



2025 年国际无线感测技术与应用研讨会

2025 IEEE International Workshop on Wireless Sensing Technologies and Applications

Final Program

December 5 – 7 , 2025
Nanjing Fengda International Hotel
Nanjing, China

General Information / Conference Guidelines

Important Notes:

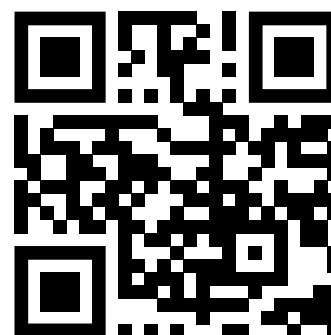
1. Admission & Etiquette: Attendees are requested to wear their badges for admission. During sessions, please refrain from moving about or talking loudly. Please ensure mobile phones are set to silent or vibrate mode.
2. Photography & Recording: As this conference involves internal exchange, photography and video recording are prohibited within the venue without prior permission from the Organizing Committee.
3. Presentation Materials: Speakers and presenters are requested to submit their PPT files to the Organizing Committee prior to the start of the session.
4. Full Schedule & Handbook: This digital guide contains the specific program for IWSA 2025. Upon checking in at the Registration Desk, you will receive a printed Joint Summit Program. This program contains the comprehensive agendas for all co-located, which you are welcome to attend with your badge.
5. Dining: Please present your meal voucher for the buffet. Attendees without vouchers may purchase them from the Organizing Committee.

Co-Located Events

Please note that IWSA 2025 is held in conjunction with three other major events as part of the **2025 Joint Summit on Wireless Communications and Sensing**, for more information and the program/agenda of other events, please visit <https://www.jswcs2025.cn>



