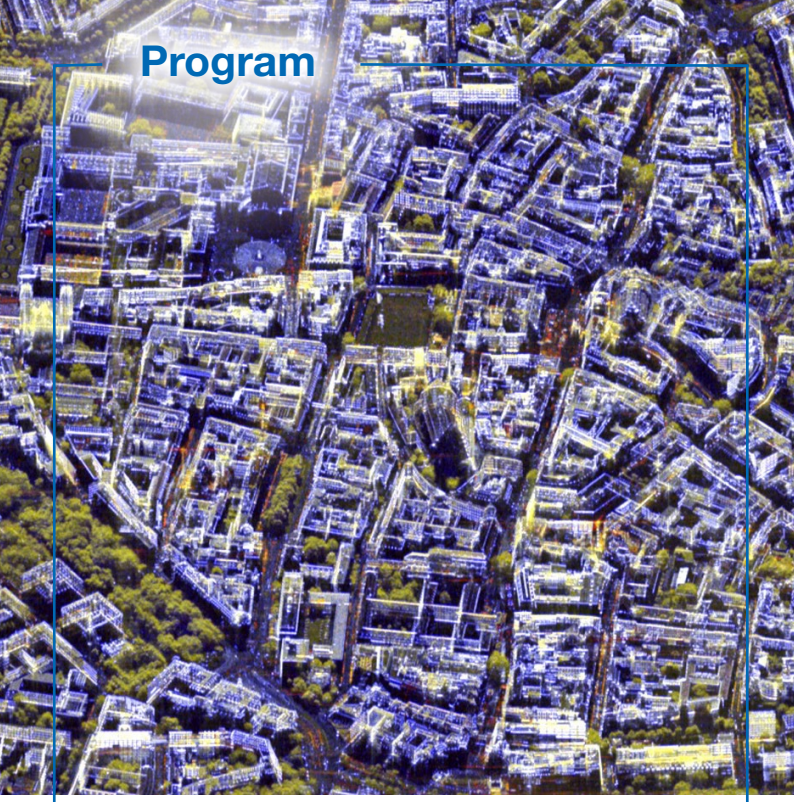
Program



EUSAR 2024

15th European Conference on Synthetic Aperture Radar

April 23 – 26, 2024,
Science Congress Center Munich, Germany

www.eusar.de

Organized by VDE ITG

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EUSAR 2024

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Welcome Message of the General Chairmen

It is a great pleasure for us to welcome you to EUSAR 2024 in Garching near Munich. This is the 15th European Conference on Synthetic Aperture Radar, which has been held every two years since 1996. Over the years EUSAR, the first dedicated conference on Synthetic Aperture Radar, has become the leading international event gathering world-class scientists and engineers working in the fields of SAR techniques, technology, and applications. EUSAR has accompanied the worldwide developments in high resolution imaging radar and has helped to establish an international community of SAR experts. We look forward to welcoming leading experts from various disciplines and from more than 35 countries to present almost 280 papers. It is the open spirit of this conference that will provide an excellent forum for exchanging information and discussions on a wide variety of SAR-related topics and latest developments.

SAR systems are today an indispensable data source for high-resolution 2D and 3D mapping, environmental and disaster monitoring as well as security related applications. Over the years, the number of SAR missions has increased significantly and there are currently more than 50 operational SAR satellites in orbit. Current SAR missions are operational and, in addition to their scientific exploitation, SAR data and products have gained a considerable share of the commercial EO markets. SAR techniques and information extraction have matured in various domains, enabling operational applications and services, like for example in the European Copernicus programme. Beyond the various sessions on current and future missions, SAR technology as well as imaging and processing techniques, the technical program also includes a number of sessions on data evaluation and applications in various fields.

The Science Congress Center Munich is located at the Garching campus of the Technical University of Munich. Via the local public transportation it is directly connected to the city centre of Munich. Munich - the capital of Bavaria - is a city with 850 years of history, full of culture, music, natural beauty, charm and hospitality. With a total population of around 1.6 million people Munich is the third largest city in Germany after Berlin and Hamburg. The city boasts attractive architecture, with palaces and churches, museums, theatres, nearby fairytale castles and idyllic mountain resorts in the Bavarian Alps. Munich is also a centre of high-tech science and home to four universities, research institutes, software companies, aerospace industry and various international companies, making it an ideal location for EUSAR 2024.

We look forward to welcoming you in Munich during EUSAR 2024.

Andreas Reigber and Manfred Zink, DLR e. V.
EUSAR 2024 General Chairmen

Welcome Message of the Technical Chairmen

On behalf of the Technical Program Committee, we are pleased to welcome you to the 15th European Conference on Synthetic Aperture Radar (EUSAR 2024) in Munich, Germany. The conference will bring together experts from academia, industry, and research organizations to discuss the latest developments and achievements in the field of synthetic aperture radar and its various applications in remote sensing.

The overwhelming response of more than 300 papers submitted by authors from 34 countries shows the popularity and importance of this international conference. All major fields of SAR are covered, including the latest results from SAR missions and systems, new SAR techniques and technologies, advanced SAR processing algorithms, SAR system calibration and validation, novel information retrieval algorithms and innovative applications. The submitted papers were reviewed by a technical program committee encompassing 129 internationally renowned SAR experts. Based on the reviewers' comments, 200 papers were selected for oral presentations in four parallel sessions and 75 papers for an interactive poster presentation.

After five tutorials on Tuesday, the conference starts on Wednesday morning with a plenary session featuring overview presentations from three distinguished keynote speakers: Henri Laur, Head of Mission Management and Product Quality Division in the Earth Observation Directorate of ESA, Lee-Lueng Fu, Senior Research Scientist at the Jet Propulsion Laboratory, and Rafal Modrzewski, CEO and Co-founder of ICEYE in Finland. Afterwards, four oral sessions will be held in parallel. By grouping the presentations into four categories and assigning them to different meeting rooms, we tried to minimize mutual overlaps as far as possible. Special attention should also be given to our poster session, which is scheduled for Wednesday evening together with our reception.

Prizes for the best oral paper, the best poster and the three best student papers will be awarded at the closing ceremony on Friday afternoon. The winners will be selected after careful evaluation by an independent awards committee led by Prof. Pierfrancesco Lombardo from Sapienza University of Rome. All papers received before the deadline and presented at the EUSAR conference will be included in the SCOPUS database and published both in the conference proceedings and in IEEE Xplore.

We would like to thank all authors for their contributions and the technical program committee for their timely and competent evaluation of the submitted papers. We also thank the invited session organizers for composing their sessions and evaluating the associated papers. Furthermore, we thank the session chairs for hosting their sessions and the awards committee for their thorough and independent evaluation. Special thanks also go to Jens Fischer, Simon Anger and Allan Bojarski for managing the EDAS database and their great support in interacting with the authors and session chairs.

We wish you all an inspiring conference participation full of lively discussions and new insights. We also hope that the conference will help to expand your network and renew friendships with your colleagues.

Enjoy your stay in Munich!

Gerhard Krieger and Michelangelo Villano, DLR e. V.
EUSAR 2024 Technical Chairmen

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Conference Topics

(A) SAR Systems and Sensors

A1 Spaceborne SAR Systems and Missions
A2 Airborne SAR Systems and Missions
A3 Ground-Based SAR
A4 Inverse SAR (ISAR)
A5 SAR System Simulation and Modeling
A6 Distributed SAR Systems and Missions
A7 Next Generation SAR Systems and Missions

(A) SAR Systems and Missions

A1 Spaceborne SAR Systems and Missions
A2 Airborne SAR Systems and Missions
A3 UAV-Based SAR Systems
A4 Ground-Based SAR
A5 Inverse SAR (ISAR)
A6 SAR System Simulation and Modeling
A7 Next Generation SAR Systems and Missions

(B) SAR Technology and Calibration

B1 Antennas
B2 Components and Subsystems
B3 Technology Demonstrations
B4 Advanced SAR Modes and Techniques
B5 Calibration and Verification
B6 Digital Beamforming
B7 Photonic and Quantum Radar

(C) SAR Processing

C1 SAR Image Generation, Motion Compensation and Geocoding
C2 ISAR Signal Processing
C3 Image Filtering, Correction, and Enhancement
C4 MTI; GMTI, and STAP
C5 Interferometry (Cross- & Along-Track, Differential, PS…)
C6 Tomography, Holography, and 4-D SAR
C7 Advanced Processing Techniques (Compressive Sensing, Multi-Aperture, MIMO, …)

(D) SAR Data Evaluation and Modeling

D1 Electromagnetic Modeling and Wave Propagation
D2 Polarimetry
D3 Polarimetric Interferometry
D4 Segmentation, Feature Extraction and Classification
D5 Product Validation, Data Fusion and Value Adding
D6 Machine Learning and Artificial Intelligence
D7 Quantum Computing

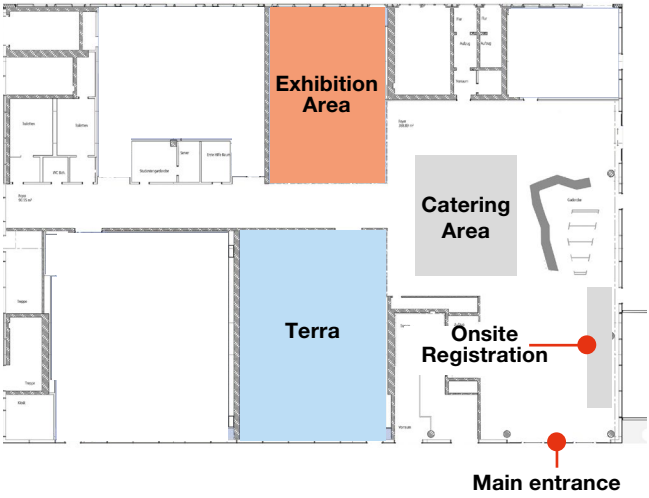
(E) SAR Applications

E1 Land Use and Land Cover
E2 Urban Areas
E3 Soil and Vegetation
E4 Maritime and Ocean
E5 Snow, Ice and Glaciers
E6 Topography and Solid Earth
E7 Surveillance, Security and Disaster
E8 Other Applications

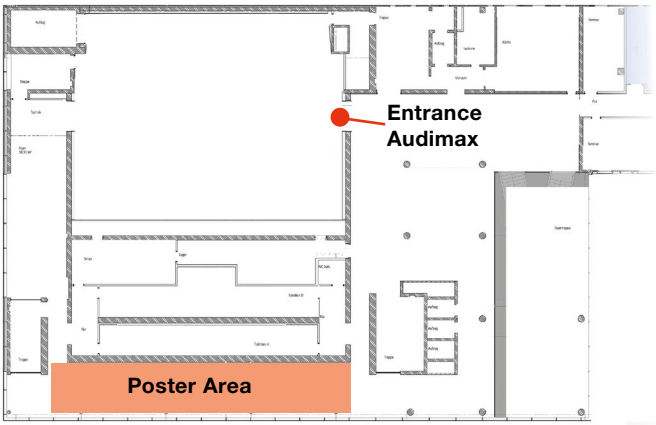
(F) Other SAR-Related Subjects

Overview of the Conference Rooms

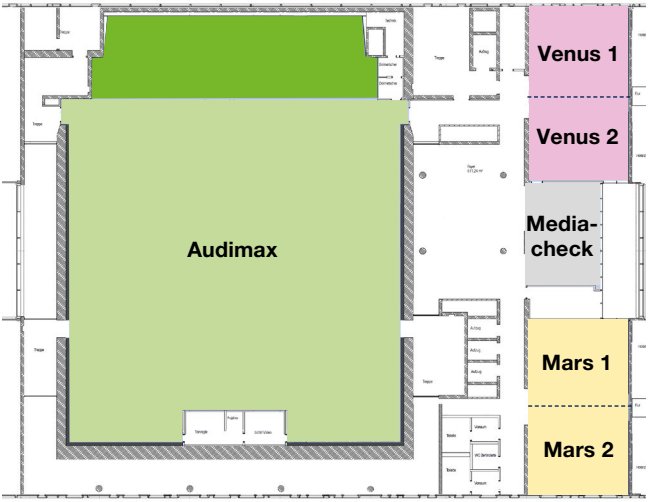
Foyer ground floor



Foyer 1st floor



Foyer 3rd floor



Time	AudiMax	Terra
Tuesday, April 23		
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Program Overview

Time	AudiMax	Terra
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09:40 – 10:10	Keynote II Lee-Lueng Fu p29	
10:10 – 10:40	Keynote III Rafal Modrzewski p30	
10:40 – 10:50	Program Overview p31	
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13:00 – 14:00	Foyer *Lunch Break & Networking*	
14:00 – 15:40	A.2: Copernicus and ESA Earth Explorer SAR Missions 2 (invited) p38	B.2: Bistatic and Multistatic SAR p39
15:40 – 16:10	Foyer *Coffee Break & Exhibition*	
16:10 – 17:50	A.3: ROSE-L p44	B.3: Data Compression and Despeckling p46
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C.3: SAR Imaging and Data Analysis p47	D.3: Water and Urban p48

Program Overview

Time	AudiMax	Terra
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11:10 – 12:50	A.5: Japanese SAR Program (invited) Missions 1 (invited) p74	B.5: Digital Beamforming / Multichannel SAR p75
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Time	AudiMax	Terra
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Venus	Mars
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Tuesday, April 23 — 09:00 – 15:30
Tutorials

Room: Venus 1

Tutorial 1: Differential SAR Interferometry

09:00	**Introduction into SAR Interferometry** *P. Prats (DLR e.V.)*
10:30	Coffee/Tea Break
11:00	**Differential SAR Interferometry** *A. Ferretti (TRE ALTAMIRA)*
12:30	Lunch Break
14:00	**SAR at Scale: Working with Large Volumes of Synthetic Aperture Radar Data** *F. Meyer & J.H. Kennedy (University of Alaska Fairbanks)*

Room: Venus 2

Tutorial 2: Multistatic and Multi-Aperture SAR Systems: Introduction and Applications

09:00	**Bistatic and Multistatic SAR** *F. Lopez-Dekker (TU Delft)*
10:30	Coffee/Tea Break
11:00	**Digital Beamforming for SAR** *M.Younis (DLR e.V.)*
12:30	Lunch Break
14:00	**SAR Concepts Based on Small Apertures** *M. Villano (DLR e.V.)*

Tuesday, April 23 09:00 – 15:30
Tutorials

Room: Mars 1

Tutorial 3: Polarimetric SAR, Polarimetric SAR Interferometry and Tomography

09:00	**Polarimetric SAR and Applications** *L. Ferro-Famil (University of Rennes)*
10:30	Coffee/Tea Break
11:00	**Pol-InSAR and Applications** *K. Papathanassiou (DLR e.V.)*
12:30	Lunch Break
14:00	**SAR Tomography** *M. Pardini (DLR e.V.)*

Room: Mars 2

Tutorial 4: SAR Exploitation Methods and Applications

09:00	**Machine Learning for SAR Processing - SAR image despeckling by deep learning** *Loïc Denis (Université de Saint-Etienne)*
10:30	Coffee/Tea Break
11:00	**Machine Learning for SAR Analysis - From fully- to self-supervised deep learning** *R. Hänsch (DLR e.V.)*
12:30	Lunch Break
14:00	**Machine Learning for SAR Applications – From SAR images to Earth observation products** *M. Schmitt (University of the Bundeswehr Munich)*

Room: Terra

	Tutorial 5: From Space-Based SAR Data to Earth Observation Services
09:00	**Welcome, introduction, and overview** *René Guenzkofer (NV5 Geospatial Solutions)*
09:30	**Setting the SAR benchmark with 24/7 global insights** *Sybrand van Beijma (Capella Space)*
10:00	**SAR simulation – extending the reality** *Giulia Tessari (sarmap) & Jürgen Schwarz (Capella Space)*
10:30	Coffee/Tea Break
11:00	**SAR for all - SAR solutions for all kind of users** *Thomas Bahr (NV5 Geospatial Solutions)*
11:30	**ENVI Inform – SAR-based insights worldwide** *David Burridge (NV5 Geospatial Solutions)*

12:00 **SAR for maritime - from worldwide monitoring to situational awareness**
Emlyn Hagen (NV5 Geospatial Solutions)

12:30 Lunch Break

14:00 **Operational applications of interferometric time-series analysis**
Giulia Tessari (sarmap)

14:30 **UAV based SAR solutions**
Paolo Pasquali (sarmap)

15:00 **Results from today´s SAR tasking**
Jürgen Schwarz (Capella Space)

15:15 **Summary & outlook**
René Guenzkofer (NV5 Geospatial Solutions)

Wednesday, April 24 09:00 – 11:20
Keynotes & Introduction

Room: AudiMax

09:00 **Welcome**
Andreas Reigber / Manfred Zink (DLR e. V.)

09:10 **Keynote I / Room: AudiMax**

Past, present and future owf SAR missions at ESA and their programmatic context
Henri Laur
Head of Mission Management and Product Quality Division, Directorate of Earth Observation Programmes, European Space Agency (ESA)

Henri Laur works with the Earth Observation programmes of the European Space Agency since 35 years.

Continuously in contact with the Earth Observation data users, starting in the 1990's with the pioneering use of the ERS satellites data, then as Envisat mission manager, Henri Laur is now responsible for the management of the Earth Observation missions operated by ESA, including the Copernicus Sentinel missions, the ESA Earth Explorer missions and the ESA Third Party missions with its growing availability of commercial data.

During those three decades of growth of the Earth Observation data user communities, both in quantity and diversity, Henri Laur gained experience with the continuous race between the increasing satellite data supply, in particular with SAR, and the equally increasing user demand, in particular from public services.

