging in the system design of small spacecraft. He was responsible for several small satellite research and development programs. The areas his work involved include remote sensing, space science, asteroid exploration, on-orbit servicing, etc. Currently, he is the chief designer for the communication relay small satellite running on the Earth-Moon L2 liberation point Halo orbit to support the Chang’e 4 lunar far side landing exploration mission.

Li Ming, as the VP of CAST and chairman of its Science and Technology committee, has devoted himself to the IAF activities as a volunteer since 2000 and he is the member of IPC, space system committee and award committee. He is also the Co-chair of space power committee and 2017 GLEX. His experience and knowledge is working on setting a close relationship between IAF and Chinese aerospace industry since he is very active in joining and promoting IAF activities.
17:15-18:15  

**Russian Cosmonautics: International Aspects**

The main directions of Russian cosmonautics development for the nearest decade were determined by the Federal Space Program for 2016-2025. In the area of human space flights the program provides for:

1. The ISS Russian Segment utilization and construction of the ISS RS modules of the 2nd stage that will include Multipurpose Laboratory Module Nauka (Science), Node Module Prichal (Berth), and Scientific-Power Module;
2. The Russian orbiting station development;
3. The next-generation human transportation system development, which will include Federation spacecraft.

Intensity of the Russian research program implementation aboard the ISS will be increasing in combination with expansion of a number of scientific investigations that will be executed jointly with the ISS Program partners.

The important element of the Russian human spaceflight program aboard the ISS is a consecutive implementation of commercial projects. Development and adoption of new space technologies, which can be used in commercial projects, are underway.

After completion of the ISS flight it is planned to undock from the station the ISS RS new (2nd stage’s) modules and use them for creation of a new Russian orbiting station, utilization of which will provide for a wide international cooperation.

Federation human spacecraft of a new-generation is developed for missions to LEO and to cis-lunar orbits. The vehicle will be launched to LEO from Vostochny launch site in 2021 atop Angara-5P launcher that is under development now. For missions to the Moon a new launcher of a super-heavy class will be used.

Both Federation spacecraft and a super-heavy launcher should become key elements of long-range programs for deep space exploration, including missions into cis-lunar space and on the Moon as well; multipurpose missions to asteroids; missions to satellites of planets and on Mars. The missions’ configuration forming and development of the future programs architecture are underway.

**Organized by:**
S.P. Korolev Rocket and Space Corporation Energia
**Speaker:**

**Vladimir L. Solntsev**  
*General Director,*  
S.P. Korolev Rocket and Space Corporation Energia  
Russian Federation

From 1995 Solntsev worked in the Mezhkombank Group as President of Investment Company Mezhinvest, Director of the Bank Investment Programs Department then headed the Department for Military-Technical Cooperation SUE Aviation Military-Industrial Complex Sykhoy, Moscow. In the early 2000 Vladimir Lvovich moved to Vneshtorgbank (VTB) where until 2010 he worked first as a Vice-President and then as Senior Vice President.

At an extraordinary meeting of shareholders of OAO NPO Energomash after V.P. Glushko, which was held on October 4, 2010, OAO RSC Energia was empowered as the sole executive body - the Management Company, and V.L. Solntsev was appointed an Executive Director. Within a short period, Vladimir Lvovich took Russian OAO NPO Energomash after Academician V.P. Glushko - a leading company in the world for development of powerful liquid rocket engines - out of pre-bankruptcy. All engines supplied to Russian and foreign customers performed their functions intended to deliver spacecraft to target orbits without comments. There is a plan for the company development until 2020, which envisages an increase in revenues and the increased economic stability. According to the decision of the Board of Directors of OAO RSC Energia Vladimir Lvovich Solntsev on August 1, 2014 was appointed an acting single-member executive body (President) of the Corporation. On September 20, 2014 by the resolution adopted at OAO RSC Energia Extraordinary General Shareholders' Meeting, he was elected single-member executive body (President) of S.P. Korolev Rocket-Space Public Corporation Energia.
**Tuesday, 27 September**

**09:30-12:30**  
**GNF Industry Day - Late Breaking News**

**Organized by:**  
IAF Industry Relations Committee

**Moderator:**  
*Frank Morring*  
Senior Editor,  
Aviation Week  
United States

**09:30-10:00**  
**OneWeb: Greg Wyler**

OneWeb’s mission is to enable affordable Internet access for everyone and to achieve the #1 target of the WSIS (World Summit on the Information Society): to create a community access point at every school in the world. With a constellation of Low Earth Orbit satellites, we can provide connectivity everywhere. By empowering communities to build their own networks, OneWeb transparently extends the reach of MNOs (mobile network operators) and ISPs (Internet service providers).

**Speaker:**

*Greg Wyler*  
Chairman,  
OneWeb, Ltd.  
United States

In 2012, Greg founded OneWeb with the mission of enabling Internet access for everyone. Prior to OneWeb, in 2007 Greg founded O3b Networks, Ltd. O3b raised approximately 1.3bn USD to design and build a satellite constellation to provide fiber quality backhaul for telecom operators in the most remote markets around the world. Today, O3b has launched 12 satellites, which have attained individual link speeds in excess of 1gbps with only 130ms of latency. The system provides the highest capacity and lowest latency combination of any satellites built to date. Prior to developing O3b, Greg
spent four years developing telecommunications in Africa for very rural locations. He built a local team and connected over 200 schools to the internet, provided the first 3G and fiber to the home connections on the continent and focused heavily on developing local capabilities to deploy and manage the technologies. In the 1990’s Greg founded a semiconductor cooling technology company which provided thermal solutions to most of the top PC manufacturers such as Dell and Hewlett Packard and eventually gaming consoles such as the XBOX. After the successful sale of his first company Greg became focused on rural connectivity issues in successively larger endeavors. He has spent much of his time in emerging markets working hands on with technology development and deployment leading to his understanding of the intersection between developed world technologies and emerging market needs. Greg has been named one of the top 50 influencers of technology and recently received the Arthur C. Clarke award for Innovation. He lives in Florida, USA with his wife and 5 children. He is also an instrument rated private pilot flying both helicopters and fixed wing aircraft.

**10:05 - 10:40 Virgin Galactic: George Whitesides**

Virgin Galactic CEO George Whitesides will present an update on the company's efforts to open space to change the world for good. He will discuss current status of test flights and operational readiness for commercial human spaceflight, including the ongoing testing of the SpaceShipTwo VSS Unity, as well as the ongoing development of the LauncherOne small satellite launch service.

**Speaker:**

George Whitesides  
**CEO,**  
Virgin Galactic  
United States

George is responsible for guiding all aspects of building the world’s first commercial spaceline including our spaceflight program as well as our small satellite launch capability. This includes oversight of our sister company, The Spaceship Company (TSC), to manufacture a fleet of WhiteKnightTwo and SpaceShipTwo space vehicles. Prior to Virgin Galactic, George served as Chief of Staff for NASA, where he provided policy and staff support to the agency’s Administrator. Upon departure from NASA, he received the Distinguished Service Medal, the highest award the agency confer. Prior to his role at NASA, George served as Executive Director of the National Space Society (NSS), a space policy and advocacy group that was founded by Apollo program leader Wernher von Braun and the journalist Hugh Downs. Currently, George serves on Caltech’s Space Innovation Council and the advisory board of the Rotary National Award for Space Achievement. He is a fellow of the UK Royal Aeronautical Society and an associate fellow of AIAA. He previously chaired the Reusable Launch Vehicle Working Group for the FAA’s Commercial Space Transportation Advisory Committee, and has served on the Board of Trustees of Princeton University, the board of Virgin Unite USA, and the World Economic Forum’s Global Agenda Council on Space Security.
10:45-11:20  **Blue Origin: Rob Meyerson**

On November 23, 2015, Blue Origin’s New Shepard vehicle made history by becoming the first rocket to fly to space and successfully return to Earth for a vertical landing. Since then, the exact same rocket has flown a total of four times, demonstrating recovery and reuse. Mr. Meyerson will discuss these current projects and Blue Origin’s future plans to open space to the world.

**Speaker:**

*Rob Meyerson*

*President, Blue Origin*

*United States*

Robert Meyerson is the President of Blue Origin where he has overseen the steady growth of the company since 2003. Blue is developing reusable launch systems that land vertically using rocket engines designed and built at Blue. Vehicles under development include the New Shepard system for suborbital human and research flights, as well as orbital human transportation systems. Prior to joining Blue, Rob was an Integration Manager at Kistler Aerospace, responsible for the Landing and Thermal Protection systems of a privately funded two-stage Reusable Launch Vehicle, as well as all technical activities related to Kistler’s Space Launch Initiative contract with NASA’s Marshall Space Flight Center. Before that, Rob spent 10 years at NASA’s Johnson Space Center where he worked on the Space Shuttle and X-38/Crew Rescue Vehicle programs, leading the aerodynamic design of the Orbiter Drag Parachute, as well as the overall design, integration, and flight test of a gliding parachute for the X-38 project. He began his career as a cooperative education student at Johnson. Rob earned a B.S. in Aerospace Engineering from the University of Michigan and a Master’s Degree in Engineering Management from the University of Houston. He is an AIAA Associate Fellow and former member of the Aerodynamic Decelerator Systems Technical Committee. He is currently a Trustee at the Museum of Flight in Seattle and a member of the organization’s Spaceflight Committee. He serves as an officer in the Commercial Spaceflight Federation and is also a member the University of Washington's Department of Aeronautics and Astronautics Visiting Committee.

11:25-12:00  **Planet: Robbie Schingler**

Planet co-founder and chief strategy officer Robbie Schingler will discuss the 'Space Renaissance' that is driving a global sensing revolution. He will summarize why commercial companies in space today, more than ever before, have a unique opportunity to build a thriving business while helping humanity better understand itself and our planet.
**Speaker:**

**Robbie Schingler**  
*Co-Founder and Chief Strategy Officer, Planet United States*

Robbie Schingler is the Co-Founder and Chief Strategy Officer of Planet. Prior to Planet, Robbie spent 9 years at NASA, where he helped build the Small Spacecraft Office at NASA Ames and was Capture Manager for the Transiting Exoplanet Survey Satellite (TESS). Robbie later served as NASA’s Open Government Representative to the White House; and served as Chief of Staff for the Office of the Chief Technologist at NASA. He received a MBA from Georgetown University, a MS in Space Studies from the International Space University, and a BS in Engineering Physics from Santa Clara University. Robbie was a 2005 Presidential Management Fellow.

