Space Microwave Week

12th – 16th May 2025

ESA/ESTEC, Noordwijk, The Netherlands

In association with EuMA

Programme

Updated 08-05-25

ESA Conference Bureau / ATPI Corporate Events

(esaconferencebureau@atpi.com)

ESA-ESTEC, Keplerlaan 1
2201 AZ Noordwijk, The Netherlands

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Programme at a Glance

Space Microwave Week, 12th - 16th May 2025, ESA-ESTEC

Monday 12th May		Tuesday 13th May			Wednesday 14th May			Thursday 15th May			Friday 16th May	
Time	Newton 1 + 2	Time	Newton 1	Newton 2	Time	Newton 1	Newton 2	Time	Newton 1	Newton 2	Time	Newton 1
		09:00 - 10:45	Active Array Technology & Techniques	Frequency and Time Generation	09:00 - 10:45	Low Noise Amplification	Filters and Multiplexers (I)	09:00 - 10:45	Transversal Technologies: mm-Wave & Photonics	Filters and Multiplexers (III)	09:00 - 11:05	Equipment & Technology for Remote Sensing (II)
		10:45 - 11:15	*Coffee Break*		10:45 - 11:15	*Coffee Break*		10:45 - 11:15	*Coffee Break*		11:05 - 11:25	*Coffee Break*
10:30 - 13:30	*Registration*	11:15 - 13:00	Telecom Equipment & Technology (II)	GaN Technology for Space Applications	11:15 - 13:00	Silicon RF Technologies (II)	Filters and Multiplexers (II)	11:15 - 13:00	Transversal Technologies: Advanced Manufacturing (I)	Passive Technologies for Space	11:25 - 13:00	*SMW '23 Closing Ceremony*
		13:00 - 14:00	*Lunch Break*		13:00 - 14:00	*Lunch Break*		13:00 - 14:00	*Lunch Break*			
13:30 - 15:00	*SMW '23 Opening Ceremony*	14:00 - 15:45	Silicon RF Technologies (I)	RF Active Design Solutions	14:00 - 15:05	Silicon RF Technologies (III)	Advanced Integration and Packaging	14:00 - 15:45	Transversal Technologies: Advanced Manufacturing (II)			
15:00- 15:30	*Coffee Break*	15:25 - 15:55	*Coffee Break*		15:05 - 15:35	*Coffee Break*		15:45 - 16:15	*Coffee Break*			
15:30 - 17:35	Telecom Equipment & Technology (I)	16:15 - 17:30	Silicon Technologies Panel Session		15:35 - 17:00	Measurements & Characterization	Multipactor Prediction and Mitigation	16:15 - 17:20	Equipment & Technology for Remote Sensing (I)			
18:00 - 20:00	Welcome Reception				18:00 - 22:00	SMW '23 Gala Dinner						

