The 2025 International Conference on Supercritical Carbon Dioxide Power Cycle and Comprehensive Energy Systems

2025 超临界二氧化碳动力循环与多能互补系统国际会议

PROGRAM BOOK

September 26-29, 2025

XI'AN, CHINA

Table of Contents

目 录

1. Introduction to ICSPC2025/会议背景

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 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, 2022 Xi'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 scenarios. 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 CO_2 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.

超临界二氧化碳循环作为具有变革性意义的新型动力循环，近年来在全球范围内受到广泛关注，并取得了显著进展。然而，在基础物理规律、循环构建理论、关键设备研制和系统集成应用等方面仍存在许多问题，亟需产学研机构协同攻关，推动创新链、产业链、资金链和人才链深度融合，支撑新型电力系统和储能新技术高质量发展。据此，西安热工研究院有限公司、华北电力大学、中国科学院工程热物理研究所联合发起了超临界二氧化碳动力循环及多能互补系列会议。上述三家发起单位本年度联合西安交通大学定于 2025 年 9 月 26-29 日在西安召开 2025 超临界二氧化碳动力循环与多能互补系统国际会议（简称 ICSPC2025）。

本次会议作为系列会议的第六届（2018 北京，2019 西安，2022 线上，2023 北京，2024 上海，2025 西安），主要议题涵盖超临界二氧化碳循环及其多能互补系统科学技术问题，包括超临界流体热物性与材料腐蚀、热力学、流动传热、透平机械、换热器等基础原理研究、关键部件研发、系统集成、控制优化及多能源场景应用。大会热烈欢迎全球从事超临界二氧化碳循环相关基础研究、装备研制和系统优化集成的专家学者、工程师及学生参会，共同探讨该领域的新理论、新方法及新技术，促进国际交流与合作。会议期间将安排参观访问由主办方西安热工研究院主持建设完成的国家发改委创新能力建设项目国际首座“5MW 超临界 CO_2 模块化研究测试平台（SMART）”，该平台已累计安全运行 2000 多小时，为超临界二氧化碳动力循环技术的研究和应用提供了重要基础平台。

2. Conference Topics/会议主题

(1). New Power Cycle System Integration and Operation Control-1
新型动力循环发电系统及运行控制-1

(2). New Power Cycle System Integration and Operation Control-2
新型动力循环发电系统及运行控制-2

(3). Supercritical Fluid Thermal Power Conversion & Turbomachinery
CO_2等新工质热功转换及透平压缩机

(4). Other Topics related to New Working Medium, Cycle and System
新工质、新循环、新系统相关专题

(5). Supercritical Fluid Flow Heat Transfer & Heat Exchanger
CO_2等新工质流动传热及换热器

(6). Energy Storage Technology and System
新型储能技术与系统

(7). The National Key Projects and the First Units (Sets)
国家重点项目及能源局首台套项目专题

(8). Young Scientists Forum
青年科学家论坛

3. Conference Organizing Board/会议组委会

Conference Chair/大会主席

Hongzhi Li, Xi'an Thermal Power Research Institute Co., Ltd., China

李红智　西安热工研究院有限公司

Conference Co-Chairs/联合主席

Jinliang Xu, North China Electric Power University, China

徐进良　华北电力大学

Lin Chen, The Institute of Engineering Thermophysics, Chinese Academy of Sciences, China

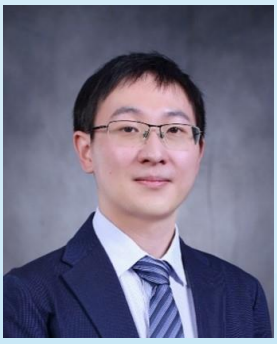
陈　林　中国科学院工程热物理研究所

Jinjia Wei, Xi'an Jiaotong University, China

魏进家　西安交通大学

Prof. Hongzhi LI
Chair of ICSPC2025

Prof. Jinliang XU
Co-Chair of ICSPC2025



Prof. Lin CHEN
Co-Chair of ICSPC2025

Prof. Jinjia WEI
Co-Chair of ICSPC2025

Executive Chairs/大会执行主席团

Yifan Zhang, Xi'an Thermal Power Research Institute Co., Ltd., China

张一帆　西安热工研究院有限公司

Jian Xie, North China Electric Power University, China

谢　剑　华北电力大学

Xiang Xu, Institute of Engineering Thermophysics, Chinese Academy of Sciences, China

徐　祥　中国科学院工程热物理研究所

Ming Liu, Xi'an Jiaotong University, China

刘　明　西安交通大学

Organizer/主办单位

Xi'an Thermal Power Research Institute Co., Ltd.

西安热工研究院有限公司

Chinese Society for Electrical Engineering

中国电机工程学会

Co-Organizer/联合主办单位

North China Electric Power University

华北电力大学

The Institute of Engineering Thermophysics, Chinese Academy of Sciences

中国科学院工程热物理研究所

Xi'an Jiaotong University

西安交通大学

Support Units/合作单位

Chinese Society of Engineering Thermophysics

中国工程热物理学会

China Solar Thermal Alliance

国家太阳能光热产业技术创新战略联盟

China Energy Storage Alliance

中关村储能产业技术联盟

Birmingham Centre for Energy Storage, BCES

英国伯明翰储能中心

Supercritical Carbon Dioxide Cycle Innovation consortium

超临界二氧化碳循环发电技术创新联合体

Sponsors/支持单位

中船七二五所厦门流体与换热装备研制中心

联系人：刘向前　　联系电话：13183089487

杭州沈氏节能科技股份有限公司

联系人：刘铁　　联系电话：15990160111

兰州兰石换热设备有限责任公司

联系人：敬延昭　　联系电话：17789660762

陕西智拓固相增材制造技术有限公司

联系人：马哲　　联系电话：15814432764

南京雅珑石化装备有限公司

联系人：胡明琴　　联系电话：13357803938

成都一通密封股份有限公司

联系人：李洪　　联系电话：18602861958

Contact/会务联系人

Conference Registration/会议注册

Ms. Yanwei Yang（杨艳伟） Tel: 18591915654

Conference Schedule/会议议程

Mr. Yuhang Han（韩煜航） Tel: 13720404905

Accommodation/食宿安排

Mr. Chun Zhang（张纯） Tel: 15891785501

Traffic Coordination/交通协调

Mr. Shuaishuai Wu（吴帅帅） Tel: 18629151712

Visiting/试验机组访问

Mr. Lei Zhang（张磊） Tel: 18066705283

4. Conference Schedule and Venue/会议安排

(1). Conference Schedule/会议时间

Date	Time	Schedule
Sep. 26, 2025	09:00-20:00	**Registration** Lobby of Wuahi Grand Hotel
Sep. 27, 2025	08:30-12:00	**Plenary Lectures** Grand Ballroom
	13:30-17:50	**Plenary Lectures** Grand Ballroom
Sep. 28, 2025	08:30-12:00	**New Power Cycle System Integration and Operation Control-1** Conference Hall 8
	13:30-17:30	**New Power Cycle System Integration and Operation Control-2** Conference Hall 8
	08:30-12:00	**Supercritical Fluid Thermal Power Conversion & Turbomachinery** Conference Hall 1
	13:30-17:30	**Other Topics related to New Working Medium, Cycle and System** Conference Hall 1
	08:30-12:00	**Supercritical Fluid Flow Heat Transfer & Heat Exchanger** Conference Hall 2
	13:30-17:20	**Young Scientists Forum** Conference Hall 2
	08:30-12:00	**Energy Storage Technology and System** Conference Hall 5&6
	13:30-17:40	**The National Key Projects and the First Units (Sets)** Conference Hall 5&6
Sep. 29, 2025	09:00-12:00	**Visiting & Leaving**

日期	时间	日程
9 月 26 日	09:00-20:00	**注册** 华海酒店大堂
9 月 27 日	08:30-12:00	**大会报告** 华海大宴会厅
	13:30-17:50	**大会报告** 华海大宴会厅
9 月 28 日	08:30-12:00	**新型动力循环发电系统及运行控制-1** 会议厅 8
	13:30-17:30	**新型动力循环发电系统及运行控制-2** 会议厅 8
	08:30-12:00	**CO_2 等新工质热功转换及透平压缩机** 会议厅 1
	13:30-17:30	**新工质、新循环、新系统相关专题** 会议厅 1
	08:30-12:00	**CO_2 等新工质流动传热及换热器** 会议厅 2
	13:30-17:20	**青年科学家论坛** 会议厅 2
	08:30-12:00	**新型储能技术与系统** 会议厅 5&会议厅 6
	13:30-17:40	**国家重点项目及能源局首台套项目专题** 会议厅 5&会议厅 6
9 月 29 日	09:00-12:00	**参观/离会**

