

The logo for ICSPC2025, featuring the text "ICSPC2025" in a stylized font with a blue and green swoosh graphic.

The 2025 International Conference on Supercritical CO₂ Power Cycle and Comprehensive Energy Systems (ICSPC2025)

CHINA · XI'AN September 26-29, 2025

<http://icspc.allconfs.com/>

Conference Introduction

As an emerging technology with transformative potential, supercritical carbon dioxide power cycle have gained significant global attention and achieved remarkable advancements in recent years. However, critical challenges remain in areas such as fundamental principles, cycle construction concepts, key equipment development, and system integration and applications. Collaborative efforts among industry, academia and research institutions are urgently needed to promote the deep integration of the innovation chain, industry chain, capital chain, and talent chain, thereby supporting the high-quality development of new power systems and energy storage technologies. Based on this, Xi'an Thermal Power Research Institute Co., Ltd., North China Electric Power University, and the Institute of Engineering Thermophysics, Chinese Academy of Sciences jointly initiated the conference series on supercritical carbon dioxide power cycles and comprehensive energy systems. This year, the above three initiating units, in collaboration with Xi'an Jiaotong University, will host the the 2025 International Conference on Supercritical Carbon Dioxide Power Cycle and Comprehensive Energy Systems (ICSPC2025) in Xi'an, China, on September 26-29, 2025.

ICSPC2025, as the sixth in the series (2018 Beijing, 2019 Xi'an, 2022Xi'an, 2023 Beijing, 2024 Shanghai, 2025 Xi'an), covers topics ranging from fundamental supercritical thermophysical properties, material corrosion, thermodynamics, heat transfer, R&D of turbomachinery and heat exchangers, system integration, control optimization, and application in multi-energy scenerios. The ICSPC2025 welcomes worldwide scientists, engineers, and students engaged in the R&D of supercritical carbon dioxide systems to share cutting-edge theories, methodologies and technologies and to promote international exchanges and cooperation. A featured section of ICSPC2025 will be an exclusive tour to the 5MW Supercritical CO₂ Modular Advanced Research and Test (SMART) fossil-fired power system, which has been developed and operated by the conference host, Xi'an Thermal Power Research Institute Co., Ltd. This facility has served as the world's first pilot system and has achieved over 2,000 hours of safe operation.



5MW SMART@TPRI Power System

Topics

- New Working Medium Physical Property and Material Corrosion
- Supercritical Fluid Flow Heat Transfer & Heat Exchanger
- Supercritical Fluid Thermal Power Conversion & Turbomachinery
- New Power Cycle System Integration and Operation Control
- Energy Storage Technology and System
- Other Topics related to New Working Medium, New Cycle and New System
- [Themed session 1] Key Progress of National Demonstration Projects
- [Themed session 2] State Key Scientific Facilities
- [Themed session 3] New Power System and Energy Storage Technologies Forum
- [Themed session 4] Young Scientists Forum

Important Dates

- May 15, 2025 Abstract Submission deadline
- May 20, 2025 Notification of Abstract Acceptance
- Jun 30, 2025 Submission of Full-Length Paper
- Jul 30, 2025 Paper Acceptance Notification
- Aug 15, 2025 Early Bird Registration

Publication

Selected outstanding full-length papers will be recommended for publication in SCI indexed international journals such as The J. of Supercritical Fluids, Journal of Thermal Science, International Journal of Heat and Fluid Flow, etc.

Organization

- **Organizer:**
Xi'an Thermal Power Research Institute Co., Ltd.
Chinese Society for Electrical Engineering
- **Co-Organizer:**
North China Electric Power University
The Institute of Engineering Thermophysics,
Chinese Academy of Sciences
Xi'an Jiaotong University
- **Support Unit:**
Chinese Society of Engineering Thermophysics
China Solar Thermal Alliance
China Energy Storage Alliance
Birmingham Centre for Energy Storage, BCES
Supercritical Carbon Dioxide Cycle Innovation consortium

Conference Chairs

- **Conference Chair:**
Hongzhi Li, Xi'an Thermal Power Research Institute Co., Ltd., China
- **Co-Chairs:**
Jinliang Xu, North China Electric Power University, China
Lin Chen, The Institute of Engineering Thermophysics, Chinese Academy of Sciences, China
Jinjia Wei, Xi'an Jiaotong University, China
- **Executive Chairs:**
Yifan Zhang, Xi'an Thermal Power Research Institute Co., Ltd., China
Jian Xie, North China Electric Power University, China
Xiang Xu, Institute of Engineering Thermophysics, Chinese Academy of Sciences, China
Ming Liu, Xi'an Jiaotong University, China