Monday 12th May 2025

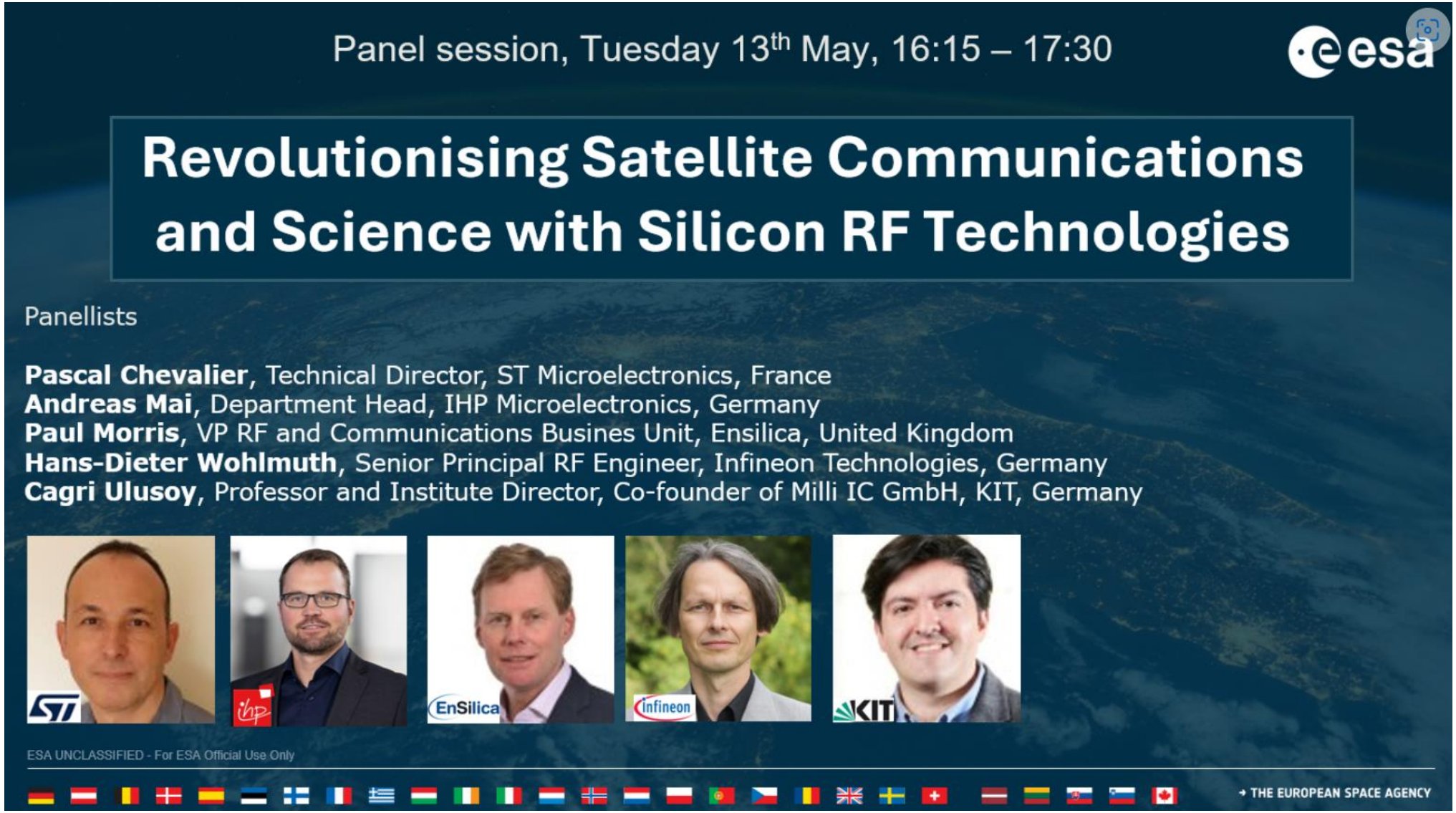
Monday							
12/05/2023				Rooms Newton 1 & 2			
10:30	03:00	13:30		***Registration***			
13:30	00:15	13:45		***SMW'25 Opening Ceremony***			Welcome address by ESA and EuMA
13:45	00:15	14:00					Conference Introduction (ESA)
14:00	00:30	14:30					Plenary - BIOMASS: ESA's P-band Radar Mission - Michael Fehringer (ESA)
14:30	00:30	15:00					Plenary - IRIS² – The New EU Programme for Secure Communications Via Satellites - Piero Angeletti (ESA)
15:00	00:30	15:30		Coffee Break			
				Session MON01			
				Telecom Equipment & Technology (I)			
15:30	00:25	15:55	102	**New Space, New Solutions - Optimising design for speed, scalability and affordability**	**Tudor Williams**	**Filtronic**	
15:55	00:20	16:15	25	GaN MMIC Based Solid State Power Amplifier for X Band for Long Range High Capacity Communication	David Serres	Thales Alenia Space	
16:15	00:20	16:35	111	Characterization of a V-Ka band receiver module with ultra low noise figure, high gain and linearity for geostationary satellite communication	Bård Eirik Nordbø	Kongsberg	
16:35	00:20	16:55	4	Mars Connect: Surface-Orbital radio-communication system on Mars. Design and Testing.	José Raimundo Ruiz Carrasco	INTA	
16:55	00:20	17:15	97	Space Qualified Millimeter Wave TWTAs	Richard Kowalczyk	Elve Inc	
17:15	00:20	17:35	55	Autonomous RF Power Amplifier Control based on Machine Learning	Olof Bengtsson	Ferdinand-Braun-Institut (FBH)	
17:35	00:25	18:00		End of Day / Split Newton 1 & Newton 2			
18:00	02:00	20:00		***Welcome Reception (Erasmus)***			