(2). Conference Venue/会议地点

Conference Venue: Wuahi Grand Hotel

会议地点：西安华海酒店

Address: Bahe West Road 666, Weiyang District, Xi'an, Shaanxi Province, China

会议地址：陕西省西安市未央区灞河西路 666 号

Main venue: Grand Ballroom

主会场：华海大宴会厅

Sub-venue 1: Conference Hall 8

分会场 1：会议厅 8

Sub-venue 2: Conference Hall 1

分会场 2：会议厅 1

Sub-venue 3: Conference Hall 2

分会场 3：会议厅 2

Sub-venue 4: Conference Hall 5& Conference Hall 6

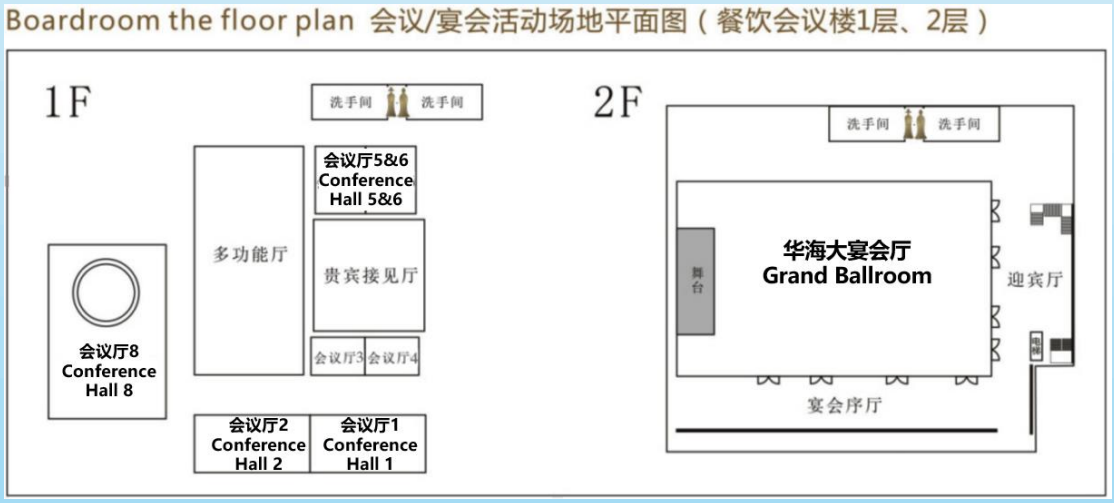
分会场 4：会议厅 5&会议厅 6

Dining location: Conference Hall 8 (Sep. 26 dinner);

Western Restaurant on the first floor (Sep. 27 lunch&dinner, 28 lunch)

就餐位置：26 日晚餐：会议厅 8；

27 日午餐、晚餐，28 日午餐：一楼西餐厅



Transportation routes of Wuahi Grand Hotel
西安华海酒店交通路线

From Xi'an Xianyang International Airport:

By taxi: The distance is approximately 40 kilometers, the journey takes about 45 minutes, and the cost is around 120 yuan.

Public transportation: Take Metro Line 14 (towards Heshao) to Beichen Station (Exit B), walk 770 meters south to Beichen Interchange North Station on North Third Ring Road, and transfer to Chanba Metro Line 1 to Convenience Station of Wuahi Grand Hotel.

从咸阳国际机场出发：

打车：距离约 40 公里，车程约 45 分钟，费用约 120 元。

公共交通：乘坐地铁 14 号线（贺韶方向）至北辰站（B 口出），南行 770 米至北三环北辰立交北站，换乘浐灞 1 号线至华海酒店（便民站）站。

From Xi'anbei Railway Station:

By taxi: The distance is about 10 kilometers, the journey takes about 20 minutes, and the cost is approximately 25 yuan.

Public transportation: Take Metro Line 14 (towards Heshao) to Beichen Station (Exit B), walk 770 meters south to Beichen Interchange North Station on North Third Ring Road, and transfer to Chanba Metro Line 1 to Convenience Station of Wuahi Grand Hotel.

从西安北站出发：

打车：距离约 10 公里，车程约 20 分钟，费用约 25 元

公共交通：乘坐地铁 14 号线（贺韶方向）至北辰站（B 口出），南行 770 米至北三环北辰立交北站，换乘浐灞 1 号线至华海酒店（便民站）站。

From Xi'an Railway Station:

By taxi: The distance is approximately 11 kilometers, the journey takes about 26 minutes, and the cost is around 26 yuan.

Public transportation: Take Bus No. 298 at the north of the railway station (Platform 2) to the South Station of Beichen Interchange on the North Third Ring Road. Walk 292 meters north to the South Station of Beichen Interchange on the opposite side of the road, and then transfer to Chanba Line 1 to Convenience Station of Wuahi Grand Hotel.

从西安站出发：

打车：距离约 11 公里，车程约 26 分钟，费用约 26 元

公共交通：在火车站北（2 站台）乘坐 298 路至北三环北辰立交南站，北行 292 米至路对面的北三环北辰立交南站，换乘浐灞 1 号线至华海酒店（便民站）站。

参观安排

9:00-12:00 安排参观西安热工研究院有限公司阎良基地 5MW 超临界二氧化碳试验机组，9:00 从华海酒店出发，参观结束后约 12:30 送达高铁站或者机场，1 号车和 2 号车送机场，3 号车送高铁站，4 号车送机场+高铁站

5. Plenary Speaker/大会报告

Plenary Speaker 1

Tianshou Zhao

Southern University of Science and Technology, China

Title of the Presentation:

Long-Duration Energy Storage

Bio: Prof. Tianshou Zhao is Director of the SUSTech Energy Research Institute for Carbon Neutrality, Chair Professor of Mechanical & Energy Engineering, Southern University of Science & Technology (SUSTech). Befor joining SUSTech in 2021, he held the named professorship of Engineering and Environment at HKUST. Prof Zhao is an elected academician of the Chinese Academy of Sciences, Fellow of the American Society Mechanical Engineers, Fellow of the Royal Society of Chemistry, Fellow of the Chinese Society of Chemistry, and a Highly Cited Researcher by Clarivate/Thomson Reuters, and Editor-in-Chief of *International Journal of Heat and Mass Transfer.*

Plenary Speaker 2

Christos N. Markides

Clean Energy Processes (CEP) Laboratory,
Imperial College London, UK

Title of the Presentation:

Challenges and opportunities in advanced CO_2 energy conversion and storage technologies

Bio: Prof. Christos Markides is Professor of Clean Energy Technologies, Head of the Clean Energy Processes Laboratory, and Leader the Experimental Multiphase Flow Laboratory, which is the largest experimental space of its kind at Imperial College London. He is also, amongst other, Editor-in-Chief of journal Applied Thermal Engineering and founding Editor-in-Chief of new journal *AI Thermal Fluids*.

He specialises in applied thermodynamics, fluid flow and heat/mass transfer processes in high-performance devices, technologies and systems for energy recovery, conversion or storage. He has authored >400 journal and >350 conference articles on these topics (~20,000 citations, h-index = 75).

He has won multiple awards, including IMechE's 'Donald J. Groen' outstanding paper prize in 2016, IChemE's 'Global Award for Best Research Project' in 2018, IChemE's 'Clean Energy Medal' in 2025,and received Imperial College President's Awards for Research Excellence in 2018 and Teaching Excellence in 2017. He has an interest in technology transfer, innovation and commercialisation, most recently as a founding Director of solar technology company Solar Flow.

Plenary Speaker 3

Richard Lee Smith Jr

Graduate School of Environmental Studies
Tohoku University, Japan

Title of the Presentation:

Fundamentals of Supercritical and Hydrothermal Fluids for Energy and Chemical Applications

Bio: Prof. Richard L. Smith Jr. is in the Graduate School of Environmental Studies (GSES)/GP-RSS, Tohoku University, Japan. He is a Fellow of the Society of Chemical Engineers, Japan (SCEJ). His research focuses on developing green chemical processes with supercritical and hydrothermal methods. He has published more than 300 scientific papers. He is Author of Introduction to Supercritical Fluids published by Elsevier in 2013, Co-editor of the book series Biofuels and Biorefineries (Prof. Zhen Fang, Editor-in-Chief) published by Springer Nature, and Senior Editor for the Journal of Supercritical Fluids.