09:40 **Keynote II / Room: AudiMax**

A breakthrough of radar remote sensing of Earth's water: The Surface Water and Ocean Topography (SWOT) Mission

Lee-Lueng Fu
Senior Research Scientist, Jet Propulsion Laboratory (California Institute of Technology, Pasadena, USA)

Dr. Lee-Lueng Fu is a JPL Fellow and Senior Research Scientist.

He has been the Project Scientist for JPL's satellite altimetry missions since 1988, including TOPEX/Poseidon, Jason-1, and Jason-2. He is currently the Project Scientist for the Surface Water and Ocean Topography Mission (SWOT). He is a member of the U.S. National Academy of Engineering, and a Fellow of the American Geophysical Union, the American Meteorological Society, and the American Association for the Advancement of Science. He has received the COSPAR International Cooperation Medal for his leadership in the development and continuation of satellite altimetry missions.

10:10 **Keynote III / Room: AudiMax**

Future of the ICEYE SAR Constellation
Rafal Modrzewski
CEO & Co-founder of ICEYE, Finland

Rafal Modrzewski is the Chief Executive Officer and co-founder of ICEYE. ICEYE owns and operates the world's largest constellation of synthetic aperture radar (SAR) satellites.

The company provides timely and reliable Earth observation data as well as natural catastrophe solutions for companies and governments. ICEYE is the first company that has successfully miniaturized a SAR satellite, making it possible to launch more units to reliably image any location on Earth, every few hours, every day. With its growing SAR satellite constellation, ICEYE offers its partners a set of unprecedented satellite imaging capabilities, accessing any area of interest faster, more frequently, and at a lower cost.

Since co-founding the project in 2012, which became the company in 2014, with Pekka Laurila, Modrzewski is responsible for overseeing the organization's growth and implementing ICEYE's overall vision. Modrzewski brings with him deep domain expertise in SAR engineering, and he has received the 2018 Forbes 30 under 30 Technology award based on the world-first achievements of ICEYE.

Prior to co-founding ICEYE, Modrzewski researched innovative products at VTT (Technical Research Centre of Finland) in the RFID and wireless sensing group. He attended Warsaw University of Technology in Poland, where he studied Electrical Engineering and co-founded the Multimedia Technologies Science Group. Modrzewski continued his studies in Radio Science and Engineering at Aalto University where he led the on-board data handling team working on Aalto-1, Finland's first nanosatellite.

Wednesday, April 24 — 09:00 – 11:20
Keynotes & Introduction

Room: AudiMax

10:40 **Program Overview**
Gerhard Krieger /
Michelangelo Villano (DLR e. V.)

10:50 – 11:20 Coffee Break & Exhibition

Room: AudiMax

A.1 Copernicus and ESA Earth Explorer SAR Missions 1 (invited)
Chairs: Ramon Torres (European Space Agency & ESTEC, The Netherlands); Malcolm Davidson (ESA/ESTEC, The Netherlands)

11:20 **Sentinel-1 Next Generation: Enhanced C-band Data Continuity**
Ramon Torres (European Space Agency & ESTEC, The Netherlands); Dirk Geudtner (European Space Agency, The Netherlands); Malcolm Davidson (ESA/ESTEC, The Netherlands); David J Bibby, Ignacio Navas-Traver, Ana Garcia Hernandez, Gregory Laduree, Jelle Poupaert and Tobias Bollian (European Space Agency, The Netherlands); Stefan Graham (ESA, The Netherlands)

11:40 **ROSE-L - The Copernicus Expansion L-Band SAR Mission**
Lorenzo Iannini (European Space Agency, The Netherlands); Malcolm Davidson (ESA/ESTEC, The Netherlands); Steve Osborne (ESA, United Kingdom (Great Britain)); Nico Gebert (ESA/ESTEC, The Netherlands); Gianluigi Di Cosimo (European Space Agency ESTEC, Italy); Silvia Mezzasoma (ESA, The Netherlands); Daniele Petrolati (ESA ESTEC, European Space Agency, The Netherlands); Dawid Kazimierczak (GMV, Poland); Carlos de la Fuente Arranz (GMV, Spain); Angelo Miccoli and A Rojek (GMV, Poland); Luca Nardecchia (Thales Alenia Space Italia, France); Patrizio Pavia (Thales Alenia Space Italia, Italy)

12:00 **The Biomass SAR Instrument Protoflight Model (PFM)**
Thomas Fügen and Ulf Pohlkamp (Airbus Defence and Space GmbH, Germany); Carl Warren (Airbus Defense and Space Ltd., United Kingdom (Great Britain)); Adriano Carbone (European Space Agency / ESTEC, The Netherlands)

13:00 – 14:00 Lunch Break & Networking

12:20 **An overview of the Harmony SAR Instrument**
Ernesto Imbembo (European Space Agency, The Netherlands); Daniele Petrolati (ESA ESTEC, European Space Agency, The Netherlands); Florence Hélière (European Space Agency ESTEC, The Netherlands); Bjorn Rommen (Estec & European Space Agency, The Netherlands); Pedro Jurado Lozano and Oliver Mourra (Europ ean Space Agency, The Netherlands)

12:40 **InSAR contributions to water status retrieval**
Francesco De Zan (delta phi remote sensing GmbH, Germany)

Room: Terra

B.1 Distributed SAR
Chairs: Marc Rodriguez-Cassola (DLR, Germany); Valeria Gracheva (ESTEC-ESA, The Netherlands)

11:20 **A Concept for an Interferometric SAR Mission with Sub-daily Revisit**
Jalal Matar and Maria J. Sanjuan-Ferrer (German Aerospace Center (DLR), Germany); Marc Rodriguez-Cassola (DLR, Germany); Susan Steele-Dunne (Delft University of Technology, The Netherlands); Francesco De Zan (delta phi Remote Sensing GmbH, Germany)

11:40 **Using a Large Space-Variant Beamformer for Multistatic SAR Imaging**
Thomas Kraus (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Markus Bachmann and Alberto Moreira (German Aerospace Center (DLR), Germany)

13:00 – 14:00 Lunch Break & Networking

12:00 **Sub-band Adaptive Beam Former for Range Ambiguities Suppression in Multistatic SAR Constellations**
Nguyen Thi Phuong Mai (German Aerospace Center, Germany); Marc Rodriguez-Cassola and Gerhard Krieger (DLR, Germany)

12:20 **Investigation of Fixed Across-Track Baselines for Distributed Spaceborne SAR Systems**
Francesca Scala (German Aerospace Center DLR, Germany); Gerhard Krieger (DLR, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)

12:40 **A Model for the Derivation of Fuel Budgets in Multistatic SAR Formations**
Reuben Solomon Katz (Aeronautics Institute of Technology, Brazil); Jalal Matar (German Aerospace Center (DLR), Germany); Eduardo Rodrigues-Silva (German Aerospace Center DLR, Germany); Marc Rodriguez-Cassola (DLR, Germany); Felix Antreich (Aeronautics Institute of Technology (ITA), Brazil); Gerhard Krieger (DLR, Germany); Alberto Moreira (German Aerospace Center (DLR), Germany)

Room: Venus

C.1 On-Board SAR Processing (invited)
Chairs: Helko Breit (German Aerospace Center (DLR), Germany);
Martin Suess (ESA/ESTEC, The Netherlands)

11:20 **An Optimized FPGA Implementation of SAR Backprojection Autofocus**
Niklas Rother and Christian Fahnemann (Leibniz Universität Hannover, Germany); Holger Blume (Leibniz Universitaet Hannover, Germany)

13:00 – 14:00 Lunch Break & Networking

11:40 **In-orbit Demonstration of FPGA-based SAR Imaging and Compression Processor for Small Satellite**
Keisuke Sugawara and Satoru Ozawa (Japan Aerospace Exploration Agency, Japan); Hlitoshi Nohmi, Osamu Kujubub and Masanori Miyawaki (Alouette Technology Inc., Japan); Masahiko Uetsuhara, Yusuke Fukai and Ryosuke Takahira (Institute for Q-Shu Pioneers of Space Inc, Japan)

12:00 **Algorithm-specific Optimizations for On-Board Real-Time Backprojection on FPGA**
Helena Cruz and Paulo Flores (Instituto Superior Técnico - Universidade de Lisboa, Portugal); Mário Véstias (INESC-ID/ISEL/IPL, Portugal); José Monteiro (INESC-ID / IST, ULisboa, Portugal); Horácio Neto (Instituto Superior Técnico - Universidade de Lisboa, Portugal); Rui Policarpo Duarte (Instituto Superior de Engenharia de Lisboa, Portugal)

12:20 **Real Time Floating Point SAR Focusing on FPGA**
Srikanth Mandapati, Ulrich Balss and Helko Breit (German Aerospace Center (DLR), Germany)

12:40 **Spaceborne Digital Beamforming on the Universal Processing Module**
Malte Esslinger, Francisco Ceba Vega and Grzegorz Adamiuk (Airbus Defence and Space GmbH, Germany)

13:00 – 14:00 Lunch Break & Networking

Room: Mars

D.1 Snow and Soil
Chairs: Paola Rizzoli (German Aerospace Center (DLR), Germany); Marcos García Rodriguez (INTA, Spain)

11:20 **Model-based Analysis of Temporal PolInSAR Coherence Regions for Snow Water Equivalent Estimation**
Kristina Belinska (DLR, Germany); Georg Fischer (German Aerospace Center (DLR), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

11:40 **Snow Parameter Estimation Using Multiple Squint Differential InSAR: A Potential Application for the Harmony Mission**
Andreas Benedikter (German Aerospace Center (DLR) & University of Erlangen-Nuremberg, Germany); Kristina Belinska and Marc Rodriguez-Cassola (DLR, Germany); Pau Prats-Iraola (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

12:00 **On MIMO TomoSAR System for Snow Mapping**
Francesco Banda and Julien Marini (Aresys, Italy); Davide Giudici (Aresys srl, Italy); Stefano Tebaldini (Politecnico di Milano, Italy)

13:00 – 14:00 Lunch Break & Networking

12:20 **Analysis of Pol-InSAR coherence region parameters over a permafrost landscape**
Paloma Saporta (German Aerospace Center (DLR), Germany); Alberto Alonso-González (Universitat Politècnica de Catalunya, Spain); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

12:40 **Mapping subsurface scatterers from SAR backscatter time series**
Wolfgang Wagner (Technische Universität Wien & EODC Earth Observation Data Centre, Austria); Bernhard Raml, Roland Lindorfer, Martin Schobben, Samuel Massart and Mariette Vreugdenhil (Technische Universität Wien, Austria); Tobias Stachl (EODC, Austria); Senmao Cao (EODC Earth Observation Data Centre for Water Resources Monitoring GmbH, Austria); Tobias Ullmann (University of Würzburg, Germany)

13:00 – 14:00 Lunch Break & Networking

Room: AudiMax

A.2 Copernicus and ESA Earth Explorer SAR Missions 2 (invited)
Chairs: Malcolm Davidson (ESA/ESTEC, The Netherlands);
Ramon Torres (European Space Agency & ESTEC, The Netherlands)

14:00 **Sea Ice Monitoring: From Single-Sensor Imagery to Multi-Sensor Data Analysis**
Wolfgang Dierking (Alfred Wegener Institute (AWI) & UiT The Arctic University of Norway, Germany); Johannes Lohse (UiT The Arctic University of Norway, Norway); Nick Hughes (Norwegian Meteorological Institute, Norway); Malcolm Davidson (ESA/ESTEC, The Netherlands)

14:20 **Wide area ground motion data: lessons learnt and future perspectives**
Lorenzo Solari (European Environment Agency, Denmark); Thomas Lege, Andre Kalia (Federal Institute for Geosciences and Natural Resources, Germany); Riccardo Lanari (IREA-CNR, Italy); Andrew Hooper (COMET, School of Earth and Environment, University of Leeds, United Kingdom (Great Britain))

14:40 **Tropical Forest Height and Change Analysis with Multi-Baseline Polarimetric SAR Interferometry over Gabon**
Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

15:00 **Requirements from the Copernicus soil moisture and flood monitoring services for Sentinel-1 and ROSE-L mission operations**
Wolfgang Wagner (Technische Universität Wien & EODC Earth Observation Data Centre, Austria); Bernhard Bauer-Marschallinger, Florian Roth (Technische Universität Wien, Austria); Christian Briese, Christoph Reimer (EODC Earth Observation Data Centre, Austria); Roselyn Lacaze (HYGEOS, France); Michal Moroz (VITO, Belgium); Malcolm Davidson (ESA/ESTEC, The Netherlands)

15:40 – 16:10 Coffee Break & Exhibition

15:20 **Field experiments for InSAR retrieval of snow mass in preparation for Copernicus ROSE-L**
Thomas Nagler (ENVEO IT GmbH, Austria); Helmut Rott (ENVEO IT GmbH & University of Innsbruck, Austria); Stefan Scheiblauer (ENVEO IT, Austria); Ralf Horn, Jens Fischer and Alberto Moreira (German Aerospace Center (DLR), Germany); Julia Kubanek (ESA, The Netherlands)

Room: Terra

B.2 Bistatic and Multistatic SAR
Chairs: Paco Lopez Dekker (Delft University of Technology, The Netherlands); Alfredo Renga (University of Naples Federico II, Italy)

14:00 **Interferometric Calibration and Verification in LuTan-1 to Ensure the Global Digital Elevation Quality**
Jingwen Mou (Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Yu Wang (Aerospace Information Research Institute, Chinese Academy of Sciences (AIRCAS), China); Jun Hong (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Yachao Wang (Chinese Academy of Sciences, China); Aichun Wang (China Center for Resources Satellite Data and Application, China); Shiyu Sun and Guikun Liu (Chinese Academy of Sciences, China)

14:20 **Post-processing Method of the Push-To-Talk (PTT) Synchronization Scheme for Distributed SAR**
Yanyan Zhang (University of Chinese Academy of Sciences & Chinese Academy of Sciences, China); Lizhi Liu (Aerospace Information Research Institute Chinese Academy of Sciences, China); Pingping Lu (Institute of Electronics, Chinese Academy of Sciences, China)

15:40 – 16:10 Coffee Break & Exhibition

14:40 **Proof-of-Concept of GNSS-based Phase Synchronization for Bistatic and Multistatic SAR Missions**
Eduardo Rodrigues-Silva (German Aerospace Center DLR, Germany); Marc Rodriguez-Cassola (DLR, Germany); Alberto Moreira (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Steffen Thoelert (German Aerospace Center (DLR), Germany)

15:00 **Analysis and Optimization of MirrorSAR Synchronization**
Nertjana Ustalli (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Josef Hermann Martin Mittermayer and Michelangelo Villano (German Aerospace Center (DLR), Germany)

15:20 **A Photonics-Enhanced Bistatic High-Resolution Wide-Swath Synthetic Aperture Radar System Concept**
Josef Ydreborg and Sigurd Huber (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

Room: Venus

C.2 SAR Processing
Chairs: Rolf Scheiber (German Aerospace Center (DLR), Germany);
Hubert M.J. Cantalloube (ONERA Université Paris-Saclay, France)

14:00 **Capella Polar Format Processor with Terrain Correction**
Jisu Ryu (Capella Space, USA); Craig Stringham (Capella Space Corporation, USA)

15:40 – 16:10 Coffee Break & Exhibition

14:20 **Sarcomp – A High-Performance Library for SAR Processing**
Maron Schlemon (German Aerospace Center (DLR), Germany); Martin Schulz (Technical University of Munich, Germany); Rolf Scheiber (German Aerospace Center (DLR), Germany); Bengisu Elis (Technical University of Munich, Germany); Marc Jäger (German Aerospace Center (DLR), Germany)

14:40 **Intra-Pulse Effect Compensation Method for SAR Systems with Up- and Down-Chirp Modulation**
Nida Sakar (German Aerospace Center, Oberpfaffernhofen, Germany); Pau Prats-Iraola (German Aerospace Center (DLR), Germany); Marc Rodriguez-Cassola (DLR, Germany)

15:00 **High-Squinted Spaceborne SAR Data Focusing in the Sliding-Spotlight Mode**
Yanfang Liu (The School of Electronic and Information Engineering, Beihang University, China); Zhirong Men (Beihang University, China); Yang Wei and HongCheng Zeng (BeiHang University, China); Jie Chen (School of Electronics and Information Engineering, Beihang University, China); Chunsheng Li (BeiHang University, China); Yun Wang (Shanghai Academy of Spaceflight Technology, China); Chao Yang (Shanghai Institute of Satellite Engineering, China)

15:20 **Spectral extension for squinted TOPS modes**
Tom Grydeland (NORCE Norwegian Research Centre, Norway); Temesgen Gebrie Yitayew (Norwegian Research Center AS NORCE, Norway & UIT The Arctic University of Norway, Norway); Yngvar Larsen (NORCE, Norway)

15:40 – 16:10 Coffee Break & Exhibition

Room: Mars

D.2 Land and Sea Ice
Chairs: Helmut Rott (ENVEO IT GmbH & University of Innsbruck, Austria); Jayanti J. Sharma (MDA, Canada)

14:00 **An Unsupervised Deep Learning Approach for Monitoring the Snow Facies of the Greenland Ice Sheet with InSAR TanDEM-X Data**
Alexandre Becker Campos (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) & German Aerospace Center (DLR), Germany); Paola Rizzoli and Jose-Luis Bueso-Bello (German Aerospace Center (DLR), Germany); Matthias Braun (Friedrich-Alexander-Universität Erlangen Nürnberg (FAU), Germany)

14:20 **Multi-modal SAR reveals complex scattering structure in the ablation zone of the Greenland ice sheet**
Sara-Patricia Schlenk (German Aerospace Center (DLR) & Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany); Georg Fischer and Matteo Pardini (German Aerospace Center (DLR), Germany); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

