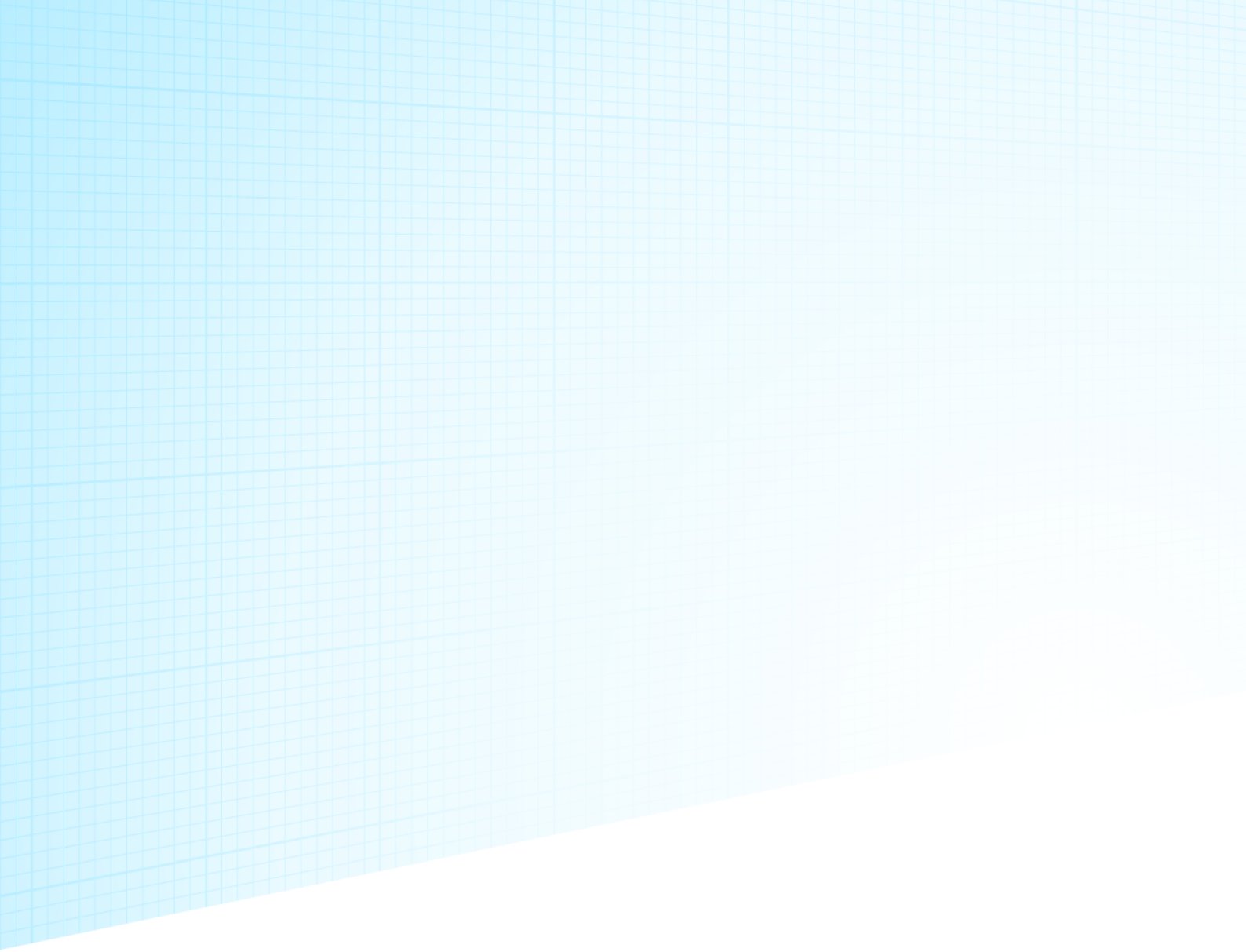




WPMC 2025 Implementation Report

Table of Contents

WPMC 2025	1
Topics and Scopes.....	1
Sponsors.....	3
Partners	3
Tutorial Sessions.....	6
Keynote Sessions	7
Workshops	7
CONASENSE Workshop on Cognitive, Energy-Efficient IoT-Edge-Cloud Resource Orchestration.....	7
Joint Technical University of Sofia - NICT Workshop: Integrated Future 6G Networks	8
Special Sessions.....	9
Special Session on AI-Driven Reconfigurable Systems and Multi-Connectivity Technologies for 6G Communications (6G-ICARUS).....	9
Special Session on Integrated Sensing and AI-Driven Communication in 6G Perceptive Mobile Networks (ISAC-NEWTON).....	9
Special Session on Spectrum Sensing and Resource Utilization for Efficient 6G Radio Access.....	9
Special Session on Sustainable Future Communication Networks and Technologies (GREENBEAT)	9
Special Session on Tactile Internet 6G: Sensing, Intelligence & Immersive Realities (Reconnection)	9
Awards	10
Organization Committee.....	11
Steering Board Meeting	12
Accounting Report	13
Conclusion	14
Some Photos.....	14

WPMC 2025

The 28th International Symposium on Wireless Personal Multimedia Communications (WPMC2025) was held in Sofia, Bulgaria from November 9 to 12, 2025.

