

# ICICN2026 Track 5

## Basic Information:

### 专栏题目 Title

中文：面向物联网的无人机通信  
英文：UAV Communication for IoT

### 专栏介绍和征稿主题 Introduction and topics

中文：随着 5G/6G 技术与物联网 (IoT) 的飞速发展，无人机 (UAV) 已成为物联网生态系统中不可或缺的核心组成部分，为无基础设施覆盖区域的物联网设备提供灵活、高效且经济的无线连接解决方案。无人机与物联网的深度融合，已深刻变革智慧农业、环境监测、应急通信、智慧城市等多个领域，同时也在通信可靠性、能效优化、安全防护及移动性管理等方面带来了新的挑战。

本专题旨在汇集学术界与工业界在物联网无人机通信领域的前沿研究成果、创新技术及实践应用，诚邀广大科研工作者、工程师及从业者提交高质量原创论文，聚焦无人机辅助物联网通信的最新进展、技术突破及解决方案探索。本专题将提供深度交流与研讨的平台，推动理论研究与产业应用深度融合，助力无人机-物联网融合领域的可持续发展。

征稿方向包括但不限于：

- 物联网中的无人机通信协议与架构设计
- 无人机-物联网系统的高能效通信技术
- 无人机辅助物联网网络的安全与隐私保护
- 面向物联网数据采集的无人机轨迹优化与路径规划
- 基于人工智能/机器学习的无人机-物联网通信增强技术
- 面向高速物联网服务的毫米波/太赫兹无人机通信
- 物联网部署中的无人机集群协同技术
- 无人机-物联网在智慧城市、农业及应急响应中的实际应用
- 无人机-物联网网络中的边缘计算融合技术

英文：With the rapid development of 5G/6G technology and the internet of things (IoT), unmanned aerial vehicles (UAVs) have become an indispensable core component in the IoT ecosystem, providing flexible, efficient, and cost-effective wireless connectivity solutions for IoT devices in areas without infrastructure coverage. The integration of UAVs and IoT has profoundly transformed various fields such as smart agriculture, environmental monitoring, emergency communication, and smart cities, while also bringing new challenges in communication reliability, energy efficiency, security, and mobility management.


This special session aims to gather cutting-edge research findings, innovative technologies, and practical applications from academia and industry in the field of UAV communication for IoT. We invite researchers, engineers, and practitioners to submit high-quality original papers, focusing on the latest progress, technical breakthroughs, and solution explorations related to UAV-assisted IoT communication. The session will provide a platform for in-depth exchanges and discussions, promoting the integration of theoretical research and industrial applications, and advancing the sustainable development of the UAV-IoT integrated field.

Topics of interest include but are not limited to:

- UAV-enabled IoT communication protocols and architectures
- Energy-efficient communication technologies for UAV-IoT systems
- Security and privacy protection in UAV-assisted IoT networks
- UAV trajectory optimization and path planning for IoT data collection
- AI/ML-based enhancement for UAV-IoT communication
- mmWave/THz UAV communication for high-speed IoT services

- UAV swarming and coordination in IoT deployments
- Practical applications of UAV-IoT in smart cities, agriculture, and emergency response
- Edge computing integration in UAV-IoT networks

## Track Chair(s):

	姓名 <b>Name</b>	戈艺萌
	称谓 <b>Prefix</b>	副教授
	部门 <b>Department</b>	通信与信息工程学院
	单位 <b>Organization</b>	西安邮电大学
	城市/地区 <b>City/Region</b>	西安

### Organizer's Brief Biography

中文：戈艺萌，西安邮电大学副教授。博士毕业于西安交通大学。现从事 6G 通信中智能反射面波束赋形、无人机通信、通感一体化、物理层安全等关键技术研究。担任《火箭军工程大学学报》青年编辑，《西安邮电大学学报》青年编辑，IEEE ISCTech 2024 及 SMC-IoT 会议客座编辑，《移动通信》2025 年第 11 期专题“6G 可重构智能表面”客座编辑，IEEE WCM/IOTJ/TCOM 等领域顶级期刊审稿人。共发表 SCI 论文 10 余篇。授权发明专利三项。”2025 年陕西省高等学校科学技术成果奖一等奖，2025 年西安交通大学优秀博士学位论文“获评者，2025 年西安市科协青年人才托举计划项目获评者，IEEE 12TH ISCTech 会议最佳论文奖获评者。