**12:00 - 12:30** How Europe is paving the future with Ariane 6 and Vega C

On September 13th, the European Space Industry gave its final go to the new heavy launcher Ariane 6, accompanied by Vega C, available in 2020 and 2019, respectively. Innovative, well-adapted to new market segments at competitive prices, the launchers will continue the unique success-story of Arianespace, the leader on the commercial satellite market over the last three decades. With the unparalleled reliability and performance of its launch vehicle family, Arianespace is more than ever ready to serve new space applications for the greatest benefit of mankind.

**Organized by:**
Arianespace  
European Space Agency (ESA)

**Speaker:**

**Stephane Israël**  
*Chairman and CEO, Arianespace France*

**Johann-Dietrich Woerner**  
*Director General, European Space Agency, (ESA) France*
12:30- 13:30  The Once and Future Mars, 800 Years of Mars Exploration in 30 Minutes

Industry Lunch: Keynote Speech by James H. Crocker (Upon Invitation)

Early astronomers first peered at Mars through telescopes. Inaugural fly-bys of the Red Planet dubbed it a “dead world.” Mars was a mystery until the Viking missions, which revealed a few of the planet’s hidden gems. Today Mars is at the epicenter of how the world will continue our legacy of human spaceflight. A look back informs a look forward into the Red Planet.

Organized by: Lockheed Martin Corporation

Speaker:

James H. Crocker
Vice President and General Manager,
Lockheed Martin Space Systems Company
United States
14:30 - 16:30  Shifting the Landscape for Global Space Industry- Growing Partnerships in a Competitive Environment- Systems Integration to Big Data

Organized by:
IAF Industry Relations Committee

Speakers:

John Elbon
Vice President/ General Manager,
The Boeing Company
United States

John Elbon is vice president and general manager, Space Exploration, a division of Boeing Defense, Space & Security at The Boeing Company. He is responsible for the strategic direction of Boeing’s civil space programs, and support of NASA programs such as the International Space Station (ISS), Commercial Crew Program and the Space Launch System.

Kay Sears
Vice President,
Lockheed Martin Corporation
United States

Kay Sears is the vice president of Strategy and Business Development for Lockheed Martin Space Systems Company (SSC). Kay is responsible for growing the SSC business with a comprehensive strategy to develop new markets and keep programs sold. She also leads strategic planning, advanced technology concepts and new business acquisition efforts for each of the SSC lines of business. Prior to joining Lockheed Martin, Kay served as president of Intelsat General. In this role, Kay was responsible for implementing the company’s strategic and operational plans and for the overall mission of providing a range of sustainable, cost-effective and secure communication solutions to government and commercial customers. Before joining Intelsat, Kay helped launch government services business units at both G2 Satellite Solutions and Verestar. With nearly three decades of experience, Kay is a respected leader in the space and satellite communications industry and has extensive experience in rapid-response solutions for both military and civil agencies of the U.S.
government. In 2009, Kay was appointed to the President’s National Security Telecommunications Advisory Committee to provide information, technical expertise, advice and guidance regarding issues that may affect national security telecommunications capabilities. She also serves on the Board of the Space Foundation. Kay has a B.S. in marketing and economics from the University of Richmond and an MBA in Information Systems from George Washington University. Kay resides in Parker, Colorado, with her husband and two children.

Fritz Merkle  
*Member of the Management Board, OHB Germany*

Since August 2014 Member of the Executive Board of the OHB SE – responsible for strategy and business development.  
2006 – 2016: Member of the Executive Board of OHB System AG - responsible for defense programs, advanced studies and business development.  
September 2000: Joining OHB-System AG  
From 1993 till 2000: Vice-President of Carl Zeiss, Oberkochen and Jena, Germany  
From 1985 till 1992: Systems Engineer and Project Manager with European Southern Observatory in Garching, Germany – responsible for the optical system, active and adaptive optics and long base-line interferometry of the European Very Large Telescope (ESO-VLT).  
1983 – 1984: Visiting Scientist at IBM Almaden Research, San Jose, CA, USA.  
From 1980 till 1985 Assistant Professor for Applied Physics at University of Heidelberg, Germany.  
Full member of the International Academy of Astronautics (IAA), Member of AIAA, SPIE, DGaO (German Society for Applied Optics), and DPG (German Physical Society). More than 100 refereed and contributed papers to national and international journals, conference proceedings, etc. and co-author of several books. He is member of the board of trustees of Max-Planck and Fraunhofer Institutes, the Senate of DLR (German Aerospace Center) and the Space Foundation Board of Directors.

Vincenzo Giorgio  
*Vice President, Institutional Marketing and Sales, Thales Alenia Space Italy*

Graduated in Electronics at Naples University Federico II, has started his space activity designing communication systems and on board computers. He has been responsible within former AERITALIA of science projects like Hipparcos and Integral, working as well for the International Space Station. He has been Vice President for Science and Exploration of Thales Alenia Space Italia participating to important European in flight projects like GOCE, Herschel & Plank and of ongoing projects like: BepiColombo targeting Mercury, Solar Orbiter and Exomars mission for the Robotic Exploration of the red planet. Since 2004 he is member of ISEC “International Space Exploration Committee”. He is now Vice President for Institutional Marketing & Sales at Thales Alenia Space Italia and CEO of ALTEC S.p.A.
Michael Suffredini
President and Co-Founder,
Axiom Space, LLC
United States

Michael T. Suffredini is President and co-founder of Axiom Space, LLC (formerly SGT Commercial Space). The Axiom Space vision is to make living and working in Earth orbit commonplace as a means to sustained deep space exploration. Currently the company is focused on building a commercial space station to follow the International Space Station (ISS). Mr. Suffredini has 30+ years of experience in human spaceflight, the last ten as NASA’s ISS Program Manager with responsibility for the development, assembly, operation and utilization of the 460 metric ton, permanently manned international orbiting laboratory complex. The 15 nation project represents the largest international peacetime project in human history. During his tenure, Mr. Suffredini successfully lead the transition of the ISS program from a development and assembly focus to a research and commercial utilization focus, opening avenues for a new commercial marketplace in space. Michael graduated from the University of Texas at Austin with a Bachelor of Science degree in Aerospace Engineering. In 2008, he was bestowed the honor of distinguished graduate from the University of Texas College of Engineering. Mr. Suffredini is the recipient of numerous awards including the NASA Distinguished Service medal, the NASA Outstanding Leadership medal, the National Air and Space Museum Trophy and the Yuri Gagarin Medal. In addition, Michael has had both the Rank of Meritorious Executive and Rank of Distinguished Executive conferred on him by the President of the United States.

Chris Boshuizen
Vice Chair and Entrepreneur-in-Residence,
Data Collective
United States

Chris is an Entrepreneur in Residence at Data Collective VC, a boutique investment firm specialising in hard, data-driven science and engineering companies. Chris is 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 5 years he took the company from the drawing board to having launched more satellites into space than any other company 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. Chris received his Ph.D. in Physics and BSc. with honours from the University of Sydney.

**Moderator:**

**Carissa Christensen**

*Managing Partner,*
*Tauri Group*
*United States*

Carissa Christensen is an internationally known expert on the space industry and technology forecasting. She led the creation of widely used data tools now considered global metrics for the commercial space and satellite sectors. She is a frequent speaker and author on space and satellite trends, serves as a strategic advisor to government and commercial clients, and has been an expert witness and testified before Congress on market dynamics. Ms. Christensen is a Managing Partner of The Tauri Group, an analytic consulting firm that she cofounded in 2001. She is also an active investor in technology focused startups and advises several companies she has helped seed. She serves on the board of QxBranch, an early stage quantum computing firm. Ms. Christensen holds a Master of Public Policy degree from Harvard University’s Kennedy School of Government, where she specialized in science and technology policy. She also completed the General Course in Government at the London School of Economics and was a Douglass Scholar at Rutgers University. Ms. Christensen is an Associate Fellow of The American Aeronautics and Astronautics Association.
16:30- 17:30  New Dimensions of Space – What’s Next?

The space sector is a source of innovation that drives the global economy and is an enabler of many industrial activities. From satellite communications, navigation receivers, and geospatial imaging to weather forecasting and national security, space products and services are crucial for modern societies. Space technologies are part of our daily lives. The space sector is in transition and today’s challenges are characterized by changing paradigms and new user demands, an increasing number of countries and new private actors entering the field, as well as increasing reliance on space. The space sector is thus becoming more diverse and complex and its actors need to adapt. Will new stakeholders benefit from existing structures and resources? How will space agencies adapt to these challenges? Can large industries evolve? What will be the role of SMEs? Will technologies or new users drive the further evolution of the space sector? Is there an impact on all parts of the space value chains? In this panel Dr. Gerd Gruppe, Member of the Executive Board of the German Aerospace Center (DLR), will exchange views with three panelists from various parts of the space sector and beyond, as well as with the audience. After the panel, you will have a better understanding of the new dimensions lying ahead of the space sector.

Organized by:
German Aerospace Center (DLR)

Speakers:

Philippe Moreels
Head of Strategy and Business Development,
Astroscale Pte. Ltd.
Singapore

Philippe currently leads the Strategy and Business Development effort at Astroscale, a Singapore and Japan-based company developing innovative solutions to support long-term spaceflight safety. He is responsible for developing and implementing the company’s strategic and business plans, for establishing global strategic partnerships and for overseeing the products and services portfolio development. Prior to this, Philippe was Deputy Executive Director of the International Astronautical Federation (IAF), where he built solid industry expertise. Philippe specialises in Business Strategy Innovation and Strategic Planning, and holds a Master’s degree in Management from the University of Lille and an MBA from Hult International Business School, which he completed in China.
Bart Reijnen  
**Senior Vice-President On-Orbit Services and Exploration**  
Airbus Defence and Space  
Germany

Studies:
- Master of Science Aerospace Engineering - DELFT UNIVERSITY OF TECHNOLOGY

Professional Background:
- 21 years with Airbus, its predecessor companies and subsidiaries in various functions:
  - Head of A380 Programme Integration - AIRBUS INDUSTRIE GIE
  - Vice President CEO Office - EUROPEAN AERONAUTIC DEFENCE AND SPACE COMPANY
  - Chief Executive Officer - DUTCH SPACE B.V.
  - Senior Vice President On-Orbit Services and Exploration - AIRBUS DEFENCE & SPACE, SPACE SYSTEMS

Dick Rocket  
**CEO and Co-Founder,**  
NewSpace Global  
United States

Dick Rocket is CEO and Co-Founder of NewSpace Global. Rocket has spoken at numerous venues worldwide including the Space Technology & Investment Forum (2016: San Francisco), Aerospace Futures 2016 (Sydney), Satellite 4.0 (2016: Guest of the DLR, Berlin), FedEx (2014), Stanford University, the Swiss Embassy, Embry-Riddle Aeronautical University, the Brazilian Space Agency (AEB), PayPal, Harvard Business School, Brentwood School, Harvard-Westlake School, Rice University, the University of Brasilia, Pennsylvania University, and the 2014 NewSpace Global Investor Conference. Rocket holds a JD from the University of California at Berkeley and is currently an industry advisor of Embry-Riddle Aeronautical University’s Commercial Space Operations program. Prior to launching NewSpace Global, Rocket worked as an investment fund attorney in New York for an international law firm. Rocket has appeared on NBC, CNBC, Fox News, and the John Batchelor Show, and has been interviewed for several domestic and international publications including Fortune, Forbes, Bloomberg, CNBC, The Wall Street Journal’s Marketwatch, The Economist and others.

