

# ICICN2026 Track 9 Description

## Special Session Basic Information:

### 专栏题目

### Session Title

中文：量子信息与纳米光子学

英文：Quantum Information and Nanophotonics

### 专栏介绍和征稿主题

### Introduction and topics

中文：我们诚邀来自全球的学者、研究人员和工程师提交与量子信息与纳米光子学相关的原创研究成果和应用探索，征稿主题包括但不限于以下几个方面：

1. **量子信息传输与量子通信：**
  - 量子通信协议及其实现
  - 量子密钥分发与安全通信
  - 量子纠缠及其应用
2. **量子计算与量子算法：**
  - 量子计算机架构与实现
  - 量子比特控制与测量
  - 量子算法与量子复杂度
3. **纳米光子学与纳米材料：**
  - 纳米尺度的光学效应与光子行为
  - 纳米材料在量子技术中的应用
  - 纳米光子学器件与集成电路
4. **量子传感与量子测量：**
  - 高精度量子传感器的设计与应用
  - 量子测量技术及其精度提升
  - 纳米光子学在量子传感中的作用
5. **量子信息与纳米光子学的交叉研究：**
  - 量子信息技术与纳米光学的融合应用
  - 基于纳米光学材料的量子信息处理
  - 纳米光子学与量子网络的结合

欢迎各界专家踊跃投稿，分享您在这一前沿领域中的新发现、新技术和新观点。

英文：We warmly invite scholars, researchers, and engineers from around the world to submit original research findings and application explorations related to quantum information and nanophotonics. Suggested topics for submissions include, but are not limited to, the following areas:

#### Quantum Information Transmission and Quantum Communication:

- Quantum communication protocols and their implementation
- Quantum key distribution and secure communication
- Quantum entanglement and its applications

#### Quantum Computing and Quantum Algorithms:

- Quantum computer architecture and implementation
- Qubit control and measurement

## Quantum algorithms and quantum complexity

### Nanophotonics and Nanomaterials:

Nanoscale optical effects and photon behaviors  
Nanomaterials in quantum technologies  
Nanophotonic devices and integrated circuits

### Quantum Sensing and Quantum Measurement:

Design and applications of high-precision quantum sensors  
Quantum measurement techniques and precision enhancement  
The role of nanophotonics in quantum sensing

### Interdisciplinary Research in Quantum Information and Nanophotonics:

Integration of quantum information technologies and nanophotonics applications  
Quantum information processing based on nanophotonic materials  
The intersection of nanophotonics and quantum networks

We welcome experts from all disciplines to submit their contributions, sharing new discoveries, technologies, and perspectives in this cutting-edge field.

## Track Chair(s):

	姓名 <b>Name</b>	李峰 Feng Li
	称谓 <b>Prefix</b>	教授 Professor
	部门 <b>Department</b>	电子科学与工程学院 School of Electronic Science and Engineering
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	城市/地区 <b>City/Region</b>	西安/陕西 Xi'an/ Shaanxi

## Organizer's Brief Biography

中文：李峰，西安交通大学教授、博士生导师，国家级海外青年人才计划入选者，陕西省科技创新团队带头人。2002-2008年在天津大学精仪学院光电子系完成本科和硕士学习，2008年至2017年先后在加拿大麦吉尔大学、法国国家科研中心、英国谢菲尔德大学学习和工作，曾获欧盟玛丽居里奖学金资助。担任中科院《科学通报》《Science Bulletin》特邀编委、《中国激光》杂志社青年编委、《Frontiers of Physics》期刊青年编委。主要研究方向为光学微纳结构中的光与物质相互作用、微纳光电子器件等。在国际顶级期刊 *Physical Review Letters*, *Nature Communications*, *Light: Science & Applications*, *ACS Nano*, *Optica* 等发表学术论文多篇，主持国家自然科学基金项目3项，讲授《光电子学》《时间简史导读》两门本科生课程。

英文：Feng Li got his bachelor's and master's degree at Tianjin University in China in 2006 and 2008. He got his PhD at CNRS and the University of Nice Sophia Antipolis in France in 2013, supported by the European Marie Curie ITN project CLERMONT4. Then he worked as a research associate at the University of Sheffield in UK from January 2014 to May 2017. Feng Li joined Xi'an Jiaotong University (China) as a professor in June 2017, with main research interest in light-matter interaction in microcavities and micro/nanostructures.

	姓名 <b>Name</b>	蔡寅 Yin Cai
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### Organizer's Brief Biography

中文：蔡寅，西安交通大学特聘研究员、副教授、博士生导师，入选陕西省科技创新团队。本科毕业于华东师范大学，博士毕业于法国巴黎高师，曾任南京大学副研究员，担任《中国激光》杂志社青年编委、《Frontiers of Physics》期刊青年编委。主要研究方向为量子光学与量子信息、多模量子纠缠调控与量子传感、原子相干操控等。主持国家级科研项目3项，并在 Nature Communications, Science Advances, Physics Review Letters 等学术期刊发表系列研究工作，讲授《大学物理》《时间简史导读》等本科生课程。

英文：Y. CAI is an Associate Professor, and Ph.D. Supervisor at Xi'an Jiaotong University. He received his bachelor's degree from East China Normal University and later earned his Ph.D. from École Normale Supérieure (ENS) in Paris, France. Previously, he served as an Associate Researcher at Nanjing University. His main research areas focus on quantum optics and quantum information, multimode quantum entanglement and quantum sensing, atomic coherence manipulation.

	姓名 <b>Name</b>	项玉 Yu Xiang
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### Organizer's Brief Biography

中文：项玉，西安交通大学教授，博士生导师，国家级青年人才。本科毕业于华中师范大学，博士毕业于北京大学，曾任北京大学副研究员，研究方向为量子光学与量子信息理论。主持多项国家自然科学基金，获陕西省“青年科技新星”，以第一或通讯作者在 Physical Review Letters、PRX Quantum、Light 等国际顶级期刊发表论文多篇。

英文：Yu Xiang received her bachelor's degree from Central China Normal University and her Ph.D. from Peking University, and then worked as an associate researcher at Peking University. She joined Xi'an Jiaotong University as a professor in December 2024. Her research interests focus on fundamental issues in quantum physics, including squeezing, entanglement, EPR non-locality, etc., as well as criteria for detecting multipartite quantum correlations and their applications in quantum information processing.