The WPMC symposium was inaugurated in 1998, as a global platform which aims at enabling academia-industry-government collaboration in the field of wireless information. The WPMC has established itself as a unique global annual international symposium on wireless technology-business world. It encapsulates the high-end wireless technology and the current market and trends to create future businesses and innovative societies.

Continuing the series, the 28th WPMC brought together academia, government, business sectors and standardization bodies to explore activities, trends and future challenges towards innovative societies by bridging wireless and business worlds.

Topics and Scopes

WPMC 2025 focuses on the following categories of research topics:

- **Communication Spectrum and Technologies**
RF Spectrum, channel estimation and channel modelling; Ultra-wideband, millimeter-wave, and terahertz technologies; Next generation massive MIMO and ultra-massive MIMO; Free space and guided optical communication; Antennas and reconfigurable intelligent surfaces; Advanced modulation schemes and waveform design for next generation communications; Error detection and correction; Signal processing for communications; Information theory for communication systems; Satellite and deep space communications; Cognitive radio systems; Resource allocation, spectrum access and control; Interference management, alignment and cancellation; Cross layer design and optimization
- **AI-Enabled Wireless Networks**
Ad-hoc networks; Vehicular networks; 2D and 3D Sensor networks; Next-generation Wi-Fi; UAVs and Non-Terrestrial networks; Data science and AI for wireless networks; Resource management; Artificial intelligence for joint sensing and localization; Machine learning for wireless communications; Combining queuing and information theory; Cognitive radio enabled network; Information centric networking; Network virtualization & optimization; Quantum communication and networking; Overlay and peer-to-peer networks
- **Applications, Testbed, Use Cases and 6G Planning**
Software defined radio and networks Networking architectures for artificial intelligence; Sensing and localization applications; O-RAN Networking support for virtual and augmented reality; Network economics and data pricing models; Holographic communications; Video and multimedia coding; Advanced wireless networks for military applications; Wireless networks for smart city applications
- **Security, Privacy and Ethics**
6G standardization; 6G Systems and networks; D2D communication and applications; Mobile social-media and social networks on 6G; Applied cryptography for cyber, information, and network security; Public key infrastructures and authentication protocols; Communication privacy and anonymity; Blockchain technology; Malware detection and damage recovery; Network intrusion detection and prevention, firewalls, and packet filters; Key management and credential management; Distributed communication networks and security; 6G: Network economics and pricing; Quality-of-service and resource management; Communications QOS, reliability and modelling

- Sensor Networks and Smart Applications

M2M Communication and IoT; E-Health and M-Health; Innovative implanted and wearable devices; Edge Computing, Edge Intelligence, Cloud & Fog networks; Green communications and networks; Smart grid communications; Green communication systems and networks
Robotic Networking and Automation

- Robotic Networking and Automation

Control theory for robotics and robotic networks; Controllable and adaptable IoT; Radio systems for intelligent robot teams; Data routing and localization algorithms for robotic networks; Intelligent Robotic IoT System: Testbed and use-cases; Medical Robotics; Smart factory and smart community; Robot swarms and military networks; Game-theoretic approaches to wireless networks

- Quantum Computing and Communications

Quantum communication protocols; Post-quantum security; Quantum-enhanced optimization and machine learning; Advances in quantum hardware and photonics; Practical implementations, architectures, and interoperability of quantum-classical systems

- Public, Private, Policy and Governance

Spectrum policy, spectrum regulation, allocation and pricing; Internet regulations and policy framework; Social impact of internet and policy interventions; Internet governance; Global internet legal, regulatory & security issues and framework; Internet financial crimes and legal issues; Personal privacy and internet privacy policy; Internet public policy; Privacy and consumer protection; E-governance and legal issues; Privacy and big data; Data protection; AI Policy

Sponsors

The conference was organized by Technical University of Sofia in the capital city Sofia, Bulgaria and was financially supported by the following sponsors:

- National Institute of Information and Communication Technology (NICT)
- Technical University of Sofia (TU Sofia)



Partners

Partners of the WPMC 2025 were the following institutions and projects:

- CTIF Global Capsule
- Yokosuka Research Park
- IEEE
- River Publishers
- Smart Avatar
- EU Project GREENBEAT
- EU Project 6G ICARUS
- EU Project ISAC-NEWTON
- EU Project METACITIES



Conference Overview

WPMC2025, a 4-day event was successfully concluded and various sessions on a wide range of topics, from communication/networking fundamentals, business models, state-of-the art technologies, evolving systems, etc. Figure 1 presents an overview of the events of the conference.