NewSpace Global (“NSG”) is a Cape Canaveral, Florida based collaborative intelligence provider that offers analysis on the NewSpace industry to its customers, so they can make better-informed decisions. NSG maintains three live indices tracking over 1000 companies and, through our Observer database, provides company-by-company information and analysis for every privately-held company on the indices. NSG also publishes Thruster interviews with industry leaders and runs the daily news source NewSpace Watch. NSG’s current customers include Fortune 500s, aerospace primes, high net worth individuals, major universities, students, entrepreneurs, military organizations, government agencies, and start-ups. NewSpace Global has been featured by Bloomberg, Forbes, Fortune, CNBC, NBC, Fox News, The Financial Times, Le Temps, Süddeutsche Zeitung, Huffington Post, and many others. For more information, please visit us at [www.newspaceglobal.com](http://www.newspaceglobal.com).
MODERATOR

Gerd Gruppe
Member of the Executive Board,
German Aerospace Center (DLR)
Germany
Wednesday, 28 September

09:30-10:30  Space: new paths towards a balanced and inclusive development

Indispensable for a successful development is a balanced and inclusive evolution in terms of gender, generations and different regions of the world. The panel concentrates on selected space-based applications for specific sections like the improvement of peoples’ health in remote areas, health problems of the society, management of migration challenges all over the world as well as job-related options for young women in the space arena.

Organized by:
WIA-Europe

Speakers:

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

Ms. Simonetta Di Pippo joined the UN Office for Outer Space Affairs in March 2014, having previously served in numerous high ranking positions in the space sector including Director of Human Space Flight Operations at the European Space Agency and Director of the Observation of the Universe at the Italian Space Agency.

Barbara Ryan
Director,
Intergovernmental Group on Earth Observations (GEO)
Switzerland

Barbara Ryan is since 2012 Secretariat Director of the intergovernmental Group on Earth Observations (GEO) Geneva, degree in geology, worked at the United States Geological Survey (USGS) 1974-2008, then she became director of WMO’s space programme.
Sandra H. “Sandy” Magnus is the Executive Director of the American Institute of Aeronautics and Astronautics (AIAA), the world’s largest technical society dedicated to the global aerospace profession. Selected to the NASA Astronaut Corps in April, 1996, she flew in space on the STS-112 shuttle mission in 2002, and on the STS-135 in 2011. In November 2008 she flew to the International Space Station on STS-126 for four and a half months on board.

Minoo Rathnasabapathy
Executive Director,
Space Generation Advisory Council (SGAC)
Austria

Executive Director SGAC 2016, degree in Aerospace Engineering, since 2010 active member of SGAC in changing positions like Space Safety and Sustainability project group, Regional Coordinator of Africa, SGAC national point of contact for South Africa.

Moderator:

Francisco Javier Mendieta Jiménez
General Director,
Mexican Space Agency (AEM)
Mexico
10:30-12:00 Science – the fundament and promoter of space activities

Ever since the beginning of space activities be it ground-based or eventually space-based, it has been closely intertwined with scientific curiosity and technological progress. Science and space activities have mutually benefited from each other, triggering a virtuous circle of progress ultimately enabling and serving today’s globalised societies and economies with many terrestrial applications unforeseen from the onset. Without space science there would be no applicable or commercial use of space. In this panel Dr Gerd Gruppe, Member of the Executive Board of the German Aerospace Center (DLR), will explore with four panellists representing space-related projects at the cutting edge of science and technology, as well as with the audience, the current state of the science-space relationship and how it might evolve in the years to come. The debate will include questions such as...

- Are scientific or technological progresses driving space activities?
- Does science have the power to trigger technological developments?
- How could countries benefit from space science for terrestrial uses?
- How will scientific achievements change today's and future space activities?
- Can we expect radically new applications from a scientific breakthrough?

Organized by:
German Aerospace Center (DLR)

Speakers:

Éric Laliberté
Director General for Space Utilization,
Canadian Space Agency (CSA)
Canada

Eric Laliberté is Director General, Space Utilization for the Canadian Space Agency (CSA). In this position, he is accountable for the overall planning, direction and general management of the Space Utilization Branch of the CSA, whose mandate is the end-to-end implementation of the Earth Observation, Satellite Communications and Space environment elements of the Canadian Space Program. Mr. Laliberté joined the CSA in 2001 where he held various positions the most recent being Director of Space Exploration Projects and Director General of Space Science and Technology. Eric holds a Masters in Engineering Management from the University of Sherbrooke and a Bachelor’s degree in Mechanical Engineering with an automation specialty as well as a minor in administration from McGill
University. He served 12 years as an Aerospace Engineering Officer in the Royal Canadian Air Force before joining the Canadian Space Agency. He was part of the Air Reserve for 10 years where he assumed the responsibilities of Quality Manager and of 438 Squadron’s Aircraft Maintenance Flight Commander.

Claus Lämmerzahl  
Director Space Science,  
Center of Applied Space Technology and Microgravity (ZARM)  
Germany

- 1982 - 2000 (with interruptions): Scientist at University Konstanz  
- 2000 - 2003: Senior scientist at University Dusseldorf  
- 2003 - present: Senior scientist at ZARM, University Bremen (permanent)  
- 2012: deputy director of ZARM  
- 2013 - present: Director “Space Sciences” at ZARM  
- 2013 - 2016: Executive Director ZARM  
2012 - present: Director General ZARM Drop Tower Operation and Service Company

Frank Flechtner  
Head of Global Geomonitoring and Gravity Field,  
GFZ German Research Centre for Geosciences  
Germany

Prof. Dr. Frank Flechtner has studied geodesy at the Rheinische-Friedrich-Wilhelms-University in Bonn between 1981 and 1987 and has also graduated in Bonn in 1999 with the topic „Determination of the total electron content of the ionosphere using PRARE range and range-rate observations“. Between 1988 and 1992 he was a research scientist at the German Geodetic Research Institute in Munich. Since 1992 he is employed at the GFZ German Research Centre for Geosciences. Since 2010 he was already the temporarily head of the Section „Global Geomonitoring and Gravity Field“, since March 2013 he is the official head. At the same time, he took over a professorship for “Physical Geodesy” at the Technical University in Berlin. Since 2009 he is the Co-PI of the US-German satellite mission GRACE (Gravity Recovery and Climate Experiment). Presently he manages as the PI the German contributions of the NASA-GFZ follow-on mission GRACE-FO, due for launch end of 2017.

Walter Naumann  
CEO,  
ICARUS Global Observation System GmbH  
Germany
Dr. Walter Naumann is currently Partner and Managing Director of the ICARUS Global Observation System GmbH, a firm that specializes in services and products for wildlife telemetry. He is consulting the Max-Planck-Institute for Ornithology in the development of the ICARUS system, a new global observation system for small animals. He recently spent one year at this institute to prepare the ground segment and the operational phase. From 2007 to 2015 Dr. Naumann was Project Manager at SpaceTech GmbH, a SME working in the field of space engineering, where he was heading the ICARUS space segment development in the feasibility and definition phase. Prior to that he was working on ISS payloads and satellite projects with a focus on robotics, from 2000 to 2006 as Project Manager at Kayser-Threde GmbH in Munich. His experience includes a research career at the Technical University of Munich in the hypervelocity impact research group of the Chair of Astronautics, where he was developing and operating a micrometeoroid detector on a Japanese Mars mission.

MODERATOR
Gerd Gruppe
Member of the Executive Board,
German Aerospace Center (DLR)
Germany
12:00- 12:30 ITU World Radiocommunication Conference (WRC-15) allocates spectrum for future innovation, Challenges and Opportunity

The International Telecommunication Union (ITU) holds World Radiocommunication conferences (WRC) every four years to review, and, if necessary, revise the Radio Regulations, the international treaty governing the use of the radio-frequency spectrum and the geostationary-satellite and non-geostationary-satellite orbits. Revisions are made on the basis of an agenda determined by the ITU Council, which takes into account recommendations made by previous World Radiocommunication conferences. The ITU World Radiocommunication Conference 2015 (WRC-15) concluded its deliberations on 27 November 2015 with the signature of the Final Acts that revise the Radio Regulations, the international treaty governing the use of radio-frequency spectrum and satellite orbits. Around 3300 participants, representing 162 out of ITU’s 193 Member States attended the four-week conference from 2 to 27 November. Some 500 participants representing 130 other entities, including industry, also attended the conference as observers. WRC-15 addressed over 40 topics related to frequency allocation and frequency sharing for the efficient use of spectrum and orbital resources. The outcomes ensure high quality radiocommunication services for mobile broadband and satellite communications, maritime and aeronautical transport, air and road safety as well as for scientific purposes related to the environment, meteorology and climatology, disaster prediction, mitigation and relief. The decisions of the ITU World Radiocommunication Conferences are aimed at maintaining a stable, predictable and universally applied regulatory environment that secures long-term investments for the multi-trillion-dollar ICT industry including outer space activities. WRC-15 is barely completed that preparatory work for WRC-19 is already shaping up.

The purposes of the presentation will be to analyze the main outcomes of WRC-15 and plans for the next conference that set new challenges as well as bring new opportunities for billions around the world. ITU is committed to connecting all the world’s people, whenever they live and whatever their means, and the WRC process is an essential element in that endeavor.