14:40 **SAR Signal Penetration Estimation over Ice Sheets and Glaciers Using Multiple Squints and Incoherent Shift Measurements**
Akshay Manappatty (German Aerospace Center, Germany); Andreas Benedikter (German Aerospace Center (DLR) & University of Erlangen-Nuremberg, Germany); Marc Rodriguez-Cassola (DLR, Germany); Pau Prats-Iraola (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

15:40 – 16:10 Coffee Break & Exhibition

15:00 **Digital Elevation Model estimation and recovery of displacements over the Great Aletsch Glacier**
Esther Mas Sanz and Marcel Stefko (ETH Zurich, Switzerland); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

15:20 **Millimeter-wave SAR sea ice classification based on multi-texture feature fusion**
Hui Wang (Shanghai Institute of Satelites Engineering, China); Yeke Tang (Shanghai Institute of Satellite Engineering, China); Shichao Zheng, Qiang Zhao, Sili Wu, Jinyi Zhang, Zhihang Chen and Yongqi Wang (Shanghai Institute of Satelites Engineering, China)

15:40 – 16:10 Coffee Break & Exhibition

Room: AudiMax

A.3 ROSE-L
Chairs: Nico Gebert (ESA/ESTEC, The Netherlands); Chung-Chi Lin (Retired from ESA, The Netherlands)

16:10 **ROSE-L Spacecraft Overview**
Patrizio Pavia, Antonio Bauleo, Silvio Fenu and Anio Beqiri (Thales Alenia Space Italia, Italy); Luca Nardecchia (Thales Alenia Space Italia, France); Rita Roscigno (Thales Alenia Space Italy, Italy); Maurizio Corvetti (Thales Alenia Space Italia, Italy); Marco Papa (Thales Alenia Space Italia, France); Andrea Binci (Thales Alenia Space Italia S.p.A., Italy); Francesca Spataro (Thales Alenia Space-Italia, Italy); Steve Osborne (ESA, United Kingdom (Great Britain)); Nicolas Gebert (European Space Agency & ESTEC, The Netherlands); Silvia Mezzasoma (ESA, The Netherlands); Gianluigi Di Cosimo (European Space Agency ESTEC, Italy); Salvatore Sarno (Thales Alenia Space Italy, Italy)

16:30 **ROSE-L SAR Instrument Design Overview and Performance**
Friedhelm Rostan (Airbus DS GmbH, Germany); Karen Mak (Airbus Defence & Space Ltd., United Kingdom (Great Britain)); Francisco Ceba Vega (Airbus Defence and Space GmbH, Germany); Simone Meschino (Airbus Defense and Space GmbH, Germany); Antonio Bauleo (Thales Alenia Space Italia, Italy); Daniele Petrolati (ESA ESTEC, European Space Agency, The Netherlands); Nico Gebert (ESA/ESTEC, The Netherlands)

18:00 – 21:00 Get Together & Poster Session

16:50 **ROSE-L SAR Instrument Detailed Design and Technology Readiness**
Friedhelm Rostan (Airbus DS GmbH, Germany); Karen Mak (Airbus Defence & Space Ltd., United Kingdom (Great Britain)); Alexander Moessinger (Airbus Defence and Space GmbH, Germany); Paul D Jackson (Airbus Defense and Space Ltd, Germany); Antonio Bauleo (Thales Alenia Space Italia, Italy); Daniele Petrolati (ESA ESTEC, European Space Agency, The Netherlands); Nico Gebert (ESA/ESTEC, The Netherlands)

17:10 **The ROSE-L End-To-End Performance Simulator and Ground Processor Prototype Tools: An Overview**
Maria J. Sanjuan-Ferrer and Jalal Matar (German Aerospace Center (DLR), Germany); Marc Rodriguez-Cassola (DLR, Germany); Pau Prats-Iraola, Matteo Nannini, Andre Barros Cardoso da Silva and Rolf Scheiber (German Aerospace Center (DLR), Germany); Riccardo Piantanida and Andrea Recchia (Aresys, Italy); Martin Steinisch (University "G. d'Annunzio", Chieti, Italy); Davide Giudici (Aresys srl, Italy); Luca Nardecchia (Thales Alenia Space Italia, France); Marta Bucciarelli (SYMPAS S. r. l. & University of Rome, "La Sapienza", Italy); Antonio Bauleo (Thales Alenia Space Italia, Italy); Silvia Mezzasoma (ESA, The Netherlands)

17:30 **End-to-end SAR System Calibration of ROSE-L**
Jens Reimann, Kersten Schmidt, Patrick T.P. Klenk and Marco Schwerdt (German Aerospace Center (DLR), Germany); Jakob Giez (German Aerospace Center, DLR, Germany)

18:00 – 21:00 Get Together & Poster Session

Room: Terra

B.3 Data Compression and Despeckling
Chairs: Ernesto Imbembo (European Space Agency, The Netherlands); Michele Martone (German Aerospace Center (DLR), Germany)

16:10 **AI for Performance-Optimized Quantization in Future SAR Systems**
Nicola Gollin (German Aerospace Center, Germany); Michele Martone (German Aerospace Center (DLR), Germany); Ernesto Imbembo (European Space Agency, The Netherlands); Stefan Knoll (Airbus Defence and Space GmbH, Germany); Gerhard Krieger (DLR, Germany); Paola Rizzoli (German Aerospace Center (DLR), Germany)

16:30 **Deep learning-based compression and despeckling of SAR images**
Nils Foix-Colonier (Nantes Université – École Centrale Nantes – CNRS LS2N, France & German Aerospace Center (DLR), Germany); Joel Amao-Oliva (German Aerospace Center (DLR), Germany); Francescopaolo Sica (University of the Bundeswehr Munich (UniBw), Germany)

16:50 **Data Volume Reduction for Multichannel SAR: Opportunities and Challenges**
Michele Martone (German Aerospace Center (DLR), Germany); Nicola Gollin (German Aerospace Center, Germany); Ernesto Imbembo (European Space Agency, The Netherlands); Gerhard Krieger (DLR, Germany); Paola Rizzoli (German Aerospace Center (DLR), Germany)

18:00 – 21:00 Get Together & Poster Session

17:10 **On the use of JPEG2000 for SAR raw data compression**
Reza Mohammadi Asiyabi (National University of Science and Technology Politehnica of Bucharest & Research Center for Spatial Information (CEOSpaceTech), Romania); Andrei Anghel (National University of Science and Technology Politehnica of Bucharest & Center for Spatial Information (CEOSpaceTech), Romania); Adrian Focsa (University Politehnica of Bucharest / Military Technical Academy, Romania); Mihai Datcu (German Aerospace Center, Germany); Michele Martone and Paola Rizzoli (German Aerospace Center (DLR), Germany); Ernesto Imbembo (European Space Agency, The Netherlands)

17:30 **Self-supervised learning of deep despeckling networks with MERLIN: ensuring the statistical independence of the real and imaginary parts**
Emanuele Dalsasso (Télécom Paris, France); Frederic Brigui (ONERA, France); Loic Denis (Université Jean Monnet, France); Rémy Abergel (Université Paris Descartes & MAP5 CNRS UMR 8145, France); Florence Tupin (Télécom ParisTech, France)

Room: Venus

C.3 SAR Imaging and Data Analysis
Chairs: Josef Hermann Martin Mittermayer (German Aerospace Center (DLR), Germany); Simone Gabrielli (OHB System AG, Germany)

16:10 **First Comparative Analysis of Simulated Low and High Resolution Hydroterra and Conventional SAR Data**
Jens Fischer, Rolf Scheiber and Ralf Horn (German Aerospace Center (DLR), Germany); Julia Kubanek (European Space Research and Technology Centre (ESTEC), The Netherlands)

18:00 – 21:00 Get Together & Poster Session

16:30 **L1-norm Regularization Based SAR Phase Error Estimation with Incomplete Data**
Yufan Song, Hui Bi, Jingjing Zhang, Cheng Wan and Deshui Yu (Nanjing University of Aeronautics and Astronautics, China)

16:50 **Range Ambiguity to Signal Ratio measurement**
Ozan Dogan (ICEYE OY, The Netherlands); Vladimir Ignatenko and Andrea Radius (ICEYE, Finland); Risto Vehmas Risto Vehmas (ICEYE Oy, Finland); Leszek Lamentowski (ICEYE Oy, Poland); Pierre Leprovost, Darren Muff, Matthew Nottingham and Tino Seilonen (ICEYE, Finland); Patrik Vilja (ICEYE Oy, Finland)

17:10 **Time-Frequency Displays for Understanding of Raw SAR Receive Data**
Wade Schwartzkopf (National Geospatial-Intelligence Agency, USA)

17:30 **Modeling Azimuth Ambiguities in Focused SAR Data**
Naomi Petrushevsky (Politecnico di Mllano, Italy); Andrea Monti-Guarnieri (Politecnico di Milano, Italy)

Room: Mars

D.3 Water and Urban
Chairs: Ryo Natsuaki (The University of Tokyo, Japan); Krzysztof Orzel (Restore Lab, New Zealand)

16:10 **Enhanced Estimation and Validation of Ocean Surface Radial Velocity using Sentinel-1 TOPS IW SLC Data**
Usman Iqbal Ahmed and Bernhard Rabus (Simon Fraser University, Canada); Dirk Geudtner (European Space Agency, The Netherlands)

18:00 – 21:00 Get Together & Poster Session

16:30 **River Level Measurement Using COSMO-SkyMed Second Generation Data: A Case Study**
Francesco Forlingieri (University of ROMA TRE, Italy); Filippo Biondi (University of L'Aquila, Italy); Nicomino Fiscante (Roma Tre, Italy); Angelica Tarpanelli (CNR, Italy); Pia Addabbo (University of Sannio, Italy); Carmine Clemente (University of Strathclyde, United Kingdom (Great Britain)); Gaetano Giunta (University of Roma Tre, Italy); Danilo Orlando (Universita' degli Studi Niccolo' Cusano, Italy)

16:50 **Drainage Monitoring and Detection Using Spaceborne MTInSAR**
Chia-Hsiang Yang, Carsten Stemmler, Kian Pakzad and Andreas Müterthies (EFTAS Remote Sensing Transfer of Technology GmbH, Germany); Stephan Fuchs (Karlsruher Institut für Technologie, Germany)

17:10 **A Lightweight and Fast Method for Water and Airport Segmentation in SAR Images**
Yu Qiu, Bin Zou and Lamei Zhang (Harbin Institute of Technology, China)

17:30 **SAR Tomographic Inversion of Urban Areas via Morphology Regularization**
Jie Li and Zhiyuan Li (University of Chinese Academy of Sciences, China); Yizhe Fan (Aerospace Information Research Institute, Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Bingchen Zhang (University of Chinese Academy of Sciences, China); YiRong Wu (National Key Laboratory of Microwave Imaging Technology, China)

18:00 – 21:00 Get Together & Poster Session

Room: Poster Area

Poster Session

P1	Bistatic SAR
P1.1	**Measurement of the Bistatic Scattering Coefficient over Wide Angular Ranges Using SAR on Unmanned Aerial Vehicles** *Thomas Börner (German Aerospace Center, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)*
P1.2	**Narrowband RFI Suppression for Phase Synchronization of BiSAR Based on Robust Principal Component Analysis** *Yuesheng Chen (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Yonghua Cai (Aerospace Information Research Institute, Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Bo Li (Aerospace Information Research Institute, China); JunFeng Li and Yijiang Nan (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Da Liang (Aerospace Information Research Institute, Chinese Academy of Sciences & Ocean University of Chin a, China); Pingping Lu (Institute of Electronics, Chinese Academy of Sciences, China)*
P1.3	**Fine Time Synchronization for Bistatic and Multistatic Missions: the Harmony case** *Daniele Mapelli (ARESYS, Italy); Paolo Falcone and Davide Giudici (Aresys srl, Italy); Andrea Olanda (Thales Alenia Space - Italia, Italy); Davide Maria Perfetto (Thales Alenia Space Italia S.p.A., Italy)*
P1.4	**Clock synchronisation for airborne bistatic SAR imaging** *Hubert M.J. Cantalloube (ONERA Université Paris-Saclay, France); Olivier Boisot (ONERA, France)*

P1.5 **Comparison of Exact Azimuth Migration Kernels for the Simulation of Harmony Bistatic SAR Data**
Tim Gustav Antero Kinnunen (Luleå University of Technology & German Aerospace Center, Sweden); Marc Rodriguez-Cassola (DLR, Germany)

P1.6 **Beamforming performance characterization for a Distributed SAR in a long baseline bistatic configuration**
Antonio Gigantino, Alfredo Renga and Maria Daniela Graziano (University of Naples Federico II, Italy)

P2 Interferometry

P2.1 **Quantitative Monitoring of Differential Deformation for Marine Kashagan Oilfield in Kazakhstan using PS-InSAR**
Emil Bayramov (Nazarbayev University, Kazakhstan); Giulia Tessari (Sarmap SA, Switzerland); Martin Kada (TU Berlin, Germany); Saida Aliyeva (ADA University, Azerbaijan); Manfred F. Buchroithner (Dresden University of Technology, Germany); Askar Duisenbiev (Kazakh-British Technical University, Kazakhstan); Jessica Neafie (Nazarbayev University, Kazakhstan)

P2.2 **Exploring temporal patterns: Visualization of PSI displacement time series using UMAP**
Sylvia Hochstuhl (Karlsruhe Institute of Technology (KIT) & Fraunhofer IOSB, Germany); Madeline Stefania Evers (Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB), Germany); Antje Thiele (Fraunhofer IOSB & Karlsruhe Institute of Technology (KIT), Germany)

P2.3 **Ground Deformation Detection and Monitoring using Time-Series PSInSAR for Sustainable Urban Development**
Muhammad Ali (Università degli Studi di Napoli Parthenope, Italy); Gilda Schirinzi (Università di Napoli Parthenope, Italy); Zeeshan Afzal and Sajid Hussain (Wuhan University, China)

P2.4 **Visualization of PSDefoPAT Results**
Madeline Stefania Evers (Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB), Germany); Antje Thiele (Fraunhofer IOSB & KIT, Germany)

P2.5 **An InSAR HPC system and the generated national deformation map of China**
Yonghong Zhang, Hongan Wu, Yonghui Kang and Jujie Wei (Chinese Academy of Surveying and Mapping, China)

P3 Land and Ice Applications

P3.1 **Road Surface Roughness Assessment: A Spaceborne SAR-Based Approach**
Arun Babu (German Aerospace Center (DLR), Germany); Dominik Gerber (German Aerospace Center, Germany); Stefan V. Baumgartner (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

P3.2 **SAR Detection of Bear Dens in Snow**
Jeff Stacey, Wyatt Gronnemose and Bernhard Rabus (Simon Fraser University, Canada); Geoff York (Polar Bears International, USA); Jon Aars (Norwegian Polar Institute, Norway)

P3.3 **Classification Comparisons Between Hybrid Compact-Polarimetric and Quad-Polarimetric SAR Imagery Utilizing LT-1 Imageries**
Lizhi Liu (Aerospace Information Research Institute Chinese Academy of Sciences, China); Bo Li (Aerospace Information Research Institute, China); Yanyan Zhang (University of Chinese Academy of Sciences & Chinese Academy of Sciences, China); Yonghua Cai (Aerospace Information Research Institute, Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); JunFeng Li and Yijiang Nan (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Pingping Lu (Institute of Electronics, Chinese Academy of Sciences, China)

P3.4 **Estimation of High-Resolution Soil Moisture from Dual Frequency Synthetic Aperture Radar (SAOCOM L-Band & Sentinel-1 C-Band) dataset in the Petacciato landslide area, Italy**
Divyeshkumar Rana, Paolo Mazzanti and Francesca Bozzano (Sapienza University of Rome, Italy)

P3.5 **Survey of Perturbation Approaches for Explainable ML in the Context of Flood Detection from SAR Images**
Anastasia Schlegel and Ronny Haensch (DLR, Germany)

P3.6 **Estimating Snow Line Altitude by Optical and SAR Data Fusion: Inverse-mapping Explainable Neural Network-Based Approach - Case Study of the Great Aletsch Glacier**
Gunjan Joshi (The University of Tokyo, Japan); Celia A. Baumhoer (German Aerospace Center (DLR), Germany); Andreas Dietz (German Remote Sensing Data Center (DFD), German Aerospace Center (DLR), Germany); Ryo Natsuaki and Akira Hirose (The University of Tokyo, Japan)

P3.7 **Monitoring the water table depth with Sentinel-1 intensity time series for peatlands in Germany**
Katrin Krzepek (Technical University of Darmstadt, Germany); Uwe Sörgel (Universität Stuttgart, Germany); Dorota Iwaszczuk (Technical University of Darmstadt, Germany)

P3.8 **Urban Flood Detection using SAR Interferometric Coherence of Multidirectional Observations**
Gen Sugimoto, Akira Hirose and Ryo Natsuaki (The University of Tokyo, Japan)

P4 Maritime and Ocean

P4.1 **FPGA Implementation of a Scalable SAR Image Processor for CFAR Object Detection**
Dominik Günzel (German Aerospace Center (DLR), Germany)

P4.2 **Maritime target classification from SLC SAR data Spectral Profiles**
Laura Parra Garcia (University of Strathclyde & ESA, United Kingdom (Great Britain)); Pia Addabbo (University of Sannio, Italy); Danilo Orlando (Universita' degli Studi Niccolo' Cusano, Italy); Filippo Biondi (University of L'Aquila & Italian Ministry of Defence, Italy); Gianluca Furano (European Space Agency ESTEC, The Netherlands); Ernesto Imbembo (European Space Agency, The Netherlands); Christos V. Ilioudis and Carmine Clemente (University of Strathclyde, United Kingdom (Great Britain))

P4.3 **Characterization of Marine Aquaculture Structures Using TanDEM-X Dual-Pol SAR Data**
Dnyaneshwar Gawai (Indian Institute of Technology Kharagpur, India); Noelia Romero-Puig (German Aerospace Center (DLR), Germany); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany); Pankaj Patidar and Subhadip Dey (Indian Institute of Technology Kharagpur, India); Avik Bhattacharya (Indian Institute of Technology Bombay, India)