**2025 IEEE International
Workshop on Wireless Sensing
Technologies and Applications
(IEEE IWSA 2025)**

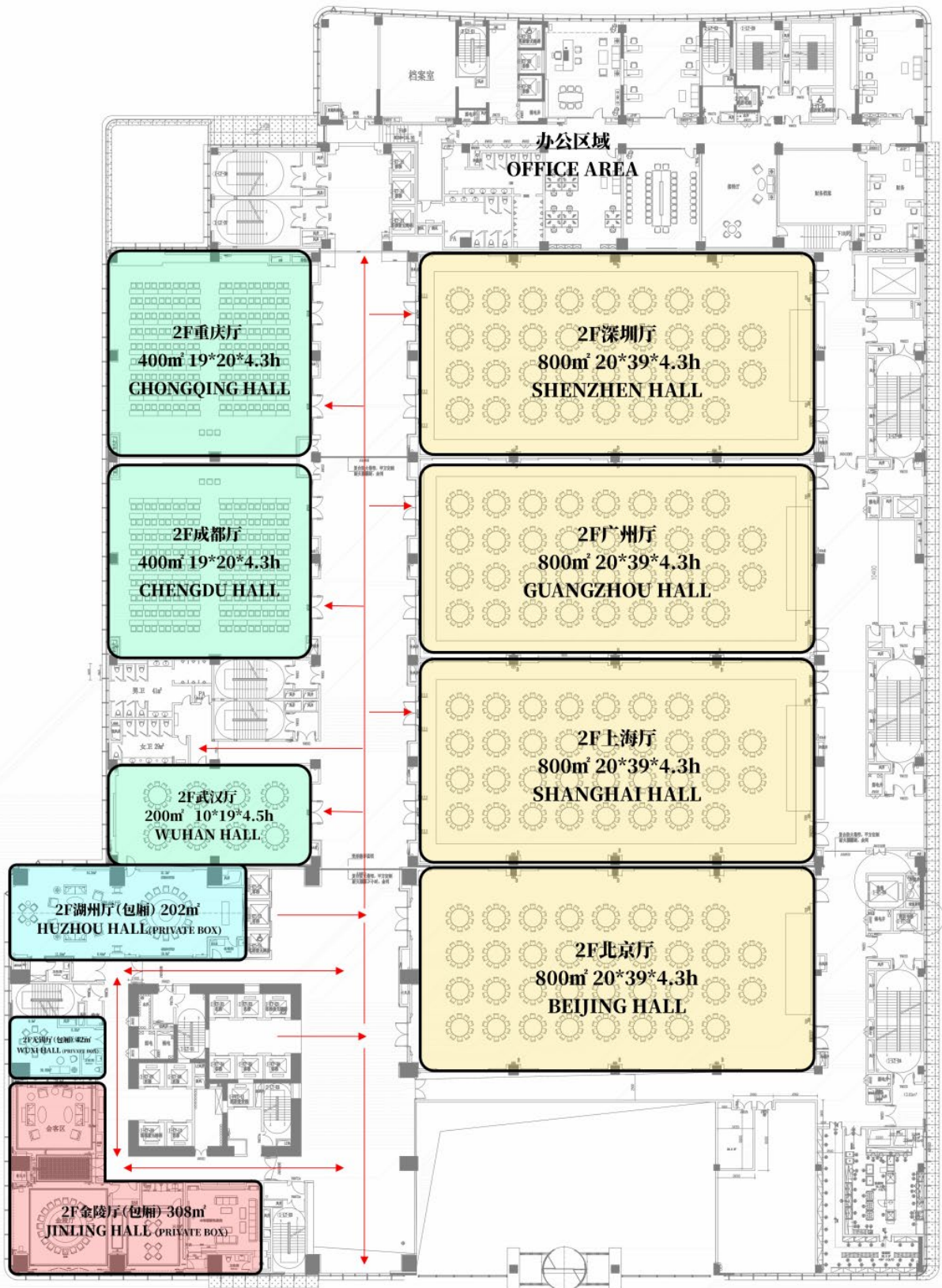


**2025 Joint Summit on Wireless
Communications and Sensing**

Floorplan

Important Locations

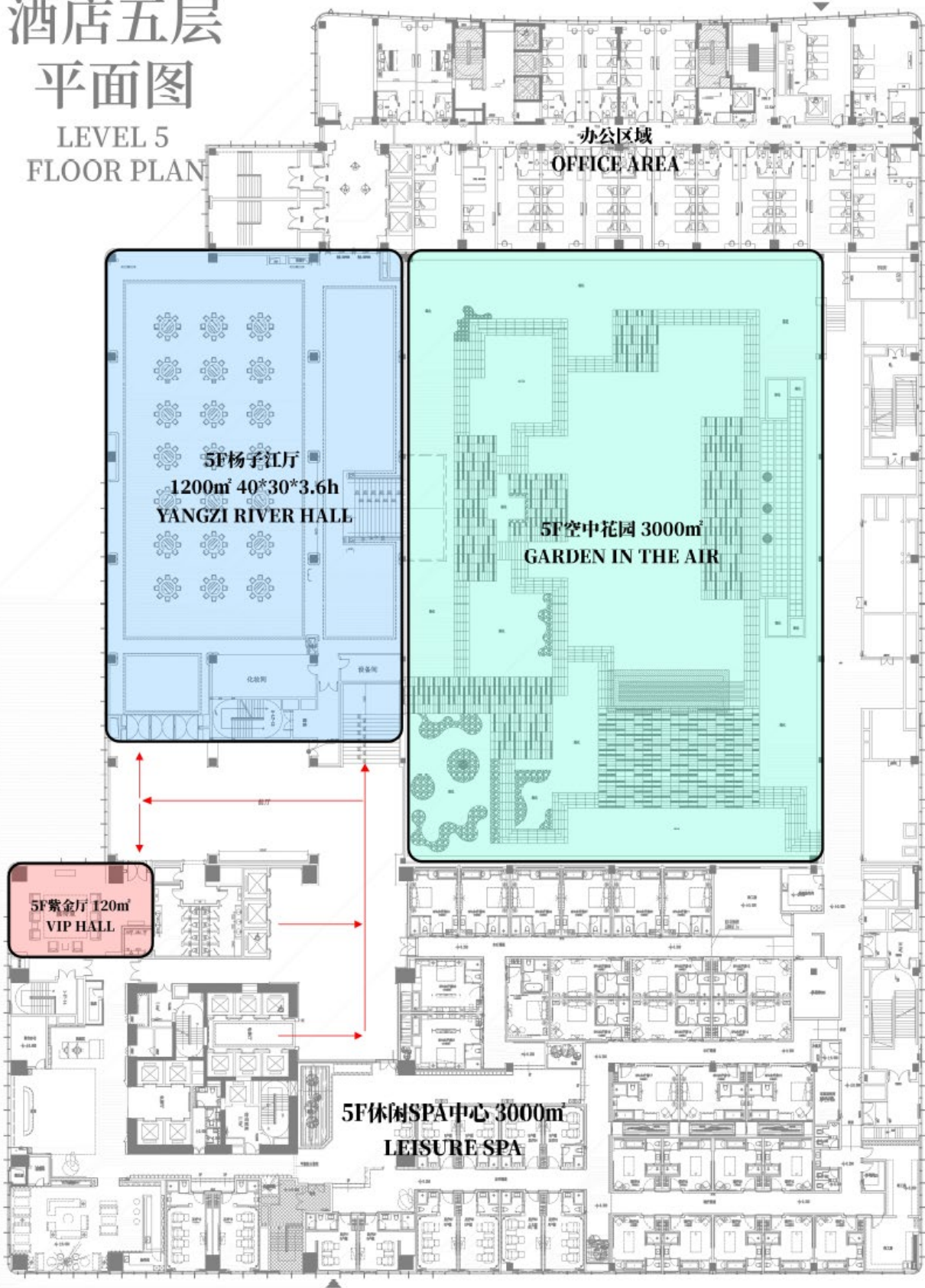
- Opening Ceremony: Guangzhou Hall (2F)
- IWSA 2025 General Session: Zijin Hall (5F)
- Dining: Shenzhen Hall (2F)