Organized by:
International Telecommunication Union (ITU)

Speaker:
Attila Matas
Head of the Space Publications and Registration Division,
International Telecommunication Union (ITU)
Switzerland
UNISPACE +50 and the Future of Space

Since the dawn of the space age the United Nations has recognized not only the sheer importance of greater international collaboration in outer space, but also the enormous potential of space research & technology for socioeconomic development. In light of this, the United Nations organized throughout the years three global conferences on the Exploration and Peaceful Uses of Outer Space (UNISPACE). By providing a platform for international dialogue on key issues related to space exploration and the practical applications of space technology, as well as facilitating the cooperation of States and organizations in outer space activities for peaceful purposes, the UNISPACE conferences have delivered vast economic, social and technological benefits to humankind. As mandated by the Committee on Peaceful Uses of Outer Spaces (COPUOS), UNISPACE+50 will take place in 2018 and will mark the fiftieth anniversary of the first conference in 1968. UNISPACE+50 will provide a crucial opportunity for the global space community to take stock of what has been accomplished to date and what can be expected for the future. In particular, UNISPACE+50 will promote a “Space 2030” agenda that considers the development of stronger space governance and engages all key stakeholder in the space arena. The panel will consider the four key thematic pillars of UNISPACE+50: space economy, space society, space accessibility and space diplomacy.

- **Space economy** aims to show the extensive relevance and connections that outer space activities have to the growth and sustainable development of all nations.
- **Space society** will include how nations and governments can carry out their core duties and functions while making the best use of space technologies and space-based services and applications that benefit society.
- **Space accessibility** concerns the promotion of the peaceful uses of space for humanity, including coordination, communication and capacity-building.
- **Space diplomacy** will draw attention to the global governance of space, and the vital role of COPUOS as the United Nations platform for space diplomacy, as well as cooperation among nations in using space technologies and applications to address common challenges facing humanity and building constructive, knowledge-based partnerships.

**Organized by:**
United Nations Office for Outer Space Affairs (UNOOSA)
Speakers:

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

Ms. Simonetta Di Pippo joined the UN Office for Outer Space Affairs in March 2014, having previously served in numerous high ranking positions in the space sector including Director of Human Space Flight Operations at the European Space Agency and Director of the Observation of the Universe at the Italian Space Agency.

**David Kendall**  
*Chair,*  
United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)  
Austria

David Kendall is the current Chair of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). He was previously the Senior Executive Advisor to the President of the Canadian Space Agency and served as the Director General of the Space Science and Space Science and Technology branches of the Agency. He is also a faculty member of the International Space University having directed two ISU Space Study Program sessions.

**Jean-Yves Le Gall**  
*President*  
Centre National d’Etudes Spatiales (CNES)  
France

Mr. Jean-Yves Le Gall is currently the President of the French Space Agency (CNES), having been appointed to the position in 2013 by the French Government. In 2015 he was elected Co-Chair of the Council of the European Space Agency (ESA) and is the incoming President of the International Astronautical Federation.

**LI Xinjun**  
*Secretary General*  
Asia-Pacific Space Cooperation Organization (APSCO)  
China

Mr. LI Xinjun is Secretary-General of the Asia-Pacific Space Cooperation Organization (APSCO). He was previously Deputy Secretary-General at APSCO and Deputy Director General at the China Aerospace Science and Technology Corporation (CASC), after holding a range of roles at Beihang University, China.
14:30-16:00  Making the Moon Village and Mars Journey Accessible and Affordable for All

The panel will review recent discoveries and key missions for upcoming Moon-Mars exploration. They will discuss how exploration towards a Moon Village and Mars Journey can perform research (planetary and space science, human spaceflight, astrobiology, astrophysics, technologies, life support, operations, technical validation and development). They will discuss how to make it affordable and sustainable. They will address the social, education, peaceful inspirational and economical values of the Moon Village and Mars Journey for humankind. The panel will discuss possible visions and roadmaps towards a sustainable global Moon Village and Mars Journey, accessible and affordable for all.

The panel will address various aspects and questions from the community:
1) What are the current plans for different space agencies and space actors in Moon-Mars exploration?
2) What Strategic Knowledge Gaps are there? What will upcoming missions and precursor robotic missions provide?
3) How to use current lunar data to inspire youth, public, engineers and stakeholders for the next steps of exploration?
4) Why a Moon Village and a Journey to Mars?
5) What drivers to consider: peaceful cooperation, exploration, technology, science, inspiration, jobs and workforce development, innovation and competition, legal aspects, commercial and socio-cultural benefits?
6) In relation to Journey to Mars, how to establish an infrastructure in lunar orbit or on the surface of the Moon, from which we can help entrepreneurs, international partners and experiences?
7) What could be the architecture, design, construction, and maintenance of a set of permanent habitats and infrastructure for science, manufacturing/production, and other commercial or institutional activities on the Moon and Mars?
8) What is the role of small countries and new partners in exploration?
9) What are possible collaborations between almost all space agencies and other stakeholders for possible future agreements at a large scale?

Organized by:
European Space Agency (ESA) /ESTEC/ ILEWG
COSPAR Panel on Exploration (PEX)
IAF ITTACUS Committee
Speakers:

**Johann-Dietrich Woerner**  
*Director General, European Space Agency (ESA), France*

**George Nield**  
*Associate Administrator for Commercial Space Transportation, Federal Aviation Administration (FAA), United States*

**Alexander Degtyarev**  
*General Designer, General Director, Yuzhnoye State Design Office*

**Fritz Merkle**  
*Member of the Management Board, OHB, Germany*

**Bob Richards**  
*Co-founder and CEO, Moon Express Inc., United States*

**Tanja Masson-Zwaan**  
*President, International Institute of Space Law (IISL), The Netherlands*

**Carmen Felix**  
*Space Generation Advisory Council (SGAC), Mexico*

**Bernard Foing**  
*Chair ESA/ESTEC Staff Committee, Director ILEWG, Chief Scientist & Senior Exploration Officer, European Space Agency (ESA/ESTEC), The Netherlands*
16:00- 17:00  Disruptive Space Technology

The panel will address how disruptive space technology is transforming our world mainly around small satellite platforms.

**Organized by:**
Mexican Space Agency (AEM)

**Speakers:**

**Martin N. Sweeting**  
*Group Executive Chairman,*  
*Surrey Satellite Technology Ltd (SSTL)*  
*United Kingdom*

**David Korsmayer**  
*Director of Engineering,*  
*NASA Ames Research Center*  
*United States*

**Robbie Schingler**  
*Co-Founder and Chief Strategy Officer,*  
*Planet*  
*United States*
17:00-17:45  Space for Global Challenges

Space programmes, activities or services support more and more the challenges we have on Earth. Space is not the solution, but a useful tool that can help addressing access to energy, digital divide, health, education, food and water, communications infrastructure or security on Earth. In particular space supports and can support much more the achievement of the 2015 UN 17 Sustainable Development Goals. An important goal is to understand the needs and expectations expressed by the actors concerned and to "translate" them into new applications or programme requirements for the future space activities. This session will explore new ways and approaches and how to intensify the use and benefits from space for global challenges.

Organized by:
European Space Agency (ESA)

Barbara Ryan
Director,
Intergovernmental Group on Earth Observations (GEO)
Switzerland

Attila Matas
Head of the Space Publications and Registration Division,
International Telecommunication Union (ITU)
Switzerland

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

Christina Giannopapa
CLIODN Chair,
International Astronautical Federation (IAF)
France

MODERATOR
Isabelle Duvaux-Béchon
ESA Strategy Department,
European Space Agency (ESA), France
Thursday, 29 September

09:30- 10:30  Space Technology for Emerging Countries - for Latin and South America

Some countries in Latin America and the Caribbean are advanced users, and often developers, of space technology and applications; others are emerging and organizing themselves to take more advantage of those applications. There remains, however, important gaps, both geographically and in areas of application. The United Nations Office for Outer Space Affairs (UNOOSA) is providing technical and policy guidance to the region to reduce those gaps through capacity building and institutional strengthening. While actions at national level are important, the Office also promotes the use of space-based tools through regional coordination to tackle important trans-boundary issues, such as the monitoring and early warning of disaster of natural causes.

Speakers:

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

Josef Aschbacher
Director of Earth Observation, European Space Agency (ESA)
Italy

Dava Newman
Deputy Administrator, National Aeronautics and Space Administration (NASA)
United States

David Nabarro
UN Secretary-General’s Special Adviser on the SDGs
United Nations
United States

Luc St-Pierre
Senior Programme Coordinator, UNSPIDER
Austria

Francisco Javier Mendieta Jiménez
Director, Mexican Space Agency (AEM)
Mexico
MODERATOR
Christina Giannopapa
CLIDDN Chair,
International Astronautical Federation (IAF)
France

MODERATOR
Joo-Jin Lee
VP for Developing Countries and Emerging Members,
International Astronautical Federation (IAF)
France
10:30- 11:30  
4 Subjects 180 Days CELSS Integration Experiment and Manned Deep Space Exploration

Space exploration has been a common pursuit of all human kind. SPACEnter, a 4-subject and 180-day integrated experiment of CELSS is a large multinational "human-environment" experiment conducted by China. The experiment is conducted in the newly built CELSS integration experiment facility of Space Institute of Southern China (Shenzhen). Based on the third-generation life support technology, this study will examine the concordant effects of physical-chemical regenerative and bioregenerative life support system, so as to reveal the law on dynamic variation of human body in CELSS with continuous tracking on multi-omics, and to develop new technology on building life support system that works for multi-subjects long stay with high material closure, improved efficiency and greater reliability. The experiment has attracted space medicine and ecological system experimental projects from all over the world like CNES and DLR to participate in. Through this experiment, the theoretical basis and technology of bioregenerative life support system will be further enriched and some key technology breakthroughs of the third-generation life support system are expected to be made. And studies on astronauts health maintenance in long-stay closed environment will be further accumulated. The event will mainly discuss on SPACEnter experiment, and spread out to the further development in CELSS, the future of space exploration and its implication on medicine development, and relevant extraterrestrial life themes and manned space exploration. The event will consist of lectures on SPACEnter experiment and topics on extraterrestrial life, and seminars on the topics and arguments in the lectures. We aspire that more opportunities for communications and developments between the East and the West in manned space technology will be made, fresh ideas on space medicine and manned space exploration studies will be stimulated, and international cooperation on manned space exploration will be enhanced in order to achieve our common pursuit.