Tuesday 13th May 2025

Tuesday 13/05/2023			Room Newton 1				Room Newton 2			
				Session TUE11				***Session TUE21***		
				Active Array Technology & Techniques				***Frequency and Time Generation***		
09:00	00:25	09:25	7	**Q-band Front End Radiating Module for next generation active antennas at Thales Alenia Space**	**David Serres**	**Thales Alenia Space**	63	**A compact two-photon Rb clock for ground applications with long-term stability below 1E-15**	**Thibaud Ruelle**	**CSEM SA**
09:25	00:20	09:45	3	Ka-band HPA MMIC for active antenna front-end for secure communication services	Mario Ramírez-Torres	Airbus Defence and Space	88	Low phase noise millimetre-wave Voltage Controlled Oscillators based on electromagnetic bandgap resonators	Indra Ghosh	Imst Gmbh
09:45	00:20	10:05	38	High efficiency Ka-band Differential Radiating Front-End using GaN HPA MMICs and Dipole Waveguide Feeds	Marc van Heijningen	TNO	110	Microwave and THz Self-Oscillators in Vacuum Electron Devices and Avalanche Diodes	Kostyantyn LUKIN	IRE-NASU
10:05	00:20	10:25	86	Statistical Analysis of Spectral Regrowth in Direct Radiating Arrays Considering Antenna Crosstalk for Multi-Beam Applications	Aymeric Cailleux	Heriot-Watt University	76	High frequency, thermally stable dielectric resonator oscillators for new space applications	Przemyslaw Kant	Spaceforest
10:25	00:20	10:45	51	Digital Predistortion in Digital Beamforming Transmitters for Satellite Communications	Pere L. Gilabert	Consorzio ULISSE	119	On breadboarding Upper Sideband Syntonization at P=2 for Radio Interferometry	Volodymyr Kudriashov	ESA
10:45	**00:30**	**11:15**	**Coffee Break**							
				Session TUE12				***Session TUE22***		
				Telecom Equipment & Technology (II)				***GaN Technology for Space Applications***		
11:15	00:25	11:40	92	**Optimisation of Earth Observation Downlink System Performance Using Analogue Lineariser in X band**	**Jan Prokopec**	**Honeywell International, Inc.**	901	**Sponsor Keynote - MACOM - Enabling GaN/Si technologies for next generation of space millimeter wave telecommunications**	**Charles Edoua Kacou**	**MACOM**
11:40	00:20	12:00	67	Integration of a Ka-band satellite receiver system based on COTS components	Nieves García Alcaide	ALTER TECHNOLOGY TÜV NORD	2	Highly-Efficient High-Power GaN SSPA for VHF Space Radar Systems	Rocco Giofrè	University of Rome Tor Vergata
12:00	00:20	12:20	40	In-Orbit Demonstration of a Transponder and Antenna for K/Ka Band SATCOM	Francesco Adamo	University Of Trento	6	High Power Quad-Channel C-Band T/R Module for Spaceborne SAR Instruments	Andreas Fleckenstein	HENSOLDT Sensors GmbH
12:20	00:20	12:40	57	X-band TX/RX Adaptative Arrays for Small Portable Terminals	Lisa Berretti	IETR, INSA Rennes, France	98	C/X dual-band MMIC GaN HPA MMIC for Earth observation satellites	Patrick Longhi	Università Di Roma Tor Vergata
12:40	00:20	13:00	79	W-band Meander Line Slow Wave Structure for Compact Satellite Traveling Wave Tube	Claudio Paoloni	Lancaster University	54	MMIC Power amplifiers and LNAs in 100-nm GaN on SiC EU based technology for Q/V band VHTS and constellations.	Jordi Verdu	Universitat Autònoma De Barcelona
13:00	**01:00**	**14:00**	**Lunch Break**							
				Session TUE13				***Session TUE23***		
				Silicon RF Technologies (I)				***RF Active Design Solutions***		
14:00	00:25	14:25	87	**SiGe BiCMOS Technology for LEO SATCOM User Terminals: Current Status & Perspectives**	**Pascal Chevalier**	**STMicroelectronics**	96	**Evaluating RF Circuit Synthesis Methods: Insights from RapidRF for LNA and PA Design Across Wide Frequency Ranges**	**Florian Dietrich**	**RapidRF**
14:25	00:20	14:45	104	Beamforming ICs in SOI Technology for Ku/Ka-band User Terminals and Payloads	Erik Öjefors	Sivers Semiconductors Ab	95	Simulating the effect of a Baseband Cancellation Network on Wideband Doherty Linearity using the Iterative Envelope Simulator	Indy Van Den Heuvel	Cardiff University
14:45	00:20	15:05	90	A distributed digital beamformer IC for Ka and Ku-band flat-panel arrays	Paul Morris	Ensilica plc	48	Power Amplifier Design for Integrated Multi-beam Active Antenna Arrays	Haijun Fan	Heriot-watt University
15:05	00:20	15:25	13	A 33 GHz Bandwidth 12.8 GSps 10-bit Analog-to-Digital Converter for Space and Ground Applications Enabling Direct Ka-band Conversion	Victoria Nasserddine	Teledyne e2v	43	Mitigating High VSWR in Large-Scale Millimeter-Wave Phased Arrays: A Review of Power Amplifier Design Challenges and Topological Tradeoffs	Mohamed Eleraky	Swiss Federal Institute of Technology, ETH Zurich
15:25	00:20	15:45	801	SiGe THz and Photonics for cryogenic and space applications	Andreas Mai	IHP Technology	36	Wideband Matching Network Design for GaN Power Amplifiers Using Phase Optimization	Sergio Lopez de Pablo Oya	Universitat Autonoma de Barcelona
15:45	**00:30**	**16:15**	**Coffee Break / Open Newton 1 & Newton 2**							
			Rooms Newton 1 & 2							
				Session TUE04						
16:15	01:15	17:30	***Revolutionising Satellite Communications and Science with Silicon RF Technologies***							
17:30			**End of Day / Split Newton 1 & Newton 2**							