酒店二层平面图 LEVEL 2 FLOOR PLAN

酒店五层 平面图

LEVEL 5
FLOOR PLAN



IEEE IWSA 2025 – Program at a Glance

Dec. 5 (Fri.)	14:00 – 18:30	Registration
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Dec. 6 (Sat.)	9:00 – 10:00	Opening Ceremony <i>Guangzhou Hall</i>
	10:00 – 10:40	Keynote Speech I <i>Guangzhou Hall</i>
	10:40 – 11:20	Keynote Speech II <i>Guangzhou Hall</i>
	11:30 – 14:00	Lunch <i>Shenzhen Hall</i>
	14:00 – 15:45	Regular Paper Presentation 1 <i>Zijin Hall</i>
	15:45 – 16:05	Tea Break <i>Foyer</i>
	16:05 – 17:35	Regular Paper Presentation 2 <i>Zijin Hall</i>
	18:30 – 21:30	Banquet and Best Paper Award <i>Shenzhen Hall</i>

Dec. 7 (Sun.)	08:30 – 10:00	Regular Paper Presentation 3 <i>Zijin Hall</i>
	10:00 – 10:20	Tea Break <i>Foyer</i>
	10:20 – 11:50	Regular Paper Presentation 4 <i>Zijin Hall</i>
	11:50 – 14:00	Lunch <i>Shenzhen Hall</i>
	14:00 – 15:15	Regular Paper Presentation 5 <i>Zijin Hall</i>
	15:15 – 15:35	Tea Break <i>Foyer</i>
	15:35 – 16:50	Regular Paper Presentation 6 <i>Zijin Hall</i>

Final Program

2025 年国际无线感测技术与应用研讨会

2025 IEEE International Workshop on Wireless
Sensing Technologies and Applications (IWSA 2025)

Nanjing Fengda International Hotel, Nanjing, China

Dec 5 – 7, 2025

Organized by

IEEE Macau AP/MTT Joint Chapter
University of Macau
Nanjing Normal University
Nanjing University of Science and Technology

Technical Sponsor

IEEE
IEEE Instrumentation and Measurement Society

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Welcome Messages

Welcome Message from IEEE IWSA 2025

By Prof. Kam-Weng TAM (Ken)

General Chair

University of Macau

Welcome to the 2025 IWSA, hosted in the vibrant city of Nanjing. This marks an exciting collaboration between the first annual editions of IWSA and MSSC, bringing together academic researchers, industry leaders, and innovators to explore advancements in wireless sensing and automatic identification technologies.

IWSA serves as a premier platform for academic and industrial synergy, with a focus on wireless sensing innovations powered by RF and photonic technologies. This year's event highlights include 30 technical presentations and three keynote sessions by distinguished speakers.

I extend my sincere gratitude to the organizers, sponsors, exhibitors, and all attendees for making this event possible. Your active participation is key to the success of this gathering, and I encourage you to take full advantage of the opportunities for learning, discussion, and collaboration. We hope you find this event engaging, inspiring, and impactful. Thank you for joining us, and I wish you a successful conference.