P4.4 **Classification of Oil Rigs in SAR Images Using RPCA-Based Pre-processing**
André R. Moreira (Instituto Tecnológico de Aeronáutica, Brazil); Lucas Pedroso Ramos (Aeronautics Institute of Technology, Brazil); Fabiano G. da Silva (Marinha do Brasil, Brazil); Dimas Irion Alves and Renato Machado (Aeronautics Institute of Technology (ITA), Brazil)

P4.5 **Ship Tracking and Imaging using DVB-S Signals and a Low-Cost Passive Receiver System**
Holger Nies (University of Siegen, Germany); Timur Mulic (Universtity of Siegen, Germany); Florian Behner and Simon Reuter (Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany); Ivo Ihrke (Universität Siegen, Germany)

P4.6 **Digital Doppler Centroid Anomaly (DDCA): A Novel Ocean Surface Velocity Retrieval Estimator for Harmony**
Alberto M Zurita (Airbus Defence and Space, Spain); Daniele Mapelli (ARESYS, Italy); Javier del Castillo Mena (Airbus, Spain)

P4.7 **A Near Real-Time Automated Oil Spill Surveillance System Using SAR and its Application to a New Study Area**
Yi-Jie Yang (German Aerospace Center (DLR) & Kiel University, Germany); Christoph Schnupfhagn (German Aerospace Center (DLR), Germany)

P4.8 **Comparison of Sea State Parameters derived from multiple SAR Missions**
Andrey Pleskachevsky (German Aerospace Center, Germany); Björn Tings and Sven Jacobsen (German Aerospace Center (DLR), Germany)

P5 SAR Image Analysis and Simulation

P5.1 **Time-Series SAR Image Change Detection via Graph Transformer with Contrastive Learning**
Haolin Li and Bin Zou (Harbin Institute of Technology, China); Yan Cheng (Product Quality Supervision and Inspection Institute of Harbin, China); Yu Qiu (Harbin Institute of Technology, China)

P5.2 **Artifact detection in SAR images with AI methods**
Wadim Koslow (German Aerospace Centre & Institute for Software Technology, Germany); Kathrin Rack (German Aerospace Centre, Germany); Alexander Rüttgers (German Aerospace Center, Germany); Luca Dell'Amore and Paola Rizzoli (German Aerospace Center (DLR), Germany)

P5.3 **On the impact of despeckling for supervised SAR super-resolution**
Max Muzeau (Télécom Paris, France); Chengfang Ren (CentraleSupelec, France); Jeremy Fix (LORIA, France); Frederic Brigui (ONERA, France); Jean-Philippe Ovarlez (ONERA & Centrale-Supelec/ SONDRA, France)

P5.4 **LiveEO's Rapid Response Insights: leveraging high-resolution Capella Space SAR imagery to automate near-real-time storm damage detection**
Francesco Parisio, Fernando Vicente-Guijalba, Paul Weinmann, Geoffrey Vancassel and Daniel Seidel (LiveEO, Germany); Davide Castelletti and Shaunak De (Capella Space, USA); Victor Cazcarra-Bes (Capella Sapce, USA)

P5.5 **Comparison of Indirect Surrogate Models in a Very Large Scene SAR simulator for Uncertainty Propagation**
Thomas Houret (Onera, France); Olivier Lévêque (ONERA, France); Nicolas Trouvé (ONERA, University Paris-Saclay (France), France); Antoine Jouade (DGA, France)

P5.6 **A novel Machine Learning based approach for Detecting Radiometric Artifacts in SAR Imagery**
Samvram Sahu (National Remote Sensing Center, ISRO, India); Jayasri V Poludasu (National Remote Sensing Centre, India); Niharika Karumuri and H. S. V. Usha Sundari Ryali (ISRO, NRSC, India); Sarma Manju (NRSC, India)

P5.7 **On the Potentials of Tensor-Based Quantum Machine Learning for SAR Land-Cover Classification**
Sreejit Dutta (DLR, Germany); Sigurd Huber (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

P5.8 **Domain Adaptive Target Detection with Optimal Transportation for Different Satellite SAR Images**
Jiang Qin, Bin Zou, Lamei Zhang and Yu Qiu (Harbin Institute of Technology, China)

P5.9 **SAR imaging of complex environments with EMPRISE® simulation software**
Etienne Everaere and Kevin Unger (ONERA, France); Nicolas Trouvé (Onera, France); Flora Weissgerber and Xavier Dupuis (ONERA, France); Julien Houssay and Ronan Fabbri (SCALIAN DS, France); Christian Cochin (DGA MI - French MoD, France); Antoine Jouade (DGA, France)

P5.10 **Design of a labeled dataset for despeckling SAR imagery**
Ruben Vasquez (Institucion Universitaria Politecnico Colombiano Jaime Isaza Cadavid, Colombia); Ahmed Alejandro Cardona-Mesa (Institucion Universitaria Digital de Antioquia, Colombia); Luis Gomez (Universidad de Las Palmas de Gran Canaria, Colombia); Carlos M. Travieso (University of Las Palmas de Gran Canaria, Spain); Andres F. Garavito-González and Esteban Vasquez-Cano (Politecnico Colombiano Jaime Isaza Cadavid, Colombia)

P6	SAR Missions and Acquisition Modes
P6.1	**FS-staggered SAR: A Novel Imaging Mode Combining Frequency Scanning with PRI Variation Technique** *RuiZhen Song (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Wei Wang (Chinese Academy of Science, China); Wu Yuwei (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Weidong Yu (Institute of Electronics, Chinese Academy of Sciences, China)*
P6.2	**Copernicus Sentinel-1 Next Generation Project: Mission and SAR Instrument Performance Analysis in the Phase-0 and A/B1** *Mariantonietta Zonno, Federica Bordoni and Kersten Schmidt (German Aerospace Center (DLR), Germany); Nida Sakar (German Aerospace Center, Oberpfaffernhofen, Germany); Marwan Younis (German Aerospace Center (DLR), Germany); Marc Rodriguez-Cassola and Gerhard Krieger (DLR, Germany); Andrea Perrera (Thales Alenia Space Italia, Italy); Giuseppe Jackson (TAS-I, Italy); Marco Iorio (Thales Alenia Space, Italy); Maurizio Milano (Thales Alenia Space Italia, Italy); Ramon Torres (European Space Agency & ESTEC, The Netherlands); Dirk Geudtner and Tobias Bollian (European Space Agency, The Netherlands)*
P6.3	**Spaceborne SAR Terrain Matching Curved Imaging with Beam Steering in Range** *Qingrui Guo (Beijing Institute of Technology & Radar Research Lab, School of Information and Electronics, China); Yan Wang and Ke Chen (Beijing Institute of Technology, China); Hui Kuang (Beijing Institute of Space Craft System Engineering, China); Xuan Wang and Zegang Ding (Beijing Institute of Technology, China)*

P6.4 **Azimuth Ambiguity Suppression for Sparse SAR Imaging Based on Unfolded Deep Network**
Wu Yuwei (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Zhe Zhang (Aerospace Information Research Institute, Chinese Academy of Sciences & Geroge Mason University, China); RuiZhen Song (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Xiaolan Qiu (Institute of Electronics, Chinesa Academy of Sciences, China); Weidong Yu (Institute of Electronics, Chinese Academy of Sciences, China)

P6.5 **Assessment of third-party SAR missions in the framework of the Earthnet Data Assessment Project (EDAP): results and tools**
Andrea Recchia and Laura Fioretti (Aresys, Italy); Juval Cohen and Jorge Ruiz (Finnish Meteorological Institute, Finland); Amy Beaton and Kevin Halsall (Telespazio UK, United Kingdom (Great Britain)); Clément Albinet (European Space Agency, Italy)

P6.6 **A Cognitive SAR Concept for Ship Detection using Support Vector Machines**
Jan Meyer (FAU Erlangen & DLR Oberpfaffenhofen, Germany); Kay Glatting and Sigurd Huber (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

P6.7 **Evaluating the performance of multi-satellite constellations for Earth-observing SAR missions**
Ekaterina Tymofyeyeva (NASA Jet Propulsion Laboratory, USA); Shadi Oveisgharan and Paul A. Rosen (Jet Propulsion Laboratory, USA)

P6.8 **A Simplified Method to Approximate the AOI Coverage Duration in Single Acquisition Direction for SAR Satellites with Repeat Ground-Track Orbits**
Allan Bojarski (German Aerospace Center, Germany); Markus Bachmann (German Aerospace Center (DLR), Germany)

P6.9 **The Thales Alenia Space HE-R1000 satellite product line**
Andrea Cici and Eleonora Mariotti (Thales Alenia Space, Italy); Andrea Torre (Thales AleniaSpace, Italy)

P6.10 **TerraSAR-X with Experimental Wide StripMap Mode**
Ulrich Steinbrecher (DLR, Germany); Thomas Kraus (German Aerospace Center (DLR), Germany); Christo Grigorov (Microwaves and Radar Institute & German Aerospace Center, Germany)

P7 SAR Systems and Calibration

P7.1 **Framework of spaceborne sparse SAR mode design**
Hui Bi, Guoxu Li, Yufan Song, Jingjing Zhang and Daiyin Zhu (Nanjing University of Aeronautics and Astronautics, China); Wen Hong (National Key Laboratory of Microwave imaging Technology & Institute of Electronics, Chinese Academy of Scienecs, China)

P7.2 **Through-the-Wall SAR Imaging based on PULSON P440 off-the-shelf module**
Adrian Focsa, Mihai Coca and Stefan-Adrian Toma (Military Technical Academy Ferdinand I, Romania); Andrei Anghel and Remus Cacoveanu (National University of Science and Technology Politehnica Bucharest, Romania); Bogdan Sebacher (Military Technical Academy Ferdinand I, Romania)

P7.3 **Active Phased Array Antenna for HISEA-1 Satellite**
Jia-Guo Lu, Lei Sheng, Xianfeng Zhang, Xiaopeng Lu, Xin Fang, Gaosen Peng, Xujin Zhang, Xingwang Qiao, Yongfeng Liu, Haiyan Lu and Jin Han (East China Research Institute of Electronic Engineering, China)

P7.4 **Denoising Autoencoder-Driven Direction-of-Arrival Estimation with V-Shaped Coprime Antenna Array**
Ahmet Oguz Sakin and Hasan Tan (TOBB University of Economics and Technology, Turkey); Adnan Orduyilmaz (TUBITAK BILGEM ILTAREN, Turkey)

P7.5 **Calibration of PAMIR-Ka Radar Data Using Phase Gradient Method**
Patrick Berens (Fraunhofer FHR, Germany)

P7.6 **The CEOS SAR calibration network - SARCalNet**
Bruce Chapman (Jet Propulsion Laboratory, California Institute of Technology, USA); Paolo Castracane (RHEA for ESA ESRIN, USA); Matthew Garthwaite (Commonwealth Scientific and Industrial Research Organisation, Australia); Dirk Geudtner (European Space Agency, The Netherlands); Patrick T.P. Klenk (German Aerospace Center (DLR), Germany); Muriel Pinheiro (European Space Agency, Italy); Jens Reimann (German Aerospace Center (DLR), Germany); Shweta Sharma (Space Applications Centre (ISRO), India); Marc Thibeault (CONAE, Argentina); Antonio Valentino (RHEA for ESA, Italy)

P7.7 **Independent Calibration of the Sentinel-1C SAR System**
Patrick T.P. Klenk (German Aerospace Center (DLR), Germany); Jakob Giez (German Aerospace Center, DLR, Germany); Kersten Schmidt, Matteo Nannini and Marco Schwerdt (German Aerospace Center (DLR), Germany)

P7.8 **Indoor Synthetic Aperture Radar Measurements of Point-Like Targets Using a Wheeled Mobile Robot**
Yuma E. Ritterbusch and Johannes Fink (Robert Bosch GmbH, Germany); Christian Waldschmidt (University of Ulm, Germany)

P8	SAR, ISAR and MTI Processing
P8.1	**A Novel Sparse Autofocusing Stripmap SAR Imaging Method: Initial Result** *Deshui Yu, Yufan Song, Jingjing Zhang and Qian Guo (Nanjing University of Aeronautics and Astronautics, China); Wen Hong (National Key Laboratory of Microwave imaging Technology & Institute of Electronics, Chinese Academy of Scienecs, China); Hui Bi (Nanjing University of Aeronautics and Astronautics, China)*
P8.2	**Smart On-board Processing for Next Generation SAR Payloads** *Oskar Flordal (Unibap, Sweden); Nicola Gollin (German Aerospace Center, Germany); Marc Jäger (German Aerospace Center (DLR), Germany); Vangelis Kollias (Teletel SA, Greece); Michele Martone (German Aerospace Center (DLR), Germany); Jamin Naghmouchi (Universität zu Lübeck, Germany); Mathias Persson and Søren Pedersen (Unibap, Sweden); Nikos Pogkas (Teletel SA, Greece); Rolf Scheiber (German Aerospace Center (DLR), Germany); Daniel Smith, Maike Taddiken and Ole Bischoff (DSI, Germany)*
P8.3	**The Potential of Multi-Agent Consensus Equilibrium for Synthetic Aperture Radar Processing** *Yizhe Fan (Aerospace Information Research Institute, Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Jie Li, Kun Wang and Bingchen Zhang (University of Chinese Academy of Sciences, China); YiRong Wu (National Key Laboratory of Microwave Imaging Technology, China)*
P8.4	**Seamless and Flexible Factorised Processor for Long-range UAV-SAR** *Mattia Giovanni Polisano, Marco Manzoni and Stefano Tebaldini (Politecnico di Milano, Italy)*

P8.5 **Moving Target Detection in Coherent Clutter with Reverse-Path Multistatic SAR**
Daniel Andre (Cranfield University, United Kingdom (Great Britain)); Francis M Watson (Thales UK, United Kingdom (Great Britain)); Mark Finnis (Cranfield University, United Kingdom (Great Britain))

P8.6 **High Resolution 3D ISAR Image Formation via Interferometry Combined with Multi- Look Processing of Wide Angle Data**
Ahmad Hamad and Patrick Berens (Fraunhofer FHR, Germany)

P8.7 **Application of Adaptive Phase Azimuth Prefiltering Method**
Li Lei, Shen Shi Jian, Nie Song and Liu Jingyu (Nanjing Research Institute of Electronics Technology, China)

P8.8 **Geometrical Evolution of Phase Gradient Autofocus for Navigation Correction Estimation**
Pietro Grassi, Marco Manzoni and Stefano Tebaldini (Politecnico di Milano, Italy)

P8.9 **SAR products in milliseconds: leveraging massive parallelization on GPUs to enable interactive SAR processing**
Sven Kautlenbach (Software Developer & CGI Estonia, Estonia); Priit Pender (CGI Estonia, Estonia); Martin Jüssi (CGI, Estonia)

P8.10 **A Novel Sparse-Aperture ISAR Imaging Algorithm Based on The Total Deep Variation Network**
Lianzi Wang (& Nanjing University of Aeronautics and Astronautics, China); Ling Wang and Daiyin Zhu (Nanjing University of Aeronautics and Astronautics, China); Miguel Heredia Conde (University of Wuppertal, Germany)

P9	Vegetation
P9.1	**Comparing SAR at Multiple Frequencies with Optical Vegetation Indices for an Area in Vietnam** *Thomas Roßberg and Michael Schmitt (University of the Bundeswehr Munich, Germany)*
P9.2	**Seasonal Challenges for Rainforest Mapping with Sentinel-1 Time Series: A Deep Learning Approach** *Ricardo Simão Diniz Dal Molin, Jr. and Paola Rizzoli (German Aerospace Center (DLR), Germany); Laetitia Thirion-Lefevre (SONDRA, Centrale-Supelec, France); Regis Guinvarc'h (CentraleSupelec, France)*
P9.3	**Estimating forest structure change by means of wavelet statistics using TanDEM-X datasets** *Lea Albrecht (German Aerospace Center (DLR), Germany); Andreas Huth (Helmholtz Centre for Environmental Research (UFZ), Germany); Rico Fischer (Helmholtz-Centre for Environmental Research (UFZ), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany); Oleg Antropov (VTT Technical Research Centre of Finland, Finland); Lukas Lehnert (Ludwig-Maximilians-Universität LMU, Germany)*
P9.4	**Application of Swarm-Based Optimization to Forest Height Estimation in PolInSAR** *Seung-Jae Lee and Sung-Ho Chae (Korea Aerospace Research Institute, Korea (South))*

P9.5 **Combining Multiband SAR and InSAR for Mapping Forest Height**

João E. Pereira-Pires (UNINOVA & NOVA University, Portugal); Pedro Barreira (UNINOVA, Portugal); João M. N. Silva (Forest Research Centre and Associate Laboratory TERRA University of Lisbon, Portugal); José Fonseca (Uninova, Portugal); Raffaella Guida (University of Surrey, United Kingdom (Great Britain)); Andre Mora (Uninova, Portugal)

Room: AudiMax

A.4 TanDEM-X Mission Status and Science Perspectives (invited)
Chairs: Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany); Alberto Moreira (German Aerospace Center (DLR), Germany)

9:00 **TanDEM-X: Mission Status and Science Activities**
Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

9:20 **Influence of Temporal Baseline on X-band Repeat-pass Coherence for Crop Monitoring**
Arturo Villarroya-Carpio and Juan Manuel Lopez-Sanchez (University of Alicante, Spain)

9:40 **Enhanced Large-scale GEDI/TanDEM-X Fusion Forest Height Mapping by Reducing Orbit Effect**
Changhyun Choi (Seoul National University & Research Institute of Agriculture and Life Sciences, Korea (South)); Matteo Pardini (German Aerospace Center (DLR), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany)