Plenary Speaker 4

Yonghui Xie

Xi'an Jiaotong University, China

Title of the Presentation:

Compressed CO_2 Energy Storage Technology and Engineering Practice

Bio: Prof. Yonghui Xie is a leading scholar and professor of Xi'an Jiaotong University and deputy director of State Key Laboratory for Strength and Vibration of Mechanical Structures. His major is in turbomachinery aerothermodynamics and safety reliability, as well as compressed gas energy storage.

As the first contributor, he has won Second Prize of National Science and Technology Progress Award and 3 provincial and ministerial-level awards. He has completed many research projects as a leader, obtained over 250 authorized invention patents, published over 370 papers and 5 books.

Plenary Speaker 5

Jinliang Xu

North China Electric Power University, China

Title of the Presentation:

The Coal-fired sCO_2 Power Cycle: the Optimal Power Capacity and Deviation Design Operation

Bio: Dr. Jinliang Xu is professor in School of Energy Power and Mechanical Engineering at North China Electric Power University, and has been the Director of Key Laboratory of Power Station Energy Transfer Conversion and System, China. He has over thirty years of experience in the field of multiphase flow and heat transfer. He led the National Key R&D Program of China and the National Basic Research Program of China for 10 years. Dr Jinliang Xu is active in the field of multiphase flow, advanced power cycle and energy storage. He was the chair or co-chair for a set of academic conferences such as 4th Micro and Nano Flows Conference (University College London, UK, 2014), IHTS 2014 (International Heat Transfer Symposium 2014, Beijing) and first Int. Conference on supercritical CO_2 power system (2018, Being) etc. He is the editor of the journals of Thermal Science and Engineering Progress, Frontiers in Heat pipe, Water, Energies. He is the guest editor for the special issues of Energy and Applied Thermal Engineering. He presented 40 plenary/keynote speeches in international conferences, and has been the reviewer for more than 40 journals. He was the best reviewer of the Journal of Heat Transfer, ASME in the fiscal year of 2012. As the corresponding author, he published more than 300 scientific papers and co-authored two books. Dr Jinliang Xu was named as the "Yangtze River Scholar" Professor by the National Ministry of Education, China in 2013. He received the Natural Science Award of the Ministry of Education, China (first grade), and the Distinguished Contribution Award from Chinese Society for Electrical Engineering (2021).

Plenary Speaker 6

Igor Pioro

Ontario Tech University, Canada

Title of the Presentation:

Current and Future Applications of SuperCritical Fluidsin Power/Nuclear Industries and Specifics of Heat Transfer

Bio: Prof. Igor Pioro is a Ph.D. (1983); Doctor of Technical Sciences (1992); Professional Engineer (Ontario, Canada) (2008); Fellow of ASME (2012), Canadian Academy of Engineering (2023), CSME (2015), and Engineering Institute of Canada (EIC) (2013); life-time member of ANS (2004), and member of Canadian NS (2010); is an internationally recognized scientist within the areas of nuclear engineering (thermal hydraulics of nuclear reactors, Generation-IV nuclear-reactor concepts, etc.) and thermal sciences/engineering (boiling, forced convection including supercritical pressures, etc.)

He is author/co-author of 568 publications 14 technical books, 53 chapters in encyclopedias, handbooks, and books, 107 papers in refereed journals, 322 papers in refereed proceedings of international conferences/symposiums, 26 patents/inventions, and 46 major technical reports.

Plenary Speaker 7

Giacomo Falcucci

University of Rome Tor Vergata, Italy

Title of the Presentation:

Metal Hydride Hydrogen Storage Systems: Their Optimization and Management

Bio: Prof. Giacomo Falcucci is Full Professor of Fluid Machinery, Energy and Environmental Systems at the University of Rome Tor Vergata. He earned his PhD in Mechanical Engineering at the University of "Roma Tre". His research bridges numerical modeling and experiments on complex energy systems, with a focus on hydrogen technologies.

He is author of more than 150 international publications, including articles in leading journals such as Physical Review Letters and Nature and serves as Representative for Research and Quality Assurance for the Department of Enterprise Engineering at Tor Vergata.

He has been Associate to the Department of Physics at Harvard University since 2018 and belongs to the Top Italian Scientist list for Engineering.

Plenary Speaker 8

Jinjia Wei

Xi'an Jiaotong University, China

Title of the Presentation:

Research on High-Flux Concentrated Solar Thermochemical Conversion and Energy Storage

Bio: Dr. Wei Jinjia is a Professor at the School of Chemical Engineering and Technology, Xi'an Jiaotong University, and a recipient of the National Science Fund for Distinguished Young Scholars. His main research focuses on two-phase flow and heat transfer, as well as the utilization of solar photothermal and chemical conversion. He holds several academic positions, including Council Member of the International Center for Heat and Mass Transfer, Council Member of the Chinese Chemical Society, Vice Director of the Solar Thermal Power Committee of the Chinese Renewable Energy Society, and Member of the Heat and Mass Transfer Committee of the Chinese Society of Engineering Thermophysics. Additionally, he serves on the editorial board of five academic journals, such as Chinese Journal of Chemical Engineering.

Professor Wei has presided over more than 20 major research projects, including projects under the National Key Research and Development Program and key projects of the National Natural Science Foundation of China. He has published over 300 papers in international journals, delivered more than 20 invited lectures at international academic conferences, and obtained more than 30 authorized Chinese invention patents as well as 1 U.S. invention patent. He has also won 5 first prizes of provincial and ministerial-level Science and Technology Awards.

Plenary Speaker 9

Qun Chen

North China University of Technology, China

Title of the Presentation:

Heat Current Method-based Analysis and Optimization Method for sCO_2 Power Generation Systems

Bio: Prof. Chen Qun is a Vice President of North China University of Technology. He has been honored with awards such as the Beijing Scholar title, the Wu Zhonghua Outstanding Young Scholar Award, and the National Excellent Doctoral Dissertation Award. He currently serves as a Standing Council Member of the Chinese Society of Engineering Thermophysics.

His research primarily focuses on the isomorphic analysis and coordinated operation of integrated energy systems including electricity, heat, and hydrogen. He has led more than 10 major national-level scientific research projects, including projects of the National Key R&D Program, Young Scientists Fund (Category A) and Key Program of National Natural Science Foundation of China (NSFC), and the 863 Program. He has also led over 20 collaborative projects with enterprises such as the State Grid Corporation of China, China Huaneng Group CO., LTD., China Huadian Corporation LTD. and China Three Gorges Corporation. His research outcomes have been applied in the power dispatch control centers of several provinces power plants. He is a recipient of one Second Prize of the National Science and Technology Progress Award and seven provincial and ministerial-level science and technology awards.

He has published more than 160 SCI-indexed papers in journals such as Nature Communications, has been awarded as the "Highly Cited Chinese Researcher" for 11 consecutive years by Elsevier, authored two monographs, holds over 30 granted patents, and has drafted four standards.

Plenary Speaker 10

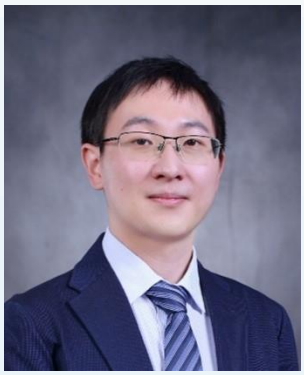
Hui Jin

Xi'an Jiaotong University, China

Title of the Presentation:

Adaptive Mesh Simulation and Similarity Criteria in Supercritical Reactive Flows

Bio: Prof. Hui Jin is a professor in the State Key Laboratory of Multiphase Flow in Power Engineering of Xi'an Jiaotong University. His research interest includes Multi generation technology for hydrogen production and power generation through coal supercritical water gasification (supercritical steam coal) and harmless treatment and resource utilization of organic waste. He published 100+ SCI papers and obtained 10+ awards. He was the editorial board member of Energy Sources, Part A: Recovery, Utilization, Environmental Effects and Carbon Resources Conversion etc.