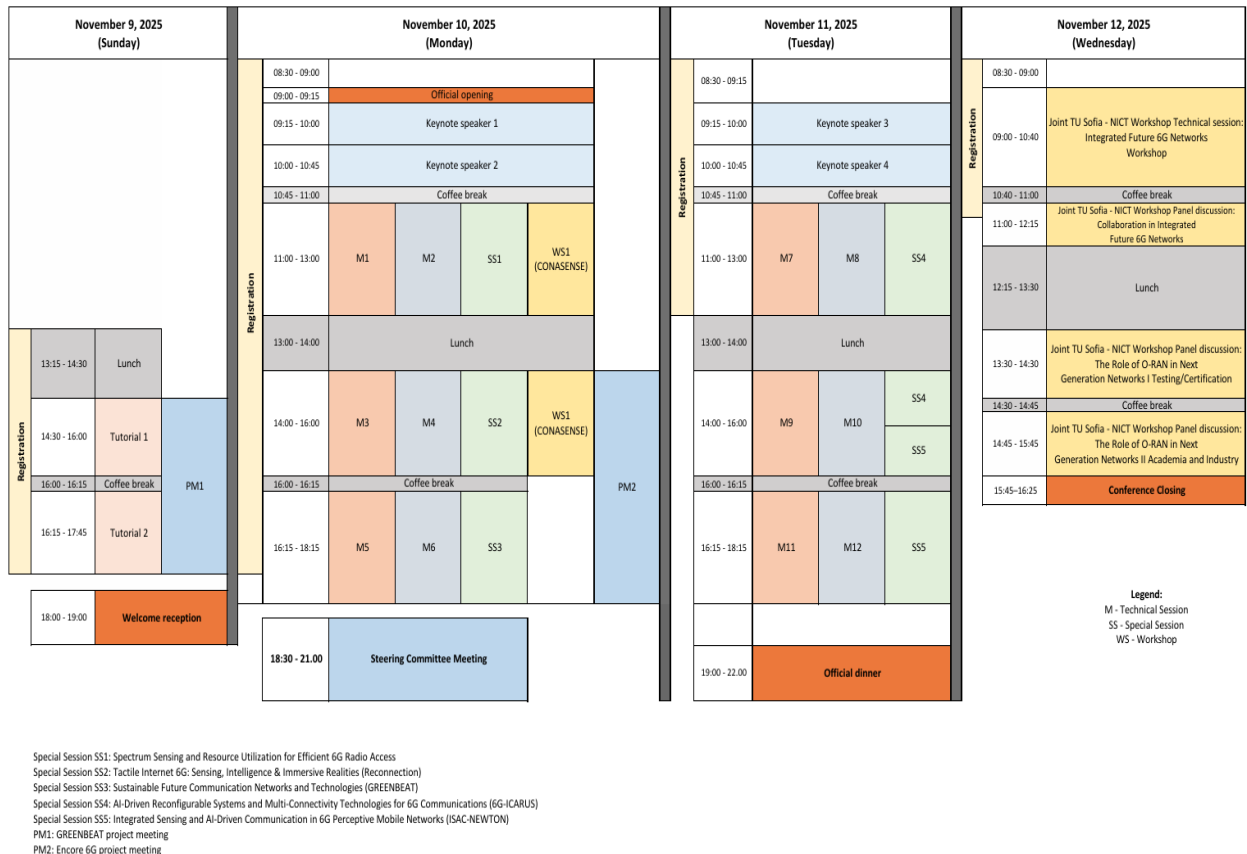


Figure 1. Conference Program Overview

Venue and Conference Rooms

The venue of the WPMC2025 conference was at the “National Center of Excellence of Mechatronics and Clean Technologies” located at the campus of TU – Sofia. The official opening of the conference and Keynotes speeches were held at the big conference hall of the Center of Excellence, while for the rest of the sessions and workshops four separate rooms equipped with presentation and wireless access infrastructure facilities were available all the time.