10:00 **Why multi-sensor satellite data are needed for lava volume estimation**
Simon Plank and Sandro Martinis (German Aerospace Center (DLR), Germany)

10:20 **Sea ice topographic retrieval and statistical distributions using TanDEM-X imagery**
Lanqing Huang (ETH Zürich, Switzerland); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

10:40 – 11:10 Coffee Break & Exhibition

Room: Terra

B.4 Advanced SAR Modes and Instrument Concepts (invited)
Chairs: Martin Suess (ESA/ESTEC, The Netherlands); Gerhard Krieger (DLR, Germany)

9:00 **Spaceborne Multiple-Swath SAR Imaging with Frequency Scanning**
João Pedro Turchetti Ribeiro (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Thomas Kraus, Markus Bachmann and Alberto Moreira (German Aerospace Center (DLR), Germany)

9:20 **Producing a Digital Elevation Model Using a Cluster of Small-Aperture SAR Satellites: An Airborne Demonstration**
Maxwell Nogueira Peixoto (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Alberto Moreira (German Aerospace Center (DLR), Germany); Christian Waldschmidt (University of Ulm, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)

9:40 **FDM MIMO SAR Tomography**
Stefano Tebaldini and Marco Manzoni (Politecnico di Milano, Italy); Laurent Ferro-Famil (ISAE-SUPAERO, University of Toulouse & CESBIO, University of Toulouse, France); Francesco Banda (Aresys, Italy); Davide Giudici (Aresys srl, Italy)

10:00 **High resolution wide swath interferometry with f-scan systems**
Daniele Mapelli (ARESYS, Italy); Pietro Guccione (Politecnico di Bari, Italy); Davide Giudici and Adriano Persico (Aresys srl, Italy)

10:40 – 11:10 Coffee Break & Exhibition

10:20 **Timing Analysis and Ambiguity Performance of Multistatic SAR**
Ilgin Seker (Jet Propulsion Laboratory, California Institute of Technology & NASA, USA); Eric A Loria and Shashank S Joshil (Jet Propulsion Laboratory and California Institute of Technology, USA); Marco Lavalle (Jet Propulsion Laboratory, California Institute of Technology, USA); Razi Ahmed and Brian P Hawkins (Jet Propulsion Laboratory, USA)

Room: Venus

C.4 Interferometric Processing of Multiple SAR Images (invited)
Chairs: Gianfranco Fornaro (CNR-IREA, Italy); Hanwen Yu (University of Electronic Science and Technology of China, China)

9:00 **Assessing the Reliability of InSAR Ground Displacement Products: The Role of Time Inconsistencies in Sequences of Multi-look Interferograms**
Francesco Falabella (Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR), Italy); Antonio Pepe (Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR)

9:20 **Subsidence estimation from Tomographic SAR data using Deep Learning**
Wenyu Yang (Università di Napoli Parthenope, Italy); Sergio Vitale (University of Naples Parthenope, Italy); Giampaolo Ferraioli, Gilda Schirinzi and Vito Pascazio (Università di Napoli Parthenope, Italy)

10:40 – 11:10 Coffee Break & Exhibition

9:40 **On the estimation of InSAR phase and coherence through self-supervised learning**
Francescopaolo Sica (University of the Bundeswehr Munich (UniBw), Germany); Michael Schmitt (University of the Bundeswehr Munich, Germany)

10:00 **2-D Phase Unwrapping Based on Fringe Line Detection**
Xin Ye (University of Electronic Science and Technology of China, China); Jiang Qian (UESTC, China); Hanwen Yu (University of Electronic Science and Technology of China, China)

10:20 **Mapping Rice Planting Areas using Correlation Analysis of Soil Moisture, InSAR Closure Phase, and Backscatter in Crop-Growing Regions of Chongqing, China**
Xujie Le (University of Electronic Science and Technology of China & UESTC, China); Sijia Chen and Hanwen Yu (University of Electronic Science and Technology of China, China)

10:40 – 11:10 Coffee Break & Exhibition

Room: Mars

D.4 SAR Tomography: Implementations and Applications (invited)
Chairs: Fabrizio Lombardini (University of Pisa, Italy); Laurent Ferro-Famil (ISAE-SUPAERO, University of Toulouse & CESBIO, University of Toulouse, France)

9:00 **Identification of Forest Structure Changes from L-Band SAR Data: A Tomographic Perspective**
Matteo Pardini, Noelia Romero-Puig and Roman Guliaev (German Aerospace Center (DLR), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany)

9:20 **SAR Tomography with L-Band SAOCOM Data: Results of a First Analysis**
Gianfranco Fornaro (CNR-IREA, Italy); Pasquale Imperatore (National Research Council, Italy); Damian Loran (Instituto de Altos Estudios Espaciales Mario Gulich, Argentina); Diego Reale (CNR-IREA, Italy); Edinson Andres Solarte (National Research Council, Italy); Marco Baldo and Daniele Giordan (Italian National Research Council, Italy)

9:40 **Altitude-Adaptive Coregistration for Differential SAR Tomography**
Magnus Heimpel (ETH Zurich, Switzerland); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany); Othmar Frey (ETH Zurich & Gamma Remote Sensing, Switzerland)

10:40 – 11:10 Coffee Break & Exhibition

10:00 **Sublook SAR Tomography: A New Single-Baseline Technique for the Vertical Imaging of Semitransparent Media**
Pau Prats-Iraola, Matteo Nannini and Matteo Pardini (German Aerospace Center (DLR), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany)

10:20 **Deep Learning based PolTomoSAR for Forest Reconstruction**
Wenyu Yang (Università di Napoli Parthenope, Italy); Sergio Vitale (University of Naples Parthenope, Italy); Hossein Aghababaei (University of Twente, The Netherlands); Giampaolo Ferraioli, Gilda Schirinzi and Vito Pascazio (Università di Napoli Parthenope, Italy)

10:40 – 11:10 Coffee Break & Exhibition

Room: AudiMax

A.5 Japanese SAR Program (invited)
Chairs: Shin-ichi Sobue (JAXA, Japan); Masato Ohki (Japan Aerospace Exploration Agency, Japan)

11:10 **JAXA L-Band SAR missions**
Shin-ichi Sobue, Satoko Miura and Yuuta Tochigi (JAXA, Japan); Takeshi Motohka and Yukihiro Kankaku (Japan Aerospace Exploration Agency, Japan)

11:30 **ALOS-2 disaster mapping algorithms and their implementation in an operational system**
Masato Ohki, Yuki Takakura, Shiro Kawakita and Takeo Tadono (Japan Aerospace Exploration Agency, Japan)

11:50 **Deforestation Detection and Early Warning using L-band SAR**
Christian N. Koyama (Japan Aerospace Exploration Agency, Japan); Masanobu Shimada (Tokyo Denki University & Japan Aerospace Exploration Agency, Japan); Masato Hayashi and Takeo Tadono (Japan Aerospace Exploration Agency, Japan)

12:10 **Differential Polarimetric SAR Data Analysis**
Motofumi Arii (Mitsubishi Electric Corporation, Japan)

12:30 **ALOS-2 PPP demonstration projects status**
Shin-ichi Sobue and Yuuta Tochigi (JAXA, Japan)

12:50 – 14:00 Lunch Break & Networking

Room: Terra

B.5 Digital Beamforming / Multichannel SAR
Chairs: Marwan Younis (German Aerospace Center (DLR), Germany); Pietro Guccione (Politecnico di Bari, Italy)

11:10 **Accurate Relative Motion Compensation for Digital Beamforming in Airborne SAR**
Juan Pablo Navarro Castillo, Marc Jäger, Rolf Scheiber and Alberto Moreira (German Aerospace Center (DLR), Germany)

11:30 **Overlapping Azimuth Channels for SAR Imaging – Revisited**
Marwan Younis (German Aerospace Center (DLR), Germany); Nida Sakar (German Aerospace Center, Oberpfaffernhofen, Germany); Marc Rodriguez-Cassola (DLR, Germany); Pau Prats-Iraola and Mariantonietta Zonno (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Alberto Moreira (German Aerospace Center (DLR), Germany)

11:50 **Insights on Range Ambiguity Suppression based on Blind Source Separation in Multichannel SAR Systems**
Ershad Junus Amin (DLR Institut für Hochfrequenztechnik und Radarsysteme, Germany); Federica Bordoni (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Marwan Younis and Alberto Moreira (German Aerospace Center (DLR), Germany)

12:50 – 14:00 Lunch Break & Networking

12:10 **Analysis on Nonlinear Dependence of Range Frequency and Time in f-SCAN SAR**
Bo Li (Aerospace Information Research Institute, China); Da Liang (Aerospace Information Research Institute, Chinese Academy of Sciences & Ocean University of Chin a, China); Yijiang Nan (Aerospace Information Research Institute, Chinese Academy of Sciences, China)

12:30 **Imaging for Forward Looking MIMO SAR with Un-Trained Neural Network**
Vijith Varma Kotte (KAUST, Saudi Arabia)

Room: Venus

C.5 Interferometry 1
Chairs: Riccardo Lanari (IREA-CNR, Italy); Pau Prats-Iraola (German Aerospace Center (DLR), Germany)

11:10 **3-D Differential SAR Interferometry for Spaceborne SAR Systems with Azimuth Digital Beamforming**
Simon Trumpf and Pau Prats-Iraola (German Aerospace Center (DLR), Germany); David Tomsu (German Aerospace Center, Germany); Alberto Moreira (German Aerospace Center (DLR), Germany)

11:30 **Enabling the Forthcoming ROSE-L Sensor for a Two-Look ScanSAR Mode Configuration Without Modifying the System Parameters**
Stefano Perna (Università degi Studi di Napoli Parthenope, Italy); Francesco Longo (ASI, Italy); Simona Zoffoli Zoffoli (Italian Space Agency, Italy); Malcolm Davidson (ESA/ESTEC, The Netherlands); Lorenzo Iannini (European Space Agency, The Netherlands); Riccardo Lanari (IREA-CNR, Italy)

12:50 – 14:00 Lunch Break & Networking

11:50 **Advancements in PRISM: DLR processing framework for interferometric SAR missions**
Matteo Nannini, Andre Barros Cardoso da Silva, Andrea Pulella, Gustavo Daniel Martín-del-Campo-Becerra (German Aerospace Center (DLR), Germany); Nida Sakar (German Aerospace Center, Oberpfaffernhofen, Germany); Johannes Kramp (German Aerospace Center DLR, Germany); Jun Su Kim (DLR, Germany); Pau Prats-Iraola (German Aerospace Center (DLR), Germany)

12:10 **A Supervised Multi-Task Learning Architecture for Separating the Phase Contributions in InSAR Burst Modes**
Andrea Pulella and Pau Prats-Iraola (German Aerospace Center (DLR), Germany); Francescopaolo Sica (University of the Bundeswehr Munich (UniBw), Germany)

12:30 **Harnessing Deep Learning for TomoSAR stack enhancement**
Sergio Alejandro Serafin Garcia (German Aerospace Center (DLR)); Matteo Nannini, Gustavo Daniel Martín-del-Campo-Becerra (German Aerospace Center (DLR), Germany); Ronny Haensch (DLR, Germany); Andreas Reigber (German Aerospace Center (DLR), Germany)

12:50 – 14:00 Lunch Break & Networking

Room: Mars

D.5 3D Microwave Remote Sensing of Vegetation (invited)
Chairs: Stefano Tebaldini (Politecnico di Milano, Italy); Matteo Pardini (German Aerospace Center (DLR), Germany)

11:10 **Experimental demonstration of L-Band Bistatic Correlation SAR Tomography of Forested Areas: results from the TomoSense campaign**
Stefano Tebaldini (Politecnico di Milano, Italy); Mauro Mariotti (Synspective, Japan); Francesco Salvaterra (Politecnico di Milano, Italy)

11:30 **Performance limits of TomoSAR imaging for tropical forest characterization in airborne and spaceborne configurations**

11:50 **Fast implementation of dual-baseline forest height inversion in repeat-pass InSAR systems: BIOMASS case**
Roman Guliaev and Matteo Pardini (German Aerospace Center (DLR), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany)

12:10 **Histogram SAR Tomography: Model and SAR Observations**
Marco Lavalle and Gustavo H. X. Shiroma (Jet Propulsion Laboratory, California Institute of Technology, USA); Richard H. Chen (Jet Propulsion Laboratory, USA)

12:50 – 14:00 Lunch Break & Networking

12:30 **SLAINTE: A SAR Mission Concept for Sub-Daily Microwave Remote Sensing of Vegetation**

Susan Steele-Dunne (Delft University of Technology, The Netherlands); Ana Bastos (Max Planck Institute for Biogeochemistry, Germany); Francesco De Zan (delta phi Remote Sensing GmbH, Germany); Wouter Dorigo (Technische Universitaet Wien, Austria); Stef Lhermitte (KU Leuven, Belgium); Christian Massari (CNR, Italy); Jalal Matar (German Aerospace Center (DLR), Germany); David Milodowski (University of Edinburgh, United Kingdom (Great Britain)); Diego Miralles (Ghent University, Belgium); Albert R Monteith (Chalmers University of Technology, Sweden); Marc Rodriguez-Cassola (DLR, Germany); Christopher Taylor (UK Centre for Ecology and Hydrology and National Centre for Earth Observation, United Kingdom (Great Britain)); Stefano Tebaldini (Politecnico di Milano, Italy); Lars Ulander (Chalmers University of Technology, Sweden)

12:50 – 14:00 Lunch Break & Networking

Room: AudiMax

A.6 New frontiers for Italian Space SAR Missions: Technological and Scientific Advancement Exploiting Different Frequencies, Orbits, and Observation Geometries (invited)
Chairs: Antonio Montuori (Italian Space Agency (ASI), Italy);
Giovanni Paolo Blasone (Italian Space Agency, Italy)

14:00 **Innovative SAR Acquisition Techniques in CSG: Concepts and results**
Diego Calabrese (Thales Alenia Space Italia, Italy); Flavia Carnevale (Thales Alenia Space Italy, Italy); Stefano Fedeici and Matteo Turi (Thales Alenia Space, Italy); Valerio Grimani (Thales Alenia Space Italia, Italy); Davide Rizzato (Thales Alenia Space, France); Alessandro Cricenti (Thales Alenia Space Italy, Italy); Anna Croce and Gerardo Spera (Thales Alenia Space Italia, Italy); Antonio Montuori and Claudia Facchinetti (Italian Space Agency (ASI), Italy); Francesco Forlingieri (Italian Ministry of Defence, Italy)

14:20 **A First Quantitative Assessment of the P-SBAS Approach Capability to Retrieve SAOCOM-1 DInSAR Deformation Time series over the Italian Territory**
Claudio De Luca and Yenni Lorena Belen Roa (IREA-CNR, Italy); Manuela Bonano (IMAA-CNR, Italy); Francesco Casu (IREA-CNR, Italy); Leonardo Euillades and Pablo Euillades (National University of Cuyo, Argentina); Marianna Franzese (IREA-CNR, Italy); Michele Manunta (CNR-IREA, Italy); Yasir Muhammad (Università Degli Studi di Napoli Parthenope, Italy); Giovanni Onorato and Pasquale Striano (IREA-CNR, Italy); Ivana Zinno (IREA, CNR, Italy); Riccardo Lanari (IREA-CNR, Italy)

15:40 – 16:10 Coffee Break & Exhibition

14:40 **Bistatic SAR Techniques and Products in a long baseline spaceborne scenario: application to PLATiNO-1 mission**
Alfredo Renga, Antonio Gigantino, Maria Daniela Graziano and Antonio Moccia (University of Naples Federico II, Italy); Stefano Tebaldini and Andrea Monti-Guarnieri (Politecnico di Milano, Italy); Fabio Rocca (Politecnico Milano, Italy); Simona Verde (CNR-IREA, Italy); Virginia Zamparelli (IREA-CNR, Italy); Pietro Mastro (CNR-IREA, Italy); Giacomo De Carolis (National Research Council of Italy, Italy); Gianfranco Fornaro (CNR-IREA, Italy); Giovanni Paolo Blasone (Italian Space Agency, Italy); Antonio Montuori (Italian Space Agency (ASI), Italy); Deodato Tapete (Italian Space Agency, Italy); Francesco Tataranni (Italian Space Agency (ASI), Italy); Simona Zoffoli Zoffoli and Vincenzo Pulcino (Italian Space Agency, Italy); Francesco Longo (ASI, Italy)

15:00 **Advancing Radar Imaging and Earth Observation within the Alcor Program: RODiO and SATURN Missions**
Giulia Capuani, Matteo Battilana, Luca Maioli, Gaetano Montano and Maria Lucia Tampellini (OHB Italia, Italy); Maria Daniela Graziano, Alfredo Renga and Antonio Gigantino (University of Naples Federico II, Italy); Andrea Monti-Guarnieri (Politecnico di Milano, Italy); Fabio Gerace (Aresys, Italy); Davide Giudici (Aresys srl, Italy); Pietro Guccione (Politecnico di Bari, Italy); Julien Marini (Aresys, Italy); Giovanni Paolo Blasone (Italian Space Agency, Italy); Antonio Montuori (Italian Space Agency (ASI), Italy); Francesco Longo (ASI, Italy); Simona Zoffoli Zoffoli (Italian Space Agency, Italy); Alberto Fedele (Italian Space Acency, Italy); Silvia Natalucci (ASI, Italy)

15:40 – 16:10 Coffee Break & Exhibition

15:20 **Geostationary SAR: orbit design and optimization**
Matteo Monti and Andrea Monti-Guarnieri (Politecnico di Milano, Italy); Naomi Petrushevsky (Politecnico di Mllano, Italy); Claudio M. Prati (Politecnico di Milano, Italy); Maria Graziano (Second University of Naples, Italy); Alfredo Renga (University of Naples Federico II, Italy); Francesca Pelliccia (Università degli Studi di Napoli Federico II, Italy); Giovanni Paolo Blasone (Italian Space Agency, Italy); Antonio Montuori (Italian Space Agency (ASI), Italy)