Plenary Speaker 11

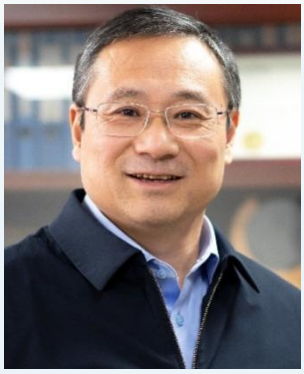
Lin Chen

Institute of Engineering Thermophysics, Chinese Academy of Sciences, China

Title of the Presentation:

Supercritical Transport Waves

Bio: Dr. Lin Chen is now a full professor and Director of Heat and Mass Transfer Research Center in the Institute of Engineering Thermophysics, Chinese Academy of Sciences. He obtained his Bachelor and Doctoral Degrees from Peking University. As the center director, he is executing his vision on low-carbon high-efficiency energy and power system with his team. His research topics include supercritical CO_2 power cycle, energy resources (hydrate and hydrogen), advanced thermal device/materials and measurement techniques. He has authored over 200 journal papers and/or conference presentations, 20 patents, 5 professional books including the most famous one on energy conversion (Handbook of Research on Advancements in Supercritical Fluids Applications for Sustainable Energy Systems, IGI Global, 2021). He served and 8 times as Chair/major organizer and 60 times as plenary/invited speaker in international conferences/symposiums. He was the winner of Young Scholar Award of AUTSE in 2018, Research Paper Award of the Visualization Society of Japan in 2022, and Chen-Xuejun Paper Award of Chinese Society of Engineering Thermophysics in 2024 and ranked within the World TOP 2% scientist due to his outstanding research in supercritical fluid engineering. He is also an EE/AE/GE/board member of 8 international journals, such as Physics of Fluids, J. NERS (ASME) and the J. Supercritical Fluids (Elsevier), etc.



Plenary Speaker 12

Jun Li

Xi'an Jiaotong University, China

Title of the Presentation:

Research and Development of 50MW Class sCO_2 Axial Turbine

Bio: Dr. Jun Li is a fulltime professor in the Institute of Turbomachinery of Xi'an Jiaotong University in China. His research interest includes Aerodynamics and Heat Transfer Cooling of Gas Turbines, Turbine Sealing Technology, Uncertainty Quantification and Robustness Optimization of Turbines. He published more than 80 Journal papers on the ASME and AIAA series and more than 30 Chinese Patents. He was awarded ASME Fellow on December 2022.

Plenary Speaker 13

Yifan Zhang

Xi'an Thermal Power Research Institute Co.,Ltd, China

Title of the Presentation:

Key Technologies and Engineering Demonstration of Carbon Dioxide Thermodynamic Battery

Bio: Dr. Zhang Yifan, Senior Engineer (Professor Level), is Director of the Clean Energy Technology Research Institute at Xi'an Thermal Power Research Institute Co., Ltd. (TPRI). He serves as the Technical Lead for the Innovation Team for Clean, Low-Carbon, Supercritical CO_2 Advanced Power Systems. Dr. Zhang has been engaged in research on supercritical CO_2 power cycles, having presided over more than 10 projects, including those under the National Key R&D Program, the National Natural Science Foundation of China, Shaanxi Provincial Science and Technology Programs, and China Huaneng Group Technology Programs.

As the technical director, he led the development of the world's first pilot 5MW Supercritical CO_2 Modular Advanced Research and Test (SMART) coal-fired power system, achieving deep peak shaving (0-100% Pe) and fast peak shaving (±8% Pe/min). As the chief scientist of a National Key R&D Program project, he promoted the implementation of a 50MW coal-fired supercritical CO_2 power generation demonstration project approved by the National Ministry of Science and Technology and the National Development and Reform Commission.

His honors include the First Prize of the Shaanxi Provincial Technology Invention Award, the First Prize of Electric Power Science and Technology Progress Award, the Gold Medal at the International Exhibition of Inventions of Geneva, the First Prize of the Electric Power Innovation Award, and the Leading Talent in Technological Innovation in Shaanxi Province. Dr. Zhang has authored 33 SCI-indexed papers and holds 61 invention patents.

6. Keynote Speaker/主旨报告

Keynote Speaker 1
Lixin Cheng

Sheffield Hallam University, UK

Title of the Presentation:

Thermo-Fluid Models and Design Methods of Microchannel Heat Exchangers in Transcritical CO_2 Heat Pumps Integrated with Sustainable Energy Technologies

Bio: Prof. Lixin Cheng obtained his Ph.D. in Thermal Energy Engineering at the State Key Laboratory of Multiphase Flow in Power Engineering of Xi'an Jiaotong University, China in 1998. His research interests include multiphase flow and heat transfer and thermal energy engineering, high heat flux thermal management, decarbonized heating and cooling technology, CO_2 thermal, energy and power systems, renewable energy systems, hydrogen energy system and, new net zero energy technology. He has published more than 150 papers in journals and conferences, 9 book chapters and edited 10 books. He has delivered more than 70 keynote and invited lectures worldwide. He is associate editor of *Heat Transfer Engineering*, *IET Smart Energy Systems* and *Journal of Fluid Flow, Heat and Mass Transfer*, and international advisor of *Thermal Power Generation* (a Chinese journal).

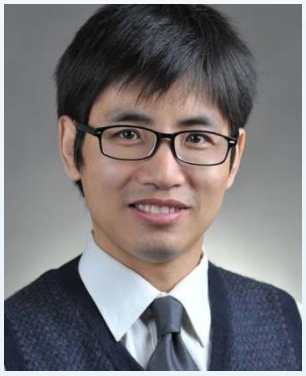
Keynote Speaker 2
Jianmin Gao

Harbin Institute of Technology, China

Title of the Presentation:

Research Progress on Adsorption Compression CO_2 Energy Storage Technology

Bio: Prof. Jianmin Gao, is the Dean of the School of Energy Science and Engineering at Harbin Institute of Technology. He has been engaged in the fields of combustion and pollutant prevention and control, energy conservation and system efficiency improvement in the industrial sector, compressed CO_2 energy storage, and CO_2 capture and resource utilization for a long time. what's more, he has hosted and undertaken over 20 national-level and provincial-level projects. Also, he has participated in the formulation of 6 national standards, published over 110 high-level academic papers, and obtained over 70 authorized invention patents. He has won 6 national and provincial awards, including the National Teaching Achievement Award, the Second Prize for Technical Invention of the Ministry of Education, and the First Prize for Science and Technology of the China Special Equipment Inspection Association.



Keynote Speaker 3

Ming Liu

Xi'an Jiaotong University, China

Title of the Presentation:

Optimization Study on the Coal-Fired SCO_2 Power Generation System with Thermal Energy Storage

Bio: Prof. Ming Liu is a Professor at Xi'an Jiaotong University, and He is the Director of the Department of Thermal Power and Control Engineering. In 2020, he received the National Excellent Young Scientists Fund; in 2019, he was awarded the Shaanxi Provincial Outstanding Young Scientists Fund and the Youth Science and Technology Award of the Chinese Society for Power Engineering. His research direction is "Optimization and Control of Energy and Power Systems", and he has long been engaged in theoretical research and technology development in areas including optimization of thermal systems, peak shaving and frequency modulation control strategies for energy systems, transient processes and full-condition energy conservation of coal-fired power plants, and heat-power decoupling of combined heat and power units. Relevant achievements have won 2 Second Prizes of the National Science and Technology Progress Award and 8 provincial and ministerial-level achievement awards. He has published more than 110 SCI-indexed papers, and obtained over 90 authorized Chinese invention patents as well as more than 10 US patents.

Keynote Speaker 4

Yijian He

Zhejiang University, China

Title of the Presentation:

Study on Novel CO_2 Variable Cycles with Finite Fuel Heat Sink for Cooling and Power

Bio: Dr. Yijian He is a professor in College of Energy Engineering, Zhejiang University. His research interest includes transformation and utilization technology of clean and low-carbon energy. He published about 100 papers, and obtained about 80 authorized invention patents, 'Zhiyuan Award' of the Yanxing Plan by Vivo Mobile Communications Co., Ltd, and First Prize of Teaching Achievement by Zhejiang University. He was the editorial board member of Buildings, and member of the Aerospace Industry Standardization Technical Committee, China.

Keynote Speaker 5

Yao Zhao

Shanghai Jiao Tong University, China

Title of the Presentation:

Advances in Thermo-Mechanical Energy Storage Technologies for Multi-Energy Polygeneration: Carnot Batteries and CO_2 Energy Storage

Bio: Dr. Yao Zhao is an Associate Professor and PhD Supervisor at the College of Smart Energy, Shanghai Jiao Tong University. His research focuses on long-duration and large-scale thermal and thermo-mechanical energy storage, zero/negative-carbon multi-energy polygeneration and AI-enabled energy storage. He received his B.Eng. and M.Eng. degrees from Central South University, his Ph.D. from Shanghai Jiao Tong University, and was a Research Associate at Imperial College London. Selected for the Shanghai Leading Talents Program, Dr. Zhao has published over 40 papers, authored 3 book chapters, and holds 4 patents and 1 software copyright. He has led and participated in several national projects, contributed to major international collaborations, serves on the editorial boards of multiple journals, and has delivered more than 20 invited talks worldwide.

