ICICN2026 Track 10 Description

Special Session Basic Information:

专栏题目 Session Title	中文：光互连、光接入和光传感 英文：Optical Interconnection, Optical Accessing, and Optical Sensing

专栏介绍和征稿主题
Introduction and topics

中文：

作为数字化与智能化浪潮的核心使能技术，光互连、光接入与光传感正经历颠覆性变革。本专题聚焦新一代光通信架构中三大支柱技术的协同突破，现面向全球征集原创研究成果。征稿主题包括但不限于：

- 高速光互连系统：芯片级光互连、空分复用技术、智能数据中心网络、硅光集成交换架构
- 泛在光接入网络：50G-PON及Beyond、光-无线融合接入、低成本相干技术、云化光分配网
- 智能光传感网络：分布式光纤传感（DAS/DTS）、光子晶体光纤传感器、光量子传感、工业物联网感知融合
- 融合型支撑技术：可编程光子芯片、人工智能驱动光网络、节能光模块设计、Tb级光传输器件
- 关键突破方向：超高密度波分系统（L波段扩展）、面向6G的光前传架构、光纤内生安全感知、光-电-量混合集成解决方案。

诚邀学术界与产业界同仁分享创新成果，共同绘制光通信跨代发展的技术蓝图。

英文：

As core enablers driving digitalization and intelligent transformation, optical interconnection, optical access, and optical sensing are undergoing revolutionary advancements. This session solicits cutting-edge research on synergistic breakthroughs across these three foundational technologies. Topics of interest include but are not limited to:

- High-Speed Optical Interconnection: Chip-scale photonic links, SDM techniques, intelligent data center networks, silicon photonic switching fabrics
- Ubiquitous Optical Access: 50G-PON and beyond, optical-wireless convergence, low-cost coherent solutions, cloud-optimized distribution networks
- Intelligent Optical Sensing: Distributed fiber sensing (DAS/DTS), photonic crystal fiber sensors, optical quantum metrology, industrial IoT perception fusion
- Convergent Enabling Technologies: Programmable photonic ICs, AI-driven optical networks, energy-efficient transceiver design, Tb/s-class photonic devices
- Key Focus Areas: Ultra-high-density WDM systems (L-band expansion), optical fronthaul for 6G, fiber-intrinsic security sensing, photonic-electronic-quantum hybrid integration.

We cordially invite academia and industry pioneers to share transformative innovations and collaboratively shape the next-generation optical communication paradigm.

Special Session Chair(s):

姓名 Name	杨桃
称谓 Prefix	副教授
部门 Department	信息光子学与光通信全国重点实验室
单位 Organization	北京邮电大学
城市/地区 City/Region	北京

Organizer's Brief Biography

中文：杨桃，副教授，博士生导师，IEEE/OSA 会员。研究方向聚焦高速光传输与光接入，智能光通信与传感等。迄今发表学术论文 70 余篇，授权专利 13 项。主持自然科学基金等多项国家级纵向项目，获中国人工智能学会科技进步奖、中兴通讯产学研优秀项目奖。

英文：Tao Yang, Associate Professor, Doctoral Supervisor, IEEE/OSA Member. His research focuses on high-speed optical transmission and optical access, intelligent optical communication and sensing, among other areas. To date, he has published over 70 academic papers and holds 13 authorized patents. He has served as Principal Investigator for multiple national-level research projects, including those funded by the National Natural Science Foundation of China. His work has been recognized with the Science and Technology Progress Award from the Chinese Association for Artificial Intelligence and the Outstanding Industry-University-Research Collaboration Award from ZTE Corporation.

姓名 Name	周娴
称谓 Prefix	教授
部门 Department	计算机与通信工程学院
单位 Organization	北京科技大学
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Organizer's Brief Biography

中文：周娴，北京科技大学教授、博士生导师。科研方向包括：面向 6G 的空天地光通信技术，数据中心光传输理论与技术，智能光纤传感技术，数字信号处理算法等。先后主持或参与国家重点研发计划、国家 863 计划、国家自然科学基金面上/青年项目、北京市自然科学基金项目等多项国家及省部级项目；获 2013 年度“香江学者计划”项目资助，在香港公派交流期间作为技术骨干参与多个华为公司研发项目，在数据中心光互连方面，联合创造多项高速传输实验记录；发表 SCI/EI 论文 80 余篇，其中 SCI 收录近 40 篇，包括领域顶级期刊 Opt. Express 光互连传输专题邀请论文 1 篇、IEEE J. Lightw. Technol.邀请综述论文 1 篇），高被引论文 2 篇；担任华为公司信道算法开发部顾问专家、中国通信学会青年工作委员会协作委员、香江学者联谊会秘书长、中国电子学会青年科学家论坛会员，任多个国际会议组织委员、TPC 分会联合主席、TPC 委员、做特邀/分组报告等。

英文：XianZhou, Professor and Doctoral Supervisor at University of Science and Technology Beijing. Research areas include:6G-oriented space-air-ground optical communication technologies， Theory and technologies for optical transmission in data centers，Intelligent optical fiber sensing techniques，Digital signal processing algorithms. She has led or participated in multiple national and ministerial projects, including: National Key R&D Program， National 863 Program， NSFC General/Youth Projects， Beijing Natural Science Foundation Projects. Awarded the 2013 Hong Kong Scholars Program fellowship, during which she served as a key technical contributor for several Huawei R&D projects in Hong Kong. Pioneered record-breaking high-speed transmission experiments in data center optical interconnection. Published 80+ SCI/EI-indexed papers (nearly 40 SCI papers), including: Invited paper in Optics Express (special issue on optical interconnection), Invited review in IEEE Journal of Lightwave Technology, 2 Highly Cited Papers. Professional

Services: Consultant Expert, Huawei Channel Algorithm Development Dept, Collaborative Member, Youth Working Committee, China Institute of Communications, Secretary-General, Hong Kong Scholars Association, Member, Young Scientist Forum, Chinese Institute of Electronics, Conference Roles: Organizing Committee/TPC Co-Chair/TPC Member/Invited Speaker at multiple international conferences.