Tuesday 13th May 2025

https://atpi.eventsair.com/space-microwave-week-2025/panel-session -



Wednesday 14th May 2025

Wednesday 14/05/2023			Room Newton 1				Room Newton 2			
				Session WED11				***Session WED21***		
				Low Noise Amplification				***Filters and Multiplexers (I)***		
09:00	00:25	09:25	10	**An Integrated W-Band Dual-Polarization Receiver Front-End Featuring Ultra-Low Noise Figure**	**Philipp Neininger**	**Fraunhofer Institute for Applied Solid State Physics IAF**	20	**Substrate embedded filters for microwave equipment**	**Markku Lahti**	**Vtt Technical Research Centre Of Finland**
09:25	00:20	09:45	91	Monolithic Integration of State-of-the-Art W-Band Low-Noise Amplifiers and Switches Using a 50-nm InGaAs mHEMT Technology	Fabian Thome	Fraunhofer IAF	21	Substrate-Embedded Filters for On-Board Microwave Equipment	Paolo Vallerotonda	RF Microtech
09:45	00:20	10:05	74	Ku- and Ka- Band GaN Low Noise Amplifiers for Earth Observation Systems	Beatriz Aja	Universidad de Cantabria	39	Software tool for designing electro-acoustic filters for space applications	Edgar Navarro-Gessé	Universitat Politècnica De Catalunya
10:05	00:20	10:25	89	Ultra-Low Voltage Ka-Band Amplifiers for Energy-Efficient SATCOM Systems	Sergio Colangeli	University of Roma Tor Vergata	23	Extremely Wideband and Phase Linear Surface Acoustic Wave (SAW) Filters Using Slanted Interdigital Transducers	Tormod Bjørnetun Haugen	Kongsberg Defence & Aerospace, Space Products
10:25	00:20	10:45	28	A 1.6 dB NF X-band LNA on 55 nm BiCMOS technology for SatCom applications	Mohammed Wehbi	Asygn Sas	5	Tunable acoustic filters for space applications	Jordi Mateu	Upc
10:45	**00:30**	**11:15**	**Cofffee Break**							
				Session WED12				***Session WED22***		
				Silicon RF Technologies (II)				***Filters and Multiplexers (II)***		
11:15	00:25	11:40	903	**Sponsor Keynote - Texas Instruments**	**Jason Clark**	**Texas Instruments**	19	**TM010 mode Dielectric-loaded S-band Diplexer for Small Satellite TT&C Applications**	**Paolo Vallerotonda**	**RF Microtech**
11:40	00:20	12:00	65	Exploring Hybrid True-Time-Delay and Phase-Shifter Based Beamformers for Wideband Large-Scale SATCOM Arrays	Basem Abdelaziz Abdelmagid	ETH Zürich	83	Three- and four-sections coaxial stepped impedance resonators for Tx filters	Eric Rius	Lab-STICC/UBO
12:00	00:20	12:20	84	Technology Advancements in Europe regarding Beam Forming on Satellite Up-Link V-Band	Paolo Tabacco	Digimimic	27	Design of an L-Band Diplexer with Ceramic Coaxial Resonators for Space Applications	Laia Garcia Perona	Universitat Autònoma De Barcelona
12:20	00:20	12:40	99	Taking a Leap in Integration Density for Radio Telescopes With a SiGe based Single-Chip LO Generation	Tobias T. Braun	Ruhr University Bochum	46	Integration of ceramic inserts for the production of compact Ku & Ka-band Tx filters	Hassan Kotaich	Xlim
