

Lecturers of the SpaceTech programme

Dr. Franz TESCHL ■ Academic Programme Lead & Lecturer

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Associate professor for Antennas and Microwave Propagation at TU Graz,
Institute of Communication Networks and Satellite Communications

Franz Teschl studied Information and Communication Engineering at Graz University of Technology (TU Graz), Austria. He received his Master and PhD degrees in 2001 and 2005, respectively. From 2003 to 2014, he was a researcher in the Weather Radar and Microwave Propagation Group of TU Graz. From 2007 to 2014, he was also senior scientist at the Institute of Information and Communication Technologies at JOANNEUM RESEARCH, Graz. Since 2014, he holds a tenure track research and teaching position at the Institute of Communication Networks and Satellite Communications at TU Graz, where he was, among other duties, responsible for design, manufacturing and testing of the communication antennas of OPS-SAT – an ESA nanosatellite mission devoted to demonstrating improved mission control capabilities. Franz Teschl's research interests are focused on satellite communications systems, tropospheric wave propagation, satellite-to-indoor/satellite-to-mobile propagation as well as precipitation modelling.



Franz Teschl was a visiting scientist at Politecnico di Milano, Italy (Dipartimento di Elettronica, Informazione e Bioingegneria) in 2015, 2016, and 2020. Since 2012 he is an Austrian delegate in the Study Group 3 (Radiowave Propagation) of the International Telecommunication Union. He is deputy head of the URSI Austria Commission C – Radio Communication and Signal Processing Systems. Since 2020 he is an associate professor at TU Graz for Antennas and Microwave Propagation.

Dr. Wiley LARSON ■ Programme Director, Lecturer & Coach

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Experienced leader in space systems engineering and project management, design, development, operations, education and talent development. Served 20 years in the Air Force as a GPS spacecraft engineer, spacecraft launch controller, flight test engineer, spacecraft program manager and associate professor of Astronautics, at the Air Force Academy.

Wiley Larson is Managing Editor of the Space Technology Series (Coyote Enterprises, Inc), where he created an integrated set of about 30 published books on space system engineering, detailing “how to” design, develop, launch and operate space systems. Actively researching space and launch system technologies focused on affordable spaceflight.



Wiley Larson is also Distinguished Service Professor at Stevens Institute of Technology in New Jersey, and responsible for the development of the Space Systems Engineering Program there. He is worldwide consultant to Governments, industry and academia for development of space systems engineering expertise and the overall practice of systems engineering. Wiley acted as Professor and Programme Director of the SpaceTech programme at TU Delft, and now at TU Graz. Current efforts are focused on Space Domain Awareness, Cyber Security and AI for Space Systems Engineering.

Uli W. FRICKE ■ Lecturer & Coach

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Uli is the founder of Triangle Venture Capital Group. As an investor, she focuses on internet and media-related software companies.

In addition to her work at Triangle, Uli served as Chairwoman of Invest Europe (formerly the European Private Equity and Venture Capital Association EVCA) in 2010-2011. She was also named the most powerful person in private equity for 2010 by REAL DEALS and has been recognised by Dow Jones as one of the 100 most influential women in Europe's finance industry.



She currently serves as chairman of the board of iPharro, SemEO and semafora. She is also the CEO of FunderNation, Germany's only crowdinvesting platform that is run by a team of investment professionals. Uli is member of the Space-Tech Advisory Council, the aws Seed Financing Board in Vienna, the Kuratorium of Fraunhofer IMW in Leipzig and the iCapital Evaluation Jury of the European Commission.

Uli was one of the pioneers in the early internet days, programming BTX (the German internet predecessor) back in 1988. She graduated at the age of 21 from the University of Applied Sciences, Worms with an MBA.

Uli is an unflinching optimist and an entrepreneur to the core – so it's best not tell her something "does not work"! In her leisure time Uli enjoys mountainbiking, snowboarding and cooking.

Dr. Reinhold BERTRAND ■ Lecturer & Coach

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Reinhold Bertrand is professor at the Technical University of Darmstadt, Institute of Flight Systems and Automatic Control and acts in the Space group. Furthermore, he is cooperation professor of ESA at TU Darmstadt and works as Senior Research and Technology Manager at the ESA Space Safety Programme Office at ESOC Darmstadt.



Born in 1964, he studied aerospace engineering at Stuttgart University and the „Ecole Nationale Supérieure de l'Aéronautique et de l'Espace“ (ENSAE, nowadays ISAE) in Toulouse/France. He graduated in 1991 („Dipl.-Ing“). After a first professional year in France, he joined the Space Systems Institute at Stuttgart University as a research engineer, where he got his doctoral degree „Dr.-Ing“ on the subject of „Conceptual Design and Flight Simulation of Space Stations“. From 1997 to 2004 he conducted the space systems design and robotics activities at von Hoerner & Sulger GmbH (Schwetzingen/Germany), before he joined the European Space Agency ESA/ESOC. Today, he is heading the Research and Technology Management Office in Darmstadt, being in charge of managing all R&D activities at ESOC.

Prof. Dr. Bertrand has a multi-year experience in academic, industrial and institutional sectors of space. His focus has been on design, development and simulation of complex space systems, addressing small satellites, space stations, as well as robotic systems for planetary and interplanetary exploration. He has a more than 20 year experience of academic teaching and was supporting respective lectures and workshops in an international context (ENSAE/ISAE Toulouse, International Space University Strasbourg). He is co-author of several book publications on space stations and space systems design.

Dr. Jeffrey AUSTIN ■ Lecturer and Coach

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Jeff Austin is currently a Partner in Redline Leadership Associates, an international firm that specializes in leadership and management development, strategy, and team effectiveness. His consulting work includes over thirty years involvement with executives and project managers across industries, with a recent focus in the space industry, including teaching for TU Graz's SpaceTech (previously at TU Delft) for the past 26 years. Jeff has extensive experience with leadership curriculum design and delivery, organizational design and feedback, executive coaching, leadership development, and strategic planning.



His corporate experience includes seven years at TSSI, the nation's largest provider of power mobility equipment to the elderly and disabled, where he was SVP, People. As a senior executive, he had responsibility for Human Resources, Corporate Communications, Corporate Operations, Learning and Organizational Development and the internal Corporate University that partnered with local Universities to award Masters and Undergraduate degrees. Under Jeff's leadership, TSSI's unique culture was twice awarded membership on Fortune's prestigious **Best 100 Companies to Work For list** as well as achieving Inc 500's designation in **Top 100 Fastest Growing Companies** list for five year's running. Prior to TSSI, Jeff was Assistant Vice President for Leadership and Organizational Development at United Services Automobile Association (USAA).

Before his corporate career, Jeff was Director of Research Applications for the Air Force's Leadership and Management Development Center. He finished his Air Force career as a tenured professor and Deputy Head for the Department of Behavioral Sciences and Leadership at the US Air Force Academy where he taught a variety of leadership and psychology courses.

Clients Jeff has worked with include:

- ExxonMobil
- Center for Creative Leadership
- The European Consortium for Advanced Training in Aerospace (ECATA)
- RSA Medical Group
- Air Force Small Business Administration
- Eastern Space and Missile Center
- NASA Kennedy, Johnson, and Ames
- ESA/JRC GNSS SummerSchool
- Hq Air Force Space Command
- Stevens Institute of Technology
- Triangle Venture Capital and its portfolio of companies

Jeff holds a PhD and a BA in Psychology from Florida State University, and a MA from University of North Dakota in Counseling Psychology.

Brandon BAILEY ▪ Lecturer

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Brandon Bailey is a principal engineer for the Cybersecurity and Advanced Platforms Subdivision (CAPS) at The Aerospace Corporation. In this role, Bailey has focused on developing a cyber range to support penetration testing training and in-the-lab evaluation of customers' implementations, performing vulnerability assessments and penetration testing activities for multiple customers as well as performing cybersecurity research on ground systems and spacecraft systems to better position the federal government with respect to protection of our critical space infrastructure.