Detailed Program – 6 December (Saturday)

Opening Ceremony

Time/Date 09:00 – 10:00 / 6 December 2025 (Saturday)
Venue Guangzhou Hall

Keynote Speech I

Time/Date 10:00 – 10:40 / 6 December 2025 (Saturday)
Venue Guangzhou Hall
Title **Research Progress of Gallium Nitride Millimeter-Wave Devices**
Speaker Xiaohua Ma, Xidian University

Biography

Prof. Ma Xiaohua graduated from Xi'an University of Electronic Science and Technology in 1996 with a major in Microelectronics. He is currently the director of the National Engineering Research Center for Wide Bandgap Semiconductor at Xidian University and the deputy director of the School of Integrated Circuit, as well as the director of the National Integrated Circuit Industry-Education Integration Innovation Platform. He is also the vice chairperson of the Shaanxi Provincial Committee of the Jiusan Society, a recipient of the Special Government Allowance of the State Council, and a national leading talent. For a long time, he has been engaged in fundamental innovation and key technology research on wide bandgap semiconductors. He has led over 20 major and key national research projects. His research achievements have been applied in major projects such as 5G communication, radar detection, and satellite communication, leading China's third-generation semiconductor electronic devices into the international advanced ranks. He has published over 200 high-level papers and won one first prize and one second prize of the National Science and Technology Progress Award, as well as six first prizes of provincial and ministerial level.

Abstract

Gallium nitride features a large bandgap, high breakdown field strength and a higher electron saturation velocity, which endows it with promising application prospects in high frequency, high power and high efficiency, and it can be widely used in microwave and radio frequency fields such as radar detection, satellite communication and 5G communication. For millimeter-wave devices, the four main indicators to be considered are frequency, power, efficiency and linearity. This report will introduce the domestic and international research and development status of gallium nitride millimeter-wave devices and the latest progress of our team from the above four aspects.

Keynote Speech II

Time/Date	10:40 – 11:20 / 6 December 2025 (Saturday)
Venue	Guangzhou Hall
Title	CMOS mm-wave Phased Array: From Fabless Design to Human-less Automation and Architectural Advantages
Speaker	Kai Kang, University of Electronic Science and Technology of China

Biography

Prof. Kai Kang received the B. Eng degree from the Northwestern Polytechnical University, China in 2002, and the joint Ph.D. degree from the National University of Singapore, Singapore and Ecole Supérieure D'électricité, France in 2008. Dr. Kang was with the Institute of microelectronics, A*STAR, Singapore as a Senior Research Engineer, and with Global foundries as a Principle Engineer, respectively. Since June 2011, he has been a professor at the University of Electronic Science and Technology of China. His research interests are RF and RF & mm-Wave integrated circuits design and modeling of on-chip devices.

Abstract

Since millimeter wave frequency bands are adopted in 5G communications, CMOS mm-wave circuits and systems attract tremendous attentions because of its low cost and high integration capability. However, circuits designers have to face to many challenges of CMOS process, such as the high loss substrate, low Q passive devices, high noise, and limited gain and output power. This paper will introduce technique to overcome these difficulties to design high performance wideband building blocks as well as transceiver chipsets for 5G communication.

11:30 – 14:00

Lunch

Shenzhen Hall

Regular Paper Presentation 1

Time 14:00 – 15:45 / 6 December 2025 (Saturday)
Venue Zijin Hall
Chairs Tianye Ma (Nanjing Normal University)

A001 14:15 – 14:30

A Compact Base Station Antenna Utilizing Shared Dipole Elements

Jing Wu, Xin-Zi Ma, Rui-Tao Cai, Zi-Hong Geng, Le-Yan Shen, Xia-Shuang Lu, Ying-Xuan Huang, Guan-Long Huang and Xian-Hui He

A002 14:30 – 14:45

Design of a Circularly Polarized Waveguide Slot Antenna Array Based on Coaxial Central Feed

Yutao Yang, Sai-Wai Wong, Yejun He

A003 14:45 – 15:00

3D Printed Monolithic Wide-Stopband GGW Filter/Diplexer for mm-Wave Applications

Xin Zhou, Gang Zhang, Kam-weng Tam, Chi-hou Chio, Cheng Teng

A004 15:00 – 15:15

3-D Printed End-Fire Artificial Dielectric Antenna with Permittivity-Designable Sub-Wavelength Metal-Dielectric Units

Qi Liu, Xiulong Chi, Jingyi Zhang, Tianye Ma, Hua Xu, Shiyang Wang, Gang Zhang

A005 15:15 – 15:30

Analysis of Detection Performance of Microwave Computational Imaging Based on Distributed Antenna for Different Targets