12:40	00:20	13:00	108	Rad-Hard 32 GHz PLL/VCO Development at SAPHYRION	Angelo Consoli	Saphyrion Sagl	93	A miniature surface mounted and temperature stable Ka band LMST filter for telecommunication satellite	Nicolas Delhote	Xlim
13:00	**01:00**	**14:00**	**Lunch Break**							
				Session WED13				***Session WED23***		
				Silicon RF Technologies (III)				***Advanced Integration and Packaging***		
14:00	00:25	14:25	196	**Efficient, Linear and Watt-Level Millimeter-Wave Amplifiers in Silicon-Germanium**	**Ahmet Cagri Ulusoy**	**Karlsruhe Institute of Technology**	68	**D-Band Phased Array Antenna for Miniaturised Inter Satellite Links**	**Adrian Gomez Torrent**	**Terasi**
14:25	00:20	14:45	107	Integrated Multiple Switch Beam Array Antenna for Resilient Communication Link M2m/Iot Applications	Francesco Greco	ANTECNICA s.r.l.s.	100	Advanced High Power Hermetic Sealed Package for Space Applications	Benajmin Falk	Tesat-Spacecom GmbH & Co. KG
14:45	00:20	15:05	52	D-band MMIC Chipsets: Challenges, Solutions, and Strategic Roadmap	Farshad Eshghabadi	VIPER RF Limited	106	Advanced Materials with tailored properties for packaging application	Erich Neubauer	Rhp-technology Gmbh
15:05	**00:30**	**15:35**	**Coffee Break**							
				Session WED14				***Session WED24***		
				Measurements & Characterization				***Multipactor Prediction and Mitigation***		
15:35	00:25	16:00	53	**Autonomous measurements and optimization of µW power transistors based on machine learning (ML)**	**Olof Bengtsson**	**Ferdinand-Braun-Institut (FBH)**	16	**Holistic Prediction Techniques for the Estimation of the Multipactor Power Threshold with Modulated Signals in Narrow-Band RF Devices.**	**Raúl Cervera-Marín**	**Val Space Consortium**
16:00	00:20	16:20	44	Characterization method for a GaN based Amplifier, controlled in amplitude and phase through IQ modulator and drain bias regulation.	Fabrizio Marrese	Leonardo Spa	17	Analysis and Configuration of a Fast Coarse Method for Multipactor Power Threshold Estimation in Passive RF Components under Modulated Signal Excitation	Miguel Rodríguez	Val Space Consortium
16:20	00:20	16:40	64	A Low-Cost Phase Noise Measurement Setup Based on Six-Port Architecture	Prabhav Manchanda	Brandenburg University Of Technology Cottbus-senftenberg	18	Uncertainty budget for multipactor and corona testing	Martin García-Patrón	INTA (Spain)
16:40	00:20	17:00	103	Evaluation of heavy ions radiation hardness of a 10 W Ka-Band Power Amplifiier using 100nm GaN on Si	Charles Edoua Kacou	Macom	12	An Insight on Passive Intermodulation Effect with Modulated Signals	Davide Smacchia	VSC
17:00	01:00	18:00	**End / Travel to Gala Dinner**							
18:00	**04:00**	**22:00**	***SMW Gala Dinner***							