Room: Terra

B.6 TerraSAR-X & TanDEM-X
Chairs: Thomas Fritz (German Aerospace Center (DLR), Germany); Markus Bachmann (German Aerospace Center (DLR), Germany)

14:00 **The TanDEM-X 30m DEM Change Maps: applications and further developments**
Marie Lachaise and Barbara Schweißhelm (German Aerospace Center (DLR), Germany)

14:20 **SAR-based Elevation Models - from Global to Local**
Henning Schrader, Ernest Fahrland, Hanne Paschko and René Mania (Airbus Defence and Space, Germany)

14:40 **An Analysis of Battery Preservation Measures on the DEM Product Performance of TanDEM-X**
Markus Bachmann (German Aerospace Center (DLR), Germany); Allan Bojarski (German Aerospace Center, Germany); Ulrich Steinbrecher (DLR, Germany); Thomas Kraus and Patrick T.P. Klenk (German Aerospace Center (DLR), Germany); Christo Grigorov (Microwaves and Radar Institute & German Aerospace Center, Germany)

15:40 – 16:10 Coffee Break & Exhibition

15:00 **Analysis of Radio Frequency Interferences in TerraSAR-X Products**
Maximilian Schandri (DLR - HR, Germany); Thomas Kraus (German Aerospace Center (DLR), Germany); Akram Al-Hourani (RMIT University, Australia); Nermine Hendy (Royal Melbourne Institute of Technology, Australia); Ferdi Ganda Kurnia (Royal Melbourne Institute of Technology, Germany); Markus Bachmann (German Aerospace Center (DLR), Germany)

15:20 **Long-Term Monitoring of TerraSAR-X and TanDEM-X Ultra-Stable Oscillators**
Johannes Böer (German Aerospace Center (DLR), Germany); Ulrich Steinbrecher (DLR, Germany); Thomas Kraus (German Aerospace Center (DLR), Germany); Christo Grigorov (Microwaves and Radar Institute & German Aerospace Center, Germany)

Room: Venus

C.6 Interferometry 2
Chairs: Michael Eineder (German Aerospace Center (DLR) & Technische Universität München, Germany);
Francesco De Zan (delta phi Remote Sensing GmbH, Germany)

14:00 **Comparative Analysis of CAESAR and SqueeSAR for the Detection of Distributed Scatterers**
Antonio Pauciullo (IREA, CNR, Italy); Cosmin Danisor (University Politehnica of Bucharest, Romania); Diego Reale and Gianfranco Fornaro (CNR-IREA, Italy)

14:20 **A full non-parametric approach for SAR Coherent Change Detection**
Giovanni Costa and Andrea Monti-Guarnieri (Politecnico di Milano, Italy); Alessio Rucci (TRE ALTAMIRA S. R. L., Italy); Marco Manzoni (Politecnico di Milano, Italy)

15:40 – 16:10 Coffee Break & Exhibition

14:40 **Need for Mutual DEM Calibration for Monitoring of Height Changes from TanDEM-X DEM Difference**
Carolina González and Paola Rizzoli (German Aerospace Center (DLR), Germany); Pietro Milillo (University of Houston, USA); Luca Dell'Amore and Jose-Luis Bueso-Bello (German Aerospace Center (DLR), Germany); Thomas Nagler (ENVEO IT GmbH, Austria); Manfred Zink (DLR, Germany)

15:00 **A procedure for the identification and correction of Phase Unwrapping errors in redundant sequences of small baseline DInSAR interferograms**
Giovanni Onorato, Claudio De Luca and Francesco Casu (IREA-CNR, Italy); Michele Manunta (CNR-IREA, Italy); Yasir Muhammad (Università Degli Studi di Napoli Parthenope, Italy); Riccardo Lanari (IREA-CNR, Italy)

15:20 **Geometry-Aware Deep Learning for InSAR Data Synthesis**
Philipp Sibler (Hensoldt Sensors GmbH & University of the Bundeswehr Munich, Germany); Francescopaolo Sica (University of the Bundeswehr Munich (UniBw), Germany); Michael Schmitt (University of the Bundeswehr Munich, Germany)

Room: Mars

D.6 Forest and Agriculture
Chairs: Konstantinos P. Papathanassiou (German Aerospace Center, Germany); Marco Lavalle (Jet Propulsion Laboratory, California Institute of Technology, USA)

14:00 **Forest Change Analysis by means of Pol-InSAR Measurements at L- and P-band**
Noelia Romero-Puig and Matteo Pardini (German Aerospace Center (DLR), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany)

15:40 – 16:10 Coffee Break & Exhibition

14:20 **A country-level deep-learning approach for canopy height estimation from TanDEM-X InSAR data**
Daniel Carcereri and Paola Rizzoli (German Aerospace Center (DLR), Germany); Dino Ienco (National Research Institute for Agriculture, Food and the Environment (INRAE), France); Lorenzo Bruzzone (University of Trento, Italy)

14:40 **Forest parameter estimation from dual-frequency polarimetric SAR**
Michael Ruhhammer and Sarah Hauser (Hochschule München University of Applied Sciences, Germany); Andreas Schmitt (Hochschule München University of Applied Sciences, Germany & Institute for Applications of Machine Learning and Intelligent Systems (IAMLIS), Germany); Anna Wendleder (German Aerospace Center (DLR) & German Remote Sensing Data Center, Germany)

15:00 **Deep Learning-based Approaches for Forest Mapping with TanDEM-X Interferometric Data**
Jose-Luis Bueso-Bello (German Aerospace Center (DLR), Germany); Benjamin Chauvel (ENSTA Bretagne, France); Daniel Carcereri (German Aerospace Center (DLR), Germany); Ronny Haensch (DLR, Germany); Paola Rizzoli (German Aerospace Center (DLR), Germany)

15:20 **Can field-scale yield be reconstructed from commune-scale yield using Sentinel-1?**
Esra Erten (İstanbul Technical University, Turkey); Mustafa Serkan Işık and Mehmet Furkan Çelik (Istanbul Technical University, Turkey)

15:40 – 16:10 Coffee Break & Exhibition

Room: AudiMax

A.7 SAR Advances in China (invited)
Chairs: Robert Wang (Aerospace Information Research Institute (AIR), Chinese Academy of Sciences (CAS), China), Feng Xu (Fudan University, China)

16:10 **LuTan-1: An Innovative L-band Spaceborne Bistatic Interferometric SAR Mission**
Robert Wang (Chinese Academy of Sciences, China); Kaiyu Liu (Aerospace Information Research Institute, Chinese Academy of Science, China); Yonghua Cai (Aerospace Information Research Institute, Chinese Academy of Sciences & University of Chinese Academy of Sciences, China); Da Liang (Aerospace Information Research Institute, Chinese Academy of Sciences & Ocean University of China, China); Wei Yu (The 14th Research Institute of China Electronics Technology Group Corporation, China); Dacheng Liu and Yafeng Chen (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Qingyue Yang (Aerospace Information Research Institute Chinese Academy of Sciences, China); JunFeng Li (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Lizhi Liu (Aerospace Information Research Institute Chinese Academy of Sciences, China)

16:30 **Multi-dimensional Imaging with MD-JoSAR Mission in China: Challenges and Opportunities**
Yirong Wu, Chibiao Ding, Bingnan Wang, Zekun Jiao, Liangjiang Zhou and Robert Wang (Aerospace information Research Institute, Chinese Academy of Sciences)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

16:50 **See-Earth: SAR Constellation with Dense Time-SEries for Multi-dimensional Environmental Monitoring of the Earth**
Robert Wang (Aerospace Information Research Institute (AIR), Chinese Academy of Sciences (CAS), China); Kaiyu Liu and Yingjie Wang (Aerospace Information Research Institute, Chinese Academy of Science, China); Weidong Yu (Institute of Electronics, Chinese Academy of Sciences, China); Qingchao Zhao (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Naiming Ou (Aerosapce Information Research Institute, Chinese Academy of Sciences, China); Dacheng Liu (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Wei Yu (The 14th Research Institute of China Electronics Technology Group Corporation, China); Daqing Ge (China Aero Geophysical Survey and Remote Sensing Center for Natural Resource, China)

17:10 **Lunar Microwave Imaging Radar**
Pei Wang (Institute of Electronics, Chinese Academy of Sciences, China); Robert Wang (Chinese Academy of Sciences, China); Qingchao Zhao (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Kaiyu Liu, Yuanbo Jiao and Yingjie Wang (Aerospace Information Research Institute, Chinese Academy of Science, China); Pingping Lu (Institute of Electronics, Chinese Academy of Sciences, China); Tongfei Yu (Aerospace Information Research Institute Chinese Academy of Sciences, China); Naiming Ou (Aerosapce Information Research Institute, Chinese Academy of Sciences, China); Xiuqing Liu (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Wei Yu (The 14th Research Institute of China Electronics Technology Group Corporation, China)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

17:30 **"China Compound Eye": Distributed Aperture Radar System for Deep Space Exploration**
Zegang Ding, Kaiwen Zhu, Zehua Dong and Linghao Li (Beijing Institute of Technology, China); Tao Zeng (BeiJing institute of Technology, China)

Room: Terra

B.7 Future SAR Missions
Chairs: Andrea Torre (Thales AleniaSpace, Italy); Maria Jose Gonzalez Bonilla (INTA, Spain)

16:10 **CHORUS Mission Update**
Jayanti J. Sharma and Ron Caves (MDA, Canada); Vince Mantle (Macdonald Dettwiler & Associates Ltd., Canada)

16:30 **Airbus Phase 0 Study for Earth Explorer 11: SEASTAR**
Dominic Michael Phippen (Airbus Defence and Space, United Kingdom (Great Britain)); Geoff Burbidge (Airbus DS Ltd, United Kingdom (Great Britain)); Karen Mak (Airbus Defence & Space Ltd., United Kingdom (Great Britain)); Javier del Castillo Mena (Airbus, Spain); Quiterio García (Airbus Defence and Space, Spain); José Márquez Martinez (Radarmetrics, Spain); Fernando Alemán Roda and Carlos de la Fuente Arranz (GMV, Spain); Martina Stasi (Aresys, Italy); Simon Tröndle, Matthieu David, Tilman Andriof, Steffen Kuntz (Airbus Defence and Space GmbH, Germany)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

16:50 **Earth Explorer 11 - SEASTAR Phase 0**
Simone Gabrielli, Carsten Jonas, Roberto Guerrucci, Katarina Jesswein (OHB System AG, Germany); Marta Tecla Falconi (Thales Alenia Space Italia & CETEMPS, L'Aquila, Italy); Davide Maria Perfetto, Andrea Binci, Giulia Zaccari (Thales Alenia Space Italia S.p.A., Italy); Daniele Mapelli (ARESYS, Italy)

17:10 **The new SAR instrument for Thales Alenia Space HE-R1000 satellites**
Andrea Torre (Thales AleniaSpace, Italy); Francesco Ciarla (Thales Alenia Space, Italy); Giuseppe Orlando (ThalesAleniaSpace Italia, Italy); Francesca Colaneri (Thales Alenia Space, Italy); Gianfranco Sirocci (Thales Alenia Space Italia, Italy)

17:30 **Safeguarding the 10-GHz frequency band for high-resolution X-band SAR applications**
Parivash Lumsdon (Airbus Defence and Space, Germany); Matteo Emanuelli and Ines Ortega Castello (Airbus Defence and Space GmbH, Germany); Jürgen Janoth (Airbus Defence and Space, Germany); Alexander Kaptein (Airbus Defence and Space GmbH, Germany)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

Room: Venus

C.7 Compressive and Computational Radar Imaging (invited)
Chairs: Joachim H. G. Ender (Fraunhofer FHR & Universität Siegen, Germany); Laura Anitori (TNO, The Netherlands)

16:10 **Compressive SAR and MSAR imaging with turbo shrinkage thresholding**
Joachim H. G. Ender (Fraunhofer FHR & Universität Siegen, Germany); Reinhard Panhuber (Joby Aviations Austria GmbH)

16:30 **SAR imaging using combined CS- and TV-regularisation**
Ludger Prünte (Fraunhofer-Institut für Hochfrequenzphysik und Radartechnik FHR, Germany); Reinhard Panhuber (Fraunhofer FHR, Germany)

16:50 **Neural Implicit representations for 3D scene modeling and visualization using multipass SAR**
Nithin Sugavanam and Emre Ertin (The Ohio State University, USA); Jan Rainer Jamora (Air Force Research Laboratory, USA)

17:10 **Enhanced Narrow-band radar imaging of rotating objects: Application to Long Baseline Bistatic Radar (LBBR) for Space Domain Awareness (SDA)**
Philip van Dorp (TNO, The Netherlands); Faruk Uysal (Netherlands Organisation for Applied Scientific Research (TNO), The Netherlands)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

17:30 **Sparse Ramdomised Projections for CS-CDMA MIMO radar**
Saravanan Nagesh, María Antonia González-Huici (Fraunhofer FHR, Germany); Joachim H. G. Ender (Fraunhofer FHR & Universität Siegen, Germany)

17:50 **Improving Radar Image Classification using Dictionary Learning for Filter Initialization in Convolutional Neural Networks**
Simon Wagner (Fraunhofer FHR & University of Siegen, Germany); Fabio Giovanneschi (Fraunhofer FHR, Germany)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

Room: Mars

D.7 Ship Monitoring
Chair: Stefan V. Baumgartner (German Aerospace Center (DLR), Germany); Holger Nies (University of Siegen, Germany)

16:10 **Developing Refugee Vessel Detection Capabilities with Polarimetric SAR**
Peter Lanz (Carl Von Ossietzky University of Oldenburg & Jade University of Applied Sciences, DLR-TS, Germany); Armando Marino (The University of Stirling, United Kingdom (Great Britain)); Morgan D Simpson (University of Stirling, United Kingdom (Great Britain)); Thomas Brinkhoff (Jade University of Oldenburg, Germany); Frank Köster (German Aerospace Center (DLR), Germany); Matthias Möller (University of Bamberg, Germany)

16:30 **Ship Size and Heading Angle Estimation in Range-Doppler Domain and in Focused SAR/ ISAR Images**
Sushil Kumar Joshi and Stefan V. Baumgartner (German Aerospace Center (DLR), Germany)

16:50 **Realistic augmentations for SAR images of ships for machine learning**
Nina Ødegaard (Norwegian Defence Research Establishment (FFI), Norway)

17:10 **Takahē - a Tandem Ka-band & High Altitude Platform Explorer for Ocean & Ice Monitoring**
Krzysztof Orzel, Delwyn Moller and Brian Pollard (Restore Lab, New Zealand)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

17:30 **Experimental Demonstration of a High-Resolution Ultra-Wide Swath Imaging Mode for Ship Monitoring Based on Continuous PRF Variation and Alternated Up- and Down-Chirp Waveforms**

Nertjana Ustalli, Maxwell Nogueira Peixoto and Thomas Kraus (German Aerospace Center (DLR), Germany); Ulrich Steinbrecher and Gerhard Krieger (DLR, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)

18:30 – 22:00 Transfer to Conference Dinner at "Hofbräukeller am Wiener Platz"

Room: AudiMax

A.8 The NASA-ISRO Synthetic Aperture Radar Mission Launch and Early Operations Status (invited)
Chairs: Paul A. Rosen (Jet Propulsion Laboratory, USA); Franz J Meyer (University of Alaska Fairbanks, USA)

09:00 **The NASA-ISRO SAR Mission Overview and Current Status**
Paul A. Rosen (Jet Propulsion Laboratory, USA); Deepak Putrevu (Indian Space Research Organization (ISRO), India)

09:20 **NISAR Level-1 and Level-2 Science Products and Algorithms**
Heresh Fattahi and Brian P Hawkins (Jet Propulsion Laboratory, USA); Virginia Brancato (Jet Propulsion Laboratory, Germany); Gustavo H. X. Shiroma (Jet Propulsion Laboratory, California Institute of Technology, USA); Paul A. Rosen (Jet Propulsion Laboratory, USA)

09:40 **Overview of NASA'S calibration and validation activities for the NISAR mission**
Bruce Chapman (Jet Propulsion Laboratory, California Institute of Technology, USA); Paul A. Rosen (Jet Propulsion Laboratory, USA)

10:00 **Cross-validation of NISAR ISCE3 Product Workflow with the Stanford Back Projection InSAR Framework**
Howard Zebker (Stanford University, USA); Paul A. Rosen (Jet Propulsion Laboratory, USA)

10:40 – 11:10 Coffee Break & Exhibition

10:20 **Making NISAR Data Accessible to the Community**
Franz J Meyer (University of Alaska Fairbanks, USA); Paul A. Rosen and Heresh Fattahi (Jet Propulsion Laboratory, USA); Kirk Hogenson (University of Alaska Fairbanks, USA); Wade Albright (Alaska Satellite Facility, USA); Cassandra Wagner, Greg Short, Kathleen Kristenson, Joseph H Kennedy and Heidi Kristenson (University of Alaska Fairbanks, USA)

Room: Terra

B.8 Calibration 1
Chairs: Bruce Chapman (Jet Propulsion Laboratory, California Institute of Technology, USA); Patrick T.P. Klenk (German Aerospace Center (DLR), Germany)

09:00 **Refining Sentinel-1 radiometric and pointing calibration by on-board temperature compensation emulation**
Beatrice Mai, Andrea Recchia and Alessandro Cotrufo (Aresys, Italy); Gilles Guitton (ODL, Germany); Harald Johnsen (Norce, France); Muriel Pinheiro (European Space Agency, Italy); Antonio Valentino (RHEA for ESA, Italy)