Organized by:
Space Institute of Southern China
Speakers:

**Nick Kanas,**
*M.D., Professor Emeritus, University of California, United States*

Dr. Kanas is an Emeritus Professor of Psychiatry at the University of California, San Francisco. For over 35 years, he conducted research on people under stress. He has over 200 professional publications and is the recipient of the Dr. J. Elliott Royer Award for academic psychiatry. Since 1970, he has studied and written about psychological and interpersonal issues affecting people living and working in space. For over 15 years, he was a NASA-funded principal investigator, doing psychological research with astronauts and cosmonauts. He is a member and former trustee of the International Academy of Astronautics. Together with Dietrich Manzey, he is the co-author of the text book entitled *Space Psychology and Psychiatry (2nd ed.)*, which was given the 2004 International Academy of Astronautics Life Science Book Award. In 1999, Dr. Kanas received the Aerospace Medical Association Raymond F. Longacre Award for Outstanding Accomplishment in the Psychological and Psychiatric Aspects of Aerospace Medicine. In 2008, he received the International Academy of Astronautics Life Science Award. He continues to write and serve as a consultant on the psychosocial aspects of human space travel. His latest book on space psychology entitled *Humans in Space: The Psychological Hurdles* was given the 2016 International Academy of Astronautics Life Science Book Award.

**Jeffrey Sutton**
*President and CEO, Institute Director, National Space Biomedical Research Institute (NSBRI), United States*

Jeffrey P. Sutton is President, CEO and Institute Director of NSBRI. Dr. Sutton holds the Friedkin Chair for Research in Sensory System Integration and Space Medicine at Baylor College of Medicine, where he is also a tenured Professor of Medicine and Director of the Center for Space Medicine. Dr. Sutton’s education and training were at the University of Toronto and Harvard University. He holds M.D., M.Sc., and Ph.D. (theoretical physics) degrees, and is a Diplomate of the American Board of Psychiatry and Neurology, and a Fellow of the Royal College of Physicians of Surgeons of Canada. Dr. Sutton’s career spans research, education, clinical care, and administration. He has made significant contributions in the fields of smart medical systems, computational neuroscience, neuroimaging, and space medicine. He founded and directed the Neural Systems Group at the Massachusetts General Hospital and was on the faculty of Harvard Medical School for more than a decade. He served twenty years as an affiliate faculty member in the Harvard-MIT Division of Health Sciences and Technology. As NSBRI director, Dr. Sutton has overseen the institute’s maturation into a leading scientific consortium, focused on translational biomedical research, technologies, and deliverables for NASA with applications for health on Earth. Dr. Sutton’s academic leadership is internationally acclaimed, and he has received numerous awards for his achievements, including the NASA Distinguished Public Service Medal, an
NIH Career Development Award, President’s Citation from the Society of NASA Flight Surgeons and Diploma from IBMP of the Russian Academy of Sciences.

**Yi-Xian Qin**  
*_Professor of Biomedical Engineering, Director,*  
Orthopaedic Bioengineering Research Laboratory  
United States

Dr. Yi-Xian Qin is Professor of Biomedical Engineering and Orthopaedics, the Director of Orthopaedic Bioengineering Research Laboratory at Stony Brook University, and a founding faculty member of BME. He is a Fellow of the American Institute of Medicine and Biological Engineering (AIMBE), and Member of the International Astronautics Academy (IAA). His research has been focused on musculoskeletal tissue regeneration and translation through physical regulation and characterization of tissue quality, as well as evaluating the mechanisms responsible for tissue remodeling. The laboratory is currently interested in the areas of bone tissue engineering, mitigation of bone loss, implant fixation, bone fluid flow controlled bone remodeling and cellular activities, promotion of fracture healing and regeneration, and ultrasonic diagnostics and therapeutics for osteopenia and fracture. The lab has extensive experience in cellular culture and mechanistic evaluation, various *in vivo* models, and ultrasound imaging. His work has been continuously funded by NIH, DOD, NASA/NSBRI, and industries for the last two decades. He served as Chair of the Cellular and Molecular Bioengineering Special Int. Group of the Biomedical Engineering Society (BMES), and Board of Chair of ICMRS. He has published more than 100 peer-reviewed paper and book chapters in musculoskeletal research journals and books.

**Petra Rettberg**  
*_Team Leader of the Astrobiology-Group,*  
Institute of Aerospace Medicine  
German Aerospace Center  
Germany

Dr. Petra Rettberg is a bio-/chemist by training. She is working at DLR for more than 20 years as head of the Astrobiology Research Group in the Institute of Aerospace Medicine. Her research interests encompass astrobiology, planetary protection, life in extreme environments, microbiology, radiation biology and photobiology. Besides microbiological laboratory work she is PI and Co-I of several space experiments and active in field studies and contract research. She is member of the International Academy of Astronautics (IAA), Chair of Commission 2: Space Life Sciences; member of International Astronautical Federation (IAF) Technical Committee and Vice-Chair: Space Life Sciences; Member of the European Space Science Committee (ESSC) of the European Science Foundation – Solar System and Exploration Panel; member of the European Cooperation for Space Standardization ECSS-U-ST20C Working Group ‘Planetary Protection’; member of the ESA Planetary Protection Working Group (ESA PPWG) and member of the German National COSPAR Committee (COSPAR-Landesausschuss der DFG).
Li Yinghui, Professor, Vice Dean of Space Institute of Southern China (Shenzhen), Chief Director of 4-subject 180-day CELSS Integration Experiment. Director of Chinese State Key Lab of Space Medicine Fundamentals and Application, Vice Chief Designer at China Astronaut Research and Training Center. The fellow of International Academy. Committee member of COSPAR China. Member of China manned spaceflight program space medicine panel. Responsible expert in space medicine. Representative director of Chinese society of space. Editorial board member of Space Medicine & Medical Engineering, Chinese Journal of Aerospace Medicine, Space Science etc. In the astronautic system of China Manned Spaceflight Program, she is in charge of aerospace medicine discipline and related space biological research in Shenzhou series flights. She acted as the chief designer of space medicine experiment and application subsystem and projects in the space station project of China. She is engaged in the effects and mechanisms of microgravity environment on physiological system and cellular & molecular biology, especially focusing on bone loss, Cardiovascular Remodeling etc. Her efforts promote China’s cooperation with Russia, France and German in related fields. As chief technological scientist, she contributed to the successful participation of Chinese team to “MARS500”, and facilitated the “Cardiospace” project with CENS and took an active part in “Envihab” project with German.

Moderator:

Fengyuan Zhuang
Professor Emeritus,
Beihang University
China
11:30-12:30  Technology Transfer – How to Make the Most of It?

Numerous interesting, efficient technology transfers have been achieved through ESA Technology Transfer Office Programme whose mission is to inspire and facilitate the use of space technology, systems and know-how for non-space applications. Indeed, the transfer of space technology from space companies to other sectors results in a mutual gain for both industries and benefits the final users by providing high-tech effective solutions. From cooling suits for a Formula 1 racing team to ground penetrating radar to detect cracks in mine tunnels, these programmes offer a platform of new business opportunities for providers of space technology and systems and avenues for optimizing know-how transfer and improving competitiveness. In this panel, representatives from agencies and industry discuss how to leverage space technology into other industries as well as address the specific needs/goals of non-space sectors. Furthermore, representatives from Young ESA and SGAC bring in the perspective of how the next generation can help tackle the challenges in space technology transfer in an environment of technology disruption in the wake of New Space. The panel will include a commentary on how these industries see or treat access to information about space technologies, and their awareness of the potential "from space".

Organized by:
Space Generation Advisory Council (SGAC)
European Space Agency (ESA)

Speakers:

Giulia Federico
Space Generation Advisory Council (SGAC)
Space Products and Innovation
Germany

José Javier Roch Soto
Mexican Space Agency (AEM)
Mexico

Rodrigo da Costa
Director, Future Projects & Business Development,
Airbus Defence and Space
Germany

Hugo Simões
Young ESA,
European Space Agency (ESA), The Netherlands

Angelika Daniels
MODERATOR
Technology Transfer Programme
European Space Agency (ESA)
12:30-13:30  Success of commercial space ventures – An inspiration for the next generation

In the last several years, numerous commercial companies have begun to revolutionize the space industry. The success of reusable rockets, the development of private spaceships, and the potential for a privately owned and operated space station are signs of a new age in space exploration. The move from purely government led space endeavors to privately executed ones is currently underway. While the approach to space missions is changing, one question remains: Is working in the space industry more appealing to millennials in various engineering fields than other technology companies in other industries with shiny campuses in Silicon Valley? How can the space industry as a whole attract bright talented people to help overcome the challenges of these new missions and the modern technology that comes with them?

Organized by:
IAF Young Professional Programme

Speakers:

John Roth
Vice President Strategy & Business Development,
Sierra Nevada Corporation's Space Systems
United States

Mr. Roth currently serves as the Vice President of Business Development for Sierra Nevada Space Systems where he is responsible for new business acquisition and customer relations for all product lines which include Spacecraft, Propulsion, Space Technologies, and Space Exploration. Mr. Roth served as President of MicroSat Systems Inc. from 2002 until its acquisition by Sierra Nevada Corporation in 2008. Mr. Roth holds a BS in Computer Science Engineering from the University of Illinois and an MS in Electrical Engineering from the University of Southern California. He has attended the Harvard Business School Executive Education program in Management and Leadership and the Wharton Business School Executive Education Program in Finance and has served on the board of directors of the Colorado Space Business Roundtable, the Advisory Board of the Colorado Space Grant Consortium, the National Executive Space Council for the Aerospace Industries Association (AIA), and the Board of Directors for the Center for Space Entrepreneurship. Mr. Roth is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA) and is a Corresponding Member of the International Academy of Astronautics.
Sirisha Bandla currently works at Virgin Galactic in the D.C. operations office on Government Affairs and Business Development, supporting both LauncherOne and SpaceShipTwo programs. Previously, Sirisha served as the Associate Director for the Commercial Spaceflight Federation, an industry association of commercial spaceflight companies. At CSF, Sirisha works on various policies with the aim to promote the commercial space industry and make commercial human spaceflight a reality. Before CSF, she worked as an aerospace engineer designing components for advanced aircraft at L-3 Communications in Greenville, Texas. While at Purdue University, Sirisha lead a team in the NASA-supported Reduced Gravity Student Flight Opportunities Program in which she flew onboard the ZERO-G aircraft testing scaled diaphragm tank systems. She has a Bachelor’s of Science degree in aeronautical/astronautical engineering from Purdue, and holds a Masters of Business Administration from the George Washington University. Sirisha is a member of the Space Generation Advisory Council and managed the Space Generation Fusion Forum in Colorado Springs last year.

Steve Lee
CEO,
Stevenson Astrosat
Scotland

Award winning Astrophysicist and Astronautical Engineer. Proven innovator and Entrepreneur. A strong communicator and leader having built several businesses since leaving university. Recently culminating in major lifetime goal of launching a commercial Astronautics and Earth observation company - Stevenson Astrosat. Current focus is on Earth Observation for low carbon, infrastructure and renewable energy sectors and Satellite communication innovations and solutions. Astrosat recently moved into hardware and payload development including orbital control systems, imaging payloads and advanced ground station space beacon technologies for debris tracking.