Authors & Publications Statistics

WPMC2025, received contributions under different tracks worldwide. We received papers from 363 authors (including co-authors) from 35 different countries. The country-wise distribution of the papers is illustrated in the figure below:

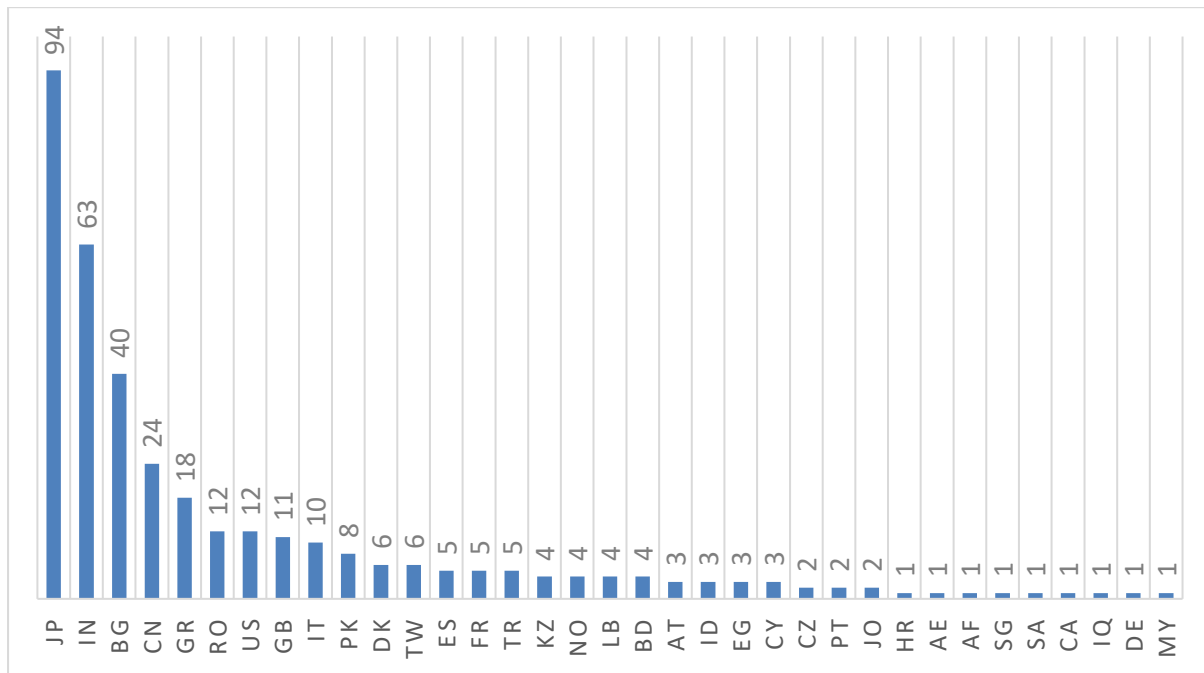


Figure 2. Authors of papers submitted by countries

Based on the participation data, there are a total of 104 attendees from 19 different countries who attended the conference. The statistic for attendees is plotted on the following bar graph:

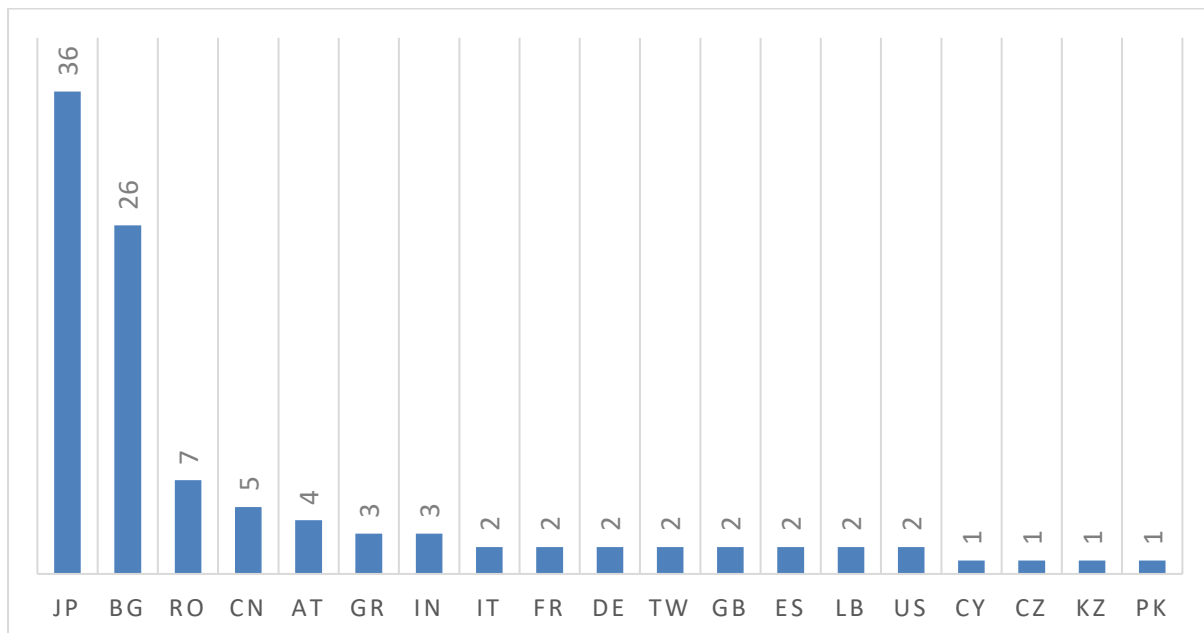


Figure 3. Participants in conference by countries

We had 98 (2 withdrawn) main tracks submissions, with 50 accepted for publication in IEEE Xplore, giving an acceptance rate of 52.08%.

For the workshops, we received 10 submissions and accepted 6, resulting in a 60% acceptance rate.

For the special sessions, 72 (2 withdrawn) submissions were received and 30 accepted (one paper will not be present in IEEE Xplore, only in WPMC proceedings), giving an acceptance rate of 41.42% for IEEE Xplore.

Totally we have 180 submissions (4 withdrawn) and 89 accepted papers for publication in IEEE Xplore, resulting in 49.44% acceptance rate and an acceptance rate of 51.1% for the conference proceedings (since we have one more paper only for proceedings, totaling 90 accepted papers).

Totally 4 submissions were withdrawn.

Table 1. Paper statistics

Category	Accepted	Rejected	Withdrawn	Total
Main Track	50	46	2	98
Special Sessions	30	40	2	72
Workshops	6	4	0	10

Tutorial Sessions

The tutorial sessions in the symposium started on November 9th, 2025, at Technical University of Sofia. We had 2 tutorial sessions by renowned names from academia and research and industry, listed in the following:

- Prof. Kwang-Cheng Chen, University of South Florida and MediaTek Inc.
Topic: Quantum Communications, Cryptography, and Sensing
- Prof. Pavlos Lazaridis, University of Huddersfield
Topic: Optimization of 5G/6G antennas using evolutionary algorithms



Keynote Sessions

We had four Keynote Sessions in WPMC 2025 in the second and third day of the conference – November 10, 2025, and November 11, 2025. The sessions cover the most relevant research areas in wireless communications, space communications security, 6G and machine learning research areas.

- Prof. Kwang-Cheng Chen, University of South Florida and MediaTek Inc.
Topic: Wireless Robotic Communications – 6G Integrated Communication and Computing
- Dr. Uma S. Jha, Sr. Director, National Semiconductor Technology Center (NSTC), USA
Topic: CubeSat – The Next Frontier in Space Superiority
- Dr. Markus Dillinger, R&D head for 5GV2X, Munich Research Center Huawei Technologies, Germany
Topic: Security and Trust in 6G Era
- Prof. Sotir Sotirov, Burgas State University, Bulgaria
Topic: Hybrid Neural Networks for Medical Image Understanding in the 6G Era

Workshops

We had 2 workshops in WPMC 2025 – CONASENSE Workshop and Joint Technical University of Sofia - NICT Workshop.

CONASENSE Workshop on Cognitive, Energy-Efficient IoT-Edge-Cloud Resource Orchestration

The workshop was held on November 10, 2025.

- Workshop Chairs:
 - Rute C. Sofia (fortiss, Germany), Ramjee Prasad (CTIF Global Capsule, Denmark)
 - Publicity Chair: Paulo Sergio Rufino Henrique (CTIF Global Capsule, Denmark)
 - Demo Chair: Jorge Sá Silva (University of Coimbra, Portugal)
 - TPC Chair: Javier Serrano (Universidad Politécnica de Madrid, Spain)
- Opening
 - The workshop began with opening remarks from Rute C. Sofia and Ramjee Prasad, outlining the workshop's purpose and focus areas.
- Paper Session
 - Chaired by Rute C. Sofia and featuring one accepted contribution.
- Invited Talks
 - The workshop had 3 invited talks and the session was chaired by Paulo Rufino
- Project & Demo Session
 - A project-oriented session chaired by Javier Serrano showcased ongoing project work and demonstrations.
- Panel Discussion – CONASENSE Working Groups Brainstorming
 - Chaired by Paulo Rufino, with four panelists: Albena Mihovska, Valerio Frascolla, Homayoun Nikookar, and Rute C. Sofia.
- Closing remarks were delivered by Rute Sofia and Ramjee Prasad

Joint Technical University of Sofia - NICT Workshop: Integrated Future 6G Networks

The workshop was held on November 12, 2025.