Shirun Li, Hongyu Lan, Fangxing Yang, Qinqin Liu, Boyu Sima

A006 15:30 – 15:45

A 4×4 Wideband Filtering Cavity Slot Antenna Array Enabled by Multi-Resonator Coupling

Man Yang, Xin-Zi Ma, Rui-Tao Cai, Zi-Hong Geng, Le-Yan Shen, Xia-Shuang Lu, Rui-Sen Chen, Xian-Hui He and Guan-Long Huang

15:45 – 16:05 **Tea Break**
Foyer

Regular Paper Presentation 2

Time 16:05 – 17:35 / 6 December 2025 (Saturday)
Venue Zijin Hall
Chairs Zai-Cheng Guo (Nanjing Normal University)

A007 16:05 – 16:20

Design of a Coaxial-Based Wideband Balun Filter

Mengyu Liu, Yanqun Liu, Jingyi Zhang, Qiaoyu Chen, Wanchun Tang, Gang Zhang

A008 16:20 – 16:35

Harmonic-Enhanced High-Sensitivity TSI-Based Angular Displacement Sensor

Chaoyu Jiang, Chi-hou Chio, Kam-weng Tam, Zhuowei Zhang, Huawei Lin, Wenhai Zhang, Cheng Teng

A009 16:35 – 16:50

3D Wideband and Wide-Angle FSS Based on Chebyshev Synthesis

Di Gao, Bo Wang, Zihan Sun, Xin Ma

A010

16:50 – 17:05

A Novel Tri-Band Half-Mode Groove Gap Waveguide Filter Based on Spoof Surface Plasmon Polaritons

Yan Zhou, Qiaoyu Chen, Jingyi Zhang, Yanqun Liu, Wanchun Tang, Gang Zhang

A011

17:05 – 17:20

Design of Filtering Low Noise Amplifier for Meteorological Radar

Liwei Yu, Yi Wang, Fenjin Yao, Xuhui Chu, Xinnan Lin

A012

17:20 – 17:35

A Broadband and Angularly Stable Semi-Transparent Frequency Selective Surface

Yang Yuan, Guowen Ding

18:30 – 21:30

Banquet and Best Paper Award

Shenzhen Hall

Detailed Program – 7 December (Sunday)

Regular Paper Presentation 3

Time 08:30 – 10:00 / 7 December 2025(Sunday)
Venue Zijin Hall
Chairs Huangyan Li (Nanjing University of Science and Technology)

A013 08:30 – 08:45

On-Glass Dual-Band Circularly Polarized Patch Antenna

Jiaqian Chen, Jiahao Zhang, Wenhai Zhang, Xueguan Liu, Honglong Cao, Yilin Zheng, Changrong Liu, Chi-hou Chio, Kam-weng Tam, Zhixing Chen

A014 08:45 – 09:00

Design of a Wideband Dual-Polarization Phased Array Feed for QTT

Qing Shi

A015 09:00 – 09:15

A Broadband Transparent Circularly Polarized Antenna for GNSS Applications

Keying Huang, Zhipeng Zhang, Wenhai Zhang, Xueguan Liu, Chi-hou Chio, Kam-weng Tam, Zhixing Chen

A016 09:15 – 9:30

A Wideband Circularly Polarized Metasurface Glass Antenna for Satellite Navigation Systems

Keying Huang, Wenhai Zhang, Xueguan Liu, Kam-weng Tam, Zhixing Chen, Quan Xue

A017 9:30 – 9:45

A Novel Wideband Hat-Feed Reflector Antenna

Xinglong Liu

A018 9:45 – 10:00

A High-Efficiency Reconfigurable Metasurface Unit for UAV Wireless Charging Systems

Le-Yan Shen, Ying-Xuan Huang, Zi-Han Huang, Yi-Jing Sha, Ye Liu, Kai Wang, Jia-Yi Wu, Guan-Long Huang and Xian-Hui He

10:00 – 10:20 **Tea Break**
Foyer

Regular Paper Presentation 4

Time 10:20 – 11:50 / 7 December 2025(Sunday)
Venue Zijin Hall
Chairs Xiang Wang (Nanjing University of Science and Technology)

A019 10:20 – 10:35

Ultra-Low Cross Polarization Broadband Compact Magneto-Electric Dipole Antenna Array for 5G Applications