While at Aerospace, Bailey has also led the development of the space-focused tactic, technique, and procedures (TTPs) framework called Space Attack Research and Tactic Analysis (SPARTA), which launched in October 2022. SPARTA is intended to provide unclassified information to space professionals about how spacecraft may be compromised via cyber means. The matrix/framework defines and categorizes commonly identified activities that contribute to spacecraft compromises as well as their countermeasures. SPARTA is the continued maturation of a report published in April of 2021 titled Cybersecurity Protections for Spacecraft: A Threat Based Approach, which outlines concepts of defense-in-depth protection necessary to protect spacecraft and presents a threat-oriented approach to space cyber risk assessment.

While at Aerospace, Bailey has also led the development of the space-focused tactic, technique, and procedures (TTPs) framework called Space Attack Research and Tactic Analysis (SPARTA), which launched in October 2022. SPARTA is intended to provide unclassified information to space professionals about how spacecraft may be compromised via cyber means. The matrix/framework defines and categorizes commonly identified activities that contribute to spacecraft compromises as well as their countermeasures. SPARTA is the continued maturation of a report published in April of 2021 titled Cybersecurity Protections for Spacecraft: A Threat Based Approach, which outlines concepts of defense-in-depth protection necessary to protect spacecraft and presents a threat-oriented approach to space cyber risk assessment.

Bailey holds a bachelor's degree in electrical engineering from West Virginia University, where he graduated first in the class among the College of Engineering and Mineral Resources graduates. Bailey also holds several industry cybersecurity certifications. He has received numerous corporate and performance awards throughout his career, with the most noteworthy being NASA's Exceptional Service Medal (2019) for groundbreaking cyber work, the Agency Honor Award (2019) for the Enterprise Protection Program (EPP), and NASA's Early Career Achievement Award (2016). Bailey was also a member of software development team that received honorable mention at NASA's 2012 and 2016 Software of the Year competition.

Christophe Bonnal ▪ Lecturer

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Graduated from the French Engineer School Centrale-Lille in 1983, Christophe Bonnal spent 10 years in Aerospatiale, now ArianeGroup, before joining CNES in 2003. After 30 years at CNES, first at Launcher Directorate, then Strategy Directorate, he joined MaiaSpace in 2024, a startup in charge of the development of a small launcher, as Senior System Expert.



Christophe has worked on all the European launchers since the beginning, first with technical studies on Ariane 4, then on some future studies as the Automated Transfer Vehicle ATV before being part of the complete

development of Ariane 5, in charge of system tests, including maiden flights of the large European launcher. He then headed the future launchers division for 8 years before going back to the technical directorate as chief engineer.

Since 1987, Christophe Bonnal is in charge of the hot topic of space debris. He has been French delegate to the IADC (Inter Agency Space Debris Coordination Committee) during 30 years, and is currently French delegate to the ISO branch in charge of the subject (International Standardization Organization) and ECSS (European Normalization entity). He is currently co-chair of the IAA Space Debris Committee (International Academy of Astronautics) and of the IAF Technical Committee on Space Traffic Management (International Astronautical Federation).

Author or co-author of more than 280 publications and conferences (90 Peer reviewed), 13 patents, 6 awards, Christophe is co-editor of the professional journal Acta Astronautica, as well as the AIAA Journal of Spacecraft and Rockets.

He teaches astronautics, launcher technologies and space sustainability topics in a dozen of European Universities and engineer schools; he also acts as expert for program evaluation for ERC and numerous other entities.

Dr. Lionel PERRET ▪ Lecturer

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Lionel Perret received the engineer diploma from "Ecole Centrale de Lyon" in 1986, as well as a PhD in acoustics and vibrations from Lyon University of Sciences.

In 1987, he began working at CNES in Structures and Mechanics Department, in charge of vibroacoustic and fluid-structures coupling predictions softwares development for space applications. In 1990-1991, he worked for Hélios 1 project on satellite mechanical and thermal qualification. From 1992 to 1995, he worked for Hélios 2 program on satellite and high resolution instrument thermo-mechanical design. From 1995 to 1997, he participated to R&D CNES internal development of a new compact telescope generation for middle and high resolution optical applications, which led to a functional prototype with demonstrated performances, preparing the SPOT follow on systems. In 1997, he joined the 3S (SPOT Follow on System) project as system performances engineer, and at the same time conducted a federated R&D action of a new and more performant image chain, based upon onboard/on ground performances optimization. The main issue was to release onboard constraints thanks to ground extended image processing. Then, from 2000 to 2011, he had been Satellite Manager of the Earth Observation Pléiades program. He managed the satellite realization contract with Prime contractors Airbus DS and Thales Alenia Space, as well as the launcher contract with ARIANESPACE Company.

In 2011, he took the lead of the CNES optical very high resolution technological ground demonstrator OTOS program, aimed to prepare the next generation of very high performances French and European Earth Observation systems (Pléiades Follow On). Since 2014, he has been in charge of new generations of EO optical programs, aiming to reduce cost through a small satellites based constellation approach. In 2017, he started as project manager the CO3D Program dedicated to worldwide digital elevation models through a low cost 4 optical satellites constellation. The program has yet entered D phase, launch is planned mid 2023.

Since many years, he participates to many reviews as chairman, and in the follow-up of the development of export industrial Earth Observation systems as senior expert. He is invited lecturer in several schools and universities (ISAE, ENSTA, SpaceTech).



Dr. Roger FJØRTOFT ■ Lecturer

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Roger Fjørtoft received the M.S. degree in electronics from the Norwegian Institute of Technology, Trondheim, Norway, in 1993, and the Ph.D. degree in signal processing, image processing, and communications from Institut National Polytechnique, Toulouse, France, in 1999.

He was a Senior Research Scientist with the Norwegian Computing Center, Oslo, Norway, from 2000 to 2003, and since then, has been with the French Space Agency, Centre National d'Etudes Spatiales (CNES), Toulouse, France. He is currently with the Radar Algorithms, Processing and Products Department, where he leads the development of algorithms for operational processing of HR InSAR data from the upcoming SWOT mission, prepared jointly by NASA/JPL, and CNES.



Dr. Alejandro BOHÉ ■ Lecturer

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Alejandro BOHÉ graduated in 2007 as an engineer of the Ecole Polytechnique (France), where he majored in physics. He obtained his Masters degree in theoretical physics from the Ecole Normale Supérieure Ulm Paris in 2008 and his PhD in theoretical physics and astrophysics from the University Paris Diderot in 2011. The focus of his research during this period was on high energy phenomena producing gravitational waves in the early universe. He then held postdoctoral positions at the Institut d'Astrophysique (Paris, France), at the University of the Balearic Islands (Palma, Spain) and the Max Planck Institute for Gravitational Physics (Potsdam, Germany) where his work was dedicated to the theoretical modeling of the gravitational wave signal emitted by black holes merging together. Alejandro was a member of the international LIGO collaboration between 2013 and 2017 and contributed during that time to the development of the data analysis pipelines that were used for the first ever detection of gravitational waves in 2015.



Alejandro joined the Centre Nationale d'Etudes Spatiales (CNES Toulouse, France) in 2017 and has been working since then in the Radar Algorithms, Processing and Products Department on different aspects of radar processing. His main focus is on the development of the algorithms which will be applied to process the data collected by the joint NASA JPL/CNES Surface Water Ocean Topography (SWOT) upcoming mission. The main instrument on-board SWOT is an innovative interferometric radar which will allow for altimetric measurements over the ocean and over land water with an unprecedented resolution. Alejandro is also involved in improving existing algorithms to process altimetric data from the current constellation of nadir altimeters, as well as on developing simulators for radar data.

Winfried POSSELT ■ Lecturer

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Winfried Posselt received his Diploma in Physics in 1984 from the Technical University in Munich, Germany. In 1984 he joined MBB, Ottobrunn, and worked on the improvement of optical tracking systems in the optronics department. From 1987 – 1988 he did operations research at Dornier Systems in Friedrichshafen.

In 1988 W. Posselt joined the optical department of Astrium GmbH, Ottobrunn. As spectrometer expert he was responsible as study manager or system engineer for the definition, conception, design and early development of several optical spectrometers for Earth observation and science. Among others, he was heading the definition and design phases of MIPAS on ENVISAT and of NIRSpec on the James Webb Space Telescope.