Moderator:

John Horack
IAF Vice President,
Professor and Neil Armstrong Chair,
The Ohio State University
United States
Aiming at a resilient and sustainable space security system

Most discussions of space security (basically the security of operational satellites) for intended or unintended interference focuses on the space segment. This proposal takes a much broader view, taking a system perspective that embraces environmental, policy and legal aspects.

A resilient and sustainable space security system involves balanced investments between the following elements:

- **The space segment** – including space situational awareness and space traffic management;
- **The spectrum segment** – including spectrum allocation and management to make optimal use of this inherently limited resource and to minimize the possibility of unintentional jamming and to ensure that sources of intentional jamming are identified.
- **The cyberspace segment** – to ensure that the actual content of communications between ground stations and satellites is not interfered with and that data downlinked from satellites is also not corrupted in any way.
- **The ground segment** – to ensure that physical infrastructure is adequately protected and that people who support satellite operations have relevant clearances and are considered to be ‘fit and proper’ for their duties.
- **The policy and legal segments** – that provide common understandings between nations and within nations, with sanctions and enforcement mechanisms, where appropriate, for those who break relevant laws.
- **The end-user segment** – end users of data from satellites (decision-makers) must be confident that the data they receive has not been tampered with and they need to understand what the data is telling them.

The GNF we propose will study the space security as a system. The forum will focus on the importance of relationships on the interactions and inter-relationships between each of the segments outlined above. In a systems view of any area of human endeavor, the focus is not on organisations or platforms or nodes. Rather the focus is on the quality and depth of the relationships and the transactions between those organisations, platforms and nodes.

**Organized by:**
IAF Committee on Space Security
Speakers:

**Xavier Pasco**  
*Senior Research Fellow, Fondation pour la Recherche Stratégique (FRS)*  
France

Dr. Xavier Pasco (Doct. In Political Science- University of Paris-Sorbonne) is a Senior Research Fellow at the Fondation pour la Recherche Stratégique (FRS) based in Paris where he is in charge of the Department “Technology, Space and Security”. Previous to 1997, he was researcher at CREST (Center for Research and Evaluation of the relationships between Strategies and Technology) associated to Ecole Polytechnique, France. His research is currently focused on space and high technology policies and decision-making processes associated with national security strategies. He is working more specifically on the European and U.S. policies and on their impact on the transatlantic relationship in the space activity, both in the civilian and military domains. He has also been involved in a number of projects studying the use of space for the security, both at national and European levels (notably in relation with the R&D Framework Programme) coordinated by the European Commission. He has also supported several analytical works of the subcommittee on Security and Defence of the European Parliament on these issues and has been contributed to EDA and ESA on-going work on governance and data policy issues for future programmes. He was particularly in charge of the ESA-commissioned study related to governance and data policy models suitable for a European Space Situational Awareness System. He has also led many research programmes in France and has been the author, coordinator or “rapporteur” of many research reports on space issues including official reports. Xavier is also associate Research Fellow at the Space Policy Institute in the George Washington University (Washington D.C., U.S.A.). He is also giving lectures in the French Military School in Paris and at the Institute of Political Studies in Paris. He has also been associate Professor at the University of Marne-la-Vallée and is the Deputy Editor of the international academic review Space Policy. In 2012, Xavier Pasco has been elected full member of the International Academy of Astronautics. He has also been named Expert at the European Economic and Social Committee in Brussels in 2007.

**Peter Hays**  
*Associate Director, Eisenhower Center for Space and Defense Studies*  
United States

Peter L. Hays is a Senior Space Policy Analyst with Falcon Research supporting the Principal DoD Space Advisor Staff (PDSAS). Dr. Hays is the senior advisor for the PDSAS on Intelligence, Surveillance, and Reconnaissance; Policy; Strategy; Governance and Strategic Messaging issues and is also lead support for revision of the DoD Directive on Space Governance and the PDSA. Dr. Hays is an adjunct Professor at George Washington University where he teaches courses on “Science, Technology, and National Security Policy” and “Space and National Security.” Dr. Hays was selected as a member of Space Security Index Governance Group, 2010-present, serves as a member of Center for Strategic and International Studies Missile Defense Advisory Board, and was an inaugural member of the World
Economic Forum’s Global Agenda Council on Space Security, 2010-2014. He also serves as a member of Editorial Board for Space and Defense, Astropolitics, and the Handbook of Space Security. Dr. Hays’ previous positions include support to the Office of the Director of National Intelligence, and to the DoD Executive Agent for Space and the National Security Space Office, and 25 years as an Air Force officer where he held a variety of positions including Executive Editor of Joint Force Quarterly, Professor at the School of Advanced Airpower Studies, Director of the USAF Institute for National Security Studies, Division Chief for International Relations and Defense Policy at the USAF Academy, and C-141 Instructor Pilot and Flight Examiner. Dr. Hays holds a Ph.D. from the Fletcher School of Law and Diplomacy at Tufts University, Masters’ Degrees from Tufts and the University of Southern California, and a Bachelor of Science Degree from the USAF Academy, where he was an honor graduate. He served internships at the White House twice: in 1988 at Office of Science and Technology Policy and in 1990 at the National Space Council. Dr. Hays’ major publications include: Handbook of Space Security, Space and Security, Toward a Theory of Spacepower, United States Military Space, “Going Boldly—Where,” Spacepower for a New Millennium, Countering the Proliferation and Use of Weapons of Mass Destruction, and American Defense Policy.

_Brett Biddington_
Space Industry Association of Australia
Australia

Brett Biddington owns a consulting company that specialises in space and cyber security matters. He is leading the team that will deliver the International Astronautical Congress, in Adelaide in 2017. Previously he was a member of Cisco Systems’ global space team and before that an officer in the Royal Australian Air Force (RAAF) specialising in intelligence, security and capability development. His responsibilities in the latter role included sponsorship of classified space projects and the Jindalee Over-the-horizon Radar Network (JORN) project. He is a director of the Institute for Regional Security, a Canberra-based ‘think tank’, and also of the Space Environment Research Cooperative Research Centre. (SERC). He holds Adjunct Professorial appointments at Edith Cowan University in Perth, and at RMIT University in Melbourne and was admitted as a Member of the Order of Australia for services to the Australian space sector in 2012.

_Atila Matas_
Head of the Space Publications and Registration Division,
International Telecommunication Union (ITU)
Switzerland

Mr. MATAS serves as Head of the Space Publications and Registration Division in the ITU Radiocommunication Bureau - Space Services department. He is responsible for the processing and publication of GSO and non-GSO space systems and Earth stations submitted by administrations for inclusion in the formal coordination procedures or recording in the Space Master International
Frequency Register (SMIFR). Mr. Matas is representing the ITU at the UN COPUOS and ICG and he is an active participant on all World Radiocommunication Conferences (WRC) since 1992. On several WRCs he served as a secretary on the agenda items related to frequency allocations and regulation of radionavigation satellite service and active or passive space sensors. As of WRC-03 he is a secretary of the RES-609 Radionavigation Satellite Service Consultation meeting in the band 1164-1215 MHz responsible for the coordination of new satellite navigation systems. Mr. Matas holds a degree in radio engineering from the Czech Technical University of Prague.

Moderator:

Serge Plattard
Senior Resident Fellow,
European Space Policy Institute (ESPI)
Austria

Serge Plattard is Senior Resident Fellow at the European Space Policy Institute (ESPI) in Vienna, Austria, since 2012, working on space governance, dynamics of exploration of the solar system, and space security. He is also Honorary Professor of University College London (UCL) since 2013 where he teaches in two Master courses. After earning a doctorate in nuclear physics (Université d'Orsay, 1973), he worked in low energy nuclear physics at the French Atomic Energy Commission (CEA) and in two American national laboratories. He then moved to S&T policy matters at the policy planning staff of the French Ministry of External Relations (1981-83), and returned to CEA (Directorate for Planning and Programmes, 1983-87). Starting a career in science diplomacy, appointed deputy counsellor/counsellor science & technology in several French Embassies (1987-98) respectively in India, Japan, and the USA, serving one year as assistant director for science and technology cooperation of the French Ministry of Foreign Affairs (1990). He became Director for international relations of CNES (1998-2003), CNES Deputy Director for Planning, Strategy, Programmes and International Relations (2003-04). Plattard served as the first secretary general / CEO of ESPI (2004-07), and was appointed Science & Technology counsellor to the French Embassy in London (2008-12). He was a French delegate to ESO (European Southern Observatory) Council (1990-91), Vice-Chair of the Committee for International Relations of ESA (2003-04), and chairs the IAF Committee on Space Security since October 2015. He is an alumnus of the French Institute for Higher Defence Studies (IHEDN), 56th national session, 2003-04. Dr Plattard is also life member of the American Physical Society, founding member of Euroscience, member of the International Academy of Astronautics. He is author/co-author of more than 50 publications/communications and a book “Nucléaire, merveille ou menace?” (1984). He lectured on nuclear physics (1976-1986) at Université d’Orsay, economy of research and innovation (1984-85) at Université Paris-Dauphine, technology management and industrial innovation (1999-2002) at the French business school ESSEC. Plattard holds the Golden Rays in the Order of the Sacred Treasure (Japanese distinction, 1994), and is Knight in the Order of the Légion d’Honneur (1998).
16:40 - 17:00  Spaceport Norway - Space as platform for industrial and business development

SPACEPORT NORWAY, is a new conference and public exhibition, launching for the first time 17 June 2017, in Stavanger, Norway. The space industry is growing and changing, globalization of the industry is accelerating and democratization is gaining ground. New remote sensing technology gives us data and insights we never had before, the cost for access to space is rapidly decreasing. This development has the power to shape new markets and create new business opportunities for a wide range of sectors and companies. Spaceport Norway is a commercial conference and arena, where new business partnerships can be formed and new cross-industrial collaboration can be made. An arena for technology transfer and shared knowledge about new opportunities, built on space technology and services as a platform for industrial development and transformation. Spaceport Norway is also a large scale exhibition open to the public, that will inspire families, kids, and young students by showing cutting edge technology from world class companies and institutions. In this talk, Ole Dokka give a sneak preview of the program and make the case for space as a 21st century business platform and how this can be relevant and valuable for you and your company.