Keynote Speaker 6

Yongliang Zhao

Xi'an Jiaotong University, China

Title of the Presentation:

System Configuration Design of Multi-temperature Zone Carnot Batteries and Performance Evaluation Under Peaking Shaving Off-Design Processes

Bio: Mr. Yongliang Zhao is an associate professor in State Key Laboratory of Multiphase Flow in Power Engineering of Xi'an Jiaotong University. His research field is about Carnot battery system design, simulation and experiment research of thermal energy storage systems, and dynamic simulation and control strategy optimization of the thermal power system. He has presided many projects, including the project of National Natural Science Foundation of China, Sub-project of the National Key R&D Program, the Key Project of Shaanxi Province Key R&D Plan and the project of Jiangsu Province Dual Carbon Science and Technology Innovation. Up to now, he has published about 50 well-recognized journal papers and holds 23 invention patents, including 3 United States patents.Due to the achievements, he has received the Second Prize of National Science and Technology Progress Award in 2023 and the First Prize of Science and Technology Progress Award of Shaanxi Province in 2022, amongst other.

Keynote Speaker 7

Quanbin Zhao

Xi'an Jiaotong University, China

Title of the Presentation:

Research on Load Control Technology of Supercritical Carbon Dioxide Brayton Cycle Title of the Presentation

Bio: Mr. Quanbin Zhao is an associate professor from Xi'an Jiaotong Unoversity, His research interests include thermal systems design and control, hydrogen fuel cell operation and control, thermal hydraulics in nuclear power system, and so on. He held 2 National Natural Science Foundation Projects, 2 sub-projects of National key research and Development Project, 2 key research projects of Shaanxi province, and many other projects. He served as the deputy director of Energy Efficient and Clean Transformation Engineering Center of Shaanxi Province, also he served as the chairperson of domestic and international academic conference sessions 4 times, and delivered 7 keynote/special invited speeches at domestic and international academic conferences. Zhao has published over 60 international journal papers and hold over 30 patents. His research achievements have won the First Class Prize of Science and Technology of Shaanxi Province (ranked in 3rd place). In 2023, Zhao was honored with the 4th Youth Science and Technology Award of China Power Engineering Society.

Keynote Speaker 8

Ting Liang

University of Birmingham, UK

Title of the Presentation:

Design and Optimization of Novel CO_2-Based Combined Energy Storage, Heat and Powe Systems

Bio: Dr. Ting Liang is a Ph.D. and now a research associate at University of Birmingham. Her research topics center on thermal-mechanical energy storage, including liquid air energy storage, Carnot batteries and CO_2-based innovative energy storage and power systems. The major work involves static and dynamic system modelling, techno-economic and life cycle analysis, multi-objective optimization, as well as net-zero carbon energy system planning. The author has 12 papers published on internationally renowned journals, like Renewable and Sustainable Energy Reviews (IF 16.3), Energy Conversion and Management (IF 9.9), Journal of Cleaner Production (IF 9.7) and Journal of Energy Storage (IF 8.9) etc.

Keynote Speaker 9

Shining Chan

Beihang University, China

Title of the Presentation:

Design of a Wave Rotor Supercritical Carbon Dioxide Compressor

Bio: Prof. Chan is a professor in Ningbo Institute of Technology of Beihang University. His research interest includes sCO_2 Brayton cycle and compact jet engine. He published 28 papers. He has led research projects including the National Natural Science Foundation of China (NSFC), a sub-project of Ningbo Major Science and Technology Key Research Project, and the Ningbo Young Leading Talents Program. His awards include the Tutor for the Second Prize in the National Postgraduate Innovation Competition, the Zhejiang High-Quality Science Popularization Resource Award, and the Ningbo Natural Science Excellent Paper Award.

Keynote Speaker 10

Fang Liu

Shanghai University of Electric Power, China

Title of the Presentation:

Performance Investigation of a Multiphase Ejector for CO_2 Heat Pumps under Various Operating Conditions

Bio: Prof. Fang Liu is the funding director of Advanced Energy Systems and Thermal Fluid Laboratory at Shanghai University of Electric Power. She was honored as a Distinguished Professor of "High-end Talents" in Shanghai. She has over 20 years of international academic and industrial experiences in CO_2 heat pump & refrigeration, multiphase flow, enhanced heat transfer, thermal storages, integrated renewable energy systems and so on. She has led a dozen of projects funded by diverse funding agencies and industries including National Natural Science Foundation of China. She has published 100 peer-reviewed papers in high impact journals and referred conferences, and obtained a dozen of authorized invention patents. Her research in heat pump coupled with thermal storages has received "Excellent Exhibits Award" in the university and college exhibition area of the 22nd China International Industry Fair. She is the professional committee member for China Renewable Energy Society, Chinese Association of Refrigeration, China Association for Engineering Construction Standardization, and China Education Association of Machinery Industry.

Keynote Speaker 11

Yulong Song

Xi'an Jiaotong University, China

Title of the Presentation:

Recent Development of Super-High Temperature CO_2 Heat Pump Technology

Bio: Mr. Yulong Song, associate professor at the School of Energy and Power Engineering, Xi'an Jiaotong University, young member of the Professional Committee of the International Institute of Refrigeration, member of the Fourth Committee of Refrigeration and Cryogenic Engineering Discipline Teaching of the China Machinery Industry Education Association, member of the Heat Pump Branch of the China Refrigeration and Air Conditioning Industry Association, deputy director of the Xi'an Key Laboratory of New Energy Vehicle Thermal Management. He has long been engaged in research on high-temperature heat pump technology, transcritical CO_2 cycle technology, and performance improvement technology of Carnot batteries. He has led or participated in more than 40 scientific research projects including national key research and development plans, national natural science funds, and provincial and ministerial-level key research projects. He has published over 60 papers in high-level domestic and international journals, including more than 50 SCI papers, and has been granted over 50 invention patents and one US patent.

Keynote Speaker 12

Kailun Li

Xi'an Thermal Power Research Institute Co., Ltd, China

Title of the Presentation:

Research and Development Progress of Xi'an Thermal Power Research Institute in the Field of Carbon Dioxide Turbine and Compressor

Bio: Dr. Li Kailun is a senior engineer of Xi'an Thermal Power Research Institute. He Obtained a doctoral degree of Power Engineering and Engineering Thermophysics from Xi'an Jiaotong University in July 2014. His main research direction is the development and design of carbon dioxide compressors and turbines.

Keynote Speaker 13

Zhiqiang Wu

Xi'an Jiaotong University, China

Title of the Presentation:

Green Hydrogen Production from Biomass via Chemical Looping Reforming with CO_2 Utilization

Bio: Mr. Zhiqiang Wu is a Professor at Xi'an Jiaotong University. His research focuses on process intensification in the fields of energy and chemical engineering. He has authored more than 60 SCI-indexed papers and holds over 50 authorised Chinese invention patents. He serves on the Engineering Thermochemistry Committee of the Chemical Industry and Engineering Society of China (CIESC) and the Shaanxi Technical Committee for Coal Standards. He is the Associate Editor of the SCI journal International Journal of Coal Science & Technology and the Founding Associate Editor of Green Mining. Prof. Wu has been selected for the National High-Level Young Talent Program, the K. C. Wong Young Scholar Fellowship, and the Shaanxi Youth Science and Technology Star Program. He is a recipient of the Hou Debang Chemical Engineering and Technology Award for Young Investigators.

Keynote Speaker 14

Wei Wang

Xi'an Thermal Power Research Institute Co., Ltd, China

Title of the Presentation:

Technology and Application of Molten Salt Thermal Energy Storage Coupled with Coal-Fired Units for Flexibility Enhancement

Bio: Mr. Wei Wang is a Senior Engineer and Master's student at Xi'an Jiaotong University. He serves as Director of the Institute of Flexible Operation Technology for Steam Turbines at Xi'an Thermal Power Research Institute. His research focuses on coal-fired power unit flexibility and energy storage technologies. He has published over 15 papers, holds more than 30 invention patents, and has led major national and provincial R&D projects. As the first contributor, he won the 2023 First Prize of the China Huaneng Group Scientific and Technological Progress Award for molten salt thermal energy storage coupled with coal-fired power. He is also the project leader of the world's first demonstration project in this field.

Keynote Speaker 15

Haixin Guo

Ministry of Agriculture and Rural Affairs, China

Title of the Presentation:

Supercritical CO_2-Ionic Liquid for Biomass-Derived Hydrogenation

Bio: Dr. Haixin Guo is a Professor at the Chinese Academy of Agricultural Sciences (Agro-Enviromnental Protection Institute, Ministry of Agriculture and Rural Affairs). She obtained her M.S Degree from Nankai University in China and her Doctor of Philosophy in at Tohoku University (Sendai, Japan). After obtaining her Ph.D. in 2018, she was immediately promoted to Assistant Professor at Tohoku University, and in 2022, she moved to the Chinese Academy of Agricultural Sciences. She has research interests in sustainable catalyst development, hydrothermal reactions including carbonization, solvothermal and mechanochemical pretreatment of biomass and conversion of biomass into chemicals and biofuels.