In 2010 he joined OHB System in Bremen where he started as Payload Technical Responsible for the Meteosat Sounder Satellites MTG-S. Since 2012 he is involved as system/performance engineer or consultant in the early development phases of various optical payloads. Major milestones were performance engineering for PLATO, system engineering for Next Generation Hyperspectral and Earth Explorer 9 FORUM and currently Instrument Architect for Sentinel 3 AOLCI and EE 11 CAIRT.

His current assignment at OHB is Senior Expert Optical Payloads.



Nicolas PICOT ■ Lecturer

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Nicolas PICOT received an engineer diploma from "Ecole Nationale Supérieure d'Ingenieur en Constructions Aeronautiques" in 1990 (space options).

In 1990, he entered the "Institut National des Sciences de l'Univers", as research-engineer in CNES for the TOPEX/Poseidon project, mainly working on validation techniques and ionosphere modelization using Doris signals. He was involved in the CalVal phases of ERS1 and Topex/Poseidon projects.

In 1996, he entered the CNES TOPEX/POSEIDON project team as responsible for product processing, quality and altimetry expertise. He was so involved in the development of the ground processing center for Jason-1 and ENVISAT (altimetry payload) projects. He has then conducted the same activity for Jason-2, Jason-3, SARAL and other altimetric missions. He is now the CNES responsible for Sentinel3 project and involved in the development of the SWOT project.



Jérôme D'OLIVEIRA ■ Lecturer

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Lieutenant-colonel Jérôme D'Oliveira is a French officer of the Air and Space Force. Graduated from the French air force academy in 2002 and from ISAé/Supaéro in 2008, Jérôme D'Oliveira has served in several units and abroad. From 2002 to 2006, he was assigned at Orange air force base, as engineer in charge of the maintenance of the Mirage 2000 aircraft. In 2008, he went back to the French air force academy as a teacher in thermodynamics and propulsion.



In 2011, he was assigned in the US Air Force Academy, Colorado Springs (USA). Exchange officer, he taught flight mechanics and thermodynamics. After one year in the staff college at the Ecole militaire in Paris, he took over in 2016 the military team responsible for the definition of the need and the reception of earth observation and eavesdropping space systems. Located in Creil, this team known as "*Equipe de marque des programmes spatiaux*" had at that time 3 main tasks: finalization of the arrival of the EO system MUSIS/CSO for which the 1st satellite was launched in 2018, the setting up of the eavesdropping system CERES, and the definition of the post-CSO system, known today as IRIS.

In 2018, he was assigned at the military center for Earth observation "*Centre militaire d'observation par satellites*", in Creil also. With more than 120 personnels, this center is the main space unit of the armed forces and its mission is unique. Permanently in relation with the mission ground segments in Toulouse (CNES) or in Italy and Germany, this center is in charge of all the military EO systems for the armed forces: MUSIS/CSO, Hélios 2, Pléiades (dual system), Cosmo-Skymed (Italian dual system), SAR-Lupe (German military system). Deputy of this unit, he is currently the head of this center since July 2020.

Dr. Donny M. AMINOU ■ Lecturer

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1984 : Master degree in Electrical Engineering (Université Aix-Marseille)

1987 : PhD in Physics (Laser & Optics) from Université d'Aix-Marseille

1987 - 1988 : Post-Doc at University of Colorado Boulder (Opto-electronic computing system Centre) and lecturer for graduate students in Electrical Engineering.

1989 - 1993 : In industry working in Optical Instruments including: Night vision, Laser optics, Lidar and imaging remote sensing instruments (Alpine Research Optics and Ball Aerospace)



Since 06/1993 In ESA, where he started on ENVISAT as MIPAS Performance and Testing Engineer, he spent 1.5 years. Then he was transferred to Meteosat Second Generation (MSG) project as the SEVIRI instrument Principal Engineer. After a successful launch and commissioning phase of MSG and as soon as MSG-1&2 became operational at EUMETSAT (2003 & 2005), he started working fully on future EO missions and in particular on Meteosat Third Generation (MTG) activities (from mid-2004).

Since then, MTG is finishing phase C/D with launch planned for end November 2022 for MTG-I1. Dr. Aminou's actual position is the Payload Product Manager of the MTG phase Programme, where he is responsible of the management of MTG mission payloads' design and developments. He has published many papers in remote sensing, namely on MSG and MTG satellite series.

John MURTAGH ■ Lecturer

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John Murtagh is an Earth observation industry professional. He is the Head of Strategy for the Intelligence programme unit of Airbus Defence and Space, a leading supplier of satellite imagery and related defence solutions.

Since joining Airbus in 1992, John has undertaken a wide range of roles and is now a key executive member driving Intelligence strategies focused on new digital transformation services and platform initiatives. He has worked in over 30 countries on all continents since joining Airbus and brings a unique perspective from the global customer vantage point.

Mr. Murtagh received his undergraduate degree from King's College London and graduated with an MSc in Remote Sensing from Imperial College / University College London. He also has an MA in Marketing, an MBA in Strategy and attended the International Space University. Prior to joining Airbus, John worked for BP Exploration.



Céline L'HELGUEN ■ Lecturer

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Céline L'HELGUEN graduated in 2010 as an engineer of the ISAE SUPAERO (Institut Supérieur de l'Aéronautique et de l'Espace, France). She obtained her Master of Science in Oceanography from the Southampton University (United Kingdom) in 2011.

Celine joined the Centre National d'Etudes Spatiales (CNES Toulouse, France) in 2013 and has been working since then for the development of image processing chains in ground segments, dedicated to optical missions. She is today part of the CNES CO3D (Composante Optique 3D) team, in charge of the development of the operational image processing chain. She is also in charge of the development of a generic library for geometric modelling of acquisitions from remote sensors.



Dr. John PAFFETT ■ Lecturer

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John is managing director of KISPE Limited, a specialist project engineering, system design and implementation company working in the space, telecommunications and electronics industries. He is also the founder of Applied Space Solutions Limited a company focussed on the provision of space related analytics, applications and services.

John has proven engineering, management, strategic, business and business development skills, with a track record of working with international space industry partners in securing new business opportunities and delivering projects.

The former Director of Telecommunications, Navigation and Launch services, for the small satellite manufacture Surrey Satellite Technology Limited (SSTL), and Chief Executive Officer of the groups US subsidiary (SST-US), he is accustomed to interfacing with senior officials in the international space community and skilled at developing innovative approaches to meet challenging space business needs.

He has a wealth of experience, in the set-up, growth, acquisition, divestment, management and operation of businesses.



Dr. Philipp BERGLEZ ■ Lecturer

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Philipp Berglez is since 2021 a professor at Graz University of Technology where he leads the working group navigation of the Institute of Geodesy. He studied Geomatics Science at TU Graz from 2000 to 2006. He started his research career at Graz Technical University as scientific assistant in the field of navigation and completed his doctorate in technical sciences with distinction in 2013.

Philipp Berglez moved in 2010 to TeleConsult Austria GmbH, where he first worked as a project manager and development engineer and finally as managing partner and CTO. From 2019 till 2021 he worked as CTO of OHB Digital Solutions GmbH, where he was mainly dealing with national and international R&D projects in the area of GNSS applications and algorithm development for GNSS simulation systems and GNSS software-based receivers. He is focusing on positioning algorithms, GNSS simulations and GNSS software-based receivers. His research interests lie in the areas of innovative positioning algorithms, GNSS signal and data processing, software-based GNSS receivers and cooperative GNSS applications. He is author and co-author of numerous scientific publications.



Dr. Norbert KÜHTREIBER ■ Lecturer

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Norbert Kührtreiber has received his Dipl.-Ing. (1984) and Ph.D. (1990) degrees in Surveying from the University of Technology Graz, Austria. From 1984 to 2002 he was member of the Institute of Physical Geodesy at the University of Technology in Graz. In 2002 he became a professor of Physical Geodesy. Since 2002 he is a member of the Working group of Navigation within the Institute of Geodesy at the University of Technology in Graz.