- Technical Session – Integrated Future 6G Networks
 - Chair: Vladimir Poulkov (Technical University of Sofia, Bulgaria)
- Panel Discussion – Collaboration in Integrated Future 6G Networks
 - Moderator: Dimitar Kolev (NICT)
 - Panelists:
 - Agata Manolova (Technical University of Sofia, Bulgaria)
 - Mihail Iliev (STP)
 - Morio Toyoshima (NICT)
 - Takeshi Matsumura (NICT)
 - Hiroyuki Tsuji (NICT)
 - Vladimir Poulkov (Technical University of Sofia, Bulgaria)
- Panel Discussion – The Role of O-RAN in Next Generation Networks I: Testing/Certification
 - Moderator: Vladimir Poulkov (Technical University of Sofia, Bulgaria)
 - Panelists:
 - Jan Plachy (O-RAN nGRG)
 - Carsten Rossenhoevel (EANTC, Co-Founder and CTO of EANTC AG)
 - Pedram Johari (Northeastern University)
 - Eduardo Melão (CPqD)
 - Takashi Shimatani (YRPC)
- Panel Discussion – The Role of O-RAN in Next Generation Networks II: Academia and Industry
 - Moderator: Jan Plachy (O-RAN nGRG)
 - Panelists:
 - Vladimir Poulkov (Technical University of Sofia, Bulgaria)
 - Kei Ando (NTT DOCOMO, Inc.)
 - Mitsuhiro Kuchitsu (Rakuten Mobile Inc.)
 - Nikolai Gavrilov (Vivacom)
 - Konstantin Staykov (Opencode Systems Ltd.)
 - Yusuke Miyazeki (Sumitomo Electric Industries, Ltd.)
- Closing

Special Sessions

We had 5 special sessions in the WPMC 2025.

Special Session on AI-Driven Reconfigurable Systems and Multi-Connectivity Technologies for 6G Communications (6G-ICARUS)

Topics: Design, modeling, and optimization of antennas; Design, modeling, and optimization of RISs; ML/DL techniques for RIS radiation pattern control; V2V & V2X channel modeling for 6G communications; Channel modeling for vehicular and UAV communications; Multipath and interference mitigation in real-world environments; MCon network architectures and resource management; Spectrum sensing for MCon enhancement; AI-based interference management in MCon networks

Special Session Chairs: Zaharias Zaharis (Aristotle University of Thessaloniki)

Special Session on Integrated Sensing and AI-Driven Communication in 6G Perceptive Mobile Networks (ISAC-NEWTON)

Topics: Metasurface-based sensors; Reconfigurable and metasurface-based antenna arrays; Reconfigurable intelligent surfaces; Metasurface-based synthetic aperture radar; Machine learning and deep learning for metasurface design and control; Frequency selective surfaces; Monostatic, bistatic, and multistatic ISAC systems; Machine learning-based beamforming; Localization and situational awareness in ISAC networks; Interference management and resource allocation in ISAC systems; Intelligent resource allocation schemes for ISAC; Machine learning-enabled open radio access networks; Seamless user-centric random access and channel estimation in massive MIMO networks; Real-time target recognition and tracking; Digital cyber twins for cooperative 6G environments and zero-trust security; Remote sensing and interference identification in non-terrestrial networks

Special Session Chairs: Zaharias Zaharis (Aristotle University of Thessaloniki)

Special Session on Spectrum Sensing and Resource Utilization for Efficient 6G Radio Access

Topics: Spectrum Sensing for Radio Frequency Monitoring and CR/IoT Applications; UAV-assisted Networks; V2V Communications; Software-Defined Radio Applications for CR; Spectrum Sharing and multi-Radio Access Technology Coexistence; Multi-dimensional REM Reconstruction; AI/ML methods for RF Signal Processing and Resource Allocation

Special Session Chairs: Markus Rupp (Vienna University of Technology)

Special Session on Sustainable Future Communication Networks and Technologies (GREENBEAT)