Keynote Speaker 16

Shan Sun

Xi'an Thermal Power Research Institute Co., Ltd, China

Title of the Presentation:

Thermodynamic Analysis of CO_2 High Temperature Heat Pump and Pumped Thermal Energy Storage

Bio: Dr. Shan Sun works at Xi'an Thermal Power Research Institute Co., Ltd. His research interest includes CO_2 high temperature heat pump & pumped thermal energy storage two-phase flow, turbomachinery. He published 3 papers (SCI) on the topic related to thermodynamic cavitation in liquid turbine expander, which is the equipment of the heat pump & pumped thermal energy storage.

Keynote Speaker 17

Ting Ma

Xi'an Jiaotong University, China

Title of the Presentation:

Research Progress on Integrated Intelligent Design and Manufacturing Methods of Additively Manufactured Mini-channel Heat Exchangers

Bio: Prof. Ting Ma is a professor of School of Energy and Power Engineering at Xi'an Jiaotong University, and is a deputy director of Major Special Project Office of Research and Development Administration. He is also a deputy secretary-general of the Flow Control and Thermal Management Branch of the Chinese Society of Aeronautics and Astronautics, and the Ship Power Branch of the Chinese Society of Naval Architecture and Marine Engineering, and an associate Editor/Editorial Board Member of several international journals including Journal of Enhanced Heat Transfer. His main research interests include multi-scale fluid-thermal-stress coupling numerical simulation method, heat transfer enhancement technologies under extremely high temperature and high pressure conditions. He has published more than 100 SCI-indexed papers, obtained two US patents and over 30 Chinese invention patents, and won three provincial and ministerial-level first prizes for technological invention (one of which he ranked first).

Keynote Speaker 18

Weihua Zhong

China Institute of Atomic Energy, China

Title of the Presentation:

Research Progress on the Supercritical CO_2 Corrosion Behavior of Materials in CIAE

Bio: Dr. Weihua Zhong is the director of Reactor Material Corrosion & Protection Research Laboratory in Division of Reactor Engineering Technology Research of CIAE. His research interest includes reactor material corrosion & protection in extreme environment (e.g. supercritical CO_2, high temperature water, fused salt, irradiation corrosion environment etc.). He have published 20 papers and granted over 10 patents in recent years.

Keynote Speaker 19

Keyong Cheng

Institute of Engineering Thermophysics, Chinese Academy of Sciences, China

Title of the Presentation:

Numerical Investigation of Thermal-hydraulic Performance of Hitec Molten Salt in Airfoil Fin Printed Circuit Heat Exchanger

Bio: Dr. Keyong Cheng is a senior engineer of Institute of Engineering Thermophysics, Chinese Academy of Sciences (IET, CAS). His Research Interest includes the Design and Optimization of Compact Heat Exchanger, Blade Cooling of Gas Turbines, Thermal Management of Electronics. He has led/joint the National Natural Science Foundations of China, the National Key R&D Program of China, and the National Science and Technology Major Program of China. He published more than 20 Journal papers on the Applied Thermal Engineering, International Journal of Heat and Mass Transfer, and so on.

Keynote Speaker 20

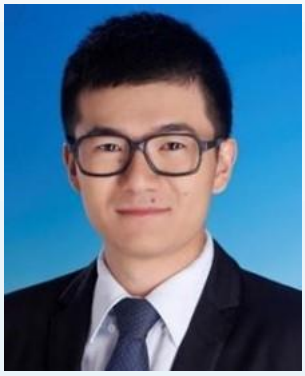
Zhiyuan Liang

Xi'an Jiaotong University, China

Title of the Presentation:

Corrosion Analysis and Protection of Materials in Supercritical Carbon Dioxide

Bio: Mr. Liang Zhiyuan is an associate professor in Thermal Engineering Department of Xi'an Jiaotong University. His research interest includes corrosion of alloys in supercritical fluid. He published 60 papers and obtained second prize of national science and technology progress. He was the young editorial board member of Rare Metals and Chinese Journal of Corrosion and Protection.



Keynote Speaker 21

Zhouhang Li

Kunming University of Science and Technology, China

Title of the Presentation:

Thermal Stratification of Supercritical Heat Transfer in Horizontal Flow and the Resulting Challenges to Heat Exchanger Design

Bio: Prof. Zhouhang Li holds a professor position at School of Metallurgical and Energy Engineering in *Kunming University of Science and Technology*. His research covers several topics in the field of multiphase flow and heat transfer, particularly in the area of fluid dynamics and heat transfer near the critical point. He has published over 40 articles in internationally recognized journals, edited three books, has been involved in more than ten research projects funded by Chinese government, Alexander von Humboldt Foundation (Germany) and industries. He has won two Second Prizes of Natural Science of Yunnan Province (ranked 1st and 4th) and two First Prizes of Science and Technology Progress of China Nonferrous Metals Industry (ranked 3rd and 9th). As a core member, he was also selected into the "Clean Coal Combustion Team," recognized as an Outstanding Contribution Team on the 60th Anniversary of the Proceedings of the CSEE. He was the young editorial board member of *Coal Conversion*.

Keynote Speaker 22

Xianliang Lei

Xi'an Jiaotong University, China

Title of the Presentation:

Heat Transfer Mechanism and Synergistic Optimization of Liquid Metal/Supercritical CO_2 Asymmetric Coupled Heat Exchangers

Bio: Mr Xianliang Lei is an associate Professor at Xi'an Jiaotong University, serves as the Director of the Institute of High-Temperature and High-Pressure Multiphase Flow. He was a Visiting Scholar in the Department of Nuclear Engineering at North Carolina State University, USA. His primary research interests include heat and mass transfer in supercritical fluids, advanced power cycle systems, high-temperature and high-pressure gas-liquid two-phase flow and heat transfer, and thermal hydraulics of lead-based coolants. He has led three projects supported by the National Natural Science Foundation of China, four sub-projects under the National Key R&D Program of China. With more than 60 academic publications to his name.

Keynote Speaker 23

Xuan Wang

Tianjin University, China

Title of the Presentation:

Supercritical CO_2 Fully Enclosed Turbine-Generation Integrated Unit and the Corresponding System Simulation Control Based on Deep Reinforcement Learning

Bio: Wang Xuan, male, is currently a Specially-appointed Research Fellow at the State Key Laboratory of Engines, Tianjin University. His main research focuses on CO_2 power cycles and organic Rankine cycles, including the design and development of key components such as turbo-generators, system integration design and development, and intelligent system simulation and control. He has led several national projects, including the National Natural Science Foundation of China (General Program and Youth Program), key projects under the National Key R&D Program, and major projects under the Commission of Science and Technology. He has published over 50 SCI papers as first or corresponding author and holds more than 10 authorized patents. He has received awards such as the First Prize of Tianjin Technological Invention Award, Top Ten Scientific and Technological Advances in Chinese Higher Education Institutions, Top Ten Scientific and Technological Innovations in China's Carbon Peak and Carbon Neutrality Initiatives, and the Tianjin University Leading Talent Cultivation Program.

Keynote Speaker 24

Yongchang Feng

Chinese Academy of Sciences, China

Title of the Presentation:

Comparative Study on Heat Transfer Characteristics of Supercritical CO_2-based Mixtures and Pure CO_2 in Vertical Tubes

Bio: Dr. Yongchang Feng is an associate professor at the Heat and Mass Transfer Research Center, Institute of Engineering Thermophysics, Chinese Academy of Sciences. His research focuses on supercritical fluid flow and heat transfer, thermophysical properties of mixtures, porous media transport, and advanced measurement and control techniques. He has led and contributed to several national and international research projects on CO_2 and CO_2-based working fluids. Dr. Feng has published over 20 papers in journals such as IJHMT, Energy, and Applied Thermal Engineering, and developed predictive models for complex heat transfer phenomena. He received two talent support awards and serves as reviewer for journals including Energy Conversion and Management and Journal of Supercritical Fluids. His current work centers on understanding heat transfer and modeling in CO_2 mixtures under transcritical and supercritical conditions.