His research activities and interests are the data combination for the determination of the gravity field (geoid) and the integration of GPS and IMU measurements for precise trajectory determination. Since 1985 he is holding lectures on various topics such as time series analysis, least squares adjustment, statistics, physical geodesy, reference systems, geomathematics, data quality analysis and inertial navigation. He has been member of several national and European projects as senior researcher as well as project manager e.g. "IMUVar – GRAVIS: Terrestrial Moving-Base Gravimetry Using a GNSS/SINS Platform", "Ski jumping: Precise trajectory and velocity determination in ski jumping" and the ESA-Project "Matist: Monitoring Alpine Transportation Infrastructures using Space Techniques".



Dr. Michel BOUSQUET ▪ Lecturer

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Michel Bousquet is a retired Professor from ISAE-SUPAERO, the French Institute of Higher Education on Aerospace Engineering, where he was Vice-Dean Master programmes, and was heading post-graduate aerospace communications research and education programmes.

He has a long experience in organizing (and lecturing in) technical courses or workshops in the fields of satellite communications, spacecraft engineering, space systems. With forty years of teaching and research experience, participation to several European and ESA R&D projects, his field of expertise covers many aspects of space systems (orbits, air interface, payload and platform architectures, system engineering...). He is an Affiliate Professor at Telecom ParisTech, a Emeritus Faculty of the International Space University (ISU), a module director of the SpaceTech master programme lead by TU Graz.



He has authored or co-authored many papers in the areas of satellite communications or navigation systems, and textbooks, such as "Satellite Communications Systems". He has been standing on the boards of several European programmes (COST, SatNEx Network of Excellence...), and he plays an active role in promoting R&D results from European universities and industry through participation in Technical Committees of international conferences. He is the recipient of the 2019 AIAA Aerospace Communication Award, "for his outstanding contribution and promotion of education and proliferation of knowledge on aerospace communication and navigation".

Dr. Manfred WITTIG ▪ Lecturer

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Manfred Wittig has a PhD from Technical University Stuttgart and a Diploma in telecommunications engineering at Technical University of Berlin. He did an apprenticeship as telecommunications technician in Hannover.

Experience

- Development of microwave and optical communications payloads for a 3U Cubesat
- Founder and CEO of MEW-Aerospace UG
- 25 years in European Space Agency (1986-2011) until retirement.
- Significant exposure to strategic Space/Aeronautics technology Issues:
 - Led ESA project managers for advanced communication satellite technology developments at European and Canadian space industry.
 - Pioneering work on Ka-band utilization in Europe.
 - Particular competence in the field of on-board processing technology and laser space communication techniques.
 - Established the new ESA mission of EDRS as the new project for European data relay services for GMES and future Earth Observation satellite fleets.



- Defined and executed research programmes as Senior Project Manager roles in SatCom, Laser Communications, Lunar and Martian exploration and Security
- Communication part of exploration In-depth understanding of ESA institutional, financial and regulatory environment and instruments, involved in international cooperation negotiations
- Member of the IEEE Communications Society, Member of the Space Communication and Navigation Committee (SCAN) of the International Astronautical Federation (IAF)
- Lecturer at TU Delft's SpaceTech Master Course on Space Systems Engineering.

Scientific Background

- Battelle Institute in Frankfurt in the field of free space laser communications
- Institute for Navigation of University Stuttgart: communication, navigation and Earth Observation.
- Institute for Aerospace Engineering of Technical University of Berlin in the field of communication, earth observation and lasercom.
- Heinrich Hertz Institute for Communications Technology in the field of two-way data communications

Dr. Otto Koudelka ■ Lecturer

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Otto Koudelka was born in 1954 in Bruck/Mur in Austria. He studied Electrical Engineering at Graz University of Technology, Austria, and received the Masters Degree in 1980 and the PhD degree in 1986 with honours in communications engineering from TU Graz. The "Habilitation" was received in 1993. In 1994 he became Associate Professor.

In 1990 he carried out research work in the area of satellite internetworking at the Rutherford-Appleton Laboratory in the UK. From 1999 – 2000 he was Visiting Professor at the University of Kansas (USA) where he was involved in broadband wireless networking. In 2002 he became Full Professor in Communications Engineering at Graz University of Technology and Head of the Institute of Communication Networks and Satellite Communications at TU Graz. From 2002 – 2012 he was also Director of the Institute of Applied Systems Technology, respectively the Space and Acoustics Group within Joanneum Research, the second-largest non-university research organisation in Austria. His research and teaching activities are in the fields of satellite/terrestrial broadband wireless communications and Space experiments. He has been project manager for numerous Space projects under contracts by European Space Agency, the European Cooperation for Science and Technology (COST), EU Framework Programs (FP3 and HORIZON2020) and industry.



source: S. Furgler

He is Principal Investigator for the BRITE-Austria nanosatellite mission, the first Austrian satellite, successfully launched in 2013 and still delivering excellent science results. The purpose of this satellite is the measurement of the brightness variation of massive luminous stars. He was responsible for two new nanosatellite developments: OPS-SAT is an ESA technology mission to demonstrate novel operational concepts and to carry out a variety of communications and software experiments in Space. It was successfully launched in December 2019. PRETTY to be launched in 2023) is another ESA project whereby altimetry (using GNSS signals) and dosimetry shall be demonstrated in Space.

He has been active in several working and advisory groups of European Space Agency as well as member of program committees for numerous international conferences and evaluator for the Framework Programs of the EU. He is full member of the International Academy of Astronautics IAA. Until 2021 he was Director of SpaceTech, a unique postgraduate master's programme at TU Graz. He joined the IAF Space Communications and Navigation Committee (SCAN) in 2002 and has been serving as chair from 2007 – 2018. From 2016 – 2018 he was IAF Vice President for Communications, respectively for Technical Activities and member of the Bureau. He is now Chair of the IAF Space Universities Administrative Committee (SUAC). He is author or co-author of more than 150 publications.

Otto Koudelka retired in September 2021 and is now acting as independent Aerospace Consultant. He also continues to lecture for SpaceTech and the International Space University.

Glyn THOMAS ■ Lecturer

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Lead Telecom Engineer at Airbus Defence and Space, Portsmouth

Glyn has the role of lead engineer for the key Airbus programme: Enhanced Mobile Broadband and Very High throughput Satellites. This programme includes the development of new generation of digital processors, active antennas, preparation for future MILSATCOM missions and the extension of our E3000 NEO platform to higher power.

Glyn is a Senior Expert in flexible, processed and HTS payloads, and is using this capacity to co-ordinate an end to end approach to the design development and specification of end to end future flexible high throughput payloads.

Glyn was deputy chief engineer for Airbus Defence and Space payload equipment's division during the period 2010 to 2014. Glyn previously managed research and development where he generated a number of key patents in the fields of flexible communications payloads.

Prior to this Glyn worked in both systems engineering and microwave design roles on the RADARSAT 2 Synthetic Aperture Radar system. Glyn graduated from St. Andrews University with a degree in theoretical Physics and also holds a Master's degree in Microwave Solid State Physics.



Marco LANUCARA ■ Lecturer

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Head of Systems and Project Support Section, ESA ESOC

Marco Lanucara received the Laurea degree Cum Laude in electronic engineering in 1994 from "La Sapienza" University of Rome, Italy. In 2000, he joined the European Space Agency.

Since 2010, he is the head of the System and Project Support section, within the Ground Station Systems division at ESOC, in Darmstadt, Germany.

His main interests are with space link communications system aspects and associated performance modelling, as well as with statistical signal processing.



Dr. Jens KRAUSE ■ Lecturer

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Senior Manager, Systems Engineering at SES S.A. in Luxembourg

Jens Krause was born in Werdohl, Germany, in 1963. He received the Dipl.-Ing. degree in 1987 and the Ph.D. (Dr.-Ing) degree in 1993, both in electrical engineering from Universität Karlsruhe, Germany.