Topics: AI/ML methods for intelligent signal processing in Wireless Communications; Software-Defined Radio and Cognitive Radio Networks; Unmanned Aerial Vehicle (UAV)-assisted Wireless Networks; Human-centric Wireless Networks; Multiple Access and Resource Allocation in 5G and Beyond; Privacy Enhancing Technologies (PETs) and adversarial attacks mitigation; Green business modeling and innovation

Special Session Chairs: Vladimir Poulkov (Technical University of Sofia, Bulgaria)

Special Session on Tactile Internet 6G: Sensing, Intelligence & Immersive Realities (Reconnection)

Topics: Multi-Modal Sensing & Fusion; Sparse-Data 3-D Environment Modeling; Intelligent Wireless Resource Management; Orchestration & Customization Frameworks for the Tactile Internet; 6G Enablers for Ultra-Low-Latency Haptics; XR & Metaverse Applications with

Tactile Feedback; Advanced Tactile Sensors and Actuators; Security, Privacy & Ethics in Touch-Enabled Networks

Special Session Chairs: Antoni Ivanov (Technical University of Sofia)

Awards

We selected 2 awards from the accepted papers – best paper award and best student paper award. They are listed below:

Best paper award: *UAV Flight Experiment with Long-distance and BLOS Multi-hop C2 Link in 169 MHz Band including Diffraction by Small Hills*

Takashi Matsuda (National Institute of Information and Communications Technology, Japan); Ryu Miura (National Institute of Information and Communications Technology, Japan); Masaaki Maruyama (National Institute of Information and Communications Technology, Japan); Miho Koshikawa (National Institute of Information and Communications Technology, Japan); Kaheita Yuki (Oita Industrial Research Institute, Japan); Takeshi Matsumura (National Institute of Information and Communications Technology (NICT) & Kyoto University, Japan)

Best student paper award: *Imbalanced Quantum Channels in Quantum Teleportation and Quantum Repeater Schemes*

Lucas Vogeli (University of South Florida, USA); Phillip Cornett (University of South Florida, USA); Albert Barron Dinkins V (University of South Florida, USA); Kwang-Cheng Chen (University of South Florida, USA)



Organization Committee

- Honorary Chairs
 - Ramjee Prasad, CTIF Global Capsule, Denmark
 - Ivan Kralov, Technical University of Sofia, Bulgaria
 - Morio Toyoshima, NICT, Japan
 - Emeritus Hideki Imai, Tokyo University, Japan
- General Co-Chairs
 - Agata Manolova, Technical University of Sofia, Bulgaria
 - Vladimir Poulkov, Technical University of Sofia, Bulgaria
 - Hiroshi Harada, Kyoto University, Japan
- General Vice Chairs
 - Neeli R. Prasad, SmartAvatar BV, Netherlands
- Chairs, Advisory Board
 - K. C. Chen, USF, USA
 - Shingo Ohmori, YRP, Japan
 - Sibaram Khara, Sharda University, India
 - Yushi Torigoe, YRP R&D Promotion Committee, Japan
- Steering Board Member
 - Fumiyuki Adachi, Tohoku University, Japan
 - Ryuji Kohno, YRP International Alliance Institute, Japan
 - Uma S. Jha, University of California, San Diego, USA
- TPC General Co-Chair
 - Albena Mihovska, SmartAvatar BV, Netherlands
- TPC Co-Chair (Europe)
 - Pavlos Lazaridis, Huddersfield University, UK
- Keynote Chairs
 - Damla Turgut, USA
- Workshop Chairs
 - Paulo Henrique, CGC, France Mohammad
- Tutorial Chairs
 - Zaharias Zaharis, Aristotle University, Greece
- Local Organizing Chair
 - Yana Tsankova, Technical University of Sofia, Bulgaria
 - Slavcho Neshev, Technical University of Sofia, Bulgaria
 - Nicole Christoff, Technical University of Sofia, Bulgaria
 - Tsvetan Valkovski, Technical University of Sofia, Bulgaria
 - Antoni Ivanov, Technical University of Sofia, Bulgaria
 - Valentina Markova, Vice Chair IEEE Bulgarian Section, Bulgaria

Steering Board Meeting

Steering board meeting was held on November 10, 2025. Organization committee, authors and attendees' and paper statistics, conference program overview, paper awards/student travel grants, and budget/expenses for WPMC 2024 are reported in the meeting. Plan for WPMC 2026 was also discussed during the meeting. The list of attendees is below:

