

ICICN2026 Track 6

Basic Information:

专栏题目 Title	中文：自动化仪表与工业过程智能测控技术 英文：Automation Instrumentation and Intelligent Measurement and Control Technologies for Industrial Processes
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专栏介绍和征稿主题 Introduction and topics

中文：现代工业过程具有多变量、强干扰与运行工况复杂等特性，且在智能制造浪潮下，对生产过程的精细化管理与底层数据的全息感知不断深化，传统检测仪表与常规控制策略已难以满足工业系统高精度、高稳定性的运行需求。同时，工业现场的极端环境与提质增效的迫切需求，对过程控制的实时性、仪器仪表的抗干扰性以及多源信息的融合能力提出了更高要求。因此，开展高端自动化仪表与工业过程智能测控技术研究势在必行，这不仅是保障复杂工业过程在极端工况下精准可靠运行的关键，更是推动流程工业、高端制造、新材料与新能源等关键领域数字化、智能化发展的核心驱动力。

征稿主题包括但不限于：

1. 高端自动化仪表与智能传感器
2. 复杂工业过程建模、监测与先进控制
3. 极端工况下的高精度测量与抗干扰技术
4. 多源信息融合与工业过程数据分析
5. 机器学习驱动的智能测控与优化
6. 工业过程故障诊断、健康管理与寿命预测
7. 光谱分析与工业在线检测技术
8. 嵌入式测控系统与边缘智能
9. 流程工业、高端制造、新材料与新能源中的典型应用

英文：This track focuses on advanced automation instrumentation and intelligent measurement and control technologies for industrial processes. Modern industrial processes are characterized by multivariable coupling, strong disturbances, and complex operating conditions. Under the wave of intelligent manufacturing, refined process management and comprehensive perception of underlying data are being continuously strengthened, while traditional instruments and conventional control strategies are no longer sufficient to meet the demands for high precision and high reliability. Meanwhile, harsh industrial environments and the urgent need to improve quality and efficiency impose higher requirements on real-time process control, anti-interference capability of instruments, and multi-source information fusion. Therefore, research on advanced automation instrumentation and intelligent measurement and control technologies is essential not only for ensuring accurate and reliable operation of complex industrial processes under extreme conditions, but also for driving the digital and intelligent development of key sectors such as process industries, high-end manufacturing, new materials, and new energy.

Topics of interest include but are not limited to:

1. Advanced automation instruments and intelligent sensors
2. Modeling, monitoring, and advanced control of complex industrial processes
3. High-precision measurement and anti-interference techniques under extreme operating conditions
4. Multi-source information fusion and industrial process data analytics
5. Machine-learning-enabled intelligent measurement, control, and optimization

6. Fault diagnosis, health management, and remaining useful life prediction for industrial processes
7. Spectral analysis and industrial online detection technologies
8. Embedded measurement and control systems and edge intelligence
9. Representative applications in process industries, high-end manufacturing, new materials, and new energy

Track Chair(s):

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Organizer's Brief Biography

中文：张峰，男，工学博士，副教授，硕士生导师，2020年毕业于西安交通大学仪器科学与技术专业。现任西安工业大学电子信息工程学院副教授，主持或参与科研项目近20项，发表论文20余篇，申请受理发明专利4项。研究方向包括光谱分析、嵌入式系统、机器学习、故障诊断与寿命预测。陕西省自动化学会仪表与过程控制专业委员会、中国通信学会会员。

英文：Feng Zhang is an Associate Professor and Master's Supervisor at the College of Electronic Information Engineering, Xi'an Technological University. He received the Ph.D. degree in Instrument Science and Technology from Xi'an Jiaotong University in 2020. He has led or participated in nearly 20 research projects, published more than 20 papers, and filed 4 invention patents. His research interests include spectral analysis, embedded systems, machine learning, fault diagnosis, and remaining useful life prediction. He is a member of the Chinese Association of Automation and the China Institute of Communications.