Organized by:
Spaceport Norway

Speaker:
Ole Dokka
Executive Director,
Spaceport Norway
Norway
17:00-17:45  Space Medicine and Tourism Space Transportation

This panel aims at presenting to the audience space transportation from the point of view of the implications for space medicine. In addition, it will be focused on the development of the space medicine in México in the past 5 years by presenting the outcomes, and the future perspectives of space tourism transportation.

**Organized by:**
Mexican Space Agency (AEM)

**Speakers:**

*Melchor J. Antuñano, M.D.*  
M.S Director,  
Civil Aerospace Medical Institute (CAMI)  
Federal Aviation Administration (FAA)  
United States

*Raul Carrillo*  
Expert,  
National Academy of Medicine  
Mexico
**Friday, 30 September**

05:30 - 07:30  **Rosetta – controlled impact on comet 67P/Churyumov Gerasimenko**

**Live Transmission from ESOC**

On 30 September 2016, Rosetta will end its mission with a controlled impact on Comet 67P/Churyumov-Gerasimenko.

The spacecraft will target Ma’at, a region hosting some active pits on the small comet lobe. This region has been chosen for its scientific potential and taking into account key operational constraints involved in executing the descent.

The live transmission from ESOC will feature an intervention by the Director General of the European Space Agency (ESA) – Johanna-Dietrich Woerner and other guest speakers.
09.30 - 10:30  Astronauts Event

Astronauts from all over the world will be sharing their experiences in space and answering questions from the audience.

This event will be open to the general public.

* Speakers will be announced at the beginning of the IAC 2016
Space architecture looks at the design of complex systems considering various aspects, taking into account how different design elements affect each other and the project as a whole. These elements are also known as systems, and systems engineers may refer to their parts or whole as subsystems, or systems of systems. Some may argue that systems engineering lacks a human aspect; in human space architecture, the design revolves around human needs and ergonomics. Yet aren’t all systems driven or designed by humans at some point? Common terms have been found in both disciplines: big picture, integration, breadth and depth, multidisciplinary, holistic view, etc. They use the expertise of various backgrounds: mathematics, history, psychology, medicine, policy and law, various branches of the fundamental sciences and engineering, and many other tools and operating systems from various other trades and professions. Therefore, are space architecture and systems engineering really two different disciplines, or rather two facets of a single multidiscipline? Does one of them govern the other? Or, are they the same? This panel session will convene experts in the aerospace community working in both areas. This panel aims to generate a vivid discussion of something that we may have already noticed in our daily jobs in industry and academia, but that has not been discussed formally. We will learn from those who have been actively practicing and participating in complex system architecture synthesis, complex systems creation, development and systems integration and operations, and those who are currently at the front line of this ill defined profession. The panel will then draw recommendations based on the discussion to implement them in future collaboration of both Space Architecture and Systems Engineering fields.

Organized by:
AIAA Space Architecture Technical Committee

Speakers:

Vera Mayorova
Professor,
Bauman Moscow State Technical University
Russian Federation

Dr. Victoria Mayorova, Professor, Bauman Moscow State Technical University (BMSTU), BMSTU Youth Space Center (YSC) Director. Dr. Victoria Mayorova is professor of Spacecraft and Launch Systems department. She established and have been leading the BMSTU Youth Space Center since 1989 and summer international workshop “Space Development – Theory and Practice” for more than 25 years. Students participated in SDTP program work for Russian, American, European, South Korean and other space agencies. Dr. Mayorova Victoria is an active member of the IAF Space Education and Outreach Committee (SEOC) and the International Academy of Astronautics (IAA). She and her students develop
diverse space projects and present technical papers at international and national events where they have received many prestigious awards.

**Olga Zhdanovich**  
*Consultant, European Space Agency (ESA)*  
The Netherlands

Olga Zhdanovich is a standardization production engineer/consultant for European Space Agency via Modis. Prior to this job she was an Increment and Mission Integration Consultant at RheaTech for ESA’s Human Spaceflight Directorate. In 1990 she graduated with honors from the Moscow Institute of Engineers in Geodesy, Aerial Surveying and Cartography, Russia as engineer of cartography. She received MSc in Environmental Science and Policy from Central European University, Hungary/University of Manchester, UK. Olga is a Vice-Chair of the SEOC and is Faculty of the International Space University and Co-Chair of IAF Sub-committee on Global Workforce Development. Olga is a recipient of several international awards and scholarships. She has authored number of publications as chapters in books and conference papers on various applications of space technology as well as Russian space program.

**Brent Sherwood**  
*Manager, Jet Propulsion Laboratory*  
*Solar System Mission Formulation*  
*United States*

Brent Sherwood is a space architect with 27 years of professional experience in the space industry. He led human-exploration concept-engineering and program-development teams at Boeing for 17 years. At the Jet Propulsion Laboratory since 2005, he is Program Manager for solar system mission formulation. His teams create and propose mission concepts to NASA for scientific exploration throughout the solar system. He has professional degrees in architecture and in aerospace engineering, from Yale and the University of Maryland. He has published and presented over 50 papers on the exploration, development, and settlement of space.

**Olga Bannova**  
*Space Architecture Professor, University of Houston*  
*United States*

Olga Bannova is a Director of the Sasakawa International Center for Space Architecture (SICSA) of the University of Houston and the Research Associate Professor of the Cullen College of Engineering.
Olga has been teaching and conducting research in the field of space architecture and extreme environments at SICSA for 15 years. SICSA’s graduates are working for NASA centers, ESA, Boeing, Lockheed Martin, United Launch Alliance, and other industry agencies and companies. Olga has professional degree in architecture from Moscow and Master of Science in Space Architecture from the University of Houston. Olga authored and co-authored more than 50 publications including the most recent book “Space Architecture Education for Engineers and Architects” with Sandra Haeuplik-Meusburger.

**Moderator:**

**MODERATOR**

Jackelynne Silva-Martinez  
Aerospace Engineer  
NASA Johnson Space Center  
United States

Jackelynne works at NASA Johnson Space Center in the ISS and Orion Mission Planning Operations within the Flight Operations Directorate. She worked as a Mechanical Engineer and Test Operator at NASA Jet Propulsion Laboratory performing verification and validation ground tests for the Mars Science Laboratory, Curiosity Rover mission. Prior to that, she worked for Lockheed Martin Space Systems Company as an Antennas Mechanical Design Engineer and as a Systems Integration and Test Engineer for commercial and government satellite programs. Jackelynne has a BS. in Mechanical and Aerospace Engineering from Rutgers University, MS in Human Factors for Aerospace Systems from Embry-Riddle, MS in Aerospace Systems Engineering from Georgia Tech, Certificates in Lean Six Sigma from Lockheed, Engineering Management from Drexel, and Space Studies from ISU.
October 4, 1957 marked the end of the confinement of the human species to the Earth Surface and its atmosphere. A new perspective of the space around us was constructed along the years as manmade spacecrafts were able to go deeper into the Heliosphere, the cavity dominated by the Sun. Nevertheless, observations of the Sun and the space around us continued to be done from Earth based observatories, and techniques were refined and sophisticated following the technological development. Earth observations became a natural complement of spacecrafts. Mexico has a long tradition for hosting and promoting space observations from its territory. The first geomagnetic observatory dates back to the 1870´s. Surveys of the latitudinal change of the cosmic ray flux were done in the 1950´s, when the first permanent cosmic ray station was installed in Mexico City. Nowadays UNAM has: magnetic observatories that constitute a National Service, cosmic ray detectors of various kinds operate in several places of the territory and belong to the International Cosmic Ray Network; ionospheric monitor; installations to follow solar wind disturbances; solar observatories in different bands of the electromagnetic spectrum; and a network to observe and study meteoroids (the Mexican Meteoroid Network). The talk will focus on the description of the currently operating observatories, its objectives and scientific contributions, putting them in a historical and worldwide contemporary perspective.

Developing a space program is a complex endeavor and every country has to find its way. The development of space science and technology has been intensified in recent years at UNAM through multidisciplinary collaborations. The Facultad de Ingeniería-UNAM (Engineering Faculty) is developing the space program mainly in the Unidad de Alta Technology (High Technology Unit), located at the UNAM campus in Juriquilla, Queretaro. Currently this Unit is working on three major projects: Microsatellite Condor, for ionospheric studies, microsatellite Quetzal MIT UNAM, for atmospheric pollution measurements and the National Space Laboratory for Space Engineering, with capabilities for integration and testing of satellite systems, funded by the Consejo Nacional de Ciencia y Tecnología (National Council for Science and Technology). We are actively developing interactions with national and international institutions. The collaboration with the Agencia Especial Mexicana (Mexican Space Agency) has helped to understand the national approach, where several vicious cycles should be broken by networking, joint collaborations and industrial liaisons. Space technology education will be promoted, based on the national economic model and the more developed industrial demands.

Organized by:
National Autonomous University of Mexico (UNAM)
Speakers:

José F. Valdés-Galicia  
Director,  
Geophysics Institute  
National Autonomous University of Mexico  
Mexico

Professor José F. Valdés-Galicia obtained his BSc in Physics at UNAM and his PhD at the Imperial College, University of London. He has published 98 papers in international SCI journals. More than 1000 papers in SCI journals cite his published work. Nowadays he is Editor in Chief of Geofisica Internacional, a scientific journal in the SCI. He is part of the Auger International Collaboration, responsible for the Pierre Auger Observatory on Cosmic Rays, as task leader for Education and Outreach Activities and member of the Publications Committee. The Cosmic Ray Observatories at the UNAM campus and at the top of the Volcano Sierra Negra (east of Mexico) are under his responsibility. He has taught numerous courses at UNAM, where he has supervised BSc, Master and PhD students. He has written two books and numerous papers on popular science, and frequently gives conferences for high school students or the general public. He is Member of the National Researchers System with the highest level since 2004. Founder President of the Latin American Association on Space Geophysics (1993-1998) and member of the Cosmic Ray Commission of IUPAP, where he was Vice-president (2005-2008). Program Director in CONACyT (1999-2000). Director of the Geophysics Institute of UNAM (2005-2009 and 2009-2013). Integrant of the Short list for the Presidential appointment of the Director General of the Mexican Space Agency (2012). During 2014 he was appointed as Vice minister for Innovation of the Science Technology and Innovation Ministry of the Mexico City Government.