09:20 **TerraSAR-X / TanDEM-X Mission and Calibration Status with a Detailed Analysis of Rainforest LTSM Time-Series Data**
Patrick T.P. Klenk and Lucas N Brianese (German Aerospace Center (DLR), Germany); Allan Bojarski (German Aerospace Center, Germany); Thomas Kraus, Markus Bachmann and Marco Schwerdt (German Aerospace Center (DLR), Germany)

10:40 – 11:10 Coffee Break & Exhibition

09:40 **PAZ Mission after 5 years: Calibration Status**
Juan Manuel Cuerda Muñoz, Marcos García Rodriguez and Nuria Casal (INTA, Spain); Patricia Cifuentes Revenga (National Institute for Aerospace Technology, Spain); Nuria Gimeno Martínez, Maria Jose Gonzalez Bonilla and Nuria Alfaro (INTA, Spain); Eva Vega (Spanish National Aerospace Institute, Spain)

10:00 **Polarimetric Measurements for Sentinel-1 and Radarsat Constellation Mission using Reference Point Targets**
Kersten Schmidt, Jens Reimann, Sebastian Raab and Marco Schwerdt (German Aerospace Center (DLR), Germany)

10:20 **Status of DLR's C-band Calibration Transponders and Outlook on an Upgrade for future SAR Missions**
Sebastian Raab, Klaus Weidenhaupt, Jens Reimann, Anna Maria Büchner, Kersten Schmidt and Marco Schwerdt (German Aerospace Center (DLR), Germany)

10:40 – 11:10 Coffee Break & Exhibition

Room: Venus

C.8 UAV-Based SAR (invited)
Chairs: Christina Bonfert (Ulm University, Germany); Ingrid Ullmann (Institute of Microwaves and Photonics, Germany)

09:00 **A UAV-based Radar Sounder SAR System for the Imaging of Internal Snow and Firn Stratifications**
Michael Stelzig (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany); Andreas Benedikter (German Aerospace Center (DLR)); Lena Krabbe, Jakob Schultz, Niklas Haberberger and Matthias Braun (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany); Gerhard Krieger (German Aerospace Center (DLR)); Martin Vossiek (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)

09:20 **Development of a cm-resolution ground penetrating UAV-SAR system for 3D subsurface radar imaging**
Philipp Brücker, Stephan Dill and Marius Engel (German Aerospace Center (DLR), Germany); Florian Jungbauer (German Aerospace Center, Germany); Markus Peichl (German Aerospace Center (DLR), Germany)

09:40 **Bistatic UAV-Based Repeater SAR for 3D Object Localization**
Julian Kanz (Institute of Microwave Engineering, Ulm University, Germany); Christina Bonfert and Ron Riekenbrauck (Ulm University, Germany); Christian Waldschmidt (University of Ulm, Germany)

10:40 – 11:10 Coffee Break & Exhibition

10:00 **Experimental Demonstration of Bistatic UAV-Borne SAR and InSAR**
Se-Yeon Jeon and Brian P Hawkins (Jet Propulsion Laboratory, USA); Samuel Prager (Jet Propulsion Laboratory, California Institute of Technology, USA); Matthew Anderson (California Institute of Technology, USA); Stefano Moro (Politecnico di Milano, Italy); Eric A Loria (Jet Propulsion Laboratory and California Institute of Technology, USA); Robert Beauchamp (Jet Propulsion Laboratory, California Institute of Technology, USA); Soon-jo Chung (Jet Propulsion Laboratory, USA); Marco Lavalle (Jet Propulsion Laboratory, California Institute of Technology, USA)

10:20 **Experimental Demonstration of UAV-Based Ultra-Wideband Multi-Baseline SAR Interferometry**
Victor Mustieles-Perez (Friedrich-Alexander-Universität Erlangen-Nürnberg & German Aerospace Center (DLR), Germany); Julian Kanz (Institute of Microwave Engineering, Ulm University, Germany); Christina Bonfert and Alexander Grathwohl (Ulm University, Germany); Lucas Leonardo Lamberti and Sumin Kim (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)

10:40 – 11:10 Coffee Break & Exhibition

Room: Mars

D.8 SAR Polarimetry: Techniques and Applications (invited)
Chairs: Laurent Ferro-Famil (ISAE-SUPAERO, University of Toulouse & CESBIO, University of Toulouse, France); Armando Marino (The University of Stirling, United Kingdom (Great Britain))

09:00 **Capabilities of BIOMASS Three-Baseline PolInSAR Mode for the Characterization of Tropical Forests**
Yanzhou Xie (Centre d'Etudes Spatiales de La Biosphère, France); Laurent Ferro-Famil (ISAE-SUPAERO, University of Toulouse & CESBIO, University of Toulouse, France); Yue Huang (INRIA, France); Thuy Le Toan (CESBIO, France); Jianjun Zhu (Central South Unviersity, China); Haiqiang Fu (Central South University, China)

09:20 **Model-based Tensor Decompositions for Soil Moisture Estimation**
Nikita Basargin (German Aerospace Center (DLR) & Technical University of Munich (TUM), Germany); Alberto Alonso-González (Universitat Politécnica de Catalunya (UPC)); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

10:40 – 11:10 Coffee Break & Exhibition

09:40 **Monitoring temporal trends to assess infestation of water hyacinth in Lake Victoria using PolSAR**
Felix Kasiti Isundwa, Morgan D Simpson and Vahid Akbari (University of Stirling, United Kingdom (Great Britain)); Aviraj Datta (International Crops Research Institute for the Semi-Arid Tropics, United Kingdom (Great Britain)); Prabhu Nagendra (Sanatan Dharma College, United Kingdom (Great Britain)); Gogumalla Pranuthi (International Crops Research Institute for the Semi-Arid Tropics, United Kingdom (Great Britain)); Thiago Silva (University of Stirling, United Kingdom (Great Britain)); Rupavatharam Srikanth (International Crops Research Institute for the Semi-Arid Tropics, India); Armando Marino (The University of Stirling, United Kingdom (Great Britain))

10:00 **Sensitivity of Polarimetric and Interferometric Phases to Ice Sheet Subsurface Density**
Georg Fischer (German Aerospace Center (DLR), Germany); Konstantinos P. Papathanassiou (German Aerospace Center, Germany); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)

10:20 **Multi-Band Scattering Analysis Of Offshore-Wind Turbines Using Dual-polarized SAR Measurements**
Farah Rasheed Abbasi (University of Parthenope Napoli Italy, Italy); Andrea Buono (Parthenope University of Naples, Napoli, Italy); Ferdinando Nunziata (Università di Napoli Parthenope, Italy); Christian Bignami (Istituto Nazionale di Geofisica e Vulcanologia & Researcher, Italy); Maurizio Migliaccio (Universita' Napoli Parthenope, Italy)

10:40 – 11:10 Coffee Break & Exhibition

Room: AudiMax

A.9 NewSpace SAR (invited)
Chairs: José Márquez (Starlab Barcelona SL, Spain); Michelangelo Villano (German Aerospace Center (DLR), Germany)

11:10 **ICEYE Microsatellite SAR Constellation: SAR data quality improvements and new Dwell imaging mode**
Vladimir Ignatenko (ICEYE Oy, Finland); Ozan Dogan, Andrea Radius, Matthew Nottingham, Darren Muff, Leszek Lamentowski and Pierre Leprovost (ICEYE, Finland); Risto Vehmas Risto Vehmas (ICEYE Oy, Finland); Tino Seilonen (ICEYE, Finland); Patrik Vilja (ICEYE Oy, Finland)

11:30 **Applications of Highly-Squinted Synthetic Aperture Radar**
Gordon Farquharson (Capella Space, USA); Craig Stringham (Capella Space Corporation, USA); Davide Castelletti, Yuriy Goncharenko, Jisu Ryu, Nestor Yague-Martinez and Shaunak De (Capella Space, USA)

11:50 **Airbus Compact Class Satellite SAR Developments**
Samuel Doody (Airbus DS Ltd, United Kingdom (Great Britain)); Martin Cohen (Airbus Defence & Space Ltd, United Kingdom (Great Britain)); Geoff Burbidge (Airbus DS Ltd, United Kingdom (Great Britain)); Grzegorz Adamiuk (Airbus Defence and Space GmbH, Germany); Philip Whittaker (SSTL, United Kingdom (Great Britain)); Andrew Haslehurst (Surrey Satellites Technology Limited, United Kingdom (Great Britain))

12:50 – 14:00 Lunch Break & Networking

12.10 **Development Status of PRECURSOR - ECO, INTA SAR Mission Based on Collaborative Small Satellites**
Marcos García Rodriguez, Juan Manuel Cuerda Muñoz and Maria Jose Gonzalez Bonilla (INTA, Spain); Eva Vega (Spanish National Aerospace Institute, Spain); Nuria Alfaro (INTA, Spain)

12:30 **MetaSensing StarSAR-X System Design**
Adriano Meta, Riccardo Albi and Nicolo Azzimonti (MetaSensing, Italy)

Room: Terra

B.9 Calibration 2
Chairs: Jens Reimann (German Aerospace Center (DLR), Germany); Juan Manuel Cuerda Muñoz (INTA, Spain)

11:10 **Overview and future prospects of DLRs SAR calibration facility**
Klaus Weidenhaupt and Anna Maria Büchner (German Aerospace Center (DLR), Germany); Matthias Jirousek (DLR German Aerospace Center, Germany); Sebastian Raab, Jens Reimann and Marco Schwerdt (German Aerospace Center (DLR), Germany)

12:50 – 14:00 Lunch Break & Networking

11:30 **The OSCAR Instrument: SAR Processing and Calibration**
Karlus Alexander Camara de Camara de Macedo (Metasensing c/o Karlus AC de Macedo, The Netherlands); Thiago Barreto (MetaSensing, The Netherlands); Simone Placidi (MetaSensing, Singapore); Adriano Meta (MetaSensing, Italy); David McCann and Christine Gommenginger (National Oceanography Centre, United Kingdom (Great Britain)); Adrien Martin (Noveltis, France); José Márquez Martinez (Radarmetrics, Spain); Marcos Portabella (Institut de Ciències del Mar - Consejo Nacional de Investigaciones Cientificas, Spain); Petronilo Martin-Iglesias (European Space Agency, The Netherlands); Tania Casal (ESA-ESTEC, The Netherlands)

11:50 **Operational Ionospheric Correction for SAOCOM Interferometry**
Naomi Petrushevsky (Politecnico di Mllano, Italy); Francesco Banda (Aresys, Italy); Andrea Monti-Guarnieri (Politecnico di Milano, Italy); Marc Thibeault and Juan Pablo Cuesta Gonzalez (CONAE, Argentina); Davide Giudici (Aresys srl, Italy)

12.10 **Towards an Interferometric Autofocus for the Estimation of Ionospheric Signatures in Biomass**
Felipe Betancourt-Payan (DLR & FAU Erlangen, Germany); Marc Rodriguez-Cassola (DLR, Germany); Pau Prats-Iraola (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

12:30 **In-Orbit Two-Dimensional Feed-Array Pattern Measurement for Digital Beamforming SAR Using a Double-Cross-Helix Formation**
Josef Hermann Martin Mittermayer (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)

12:50 – 14:00 Lunch Break & Networking

Room: Venus

C.9 UAV-Based SAR (invited)
Chairs: Othmar Frey (ETH Zurich & Gamma Remote Sensing, Switzerland); Matthias Jirousek (DLR German Aerospace Center, Germany)

11:10 **Compact X-band SAR pod for light UAVs and aircraft**
Przemyslaw Kant (SpaceForest, Poland); Krzysztof Stasiak (Warsaw University of Technology & XY-Sensing, Poland); Roman Rynkiewicz and Seweryn Krawiecki (SpaceForest, Poland); Jacek Gambrych (Warsaw University of Technology & XY-Sensing, Poland); Maciej Wielgo (Warsaw University of Technology, Poland); Rafał Ciania, Dominika Lech and Robert Wiliński (SpaceForest, Poland); Piotr Samczynski and Krzysztof (Chris) Kulpa (Warsaw University of Technology, Poland); Jerzy Julian Michalski (SpaceForest, Poland)

11:30 **The DLR High Altitude Platform Synthetic Aperture Radar Instrument HAPSAR**
Matthias Jirousek (DLR German Aerospace Center, Germany); Markus Peichl, Simon Anger, Stephan Dill and Markus Limbach (German Aerospace Center (DLR), Germany)

11:50 **Potentiality of UAV-based ISAC SAR Imaging**
Stefano Moro, Marco Manzoni, Francesco Linsalata, Mattia Giovanni Polisano, Luca Mantuano, Andrea Monti-Guarnieri and Stefano Tebaldini (Politecnico di Milano, Italy)

12:50 – 14:00 Lunch Break & Networking

12.10 **Single Baseline 3-D Structure Retrieval Using Radar with Wide Fractional Bandwidth Mounted on Drones**
Sumin Kim (German Aerospace Center (DLR), Germany); Victor Mustieles-Perez (Friedrich-Alexander-Universität Erlangen-Nürnberg & German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)

12:30 **Simultaneous Car-Borne SAR Imaging at L-Band and Ku-Band for DInSAR-Based Mobile Mapping of Ground Motion in Alpine Terrain**
Othmar Frey (ETH Zurich & Gamma Remote Sensing, Switzerland); Charles Werner (GAMMA Remote Sensing Research and Consulting AG, Switzerland); Rafael Caduff (Gamma Remote Sensing AG, Switzerland)

Room: Mars

D.9 Machine Learning for Processing and Analysis of SAR Imagery (invited)
Chairs: Ronny Haensch (DLR, Germany); Michael Schmitt (University of the Bundeswehr Munich, Germany)

11:10 **Learning a versatile representation of SAR data for regression and segmentation by leveraging self-supervised despeckling with MERLIN**
Emanuele Dalsasso (Télécom Paris, France); Clément Rambour (CNAM / ONERA, France); Loic Denis (Université Jean Monnet, France); Florence Tupin (Télécom ParisTech, France)

12:50 – 14:00 Lunch Break & Networking

11:30 **Heterogeneous change detection with PRISMA and COSMO-SkyMed Second Generation imagery for natural disaster management**
Ignacio G Masari, Gabriele Moser and Sebastiano Serpico (University of Genoa, Italy)

11:50 **Single Image Height Reconstruction from SAR Intensity Images -- What is it Good For?**
Michael Schmitt and Michael Recla (University of the Bundeswehr Munich, Germany)

12.10 **Optimizing Φ-Net Using TanDEM-X Bistatic Data for High-Resolution DEM Generation**
Luca Dell'Amore (German Aerospace Center (DLR), Germany); Vinicius Soledade Matos Amorim (Instituto Tecnológico de Aeronáutica, Brazil); Paola Rizzoli (German Aerospace Center (DLR), Germany)

12:30 **Can SAR improve RSVQA performance?**
Lucrezia Tosato (Université Paris Cité & ONERA, France); Sylvain Lobry (Université Paris Cité, France); Flora Weissgerber (ONERA, France); Laurent Wendling (Université Paris Cité, France)

12:50 – 14:00 Lunch Break & Networking

Room: AudiMax

A.10 SAR Missions
Chairs: Grzegorz Adamiuk (Airbus Defence and Space GmbH, Germany); Gordon Farquharson (Capella Space, USA)

14:00 **Sentinel-1 First Generation: mission status and data quality**
Muriel Pinheiro (European Space Agency, Italy); Antonio Valentino (RHEA for ESA, Italy); Andrea Recchia and Alessandro Cotrufo (Aresys, Italy); Kersten Schmidt and Christoph Gisinger (German Aerospace Center (DLR), Germany); Charles Peureux (CLS, France); Pauline Vincent (Collecte Localisation Satellites CLS, France); Alexis Mouche (Ifremer, France); Antoine Grouazel (Ifremer, Germany); Harald Johnsen (Norce, France); Fabrice Collard (Ocean Data Lab, France); Gilles Guitton (ODL, Germany); Guillaume Hajduch (CLS Group, Brest, France); Nuno Miranda (European Space Agency & ESRIN, Italy)

14:20 **New Analysis Ready Data products for European Space Agency Synthetic Aperture Radar missions**
Clément Albinet (European Space Agency, Italy); Meriem Chakroun (ACRI-ST, France); Jonas Eberle (German Aerospace Center (DLR), Germany); Kajal Haria (Telespazio UK Ltd, United Kingdom (Great Britain)); David Small (University of Zurich, Switzerland & Remote Sensing Laboratories, Canada); John Truckenbrodt (German Aerospace Center (DLR), Germany); Antonio Valentino (RHEA for ESA, Italy); Anna Wendleder (German Aerospace Center (DLR) & German Remote Sensing Data Center, Germany); Marco Wolsza (University of Jena, Germany)

15:45 **Awards Ceremony** (Room: Audimax)

14:40 **PAZ Ciencia: Scientific Exploitation of PAZ. Current Status and Plan for future INTA SAR missions**
Maria Jose Gonzalez Bonilla, Juan Manuel Cuerda Muñoz, Nuria Casal, Cristina Hiedra, Marcos García Rodriguez and Nuria Alfaro (INTA, Spain); Eva Vega (Spanish National Aerospace Institute, Spain)

15.00 **Applications of Very High Resolution X-Band SAR Data Acquired by the Capella Space Constellation**
Shaunak De (Capella Space, USA); Victor Cazcarra-Bes (Capella Sapce, USA); Davide Castelletti (Capella Space, USA); Craig Stringham (Capella Space Corporation, USA); Gordon Farquharson (Capella Space, USA)

15:20 **TeLEOS-2 Overview and Initial Results**
Chun Jian Ho (ST Engineering Geo-Insights Pte. Ltd., Singapore); Chek Wu Tan and Elvin Tan (ST Engineering, Singapore); Yee Siang Lim (DSO National Laboratories, Singapore)