- Ramjee Prasad – CTIF Global Capsule Foundation (Founder & President)
- Neeli Prasad – Smart Avatar, Netherlands (General Vice Chair)
- Prof. Vladimir Poulkov – Technical University of Sofia (General Co-Chair, WPMC 2025)
- Albena Mihovska – CTIF Global Capsule (TPC General Co-Chair)
- Prof. Sibaram Khara – Sharda University, India (Presenter of WPMC 2024 Report; Advisory Board Chair)
- Uma S. Jha – Uma S. Jha, University of California, San Diego, USA (Steering Committee)
- Paulo Sergio Rufino Henrique – CTIF Global Capsule / WPMC 2026 Brazil Proposal
- Morio Toyoshima – NICT, Japan (Honorary Chair)
- Takeshi Matsumura – Director, Wireless Systems Laboratories, NICT Japan
- Hiroshi Harada – Kyoto University, Japan (General Co-Chair, WPMC 2025)
- Shao-Yu Lien – Taiwan, TPC Chair WPMC 2023
- Slavcho Neshev – Technical University of Sofia (Local Organizing Committee)
- Agata Manolova – Technical University of Sofia (General Co-Chair, WPMC 2025)
- Local Organizing Committee Members, Technical University of Sofia

Accounting Report

The overall income amounts to the total of 57 560,00 EURO of which 37 260,00 EURO from registration fees and around 20300, 00 EURO from the sponsors. The overall expenses amount to a total of 57 980,00 EURO.

The sponsorship fee of NICT of 2 million yen (approximately €11,700), covered part of the venue and operational costs, i.e. Conference Rooms, IEEE Support; IEEE Xplore; EDAS; etc. These covered by NICT costs comprise little less than 20% of the overall expenses for the organization and performance of the WPMC 2025 conference.

The local sponsorship of TU Sofia of 8600 EURO, 15% of the overall expenses, covered the conference promotion materials (bags & stationary), travel grants, partly conference rooms.

The total number of participants were 104, from which 75 with paid registration fees, 19 with complementary registrations (Honorary Chairs, Keynote speakers, Tutorial speakers, Guests, some students etc.) and additionally 10 students from TU - Sofia invited to attend the tutorials, keynotes, and some of the sessions. Detailed breakdown of expenses is given in the table below.

Incomes				
<u>I. Registration</u>				
Registrations: Full	540,00 EUR	57	30 780,00 EUR	Note: Total averaged over Early 320, non-IEEE/IEICE 600, late 700
Registrations: Students	360,00 EUR	18	6 480,00 EUR	
<u>Sub-Total</u>			<u>37 260,00 EUR</u>	
<u>II. Sponsorship</u>				
Local Sponsoship			8 600,00 EUR	
NICT Sponsorship			11 700,00 EUR	
YRP Sponsorship			0,00 EUR	
<u>Sub- Total</u>			<u>20 300,00 EUR</u>	
Incomes Total			57 560,00 EUR	

Expenses				
I. Covered by the Registration Fees				
Temporary staff			2 100,00 EUR	
4 lunches			8 000,00 EUR	
Banquet			9 400,00 EUR	
7 coffee breaks			8 400,00 EUR	
Sterring Commetee Dinner	70,00 EUR	23	1 610,00 EUR	
Reception			1 500,00 EUR	
Keynotes	0,00 EUR	4	0,00 EUR	Note: With complementary registration
Travels	1 800,00 EUR	3	5 400,00 EUR	Note: Honorary Chair; Tutorials, Keynotes
Tutorials	0,00 EUR	2	0,00 EUR	Note: If registered, or complementary registration
Misc. expenses			2 420,00 EUR	Note: Including web, registration
Sub-Total			38 830,00 EUR	
II. Covered by Sponsorship				
Conference Rooms			7 800,00 EUR	Note: NICT Sponsorship (6000 EURO)& Local (1800)
IEEE Support; IEEE Xplore; EDAS; etc.			5 800,00 EUR	Note: NICT Sponsorship
Conference bags+stationary	48,00 EUR	100	4 800,00 EUR	Note: Covered by Local Sponsorship
Student Travel Grants	750,00 EUR	1	750,00 EUR	Note: Covered by Local Sponsorship
Sub-Total			19 150,00 EUR	
Expenses Total			57 980,00 EUR	

Note: Expenses Breakdown: 65% from Registration Fees; 20% NICT Sponsorship; 15% Local Sponsorship

Conclusion

The overall opinion of the participants at the conference is that the 28th WPMC was again a success story featuring latest research and technology trends and developments in wireless communications.

This report was prepared by the General Chairs of the WPMC 2025 conference Prof. Vladimir Poulkov and Prof. Agata Manolova – Dean of Faculty of Telecommunications at the Technical University of Sofia, Bulgaria.

Date: 25/11/2025

Some Photos