He has held a scientific employee position at the Institute for Communications Technology, University of Karlsruhe, from 1988 to 1993. From 1994 to 1996 he has been an R&D engineer in the CATV department of Richard Hirschmann GmbH in Germany. Since 1996 he works at the satellite fleet operator SES S.A. in Luxembourg, with positions in systems engineering and RF engineering.

Jens Krause represents SES in standardization organisations including ETSI and DVB. He participates in R&D projects in cooperation with University of Luxembourg. His areas of interest and expertise include satellite communications in general, modulation and coding, satellite broadband, satellite broadcast, antennas for satellite communications, RF technology, regulatory matters, technical standardisation.



Dr. Alberto GINESI ■ Lecturer

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Head of the Telecom. Systems & Techniques Section, D/TQM, ESTEC

A. Ginesi was born in Parma, Italy, in November 1967. He received the Dr. Ing. Cum Laude) and Ph.D degrees in electronic engineering from University of Pisa, Italy, in 1993 and 1998, respectively. In 1996-1997 he spent one year at Carleton University, Ottawa, Canada, and performing research on digital transmissions for wireless applications. In 1997, he joined Nortel Networks and in 2000 Catena Networks, both in Ottawa, Canada, where he worked on Digital Subscriber Loop (DSL) technologies and contributed to the definition of the second-generation ADSL standards within the ITU-R standardization body.

Since 2002 he joined ESA Research and Technology Centre (ESTEC), Noordwijk, The Netherlands, where he is currently covering the position of the Head of the Telecommunication Systems & Techniques Section of the Technical and Quality Management Directorate and is responsible for the R&D of satellite telecommunication systems. His main research interests lie in the area of advanced digital communication systems and techniques from theory to HW implementation.

A. Ginesi is co-author of more than 70 scientific publications and more than 20 international patents on subjects covering both DSL and satellite communication systems.



Martina ANGELONE ▪ Lecturer

System Engineer and HTS Expert at D/TIA, ESTEC, Noordwijk

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Martina Angelone received her M.S. degree (summa cum laude) in Telecommunication Engineering from the University of Pisa, Italy, in 2008. In 2009 she joined M.B.I. s.r.l., an ICT company in Pisa, as a communication system engineer, working on DVB-SH developments.



She joined European Space Agency (ESA) in 2010 at the European Space Research and Technology Centre (ESTEC), Noordwijk, The Netherlands, in the Communication systems and techniques section of the RF Payload system division. She has been responsible of many R&D ARTES projects related to high throughput satellite systems, successfully developing technologies to improve Satellite Communications, focusing on end-to-end performance analysis. She has also actively contributed to several standardization technical groups including DVB-S2X and DVB-RCS2. She has been responsible of several Advanced Research in Telecommunications Systems (ARTES) projects related to broadband satellite systems, high throughput satellites, advanced interference mitigation techniques as well as for the development of hardware for high rate TT&C applications. She has contributed to several standardization technical groups including DVB-S2X and DVB-RCS2.

In August 2018 she joined the Future Projects Division of the Telecommunication and Integrated Application (TIA) Directorate as System Engineer of the IRIS programme, supporting the development of a secure satellite-based air-ground communication system for Air Traffic Management (ATM) in line with the European Commission's Aviation Strategy. In her current role she is responsible for all the system aspects concerning Iris project implementation, and she is involved in several European and Global aviation standardisation groups within EUROCAE and ICAO, contributing to define the future technologies for Aeronautical mobile-satellite services.

Dr. Jürgen SCHLUTZ ■ Lecturer

Lunar Analog Facility, ESA European Astronaut Center (EAC), Cologne

Contact email: Juergen.Schlutz@esa.int

Jürgen Schlutz is a German aerospace engineer with a solid background in human spaceflight and systems engineering. He currently works at the European Space Agency (ESA) where he is responsible for the development and utilisation of the LUNA analog facility at the European Astronaut Centre in Cologne. He also leads the Moon Strategy Team that defines the future ESA priorities and projects for the exploration of the Moon in the context of an integrated exploration strategy.



He has been involved closely in the International Space Exploration Coordination Group (ISECG), contributing to international discussions on future exploration planning and the development/ refinement of the Global Exploration Roadmap.

Jürgen Schlutz studied aerospace engineering at the University of Stuttgart, Germany, and the University of Sydney, Australia. He earned a PhD from the University of Stuttgart for his research on conceptual architectures for lunar exploration and on tools for lunar surface infrastructure design and performance assessment. He continues to lecture on Space Stations and Astronautics & Space Exploration at the University of Stuttgart and at the SpaceTech programme.

Jürgen Schlutz also engages to share the fascination of human spaceflight in the public. He is the founder and managing director of ISSABOVE.EU, distributing a private mini-control centre for the ISS that provides live HD video from the ISS and lots of additional information on the space station. For more than 10 years he has been organizing yearly space events (Yuri's Night) in Stuttgart and Cologne that have attracted thousands of visitors.

Jürgen has a son and lives with his family in Cologne, Germany. In his free time, he enjoys sports, reading and traveling.

Dr. Florian RENK ■ Lecturer

European Space Operations Center (ESOC) of ESA, Darmstadt

Contact email: Florian.Renk@esa.int

Florian Renk is the Head of the Mission Analysis Section at the European Space Operations Centre (ESOC) in Darmstadt, Germany. His main focus is on libration point missions towards the Sun-Earth as well as the Earth-Moon libration points and in addition he is also supporting the mission analysis for future exploration missions towards the Moon and beyond (European Large Logistics Lander, now known as Argonaut). In recent years he worked on the Herschel, Planck, Gaia, Lisa Pathfinder and JWST trajectory analysis and future libration point mission projects include, Plato, Ariel and Athena as well as support to the Euclid project, due for launch in 2023. He participated in the deep space navigation of the ExoMars 2016 mission. He coordinates the research activities in the flight dynamics domain and supports the ESOC Innovation Committee.



Florian holds a PhD in aerospace engineering. The topic of his thesis was: "Mission Analysis for Exploration Missions Utilizing Near-Earth Libration Points". Besides his dedication for all kind of libration point missions his research interest include space system engineering, space exploration mission design and human spaceflight.

Dr. Markus BRAUN ■ Lecturer

Head of the German Space Life Sciences Programme at DLR, Bonn

Contact email: M.Braun@dlr.de

Markus Braun is the Head of the German Space Life Sciences Programme of the Space Agency at DLR, the German Aerospace Center, Bonn, Germany. He is responsible for the management and strategic planning of German space research activities in biology, bioregenerative life support, biotechnology, human physiology and biomedicine. He also serves as head of the German delegation for the Exploration Programme Board (EUB) of the European Space Agency ESA and as co-chair of the International Space Life Sciences Working Group (ISLSWG).



Dr. Braun studied biology at the University of Bonn, Germany, and the National University of Canberra, Australia. He earned a PhD in biology with special focus on gravitational biology and gravity-sensing mechanisms. In 1999, he was appointed Faculty Scholar at Bonn University. He has an academic career as lecturer, team leader, mentor and science coordinator for Space Life Sciences Research at the Universities of Bonn, Erlangen and Canberra and still continued his academic activities when he joined DLR.

During his whole career, his interests were related to the questions of how gravity is affecting physical, chemical and biological processes, how nature was shaped by gravity and how life and physical processes are modified in Space, on Moon, Mars and other exploration destinations. He has done studies on numerous parabolic flight and sounding rocket (TEXUS/MAXUS) campaigns as well as on ISS, Space-Shuttles and satellite missions in USA, Russia, China, Sweden, and France. He enjoys inspiring the public and students, has promoted international collaborations with scientists from various disciplines and countries. A special focus in recent years was on preparing the German science strategy and research instrumentation for the upcoming exploration era.

Markus Braun is the author of about 100 scientific publications, He earned the Thora Halstead Young Investigatory Award of the American Society for Gravitational and Space Research (ASGSR) in 2002. Markus has two children and lives with his family in Sankt Augustin near Bonn.