Saul D. Santillán Gutierrez  
Professor,  
Department of Design Engineering  
National Autonomous University of Mexico  
Mexico

Dr. Saul D. Santillán Gutierrez got a BEng in Engineering Design and M. Eng. in Engineering Design from UNAM. His PHD was in Loughborough University UK, working with Genetic algorithms for improving Design methodologies. He has previous experience in industrial sponsored projects for tailor made design and product design at the Centro de Diseño Mecánico (Mechanical Design Center) of the Engineering School of UNAM, which he directed from 92 to 2000. He moved to campus Juriquilla Queretaro of UNAM, where he started the project for the Centro de Alta Tecnologia, which after a protracted development has evolved as an Industrial oriented postgraduate academic unit, which currently is developing academic programs for Space Engineering and Automotive Engineering. He has taught several courses at UNAM, where he has supervised BSc, Master and PhD students. He is Member of the National Researchers System. Currently he coordinates a group of researchers focused on space projects for nano and microsatellite missions and they are working on the first facility in the country for their integration and testing.
Stardust – a fresh look at planetary defense and space debris removal

Stardust is a unique training and research network devoted to develop and master techniques for asteroid and space debris monitoring, removal/deflection and exploitation. Stardust is funded by the European Commission FP7 Marie Curie Action and for the past 4 years has trained the next generation of engineers, scientists and decision makers to protect our planet, save our space assets, and turn the threat represented by asteroids and space debris in an opportunity. The Stardust network now counts over 20 members including the European Space Agency, major companies like Airbus DS and Deimos, national research centres like CNR and CNRS, national observatories like the Paris Observatory and the Astronomical Observatory of Belgrade, SMEs like Dinamica and SpaceDys, and eight Universities and University research centres around the world, including the University of Tor Vergata, the University of Pisa, the University Polytechnic of Madrid, the University of Southampton, the University of Munich, DFKI in Bremen and the University of Arizona. Stardust, led by the University of Strathclyde in Glasgow, Scotland, has pushed the boundaries of space research with innovative ideas and visionary concepts exploring alternative solutions to the threat represented by asteroids and space debris. Stardust integrated multiple disciplines, from robotics, to applied mathematics, from computational intelligence to astrodynamics, to find practical and effective solutions to the asteroid and space debris issues. This GNF event will present the major achievements of the Stardust network and will discuss, with key experts in the field of asteroids and space debris, existing problems and possible solutions.

Organized by:
Stardust Network

STARDUST

Speakers:

Massimiliano Vasile
Professor,
Stardust Network
(University of Strathclyde)
Scotland

Prof Massimiliano Vasile is professor of Space Systems Engineering in the Department of Mechanical & Aerospace Engineering at the University of Strathclyde, director of the Aerospace Centre of Excellence and coordinator of the Strathclyde Space Institute. Previous to this, he was a Senior Lecturer in the Department of Aerospace Engineering and Head of Research for the Space Advanced Research Team at the University of Glasgow. Before starting his academic career in 2004, he was the first member of the ESA Advanced Concepts Team. Prof Vasile is currently leading Stardust, an EU-funded international research and training network on active debris removal and asteroid manipulation.
Francesco Topputo  
*Assistant Professor,  
Aerospace Systems in the Department of Aerospace Science and Technology, Politecnico di Milano  
Italy*

Dr. Francesco Topputo is an Assistant Professor of Aerospace Systems in the Department of Aerospace Science and Technology, Politecnico di Milano, Italy where he got his PhD in 2007. His research interests include highly nonlinear astrodynamics, optimal control theory, multiphysics modeling and simulation, multidisciplinary optimization, numerical methods for astrodynamics. He is co-founder and senior partner of Dinamica Srl, an Italian SME engaged in multiple activities with ESA and the EC. He has authored and co-authored more than 100 scientific publications. He serves as Associated Editor the journal Advances in Space Research.

Christophe Bonnal  
*Senior Expert,  
Centre National d’Etudes Spatiales (CNES)  
France*

Since 1983 Christophe Bonnal has been working on launchers, first with Airbus the since 1992 with the French space agency CNES. He has successively dealt with technical topics, program tasks mainly with the development of Ariane 5, then headed the future projects department for 8 years before joining the technical directorate as senior expert. Christophe Bonnal is in charge of the space debris topic since 1987. He represents CNES in all the international fora on the topic and is co-chair of the IAA space debris committee.

Giovanni Gronchi  
*Associate Professor,  
Mathematical Physics in the Department of Mathematics at the University of Pisa  
Italy*

Prof Giovanni Federico Gronchi is associate professor of Mathematical Physics in the Department of Mathematics at the University of Pisa. His research interests focus on Solar System body dynamics, perturbation theory, orbit determination, singularities, and periodic orbits of the N-body problem. In 2007 and 2010 he was visiting researcher in the Institute for Astronomy, University of Hawaii (USA) for the Pan-STARRS project, and in 2015 he was visiting lecturer in the Department of Mathematics at Hokkaido University (Japan). He is author of several peer-reviewed research papers and of a monograph about orbit determination, written together with Prof A. Milani. Currently he is president of the Societa’ Italiana di Meccanica Celeste (SIMCA), member of Divisions A, F of the International Astronomical Union (IAU), and member of the Gruppo Nazionale di Fisica Matematica (GNFM). In 2007 his name has been assigned to the asteroid (96217).
Moriba Jah
Director
University of Arizona
United States

Dr Moriba Kemessia Jah is the Director of the University of Arizona’s Space Object Behavioral Sciences with applications to Space Domain Awareness, Space Protection, Space Traffic Monitoring, and Space Debris research to name a few. Prior to this, Dr. Jah was the lead for the Air Force Research Laboratory’s (AFRL) Advanced Sciences and Technology Research Institute for Astronautics (ASTRIA) and a Principal Investigator for Detect/Track/Id/Characterize Program at AFRL’s Space Vehicles Directorate. He received his B.S. in Aerospace Engineering from Embry-Riddle Aeronautical University, Prescott, Arizona, and his M.S. and Ph.D. in Aerospace Engineering Sciences from the University of Colorado at Boulder specializing in astrodynamics and statistical orbit determination. Before joining AFRL in 2007, he was a spacecraft navigator for NASA’s Jet Propulsion Laboratory (JPL) in Pasadena, CA, serving on Mars Global Surveyor, Mars Odyssey, Mars Express (joint mission with ESA), Mars Exploration Rovers, Hayabusa (joint mission with JAXA), and the Mars Reconnaissance Orbiter. Dr. Jah serves as a member of the U.S. delegation to the United Nations Committee on the Peaceful Uses of Outer Space (UN-COPUOS) and is the chair of the NATO SCI-279-TG activity on defining a Common NATO Space Domain Awareness Operating Picture. Dr. Jah is also the Chair of the American Astronautical Society’s (AAS) Space Surveillance Technical Committee and Chair-Elect of the AIAA Astrodynamics Technical Committee.

Daniel Scheeres
Distinguished Professor
University of Colorado at Boulder
United States

Prof Daniel Scheeres is distinguished professor A. Richard Seebass Endowed Chair in the Department of Aerospace Engineering Sciences Head of the Celestial and Spaceflight Mechanics Laboratory of the Colorado Center for Astrodynamics Research. In 2013 he received the Dirk Brouwer Award for his improvement of spacecraft navigation techniques, and application and development of advanced astrodynamics techniques which have had significant impact on current space exploration missions and will enhance capabilities of future missions. Asteroid (8887) 1994LK1 is renamed (8887) Scheeres.

Ian Carnelli
Programme Manager,
European Space Agency (ESA)
France

Mr Ian Carnelli is the programme manager of the General Study Programme of the European Space Agency. He is in charge of supporting the development of the ESA component of the AIDA mission.
Juan-Carlos Dolado-Perez is the head of the space debris modelling and risk assessment office at the “Centre National d’Etudes Spatiales” (French Space Agency). Since 2008 he has worked at the system engineering and orbital dynamics sub directorate, where his main research topics concerns the long and middle term re-entry prediction, the long term evolution of the space debris population, the on orbit collision risk assessment, the orbit determination from radar and optical measurements and the uncertainty characterization and propagation. He is a member of the Inter Agencies Space Debris Committee (IADC)’s French Delegation and of the International Academic of Astronautics (IAA)’s Space Debris Committee. Juan-Carlos owns a B.S. in Aerospace Engineering from the Madrid’s Polytechnic University and a MSc. in Aerospace Engineering from the Institut Supérieur de l’Aéronautique et de l’Espace (ISAE).
China launched its manned space programme in 1992 and has been implementing it following the “three-step” strategy. So far, all the objectives of the first- and second-step have been achieved with great success. In June 2016, China conducted the debut flight mission of the Long March 7 (CZ-7) carrier rocket towards constructing its manned space station for the third step. The mission also involved the inauguration of the new Wenchang Space Launch Center, located at the Hainan Island in south China. The main payload for this mission was a scaled-down version of a next generation crew vehicle that was successfully recovered in Inner Mongolia after a short orbital flight. It has been already scheduled to launch TG-2 space lab in the middle of September 2016, just several days before the opening of the IAC in Guadalajara, which will be followed by the Shenzhou-11 manned space flight mission in October 2016. Details in progress of CZ-7 and TG-2 missions will be highlighted. China will construct its manned space station on orbit from 2018 and put it into operation in around 2022. The station modules, construction plan, and experiment facilities on board will be presented in detail.

China’s space station will be allowed for international cooperation in the areas of jointly developing the station platform, flying experiments by scientists from all over the world, selecting, training and flying foreign astronauts to the station, and promoting existing human space technology and facilities with a view to contributing to the sustainable development of our Earth planet.

Among others, China Manned Space Agency and the United Nations Office for Outer Space Affairs have signed the Framework Agreement and the Funding Agreement concerning cooperation on the utilization of China’s Space Station. Under the framework of the agreements, the both parties will work together to provide United Nations Member States with opportunities to fly their space experiments, their astronauts and/or payload engineers on board China’s Space Station. Details pertaining to this collaboration will be explained.

**Organized by:**
China Manned Space Agency

**Speaker:**
Zhonggui Wang  
*Deputy Designer,*  
China Manned Space Programme  
China

Dr. WANG Zhonggui is the Deputy Designer of China manned space programme. He is mainly in charge of the overall design of the engineering programme as a whole, and the overall technical work of the manned spacecraft system, cargo spacecraft system, Telemetry, Tracking and Command (TT&C) system, and flight control, as well as the technical coordination among these systems for the smooth development of the programme.

**Moderator:**

Ming Li  
*Vice President*  
China Academy of Space Technology (CAST)  
China

Mr. Li Ming is a member of IAF IPC Steering Group. He is a member of International Academy of Astronautics. He is the Vice President and Chairman of Science & Technology Committee of China Academy of Space Technology (CAST). He is also the Chairman of Space System Expert Group of CNSA.
Notes