Thursday 15th May 2025

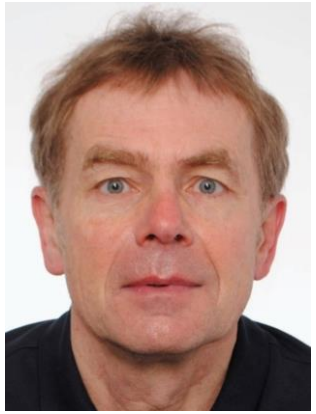
Thursday 15/05/2023													
			Room Newton 1						**Room Newton 2**				
				Session THU11						***Session THU21***			
				Transversal Technologies: mm-Wave & Photonics						***Filters and Multiplexers (III)***			
09:00	00:25	09:25	37	**Development of high power ≈100 GHz waveguide photomixer sources.**	**Peter Huggard**	**Millimetre Wave Technology Group, RAL Space**		58	**Ultra-Narrowband 0.66 THz Waveguide Filter With Wide Spurious-Free Window for Space Sounders and Imagers**	**Lu Qian**	**University Of Birmingham**
09:25	00:20	09:45	31	Spectral Tailoring of Electro-Optic Comb for Tunable THz wave Generation and MWP RF Filter	Sanghoon CHIN	CSEM		35	Advances on Compact Realizations of Wideband Filters in Microstrip Technology	Carlos Pons	Universitat Politècnica De València
09:45	00:20	10:05	47	Performance Evaluation of Polymer Microwave Fibers Under Twisting Conditions	Anthony Ghiotto	Bordeaux Inp / Ims Laboratory		24	3D-Printed Coaxial-Line Filters for Earth Observation applications	Michal Baranowski	Gdansk University Of Technology
10:05	00:20	10:25	101	Graphene-based high-speed optoelectronic sampling at 1.55 µm	Delphine Pommier	Thales Research And Technology		34	High-Performance 3D-Printed Copper Waveguide Bandpass Filter for Q-band Ground Station Application	Lu Qian	University Of Birmingham
10:25	00:20	10:45	66	Design of a Thin-Film Lithium Niobate PIC for a Photonic-based Radiometer part of a 12U CubeSat System	Jessica César-Cuello	University Carlos III Of Madrid		9	Very Compact High Power Broadband Filter Design Satisfying High Rejection Demands Tight to Passband and Over a Wide Frequency Range	Mustafa Bakr	University of Oxford/St Peter
10:45	**00:30**	**11:15**	**Cofffee Break**										
				Session THU12						***Session THU22***			
				Transversal Technologies: Advanced Manufacturing (I)						***Passive Technologies for Space***			
11:15	00:25	11:40	14	**Additive manufacturing of fully metallic dual polarized leaky-wave antennas array for polarimetric radar application**	**Valentin Lourenço Martins**	**Onera**		81	**High-Power Feeding Network for Deployable VHF Band Antenna**	**Jorge Daniel Martínez**	**Universitat Politècnica De València**
11:40	00:20	12:00	42	Evaluation of LPBF Printed TE011 Mode Cylindrical Cavity Resonators	Emelia Hayward	University Of Birmingham		94	Design of Reactive Combiners to Enhance Graceful Degradation	Antonio Morini	Dipartimento Ingegneria Dell'informazione
12:00	00:20	12:20	72	Micro-metal Additive Manufacturing technology for High-Frequency Applications	Hiba Lahlimi Alami	Xlim Laboratory - Limoges University		11	Waveguide Switch based on friction free mechanism	Angel Iglesias	Almatech SA
12:20	00:20	12:40	49	Abrasive Flow Machining for Enhancing Surface Quality of 3D-Printed Millimetre-Wave Waveguides	Lu Qian	University Of Birmingham		8	Compact and mass-producible low-power cross-polarization load for Active Antennas	Christian Arnold	Tesat
12:40	00:20	13:00	85	THz antennas – enabled by silicon micromachining	Joachim Oberhammer	Kth Royal Institute Of Technology		69	Novel Broadband Low-Loss WR28-to-AFSIW Transition	Anthony Ghiotto	IMS Bordeaux
13:00	**01:00**	**14:00**	**Lunch Break / Open Newton 1 & Newton 2**										
			Rooms Newton 1 & 2										
				Session THU03									
				Transversal Technologies: Advanced Manufacturing (II)									
14:00	00:25	14:25	902	**Sponsor Keynote - Progress of metal 3D printing in space antennas and RF components at SWISSto12**	**Stefano Sirci**	**Swissto12**							
14:25	00:20	14:45	60	INWAVE Project: High-Resolution Additive Manufacturing for Integrated Q, V, and W Band Passive RF Hardware	Vaclav Pejchal	Csem							
14:45	00:20	15:05	26	INWAVE Project: Design and High-Resolution Additive Manufacturing of Q, V, and W Band Waveguide Components for Highly Integrated RF Front-Ends	Gines Garcia-contreras	Univ Rennes, INSA Rennes, CNRS, IETR							
15:05	00:20	15:25	77	Q/V-band Metal 3D-Printed Integrated Passive Feed Chain for Ground Segment Gateways	Yi Wang	University Of Birmingham							
15:25	00:20	15:45	56	Development of a Q/V-band Triangular-Waveguide Antenna-Feed Chain through Additive Manufacturing	Giuseppe Addamo	CNR-IEIIT							
15:45	**00:30**	**16:15**	**Coffee Break**										
				Session THU04									
				Equipment & Technology for Remote Sensing (I)									
16:15	00:25	16:40	22	**The CIMR Microwave Radiometer**	**Rolf Midthassel**	**ESA**							
16:40	00:20	17:00	59	Characterisation of Absorbing Materials for a Supra-Terahertz Calibration Target using Terahertz Time Domain Spectroscopy	Mikko Kotiranta	University Of Bern							
17:00	00:20	17:20	61	Noise Sources for Internal Calibration Sub-Systems at mm-Waves	Bersant Gashi	Fraunhofer Institute for Applied Solid State Physics IAF							
17:20			**End of Day**										