Dr. Stefan BELZ ■ Lecturer

Space Expert and Lord Mayor in Böblingen, Germany

Contact email: Stefan.Belz@posteo.de

Stefan Belz was a scientific researcher and worked at the Institute of Space Systems at the University of Stuttgart until March 2018. He holds a PhD in aerospace engineering and led the research group of Life Support & Energy Systems. Advanced life support system investigation, fuel cell and electrolysis integration in space systems and utilization of hydrogen as well as combination with biological systems like photobioreactors for algae cultivation were his research areas.



His activities included the development of a photobioreactor spaceflight experiment aboard the International Space Station ISS, based on previous parabolic flight experiment studies, as well as different projects supported by DLR (German Aerospace Agency), Airbus, EU (Horizon 2020) and Boysen Foundation. He gives lectures in the field of human spaceflight, power systems and arranged fuel cell lab trainings for students. After elections in his home town, Stefan Belz is now working as Lord Mayor in Böblingen since April 2018.

Frank DE WINNE ■ Lecturer

Astronaut and Head of ESA's European Astronaut Centre in Cologne

Contact email: Frank.De.Winne@esa.int

Frank De Winne was born in Ghent, Belgium on 25 April 1961. He is married to Lena Clarke and has three children. He enjoys football, fishing and gastronomy.



Education

1979: graduated from the Royal School of Cadets, Lier, Belgium

1984: awarded the AIA Prize for the best thesis on his master's degree in telecommunications and civil engineering from the Royal Military Academy, Brussels, Belgium

1991: completed the Staff Course at the Defence College in Brussels, gaining the highest distinction

1992: graduated from the Empire Test Pilot's School in Boscombe Down, United Kingdom, where he was awarded the McKenna Trophy.

Experience

After completing his pilot training with the Belgian Air Force in 1986, Frank flew Mirage V aircraft. He was detached to SAGEM in Paris, France in 1989 where he worked on the Mirage Safety Improvement Programme. He was responsible for preparing operational and technical specifications.

In December 1992, Frank was appointed to the Test and Evaluation branch of the Belgian Air Force. As a test pilot, he was involved in an electronic warfare programme on the F16 called CARAPACE at Eglin Air Force Base, USA, and a Self-Protection Programme for the C130 aircraft. During that period, he also flew from Gosselies in Charleroi, Belgium, as a reception pilot in different types of aircraft.

From January 1994 to April 1995, Frank was responsible for the flight safety programme of the 1st Fighter Wing at Beauvechain, Belgium. From April 1995 to July 1996, as a senior test pilot in the European Participating Air Forces when he was detached to Edwards Air Force Base, California, USA, he worked on an update of the F16 aircraft, focusing on radar testing.

From 1996 to August 1998, Frank was a senior test pilot in the Belgian Air Force, responsible for all test programmes and for all pilot-vehicle interfaces for aircraft and aircraft software updates.

From August 1998 to January 2000, Frank was the Squadron Commander of the 349th Fighter Squadron at Kleine Brogel Airbase, Belgium. During operation Allied Force, Frank was the detachment commander of the Deployable Air Task Force, a combined Belgian/Dutch detachment that flew about 2000 sorties during the NATO campaign. Frank has logged 17 combat sorties. Frank has logged more than 2300 hours flying time on several high-performance aircraft, including the Mirage, F16, Jaguar and Tornado.

In January 2000, Frank joined ESA's Astronaut Corps based at the European Astronaut Centre in Cologne, Germany. He provided technical support for the X38 Crew Return Vehicle project, located at ESA's research and technology centre, ESTEC, in Noordwijk, the Netherlands.

Spaceflight experience

From 30 October to 10 November 2002, Frank flew the Odissea mission, a support flight to the International Space Station. He served as a flight engineer on the updated Soyuz TMA spacecraft on launch, and on a Soyuz TM for reentry. Frank's prime task of the 11-day mission was to replace the Soyuz TM-34 vehicle attached to the Space Station with the new Soyuz TMA-1.

During his nine days spent on the Space Station, Frank ran 23 experiments in life and physical sciences and education, including experiments in Europe's Microgravity Science Glovebox. The mission was sponsored by the Belgian Federal Office for Scientific, Technical and Cultural Affairs.

From 27 May to 1 December 2009 Frank was sent on the Oasiss mission, a long-duration flight to the International Space Station. As part of Expedition 21 Frank became the first European commander of the orbital outpost. He was also Soyuz TMA-15 and Expedition 20 flight engineer.

One of Frank's key tasks during the mission was to operate the Station's robotic arm to dock Japan's first HTV cargo vehicle. He was also the main operator of the Japanese robotic arm, used to transfer experiments to Japan's external payload facility on the country's Kibo Laboratory. More than 1000 crew hours were dedicated to science. Special events were also held to support UNICEF's Belgium WaSH (Water, Sanitation and Hygiene) campaign.

After his mission, Frank chaired the technical committee of the second EU-ESA Space Exploration Conference in Brussels in 2010.

Current assignment

Frank became Head of ESA's European Astronaut Centre in Cologne, Germany on 1 August 2012. Since 2017, he has been in charge of International Space Station (ISS) operations at ESA, and in 2020 became ESA's ISS Programme Manager.

LEO Exploration Group Leader, Directorate of Human & Robotic Exploration (HRE)

Dr.-Ing. Daniel SCHUBERT ■ Lecturer

Institute of Space Systems, EDEN Initiative, DLR Bremen

Contact email: Daniel.Schubert@dlr.de

Dr.-Ing. Daniel Schubert studied at the Technical University of Berlin and has an engineering diploma in industrial engineering with an emphasis on aerospace and production techniques.

In 2011, he initiated the EDEN group at the DLR Institute of Space Systems for technology investigations on Bio-regenerative Life Support Systems and since served as the team leader of this group. His research expertise is set on habitat interface analysis and plant accommodation and dynamic plant production planning.

Throughout many projects for ESA, EU, Bundesministerium für Bildung und Forschung (BMBF), Wirtschaftsförderung Bremen (WfB), Dr. Schubert proved his management- and team leading skills. Outstanding is the EDEN ISS project. He led this project with 15 international partners, including the organization of the deployment mission of the greenhouse system at the Antarctic research station Neumayer III in 2017/18.



Dr. Rüdiger SEINE ■ Lecturer

Lead of the Space Training Team, European Astronaut Center, Cologne

Contact email: Ruediger.Seine@esa.int



Education

- 1985 – 1991 M.Sc. in Biology (Diplom), University of Bonn
- 1992 – 1996 Ph. D. in science, University of Bonn, Research field work in Africa

Professional record

- 1988 – 1992 Assistantships, University of Bonn
- 1996 – 1999 Member of scientific staff, Botanic Institute, University of Bonn
Duties: teaching; research; co-ordination of national and international projects; editorial work
- 1999 - 2009 Member of scientific staff, DLR
Positions: Payload Training Engineer (1999 - 2002), Columbus Systems Training Engineer (2002 - 2007), Increment Training Lead (2007-2009)
Duties: development of training facilities; initial training development & maintenance; training implementation for Astronauts & Ground Support Personnel; Team Lead for industrial instructors; Lead for 1E Integrated Simulations; multilateral coordination of system training for ISS; ESA Training responsible for STS 107, Odissea, Inc 18, 23/24, Eurocom
- 2009 - 2010 Senior Astronaut Training Engineer, ESA
Duties: Increment Training Lead, ESA representative in Increment Training Integration WG & Joint Multi Segment Training WG, coordination of Crew Assignments in Crew Task Panel, Eurocom, management of Crew & Flight Controller training and certification
- 2010 - 2014 Head of ISS Increment Training Unit, ESA
Duties: ESA Training Service Lead for IOT contract, Co-Chair of Training Control Board, ESA representative in Expedition Training Integration Panel, Increment Training Integration WG, member of International Training Control Board, Procurement of Training Facility upgrades, update of training concepts to changing priorities & budget
- since 2014 Lead of the Space Training Team, ESA
Duties: management of all ESA ISS Training activities for Astronauts & Ground Support Personnel, management of ESA Operations Data File, Baseline Data Collecting implementation, ESA Representative for International Training Control Board & ODF Control Board, member of the Multilateral Crew Operations Panel.