Keynote Speaker 25

Tuantuan Xin

North China Electric Power Univercity, China

Title of the Presentation:

Oxy-Combustion Turbine Semi-Closed Supercritical CO_2 Cycle: Process Modification and System Integration

Bio: Dr. Tuantuan Xin is associate professor in School of Energy Power and Mechanical Engineering, North China Electric Power Univercity. His research interest includes efficient thermodynamic cycles, low-carbon energy systems, and multi-energy integration. He has developed the "Thermal Cycle Splitting Method" for thermodynamic cycle modification and designed advanced coal-fired power generation and multi-energy complementary systems. He published above 50 academic papers (34 SCI-indexed and 7 EI-indexed) and obtained Beijing Outstanding Doctoral Dissertation (104 awarded in 2023). Dr. Xin's work provides critical theoretical and technical support for energy system optimization and low-carbon transformation.

Keynote Speaker 26

Zhentao Zhang

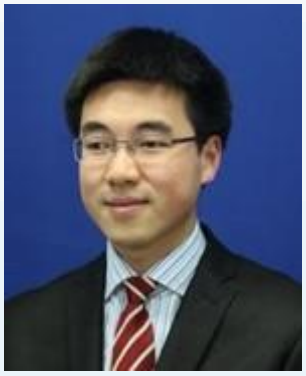
Institute of Physics and Chemistry
Chinese Academy of Sciences, China

Title of the Presentation:

Research Progress on Carbon Dioxide Energy Storage Technology

Bio: Dr. Zhang Zhentao, Member of the 14th National Committee of the Chinese People's Political Consultative Conference (CPPCC), Professor at the Technical Institute of Physics and Chemistry of the Chinese Academy of Sciences, Doctoral Supervisor, Key Technical Talent of the Chinese Academy of Sciences, Director of the Key Laboratory of Food and Drug Preservation, Processing, Storage, Transportation Equipment and Energy-Saving Technology of China National Light Industry Council, Director of the CO_2 Energy Storage Research Institute at Hebei Energy Storage Industry Research Institute, and Chief Scientist of Borui Dingneng Power Technology Co., Ltd.

His main research focuses on energy storage science and technology, CCUS and CO_2 utilization as a working fluid, preservation, processing, and storage technologies for agricultural products, and green process industries. He has applied for and been granted over 350 patents and has published more than 210 academic papers.



Keynote Speaker 27

Yuan Tian

De Montfort University, UK

Title of the Presentation:

Enhanced Heat Transfer in Thermal Energy Storage Applications by Porous Metal Foams and Graphite Materials

Bio: Prof. Yuan Tian is Associate Professor of Thermodynamics and Deputy Director of Mechanical Engineering (BEng MEng) at De Montfort University since 2018. His research interest includes thermal energy storage, energy-efficient buildings, waste heat recovery, smart grid-level energy storage, battery thermal management, computational fluid dynamics and heat transfer in metal foams and Phase Change Materials (PCM). He is a Member of the Science Board of the UK's Energy Storage Research Hub and a Member of the International Energy Agency (IEA) Energy Storage Experts Panel. He is a full Member of the highly selective Peer Review College with the Engineering and Physical Sciences Research Council (EPSRC, UK) and ranked among their Top 5% Grants Reviewer in 2017-18, and is a regular grants reviewer for Science and Technology Facilities Council (STFC, UK), Medical Research Council (MRC, UK) and other International Research Councils: Chilean National Science and Technology Commission (CONICYT, Chile), etc.

Keynote Speaker 28

Jiangfeng Guo

Beijing University of Chemical Technology, China

Title of the Presentation:

Maximizing Uninterrupted Solar Electricity via Spectral-Splitting Photovoltaic-Thermal Systems Integrated with CO_2-Based Energy Storage

Bio: Prof. Jiangfeng Guo, currently a Professor and a Doctoral Supervisor at Beijing University of Chemical Technology. Mainly engaged in research on heat transfer enhancement theory and energy-saving technology, heat transfer and flow characteristics of supercritical fluids, etc. Published over 100 academic papers, participated in the writing of two English academic books, applied for/authorized more than 20 national invention patents, and served as Deputy Editor or Editorial Board Member of multiple international academic journals. He has been selected into the World's Top 2% scientists annual and long-term scientific influence lists for many consecutive years, and has won the Chinese Academy of Sciences Lu Jiaxi Young Talent Award, the nomination of one hundred outstanding Doctoral dissertations in China, the EU Marie Curie Fellowship, and China's 100 most influential outstanding academic papers.

Keynote Speaker 29

Cheng Zhang

E-fuel Energy Technology(Guangdong)Co., Ltd., China

Title of the Presentation:

Innovation and Commercialization of Flow Battery Technology: Towards New Breakthroughs

Bio: Dr. Cheng Zhang received her Ph.D. in Mechanical Engineering from The Hong Kong University of Science and Technology (HKUST) and completed his postdoctoral research at the Fok Ying Tung Research Institute of HKUST (Guangzhou). Her primary research interests include system design and optimization of electrochemical energy storage technologies such as flow batteries and organic batteries. Since 2018, she has served as Manager at the HKUST Energy Institute, overseeing multiple multi-million HKD industry–academia collaborative projects. In 2019, she was selected for the Guangdong Provincial Program for Outstanding Young Talents in International Training. In 2023, she co-founded E-Fusion Energy Technology.

7. Invited Speaker/特邀报告

Invited Speaker 1

Jianqiang Wang

Shanghai Institute of Applied Physics, Chinese Academy of Sciences, China

Title of the Presentation:

Comprehensive Utilization of Molten Salt Reactors for Nuclear Energy

Bio: Dr. Jianqiang Wang, is a Research Professor at the Shanghai Institute of Applied Physics, Chinese Academy of Sciences. He serves as a member of the Institute's Administrative Committee and Party Committee, Director of the Nuclear Energy Comprehensive Utilization Research Center, and Director of the Department of Energy and Power Technology. His research focuses on the comprehensive utilization of nuclear energy, including high-temperature electrolysis hydrogen production with molten salt reactors, high-efficiency power generation, and high-temperature molten salt thermal energy storage. He has published over 120 papers in international peer-reviewed journals and holds more than 60 authorized invention patents.

Invited Speaker 2

Huanrong Li

State Nuclear Electric Power Planning Design&Research Institute, China

Title of the Presentation:

Research on a 10 MWe Supercritical Carbon Dioxide Power Generation Facility

Bio: Mr. Huanrong Li, Master, is Deputy Chief Engineer of SNPDRI and General Manager of its Nuclear Energy Branch. He is also a Senior Engineer. With over 30 years of experience in the design, consultation, research, and engineering management of thermal power and conventional island systems of nuclear power plants, he has led the completion of 25 large and medium-sized thermal power plant projects and 12 nuclear power plant engineering design and consulting projects. He has been awarded two Excellent Engineering Design Awards in the electric power industry and six provincial/ministerial-level Excellent Engineering Consulting Awards. He has also led multiple sub-projects under national major S&T programs and research projects of the State Power Investment Corporation. In addition, he has been granted over 20 invention and utility model patents.

Invited Speaker 3

Mingfeng Yu

Zhejiang Green Storage Technology Co., Ltd, China

Title of the Presentation:

Research on Supercritical Carbon Dioxide Power Generation Systems Based on Ultra-High-Temperature Heat Pumps and High-Temperature Molten Salts

Bio: Dr. Mingfeng Yu is Senior Engineer and Deputy Chief Engineer of Zhejiang Lvneng Storage Technology Co., Ltd. His work focuses on the R&D and industrialization of next-generation high-efficiency electro-thermal energy storage technologies. He has led or participated in multiple national research programs, including the National Key R&D Program, the 973 Program, and the 863 Program. He directed the construction of the ultra-high-temperature and extremely-high-temperature heat pump energy storage pilot platform at the Huzhou Industrial Control Technology Research Institute. He has published more than 15 high-quality academic papers and filed over 30 invention patents.

Invited Speaker 4

Xin Liu

Engineering Research Center of Harbin Turbine Co., Ltd., China

Title of the Presentation:

Research and Verification of Key Equipment for Carbon Dioxide Thermal Batteries

Bio : Mr. Xin Liu, a senior engineer, is cupanrrently the manager of the Low-Carbon Energy Research Institute of Harbin Electric Power Equipment National Engineering Research Center Co., LTD. The main research directions include the study of compressed gas energy storage and the development of supporting equipment, the study of heat pump systems and the development of supporting equipment, and the study of thermal power coupled molten salt heat storage systems, etc. Participated in the research of major national projects such as the 2023 Key soft Project of nuclear Power of the National Energy Administration, "Research on the Coordinated Development of Nuclear Power Supporting Energy Storage", the "National Energy User-Side Energy Storage Innovation Research and Development Center" of the "Horse Racing and Striving for Excellence" innovation platform of the National Energy Administration, and the national-level demonstration project "Research and Demonstration Application of Safe, Efficient and Deep Peak Shaving Power Generation Technology for Coal-fired Power Units". Received 2 awards from industry associations, participated in the compilation of 1 industry standard, obtained 29 patents, and published 8 papers.