Friday 16th May 2025

Friday 16/05/2023					Rooms Newton 1 & 2			
					Session FRI01			
					Equipment & Technology for Remote Sensing (II)			
09:00	00:25	09:25		80	**COWVR: Long-Term In-Space Assessment of a New Low-Cost Conical Microwave Polarimetric Imager Design**	**Shannon Brown**	**Jet Propulsion Laboratory**	
09:25	00:20	09:45		45	From Concept to Standard: The 89GHz Direct Detection Evolution	Matthias Hoefle	ACST GmbH	
09:45	00:20	10:05		118	A 325 GHz sub-harmonic mixer with integrated IF LNA for the ESA / EUMETSAT Arctic Weather Satellite (AWS) radiometer instrument	Bertrand Thomas	ESA	
10:05	00:20	10:25		71	TERACUBE: Sub-Millimeter Heterodyne Instrument Concept and Investigation for Cubesat in Venusian Environment	Lina Gatilova	Observatoire De Paris	
10:25	00:20	10:45		82	Results from the Electrojet Zeeman Imaging Explorer (EZIE) mission	Sidharth Misra	Jpl-nasa, Caltech	
10:45	00:20	11:05		73	GaAs Schottky MMIC Mixers for Terahertz Signal Detection	Lina Gatilova	LERMA, Observatoire De Paris	
11:05	**00:25**	**11:30**			**Coffee Break**			
11:30	00:30	12:00			***SMW '25 Closing Ceremony***			Plenary - Arctic Weather Satellite: In-Flight Lesson Learned and Early Performance Results - Daniele Gherardi (ESA)
12:00	00:30	12:30						Plenary - Rydberg Atom-Based Sensors - James Shaffer (CTO, WaveRyde Instruments)
12:30	00:15	12:45						Awards: Best Student paper and Young Scientist awards
12:45	00:15	13:00						Closing Remarks

Space Microwave Week 2025 - Plenary Talk

Monday 12th May 14:00-14:30
BIOMASS: ESA's P-band Radar Mission
Michael Fehringer (ESA)



ESA's forest mission, Biomass, delivers completely new information on how much carbon is stored in the Earth' forests and how this stock evolves over time. It is the first satellite to carry a fully polarimetric P-band synthetic aperture radar capable of interferometric imaging. Thanks to the long wavelength of P-band, the radar signal can slice through the whole forest layer to deliver information about its structure. This will lead to a better understanding of the state of Earth's forests, how they are changing and advance our knowledge of the carbon cycle. Quantifying the global carbon cycle is essential to understanding its implications on our climate.