Dr. Dieter SABATH ■ Lecturer

Spacecraft Operations Manager at DLR GSOC, Oberpfaffenhofen

Contact email: Dieter.Sabath@dlr.de

Dr.-Ing. Dieter Sabath is with DLR since 2004.

Assignment: Spacecraft Operations Manager

Education: Master of Science – Aerospace Engineering, Technical University Munich

Ph.D. in Aerospace Engineering, Technical University Munich

Current Position: Team Leader “Human Spaceflight” at DLR/GSOC

Experience: 1989 – 1996
Assistant Professor – Space Technology, Technical University of Munich
1996 – 2004
MAN Technologie AG, Program Manager and System Engineer
2004 – today
Work at DLR Oberpfaffenhofen for Columbus operations preparation and execution.



Dr. Barbara IMHOF ■ Lecturer

Space Architect and Designer

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Barbara Imhof is a co-founder, Managing Partner and co-owner of LIQUIFER Vienna – Bremen. She is a space architect, design researcher, and educator.

Her work focuses on designing for extreme environments and space. She combines two main work paths: one is about designing systems, mission elements and habitats for living beyond the earth’s atmosphere and the other path is integrating biology into architecture. She enjoys working across disciplines including in the realm of the arts.

She has pioneered the field of ‘space architecture’ in Europe and is a founding member of the American Institute of Aeronautics and Astronautics (AIAA) Space Architecture Technical Committee (SATC). She has been teaching at renowned institutes in Europe and the United States, for 20+ years. Educated in Vienna, London, Los Angeles and Strasbourg, Barbara has multiple degrees including a PhD.



Franco FENOGLIO ■ Lecturer

Contact email: Franco.Fenoglio@thalesaleniaspace.com

After the graduation in Nuclear Engineering at the Turin Polytechnic, he joined Thales Alenia Space (at that time Aeritalia) in February 1990 and since then he has always worked in the Company in Turin.

Franco started his professional career in the Engineering division dealing with specifications and design of components and equipment for the thermal and environmental control of space vehicles (Hermes, MPLM programs), moving then to architectural development of thermal and environmental control at subsystem level in the frame of the European CTV (Crew Transfer Vehicle) program. For CTV, he spent one year as Alenia Space resident in Daimler Benz Aerospace in Ottobrun (D) and subsequently in Aerospatiale Bordeaux (F).



After one year and a half of colocation in NASA JSC for the X-38 program (as Alenia Space representative in an ESA team working in collaboration with NASA), in the late 1990s he took on the role of Systems Engineering Manager (SEM) of the ISS Nodes 2 and 3, becoming then Chief Engineer of Node 3 which he technically led for almost a decade until the final six months of ground processing campaign at NASA KSC which preceded the launch with the Space Shuttle in February 2010. After the ISS experience, he worked for a couple of years on ESA Space Exploration Scenario Studies before starting, as technical lead, the Orion's European Service Module for the thermo-mechanical elements under Thales Alenia Space responsibility.

In mid-2014 he moved from Engineering to the Bid & Program Management of TAS Domain Exploration and Science Italy and was appointed as Manager of the Exploration Advanced Projects Unit, role that he maintained until end 2016 when he was promoted Head of Human Space Exploration Programs (the unit which included basically all the Human Spaceflight programs in implementation phase at TAS, like ISS Exploitation, Cygnus, Orion ESM, Exomars,..) as well as the new proposals and initiatives for human exploration (like the Lunar Gateway that he started for Thales Alenia Space in 2016).

Since January 2020, after a Domain internal reorganization, he holds the role of Head of the Human Planetary Exploration Unit which involves the human spaceflight programs beyond LEO (Low Earth Orbit), currently focused primarily on Moon orbital and surface missions like the Gateway ESA I-HAB and ESPRIT, the collaboration to US Human Landing System, the new initiatives for moon surface habitats with the Italian Space Agency.

During his professional career he has had many interrelationships and worked with several major International Space Agencies (NASA, ESA, ASI,..) and with large industrial companies (Boeing, Lockheed Martin, Orbital ATK, Airbus DS).

Dr. Hend KAMOUN-ROSENKO ■ Lecturer

Executive assistant of the Head of Space Exploration and Head of Site Bremen at Airbus Defence and Space

Contact email: Hend.Lamoun@airbus.com

Hend Kamoun-Rosenko graduated in aerospace engineering at the University of Stuttgart in 2008. Then she started a PhD at the Institute of Aerospace Thermodynamics (ITLR) at the University of Stuttgart. During the PhD she was responsible for two projects in cooperation with the European Space Agency (ESA). The aim of her thesis is the experimental and numerical study of the injection of superheated liquid in near vacuum conditions. The studied phenomenon is called “flashing”. This occurs during the start-up of upper-stage engines of Ariane 5.

After the PhD, in June 2013, Hend started working for Airbus DS Bremen for the Orion-ESM program. She was responsible for Orion-ESM propulsion subsystem performance prediction. And beginning of 2019 she became responsible for On Time, On Cost and On Quality delivery of the complete ESM propulsion subsystem. During this two years she was leading a multifunctional team of more than 20 members. Since end of 2020, she is the executive assistant to Head of Space Exploration at Airbus Defence and Space.



Dr. Aidan COWLEY ■ Lecturer

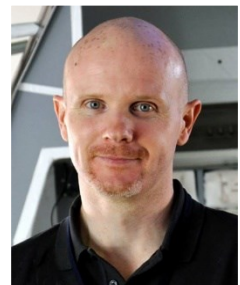
Science Officer at European Astronaut Center EAC, Cologne

Contact email: Aidan.Cowley@esa.int

Aidan Cowley received his B.Sc in Computer Applications and M.Eng in Electronic Systems from Dublin City University, Ireland, in 2004 and 2005 respectively, and a Ph.D in 2011.

Subsequently he went on to work as a researcher and lecturer at the National Centre for Plasma Science and Technology (NCPST), Dublin City University, Ireland. There, his research activities included novel optoelectronic materials, thermoelectrics, plasma deposition and metrology as well as renewable energy systems.

In 2014, Dr. Cowley joined the European Space Agency as a Research Fellow, stationed at the European Astronaut Centre in Cologne, Germany, and in 2017 became a Science Advisor there. There he is part of the Exploration Preparation, Research and Technology Team (ExPeRT), researching and developing technologies and concepts for future human spaceflight activities and leads the ‘Spaceship’ initiatives of ESA.



Loredana BESSONE ■ Lecturer

Astronaut Instructor at European Astronaut Center EAC, Cologne

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Loredana holds a MS in Computer Science from the University of Turin, in 1991 and a MS in Space System Engineering from the Technical University of Delft, TopTech Studies in 2001. She developed her Master Thesis at CERN, in Geneva, and joined the European Space Agency in 1990.

From 1994 to 1997 Loredana worked within the European project and then mission operations teams for the preparation and execution of the EUROMIR94, EUROMIR95 and MIR97 missions, as responsible for the onboard Payload and Crew Support Computer (PCSC) and SYSLAP multipurpose facilities.

Since 1998 to 2017 Loredana has developed, trained and managed Instructional Technologies and Instructor Training standards, training and IT infrastructure for ESA Astronaut and Ground Control Personnel (GSP) training for the International Space Station (ISS).

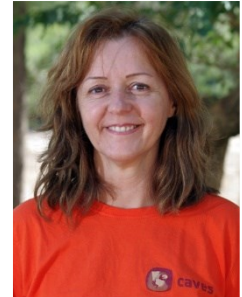
From 2001 to 2004 Loredana joined the ESA Space Exploration Preparatory Programme AURORA, and became responsible of the Human Mars Mission studies, conducted with European industry and in the ESA Concurrent Design Facility.

Since 2004 Loredana is responsible of astronaut operational skills (including outdoor and survival training) and Human Behaviour and Performance (HBP) training for ESA astronauts, Columbus GSP and ESA ISS instructors, and from 2006 to 2016 she has trained the overwinter teams of the French-Italian Antarctic station Concordia on team dynamics in isolated, confined environments.