15:45 **Awards Ceremony** (Room: Audimax)

Room: Terra

B.10 Radar Observations of Planetary Bodies (invited)
Chairs: Scott Hensley (Jet Propulsion Laboratory & Radar Science and Engineering Section, USA); Marie Lachaise (German Aerospace Center (DLR), Germany)

14:00 **Repeat Pass InSAR at Enceladus – A Geophysics Mission Concept to Understand Dynamics and Habitability**
Paul A. Rosen (Jet Propulsion Laboratory, USA); Andreas Benedikter (German Aerospace Center (DLR) & University of Erlangen-Nuremberg, Germany); Stephen J. Horst and Kenneth J. Hurst (Jet Propulsion Laboratory, USA); Gerhard Krieger (DLR, Germany); Pau Prats-Iraola (German Aerospace Center (DLR), Germany); Marc Rodriguez-Cassola (DLR, Germany); Mark Simons (Caltech, USA); Shadi Oveisgharan (Jet Propulsion Laboratory, USA)

14:20 **EnVision VenSAR Altimetry of Venus**
Razi Ahmed (Jet Propulsion Laboratory, USA); Scott Hensley (Jet Propulsion Laboratory & Radar Science and Engineering Section, USA); Ruzbeh Akbar (Jet Propulsion Laboratory, USA); Shashank S Joshil (Jet Propulsion Laboratory and California Institute of Technology, USA); Jan Martin, Michael W. Spencer and Kevin Wheeler (Jet Propulsion Laboratory, USA)

15:45 **Awards Ceremony** (Room: Audimax)

14:40 **F-SAR Airborne Measurement Campaign in Iceland for VERITAS**
Martin Keller, Marc Jäger, Ralf Horn, Rolf Scheiber and Jens Fischer (German Aerospace Center (DLR), Germany); Daniel Geßwein (German Aerospace Center, Germany); Scott Hensley (Jet Propulsion Laboratory & Radar Science and Engineering Section, USA); Andreas Reigber (German Aerospace Center (DLR), Germany)

15.00 **A Fractionated Radar Sounder Concept for Subsurface Exploration of Saturn's Icy Moon Enceladus**
Andreas Benedikter (German Aerospace Center (DLR) & University of Erlangen-Nuremberg, Germany); Jalal Matar (German Aerospace Center (DLR), Germany); Masaki Nagai (OHB, Germany); Tobias Otto (OHB System AG, Germany); Hauke Hussmann (DLR, Germany); Taruna Parihar, William Byrne, Ana-Catalina Plesa and Tina Rueckriemen-Bez (German Aerospace Center, Germany); Eduardo Rodrigues-Silva (German Aerospace Center DLR, Germany); Gerhard Krieger and Marc Rodriguez-Cassola (DLR, Germany); Ernesto Imbembo (European Space Agency, The Netherlands)

15:20 **Super-resolution applied to sounder data: the case of MARSIS and SHARAD**
Letizia Gambacorta (Sapienza, University of Rome, USA & Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany); Marco Mastrogiuseppe (Sapienza, University of Rome, Italy); Maria Carmela Raguso (Jet Propulsion Laboratory, California Institute of Technology, USA); Roberto Seu (Sapienza, University of Rome, Italy)

15:45 **Awards Ceremony** (Room: Audimax)

Room: Venus

C.10 Inverse SAR
Chairs: Simon Anger (German Aerospace Center (DLR), Germany); Matthias Jirousek (DLR German Aerospace Center, Germany)

14:00 **Multi-channel imaging of space objects**
Simon Anger (German Aerospace Center (DLR), Germany); Matthias Jirousek (DLR German Aerospace Center, Germany); Stephan Dill and Markus Peichl (German Aerospace Center (DLR), Germany)

14:20 **High Resolution Bistatic ISAR Imaging of Space Objects**
Fayin Yousfi (ONERA, France); Felix Rosebrock and Delphine Cerutti-Maori (Fraunhofer FHR, Germany); Pierre Bruneel (ONERA, Université de Paris-Saclay, France); Nicolas Gonçalves (ONERA, France); Milan Rozel (ONERA, Université de Paris-Saclay, France); Helene Oriot (ONERA, France)

14:40 **Recent Improvements on PREDICS®, a Precise RCS/ISAR Simulation and Analysis Tool**
Caner Ozdemir (Mersin University, Turkey and Consulting AG, Switzerland); Rafael Caduff (Gamma Remote Sensing AG, Switzerland)

15:00 **Coarse-to-fine Estimation: Compressive Sensing for High-Resolution Inverse SAR Imaging**
Muhammad Amjad Iqbal, Amjad (University Politehnica of Bucharest (UPB) Romania, CEO SpaceTech, Romania); Miguel Heredia Conde (Center for Sensorsystems (ZESS), University of Siegen, Germany); Andrei Anghel (University Politehnica of Bucharest / Grenoble INP GIPSA-lab, Romania); Mihai Datcu (German Aerospace Center, Germany)

15:45 **Awards Ceremony** (Room: Audimax)

Room: Mars

D.10 Data Fusion, Machine Learning and Quantum Computing
Chairs: Mihai Datcu (German Aerospace Center, Germany); Sigurd Huber (German Aerospace Center (DLR), Germany)

14:00 **Fusion of Single-Image-Based Height Maps Generated from Multi-Orbit SAR Acquisitions for City Model Reconstruction**
Michael Recla and Michael Schmitt (University of the Bundeswehr Munich, Germany)

14:20 **Quantum Optimisation for InSAR Phase Unwrapping**
Kay Glatting (German Aerospace Center (DLR), Germany); Jan Meyer (FAU Erlangen & DLR Oberpfaffenhofen, Germany); Sigurd Huber (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

14.40 **Quantum Computation for SAR Antenna Optimization Problems**
Sigurd Huber (German Aerospace Center (DLR), Germany); Yoshinta Eka Setyawati Wied and Michael Epping (German Aerospace Center DLR, Germany); Kay Glatting (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

15:45 **Awards Ceremony** (Room: Audimax)

15.00 **Cross-Modal Learning for Classification of Optical and SAR Imagery**
Ekaterina Senchugova (TU Berlin, Germany); Ronny Haensch (DLR, Germany)

15:20 **SAR image synthesis using text conditioned pre-trained generative AI models**
Nicolas Trouvé (ONERA, University Paris-Saclay (France), France); Nathan Letheule (University of Paris-Saclay & ONERA, France); Ilias Rami (Université Paris Saclay, France); Olivier Lévêque (ONERA, France); Elise Colin (DTIS-Onera, University of Paris Saclay, France)

15:45 **Awards Ceremony** (Room: Audimax)

Exhibition

The Conference will be accompanied by an exhibition which is well appreciated from the conference delegates. It gives all attendeeds and exhibiting companies enough space for networking.

Exhibitors will present their latest products related to praxis in the field of SAR and Radar Technology.

We are pleased to welcome the following exhibitors:

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Gold Partner

AIRBUS

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https:/www.airbus.com

HENSOLDT

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HENSOLDT is a leading company in the European defence industry with global reach. Based in Taufkirchen near Munich, the company develops complete sensor solutions for defence and security applications. As a technology leader, HENSOLDT drives the development of defence electronics and optronics and is continuously expanding its portfolio based on innovative approaches to data fusion, artifical intelligence and cyber security. The company takes its responsibility as a sustainable business very seriously and has set itself ambitious goals for emissions avoidance, resource-effciency and responsible corporate governance. With more than 6,500 employees, HENSOLDT achieved a turnover of 1.7 billion euros in 2022. HENSOLDT is listed in the MDAX of the Frankfurt Stock Exchange.

https://www.hensoldt.net

Capella Space

Silver Partner

Capella Space

Capella Space is an American space tech company with data and satellite solutions for government and commercial use. A pioneer in the Earth observation industry, Capella is the first U.S. company with a constellation of Synthetic Aperture Radar (SAR) satellites, delivering the best quality, highest resolution SAR imagery commercially available. Capella provides easy access to frequent and timely information affecting dozens of industries worldwide, including defense and intelligence, supply chain, insurance, maritime and others. Its market-leading SAR satellites are matched with unparalleled data infrastructure to quickly deliver reliable global insights that sharpen our understanding of the changing world – improving decisions about commerce, conservation, and security on Earth. Headquartered in San Francisco, California with additional locations in Denver, Colorado and Washington, D.C., Capella's satellites are operated, designed and manufactured in the USA.

https://www.capellaspace.com

European Space Imaging GmbH

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EUSI
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European Space Imaging (EUSI) has led the earth observation sector in Europe for more than 20 years, providing the best Very High Resolution (VHR) satellite imagery commercially available. The first to bring 30 cm resolution satellite imagery to the European market, EUSI is firmly established as the

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OHB System AG

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https://www.ohb.de

Umbra Space

Silver Partner

Umbra is an advanced radar technology company that offers intelligence data as a service to commercial and government customers. Umbra satellites generate the highest-resolution commercial SAR data ever offered.
Its cutting edge products help customers solve complex business and security challenges. Umbra is a U.S.-owned and operated company headquartered in Santa Barbara, California, and has a presence in Austin, Texas, and Washington, D.C.

https://umbra.space/

The German Aerospace Center (DLR)

Standard Partners

DLR is the Federal Republic of Germany's research centre for aeronautics and space.

We conduct research and development activities in the fields of aeronautics, space, energy, transport, security and digitalisation.
The German Space Agency at DLR plans and implements the national space programme on behalf of the federal government.
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for a sustainable future. In doing so, DLR contributes to strengthening Germany's position as a prime location for research and industry.

http:/www.dlr.de

NV5 Geospatial Solutions GmbH

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NV5 Geospatial Software (formerly know and L3Harris Geospatial Solutions) is an industry leading developer of image analysis and data visualization software tools to help professionals across industries and disciplines solve complex problems. NV5 Geospatial Software provides desktop, cloud and mobile software solutions to help professionals across industries transform geospatial imagery and complex data into actionable information. Our products ENVI, IDL, and ENVI SARscape allow to quickly and easily visualise and analyse all types of data and imagery for better, more informed decision making.

ENVI SARscape technology in particular is designed for those who are knowledgeable about SAR data and processing and enables users to modify parameters to create the exact products they need.

Combined with classroom and onsite training, best-in-class customer support, and custom consulting, NV5 Geospatial software products provide leading edge technology to span the imagery workflow, from data ingest to exploitation and delivery. www.nv5geospatialsoftware.com

https://NV5 Geospatial Solutions GmbH

MetaSensing BV

Standard Partner

MetaSensing is an Italian company with a main focus on Synthetic Aperture Radar hardware, processing and applications since 2008.

With a several products at different bands ranging from P up tp Ka band and with a number of projects all round the world the company is a recognized and well respected player in the SAR field for ground, airborne and space applications, both in the commercial and defence market.

Space related activities range from providing airborne acquisitions for satellite future mission to design and implementation of complete end to end SAR payload processor up to space graded payload manufacturing. Praticularly, MetaSensing has developed all the key elements for advanced and high performance fully polarimetric phased array SAR payloads. The StarSAR-X is an example of MetaSensing space graded SAR payloads, featuring less than 0.15 meter slant range resolution, fully polarimetric imaging, and complete electronic beamsteering in azimuth and elevation, it is a scalable product which can be taylored to high perfomance requirement or to low weight and low power needs.

In the Space, Defence and Commercial sector, MetaSensing has established a reliable partner.

https://www.metasensing.com

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VDE BAYERN

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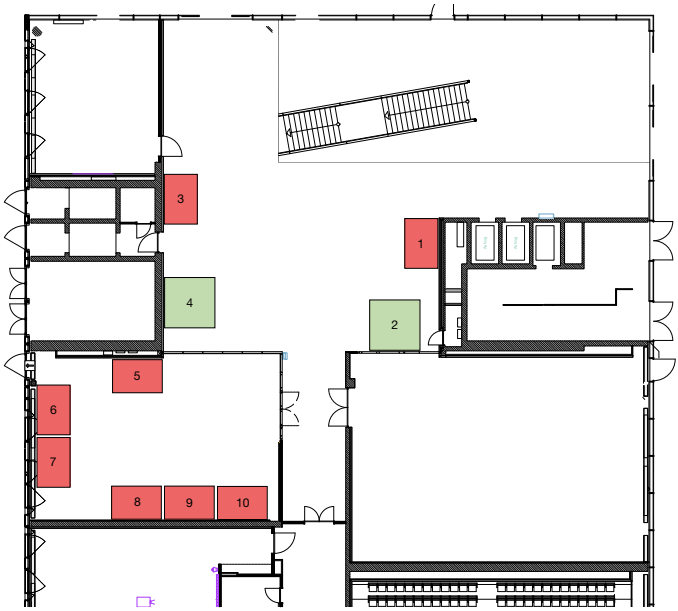
https://www.vde-bayern.de

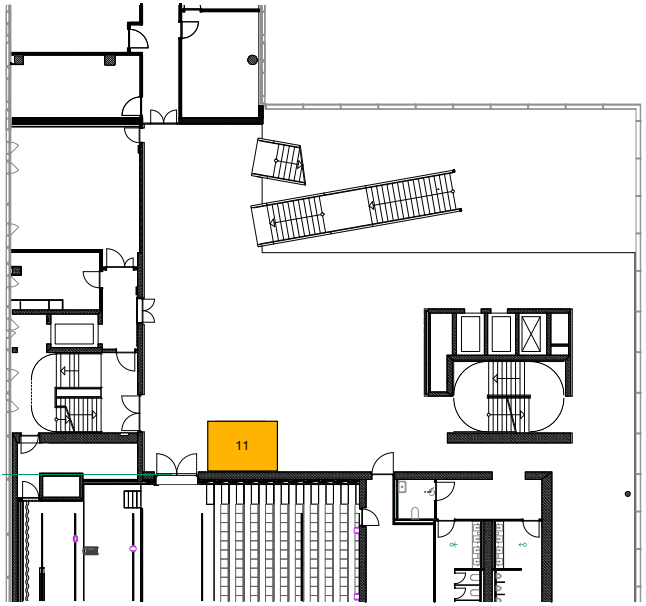
Exhibiton Plan

Foyer ground floor



Booth No.	Exhibitor
Booth No.1	OHB System AG
Booth No.2	Airbus Defence and Space GmbH
Booth No.3	NV5 Geospatial Solutions GmbH
Booth No.4	HENSOLDT
Booth No.5	MetaSensing BV
Booth No.8	Capella Space
Booth No.9	VDE Bayern
Booth No.10	European Space Imaging GmbH / Umbra Space
Booth No.11	DLR e.V.

Foyer 1st floor



Legend

6 m² 9 m² 12 m²

General Informations

EUSAR 2024 Conference Office

For detailed information please contact:
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Registration fees	**Registration before 23.03.2024**	**Registration after 23.03.2024**
Non-Member	€ 1.010,00	€ 1.110,00
Member (VDE, EUREL, IEEE)*	€ 880,00	€ 980,00
Corporate VDE-Member*	€ 930,00	€ 1.030,00
PhD Students*	€ 640,00	€ 740,00
Presenting Author (max. 2 papers per author)	€ 760,00	€ 810,00
Student** (Undergraduates only, excl. conference dinner)	€ 150,00	€ 250,00
Tutorials 1, 2, 3, 4, (each)	€ 280,00	€ 280,00
Tutorial 5	free of charge	free of charge
Tutorial fees for students (each)	€ 80,00	€ 80,00
Additional dinner ticket	€ 90,00	€ 90,00
Press	free of charge	free of charge

* Participants applying for the membership fee must include a copy of their membership card to the registration form.

** A copy of the student's certification card has to be endorsed by a supervisor or head of department and must be attached to the registration form.

- The tutorial registration includes only the participation to the tutorial, the tutorial handouts, the lunch and coffee breaks on Tuesday, April 23rd, 2024.

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Regular Conference Registration:

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Student Registration:

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Proceedings

The proceedings will be published by VDE Publishing House and made available in IEEE Xplore and indexed in Scopus after the conference.

All accepted papers presented at the conference will be published in the EUSAR 2024 proceedings.

A few months after the conference, the papers will be availbale for purchase as single pdf file.

Official Language

All sessions will be held in English, only.

Accommodation

For your stay in Munich, we have reserved a various number of hotel rooms which can be booked over the following links:

Marriott Courtyard Munich Garching

Stellaris Apartment Hotel Munich Garchin

We recommend to book your hotel room on time!

Time
The given times in the program schedule are according to the German Local Time (CEST)

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Venue
Science Congress Center Munich
Walther-von-Dyck-Straße 10
85748 Garching/Munich, Germany

EUSAR, the European Conference on Synthetic Aperture Radar, will take place at the Science Congress Center in Munich/Germany.

© Science Congress Center Munich

Brilliant minds meet design, science meets economy – the new Science Congress Center Munich (SCCM) welcomes its guests with possibilities beyond the ordinary: with an auditorium that benefits from natural daylight, a variety of excellently equipped function rooms of various sizes and an environment where science is lived and breathed. The research campus "Galileo-Neue Mitte Garching" is home to leading research institutes and also a lively place to be and enjoy life. Located

in the north of Munich, halfway between the city center and the international airport, the SCCM is the ideal platform for successful international conventions, conferences, trade shows and events.

EUSAR 2024 Conference Dinner
The EUSAR 2024 Conference Dinner invites all conference guests into a traditional Bavarian location.

The EUSAR 2024 Conference Dinner will take place at:

Hofbräukeller am Wiener Platz
Innere Wiener Strasse 19
81667 Munich, Germany

© Hofbräukeller

Shuttle Bus & City Tour
There will be a free shuttle service for all conference guests to the evening location including a guided city tour on board of the bus directly in front of the conference venue and returns at 22:30 to the same destination.

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