英文：She is currently an associate professor at Xi'an University of Posts and Telecommunications. She received her Ph.D. degree from Xi'an Jiaotong University, and her current research focuses on key technologies in 6G communications, including intelligent reflecting surface (IRS) beamforming, unmanned aerial vehicle (UAV) communications, integrated sensing and communication (ISAC), and physical-layer security; she serves as a Young Editor for the Journal of Rocket Force University of Engineering and the Journal of Xi'an University of Posts and Telecommunications, Guest Editor for IEEE ISCTech 2024 and SMC-IoT, as well as Guest Editor for the special issue “6G Reconfigurable Intelligent Surfaces” in Mobile Communications (Issue 11, 2025), and also acts as a reviewer for several top-tier IEEE journals including IEEE Wireless Communications (WCM), IEEE Internet of Things Journal (IOTJ), and IEEE Transactions on Communications (TCOM); she has published more than 10 SCI papers and holds 3 authorized patents, and her honors include the First Prize of the 2025 Shaanxi Provincial Higher Education Science and Technology Achievement Award, the 2025 Outstanding Ph.D. Dissertation Award from Xi'an Jiaotong University, the 2025 Youth Talent Support Program from Xi'an Association for Science and Technology, and the Best Paper Award at IEEE 12th ISCTech 2025.

	姓名 <b>Name</b>	胡慧敏
	称谓 <b>Prefix</b>	副教授
	部门 <b>Department</b>	通信与信息工程学院
	单位 <b>Organization</b>	西安邮电大学
	城市/地区 <b>City/Region</b>	西安

### Organizer's Brief Biography

中文：西安邮电大学副教授。博士毕业于北京交通大学。主持陕西省自然科学基金基础研究计划项目 1 项、陕西省人才项目 1 项。作为项目骨干成员，参与国家自然科学基金面上项目、中兴通讯产学研横向课题等多项。近年来在本领域知名国际期刊 IEEE IoT Journal、IEEE TVT、IEEE TGCN 和会议 IEEE ICC CWKSHPS、中国电子学会信息论年会等上发表和接收论文 10 余篇，申请发明专利 4 项。2 篇国内会议论文均获得最佳论文奖，1 篇发表在 IEEE IoT Journal 上的 SCI 一区期刊论文入选 ESI 高被引论文。长期担任通信领域知名期刊 IEEE TWC、IEEE TCOM、IEEE IoT Journal、IEEE TNSE、IEEE Sensors Journal 以及 IEEE WCL 等的审稿人。同时，也担任知名国际会议 IEEE GLOBECOM 和 IEEE WCNC 等的 TPC Member 和审稿人。

英文：She is currently an associate professor at Xi'an University of Posts and Telecommunications. She received her Ph.D. degree from Beijing Jiaotong University. She is in charge of 1 Shaanxi Provincial Natural Science Basic Research Program and 1 Shaanxi Provincial Talent Program. As a key member, she has participated in a number of projects such as the General Program of the National Natural Science Foundation of China and industry-university-research horizontal projects of ZTE Corporation. In recent years, she has published and accepted more than 10 papers in well-known international journals including IEEE IoT Journal, IEEE TVT, IEEE TGCN, and conferences including IEEE ICC CWKSHPS and the Information Theory Annual Conference of Chinese Institute of Electronics (CIE), and has applied for 4 invention patents. Two of her domestic conference papers won Best Paper Awards, and one SCI Zone 1 paper published in IEEE IoT Journal was selected as an ESI Highly Cited Paper. She has long served as a reviewer for renowned journals in the field of communications, including IEEE TWC, IEEE TCOM, IEEE IoT Journal, IEEE TNSE, IEEE Sensors Journal and IEEE WCL, and also served as a TPC Member and reviewer for well-known international conferences such as IEEE GLOBECOM and IEEE WCNC.

	姓名 Name	董理濛
	称谓 Prefix	副教授
	部门 Department	电子信息学院
	单位 Organization	西北工业大学
	城市/地区 City/Region	西安

### Organizer's Brief Biography

中文：西北工业大学副教授。博士毕业于西北工业大学。致力于 6G 前沿通信理论研究，包括智能超表面传输安全通信、高效通信、去蜂窝网络、通感一体化等。发表论文 50 余篇，总引用量达千余次，包括一篇 ESI 前 1% 高被引论文。主持国家自然科学基金，陕西省青年基金，参与国家自然科学基金专项、面上项目，航空基金项目以及华为合作项目。2024 年，2025 年连续入选美国斯坦福大学和爱思唯尔出版的“全球前 2% 顶尖科学家”榜单。

英文：Associate Professor at Northwestern Polytechnical University. I graduated with a PhD from Northwestern Polytechnical University. Dedicated to the research of cutting-edge communication theories in 6G, including intelligent metasurface transmission secure communication, high-efficiency communication, decellularized networks, and integrated sensing. Published over 50 papers with a total citation count of over a thousand times, including one ESI top 1% highly cited paper. Hosted the National Natural Science Foundation of China, Shaanxi Provincial Youth Fund, participated in National Natural Science Foundation special and general projects, aviation fund projects, and Huawei cooperation projects. In 2024 and 2025, it will be continuously selected for the "Top 2% of Global Scientists" list published by Stanford University and Elsevier in the United States.