From 2004 to 2007 Loredana co-developed an ESA underwater familiarization training course in the European Astronaut Centre Neutral Buoyancy Facility, to prepare ESA astronauts for International Space Station spacewalks.

Loredana has designed, developed and directs since 2011 the ESA CAVES Spaceflight Analogue and Human Behaviour and Performance training course for astronauts from all ISS Partner Agencies, an expeditionary training course in earth underground environments. Since 2016, she has developed in collaboration with some amongst the best European field planetary geologists a planetary geology course for ESA astronauts in earth analogue settings called PANGAEA (Planetary ANalogue Geology and Astrobiology Exercise for Astronauts), and Field Test Campaigns on Planetary Analogue environments (PANGAEA-X).

Author of papers on spaceflight and human performance training, operations, safety, exploration and spaceflight analogue environments, she contributed to the development of the ISS HBP competency model for long duration spaceflight.



Dr. Gerhard SCHWEHM ■ Lecturer

Retired Head of ESA Science Divisions, Scientist and Mission Manager

Contact email: Gerhard.Schwehm@gmail.com

Born: 13 March 1949 in Ludwigshafen/Rhein, Germany

Studied physics and mathematics at Universität des Saarlandes, Saarbrücken, and Ruhr-Universität, Bochum.

Dr.rer.nat. (Applied Physics), Ruhr-Universität Bochum (1979), Bereich Extraterrestrische Physik.



Professional Career:

1974 - 1983 Wissenschaftlicher Assistent (Assistant Professor) at RUB

1983 - 1985 ESOC, Support to the Preparation of the Giotto Halley Encounter

1985 joined ESA (ESTEC) as Scientist in the Space Science Department

2001 - 2007 Head of Planetary Missions Division at ESTEC

2007 - 2011 Head of Solar System Science Operations Division at ESAC, Madrid, Spain

2011 return to ESTEC

Retired from ESA on 31 March 2014

1985 - 1990 Deputy Project Scientist Giotto, Project Scientist for the Giotto Extended Mission

1985 Study Scientist for the Planetary Cornerstone Mission: Comet-Nucleus Sample Return (Rosetta)

1995 - 2006 Rosetta Project Scientist

2004 - 2013 Rosetta Mission Manager

Mission Manager for SMART 1 and ESA's contribution to Cassini-Huygens

Co-Investigator with Dust Instruments on Helios1/2 (from 1972)

Instrument Manager for ZLE: the Interplanetary Dust Photopolarimeter for the NASA Ulysses S/C (mission was cancelled in 1982)

Co-Investigator on the Ulysses, Giotto, Cassini Dust Experiments with the team from the MPI for Cosmo-Physics in Heidelberg

Co-I for NASA's ill-fated CONTOUR Mission

Former Member of the Interagency Space Debris Working Group, ESA's Planetary Protection Working Group and ESA representative on NASA Planetary Protection Sub-group

Member Committee on Planetary Protection of the National Academies of Science, Engineering and Medicine (since 2020)

Member International Academy of Astronautics (Vice-Chair Commission 1 Space Sciences)

Member Advisory Board, Fraunhofer EMI, Freiburg (2007 - 2015)

Member Pfälzische Gesellschaft zur Förderung der Wissenschaften

Asteroid (13724) Schwehm

Dr. Roland Trautner ■ Lecturer

Engineer / Technical Officer at ESA ESTEC

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Dr. Roland Trautner was born in Aigen, Austria (1968). He received his M. Sc. in Telematics as well as his PhD in Telematics at Graz University of Technology in 1996 and 1999, respectively.



After working at the Institute for Space Research of the Austrian Academy of Sciences in the field of space instrumentation for missions such as Cassini-Huygens, he worked for the European Space Agency ESA first as a Research Fellow (1999-2001) and contractor (2001-2007), then as a staff member in the Electrical Engineering Department of the Directorate of Technical and Quality Management (2007 –2017) and in the Lunar Lander Team of the Directorate for Human Spaceflight and Robotic Exploration (2017 onwards).

He supported several ESA space science missions in the areas of scientific instrumentation, data systems and onboard payload data processing, and manages R&D activities in these areas. His contributions to ESA missions include instrument design and development, data calibration and testing (Huygens HASI/PWA instrument and radars, Rosetta lander MUPUS and SESAME), ground segment software, technical management and monitoring of scientific instrument development (Beagle2 payloads, ExoMars 2016 MicroARES, ExoMars 2020 payloads, Luna27 PROSPECT) and contributions to studies in areas related to future missions, payloads, and related technologies. He also worked on improvements in the application of ESA's IP policy and compiled ESA's 2016-2023 R&D roadmap for Onboard Payload Data Processing technology. Roland also served as reviewer / advisory board member of several EU FP7/H2020 projects.

Roland Trautner is an Alumni of the International Space University (SSP 2001) and Co-Investigator on several instruments / missions (Beagle2 Stereo Camera System, Rosetta Lander SESAME, ExoMars 2020 PanCam). He was a member of the project scientist teams on Huygens and Mars Express, member of the science operations team on Venus Express, and member of the ExoMars project P/L & AIV team. Today, he is the ESA development lead for the PROSPECT instruments, sensors and operations on Luna-27, and manages the development of ESA's Exospheric Mass Spectrometers (EMS-CLPS / EMS-LUPEX) for flight on the Astrobotic M1 lunar lander mission (2023) and on JAXA's LUPEX lunar rover mission (2025 TBC). Roland is author / co-author of more than 80 publications including peer-reviewed papers, book contributions and conference proceedings in areas including space science, space engineering, as well as related R&D and project management.

Dr. Irmgard MARBOE ■ Lecturer

Professor of International Law at University of Vienna

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Dr Irmgard Marboe is Professor of International Law at the Department of European, International and Comparative Law at the University of Vienna. She is the head of the National Point of Contact for Space Law (NPOC) of the European Centre for Space Law (ECSL). Between 2008 and 2013 she chaired the Working Group on National Space Legislation of the Legal Subcommittee of the UN Committee for the Peaceful Uses of Outer Space which led to the adoption of General Assembly Resolution 68/74 *Recommendation on national legislation relevant to the peaceful exploration and use of outer space* of 2013. Between 2009 and 2015, she was involved in the development of the Austrian Outer Space Act (2011) and the Austrian Outer Space Regulation (2015) counselling the Austrian Ministry for Transport, Innovation and Technology.

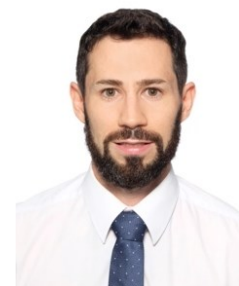


Her publications on space law include the edited volumes *Soft Law in Outer Space – The Importance of Non-Binding Norms in International Space Law* (Böhlau 2012) and *Small Satellites: Regulatory Challenges and Chances* (Brill/Nijhoff 2016). From September 2014 to March 2015 and in February 2016, she was a visiting scholar at Stanford University (USA). She is a member of the Directorate of Studies of the International Institute of Space Law (IISL), a member of the International Academy of Astronautics (IAA) and of the Committee on Space Law of the International Law Association (ILA). Other memberships include the German Society of International Law, the European Society of International Law (ESIL), and the American Society of International Law (ASIL). In 2016, she received the Distinguished Service Award from the International Institute of Space Law (IISL). Further research interests comprise international investment law and arbitration, where she focuses on the issue of damages and compensation, and Islamic law.

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Julien Serie is an airline pilot and a former SpaceTech graduate. With over 5000 flying hours and 15 years of experience in the aeronautic industry, he is currently working for Cathay Pacific Airways, operating long-haul and regional commercial flights on the Boeing 777. Previous experience in aviation includes low-level maritime surveillance operations, search and rescue and commercial pilot instruction.



His research at TU Graz as part of the SpaceTech master of engineering 2020 focused on space situation awareness, mission analysis and orbit analysis.

He is currently assisting the system engineering team at The Exploration Company as a Mission Analyst with a role focused on lunar transfer trajectories analysis and validation.