The mission will be presented with a focus on the unique and newly developed P-band SAR and the challenges encountered during its development.

Space Microwave Week 2025 - Plenary Talk

Monday 12th May 14:30-15:00
IRIS²: The New EU Programme for Secure Communications Via Satellites
Piero Angeletti (ESA)

Secure communications are essential for modern society and our economy. In a geopolitical context of growing uncertainty, with increasing cyberattacks and disasters, ensuring resilient secure communications infrastructure is strategically important. Recognizing this, the European Union established the Union Secure Connectivity Programme (Regulation (EU) 2023/588) to leverage space-based solutions as a complement to terrestrial networks, offering increased resilience and coverage. ESA contributes to this through its "ESA Programme Related to EU Secure Connectivity."

The concession contract for the Infrastructure for Resilience, Interconnectivity and Security by Satellite (IRIS²) was signed by the EC and ESA on 16 December 2024. IRIS², the EU's third flagship, will enhance governmental connectivity through a multi-orbital constellation combining MEO and LEO.

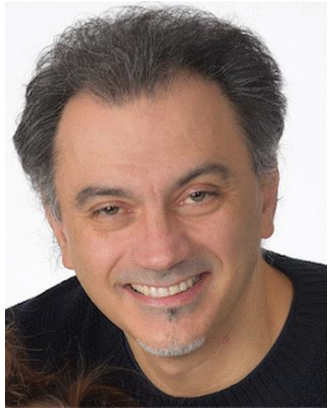
A Low-Low Earth Orbit (L-LEO) shell below 750km will serve as a pilot infrastructure for governmental and commercial payloads. The talk will provide information on IRIS² and its RF/microwave related challenges.

Space Microwave Week 2025 - Plenary Talk

Friday 16th May 11:30-12:00

Arctic Weather Satellite: In-Flight Lesson Learned and Early Performance Results

Daniele Gherardi (ESA)

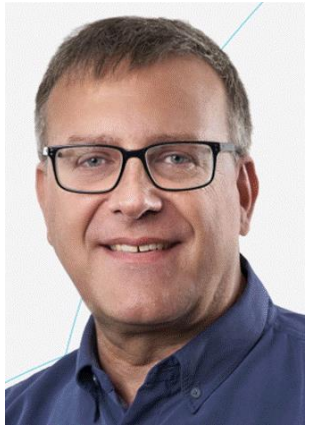


The Arctic Weather Satellite (AWS) is a micro-satellite equipped with a 19-channel cross-track scanning microwave radiometer, which provides humidity and temperature sounding of the atmosphere.

The development of the protoflight Model (PFM) of the Satellite was kicked off and implementation within three years and for a fraction of the cost of a traditional microwave radiometer mission. The mission has already demonstrated that the New Space approach of building quickly and at low cost could be applied to a future EUMETSAT EPS-Sterna constellation of satellites based on the AWS platform and payload design. EPS-Sterna aims to enhance Earth's nowcasting and numerical weather prediction capabilities by greatly improve temporal coverage globally and in particular on the artic region. Early evaluators data assessment is currently on-going to confirm system, payload and processors performance, data quality, data timeliness etc. Although it's early days, their feedback is extremely positive.

This presentation will illustrate the lessons learned and performance demonstrated in both in orbit commissioning and early operational phases.

Space Microwave Week 2025 - Plenary Talk



Friday 16th May 12:00-12:30
Rydberg Atom-Based Sensors
Dr. James P. Shaffer (Quantum Valley Ideas Laboratories, CTO WaveRyde Instruments

We have shown that Rydberg atoms can be used for high-sensitivity, absolute sensing of high frequency electric fields, ranging from MHz to THz. In this talk, we will provide an overview of this exciting technology with an emphasis on space applications.

These sensors can offer unique advantages like self-calibration, extraordinary carrier bandwidth, read-out at baseband, electromagnetic transparency, and low SWaP.

We will highlight a novel read-out method based on three-photons that increases sensitivity and the engineering of vapor cells to tailor them to specific applications.