Songsong Qian, Pengcheng Yang, Jiahao Xiao

A020 10:35 – 10:50

Design of 90.5% Fractional Bandwidth 2.3 GHz-to-6.1 GHz Band Rectifier for Wireless Power Transfer

Xianbin Peng, Sai-wai Wong

A021 10:50 – 11:05

A Highly Integrated Portable Quantum Wide-Field Microscope Using NV Centers

Zichuan Zhang, Yong Liu, Zijin Fu, Jiapan Yu, Huanfei Wen, Xiaohong Tang

A022 **11:05 – 11:20**
A Weighted Sequential Probability Ratio Test Algorithm Based on Local Consistency Verification
Rui Zhao, Jun Wu, Hongru Zhang, Lei Qiao, Mingkun Su, Jianrong Bao

A023 **11:20 – 11:35**
A Novel Wideband Phase Shifter Based on Pin-Controlling of Gap Waveguide
Jingchun Fan, Jingyi Zhang, Junjie Zhang, Qiaoyu Chen, Yanqun Liu, Gang Zhang

A024 **11:35 – 11:50**
A Dual Frequency Metasurface for UAV Wireless Power Transfer
Ye Liu, Heng-Yu Zhu, Le-Yan Shen, Xia-Shuang Lu, Ying-Xuan Huang, Kai Wang, Zi-Han Huang, Guan-Long Huang and Xian-Hui He

11:50 – 14:00 **Lunch**
Shenzhen Hall

Regular Paper Presentation 5

Time 14:00 – 15:15/ 7 December 2025(Sunday)
Venue Zijin Hall
Chairs Dongxin Ni (Nanjing University of Science and Technology)

A025 **14:00 – 14:15**
Ka-Band HSIW Leaky-Wave Antenna for Dual-Band Shared-Aperture Beam-Scanning Application
Ziqing Chu, Yingrui Yu, Zuping Qian, Wen Wu

A026 **14:15 – 14:30**
Optimization of Multi-Network Port and Time Synchronization for the Tunnel ORB-SLAM System
Yewen Zhang, Hong Wang, Guowei Ding, Yilei Chen

A027 **14:30 – 14:45**
Novel Bandpass Filter Employing Hybrid Circular and Cambered SIW Resonators
Ke-long Sheng, Xiang Wang, Songsong Qian, Zhiyuan Zong, Wen Wu

A028 **14:45 – 15:00**
A 4.9 to 5.5 GHz Inverse Class-F VCO with Second Harmonic Resonance Expansion Achieving 195.7 dBc/Hz FoM in 65nm CMOS
Junnan Guan, Tongde Huang, Wen Wu

A029 **15:00 – 15:15**
Fast SAR Imaging Method Based on Overlapping Subband Stitching
Yilei Chen, Hong Wang, Yewen Zhang, Jie Shi

15:15 – 15:35 **Tea Break**
Foyer

Regular Paper Presentation 6

Time 15:35 – 16:50 / 7 December 2025(Sunday)
Venue Zijin Hall
Chairs Ruoyu Zhang (Nanjing University of Science and Technology)

A030 15:35 – 15:50

Frequency-Modulated Stepped Signal DDC Design Based on Fast Symmetric FIR
Jie Shi, Hong Wang, Yilei Chen, Yewen Zhang

A031 15:50 – 16:05

Time-Coding Metasurface for SAR Deceptive Jamming of Three-Dimensional False Targets
Jiacheng Song

A032 16:05 – 16:20

A Study of Reinforcement Learning for Indoor Path Planning with Dynamic Obstacles
Ziyi Yuan, Guo Yang, Ruqi Xiao

A033 16:20 – 16:35

RANSAC-Integrated Root-MUSIC: A Hybrid Algorithm for High-Precision BLE CS Ranging
Yuan Nie, Zheng Miao, Yizhen Ding, Fengkai Liu, Qijian Zheng, Cheng Huang, Liu Hao

A034 16:35 – 16:50

A Frequency Deviation-Resistant BLE Direction-Finding Algorithm Using Time Series Prediction
Xiaoyue Gao, Liwen Ren, Yitian Sun, Hongyi Jia, Zijie Wang, Cheng Huang, Liu Hao

Conference Venue and Travel Information



Nanjing Fengda International Hotel
No. 89, Chengnanhe Road, Pukou District, Nanjing
南京丰大国际大酒店
南京浦口区城南河路 89 号
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