Invited Speaker 5

Xuwei Zhang

Xi'an Thermal Power Research Institute Co., Ltd., China

Title of the Presentation:

Design of High-Efficiency and Flexible Coal-fired Power Plant with sCO_2 Cycle

Bio : Mr. Xuwei Zhang is an Engineer at Xi'an Thermal Power Research Institute. He has long been engaged in research on supercritical carbon dioxide power cycles and power generation. He has participated in more than 10 national and provincial-level scientific research projects, including the National Key R&D Program, the National Natural Science Foundation of China, Shaanxi Provincial Science and Technology projects, and key projects of China Huaneng Group. He has published over 20 papers, including more than 10 indexed by SCI and EI, with one ESI highly cited paper. He holds 8 authorized invention patents and has received several honors, including the First Prize of the Electric Power Innovation Award (2024) and the First Prize of the China Huaneng Group Scientific and Technological Progress Award (2022).

Invited Speaker 6

Jun Liu

Bairang New Energy Technology (Shenzhen) Co., Ltd., China

Title of the Presentation:

Characteristics and Zero-Carbon Applications of the Bairang Compressed CO_2 Energy Storage System

Bio : Mr. Jun Liu**,** Sales Director, Marketing Center, Bairang New Energy Technology (Shenzhen) Co., Ltd.

Invited Speaker 7

Jiabin Fang

Xi'an Jiaotong University, China

Title of the Presentation:

Theory and Method of High-Flux Concentrated Solar Thermochemical Conversion and Energy Storage

Bio: Dr. Jiabin Fang is an Associate Professor at Xi'an Jiaotong University's School of Chemistry and Chemical Engineering. His research centers on solar photothermal utilization, thermochemical energy storage, and photoelectrocatalytic conversion technologies. He has led or participated in 6 major national research programs, including the National Key R&D Programs, and 2 NSFC key projects, alongside industry collaborative projects to promote applied research. He has published over 50 journal papers, with several highly cited works. Additionally, he holds 12 national invention patents out of more than 30 applications, demonstrating a strong integration of foundational and applied innovation.

Invited Speaker 8

Enhui Sun

North China Electric Power University, China

Title of the Presentation:

Key Technologies for the Thermal-Hydraulic Characteristics and Efficient Flexible Design of a Supercritical CO_2-Coupled Coal-Fired Boiler

Bio: Dr. Enhui Sun, A.P., graduated from NCEPU. Current research focuses on new power generation technologies. Published over 30 papers, including 2 ESI highly cited papers. Undertaken key R&D plan topics of the MOST, the NSFC of Youth Fund. Won the first prize of 2023 Electric Power Science and Technology Progress Award. Invited to serve as the youth editorial board of the Thermal Power Generation, the special editor for Proceedings of the CSEE and Thermal Power Generation.

Invited Speaker 9

Wei Han

Xi'an Thermal Power Research Institute Co., Ltd., China

Title of the Presentation:

Research Progress on Calcium-Based Thermochemical Energy Storage Technology

Bio: Dr. Wei Han is a leading talent in energy storage technology at Xi'an Thermal Power Research Institute and Chief Scientist of a National Key R&D Program. He serves as a Youth Committee Member of the Chinese Society of Power Engineering, Young Editorial Board Member of the Journal of Zhejiang University, and committee member of the Compressed Air Energy Storage Committee of the China Hydropower Engineering Society. His research focuses on thermochemical and compressed air energy storage. He has led national and provincial-level projects, including the key project "Key Technologies for Large-Scale, Low-Cost, Cross-Seasonal Thermochemical Energy Storage" (2024YFE0212800), and the EU collaborative project SFERA-III. Dr. Han has received several industry awards, published over 20 papers, and holds more than 100 patents.

Invited Speaker 10

Linyao Zhang

Harbin Institute of Technology, China

Title of the Presentation:

Fundamental Research of Coal-based High-Efficiency and Low-carbon Emission Composite Working Media Power Cycle

Bio: Dr. Linyao Zhang, Associate Professor in the School of Energy Science and Engineering, Harbin Institute of Technology. He received Ph.D. degree from Harbin Institute of Technology, and was a visiting PhD student at the University of Minnesota. His current research interests include (1) chemical kinetics and reaction dynamics for combustion; (2) experiments and optical diagnostic of combustion flames, (3) ultra-high combustion science and technology. He has published more than 30 research articles and authorized 7 invention patents. He has led fundamental projects/topics from NSFC, National Key R&D Program of China, China Postdoctoral Science Foundation, etc. He is currently an academic editor of the Journal of Fuel Chemistry and Technology.

Invited Speaker 11

Xinyu Gong

Institute of Engineering Thermophysics, Chinese Academy of Sciences, China

Title of the Presentation:

Recent Progress in the Commissioning of China HiGT-sCO_2 Test Platform

Bio: Mr. Xinyu Gong is a research engineer at the Research Center for Energy and Power, Institute of Engineering Thermophysics, CAS. He currently serves as the commissioning director of the HiGT-sCO_2 test platform， completed commissioning of compressor, turbine, and transcritical and supercritical CO_2 cycles. His research focuses on experimental investigations of supercritical fluid energy systems, advanced testing methodologies and process control techniques.

8. Program/会议日程

Opening Ceremony& Plenary Lectures Sep. 27 Grand Ballroom		
Chair: Hongzhi Li		
Time	**Activity**	
8:30-8:40	Introduction to ICSPC2025	
8:40-8:50	Welcome Message From China Huaneng Group	
8:50-9:00	Welcome Message From TPRI	
Time	**Title**	**Speaker**
9:00-9:40	Long-Duration Energy Storage	Tianshou Zhao
9:40-10:00	**Group Photos&Break**	
Chair: Cunliang Liu		
10:00-10:30	Challenges and Opportunities in Advanced CO_2 Energy Conversion and Storage Technologies	Christos N. Markides
10:30-11:00	Fundamentals of Supercritical and Hydrothermal Fluids for Energy and Chemical Applications	Richard Smith
11:00-11:30	Compressed CO_2 Energy Storage Technology and Engineering Practice	Yonghui Xie
11:30-12:00	The Coal-Fired sCO_2 Power Cycle: the Optimal Power Capacity and Deviation Design Operation	Jinliang Xu
Lunch： Western Restaurant on the first floor		
Time	**Title**	**Speaker**
Chair: Lixin Cheng		
13:30-14:00	Current and Future Applications of SuperCritical Fluids in Power/Nuclear Industries and Specifics of Heat Transfer	Igor Pioro
14:00-14:30	Metal Hydride Hydrogen Storage Systems: Their Optimization and Management	Giacomo Falcucci
14:30-15:00	Research on High-Flux Concentrated Solar Thermochemical Conversion and Energy Storage	Jinjia Wei
15:00-15:30	Heat Current Method-based Analysis and Optimization Method for sCO_2 Power Generation Systems	Qun Chen
15:30-15:50	**Break**	
Chair: Gongnan Xie		
15:50-16:20	Adaptive Mesh Simulation and Similarity Criteria in Supercritical Reactive Flows	Hui Jin
16:20-16:50	Supercritical Transport Waves	Lin Chen
16:50-17:20	Research and Development of 50MW Class SCO_2 Axial Turbine	Jun Li
17:20-17:50	Key Technologies and Engineering Demonstration of Carbon Dioxide Thermodynamic Battery	Yifan Zhang
Dinner： Western Restaurant on the first floor		

New Power Cycle System Integration and Operation Control-1
8:30-12:00 Sep. 28 Conference Hall 8

Time	Title	Speaker
Session Chair：Lixin Cheng、Jianmin Gao		
8:30-8:50	Keynote: Thermo-Fluid Models and Design Methods of Microchannel Heat Exchangers in Transcritical CO_2 Heat Pumps Integrated with Sustainable Energy Technologies	Lixin Cheng
8:50-9:10	Keynote: Research Progress on Adsorption Compression CO_2 Energy Storage Technology	Jianmin Gao
9:10-9:25	Optimization of S-CO_2 Brayton Cycle via Hybrid Gaussian Process Regression and Genetic Algorithm: A Case Study on Marine Low-Speed Engine Flue Gas Waste Heat Recovery System	Liangtao Xie
9:25-9:40	Operational Analysis of an Integrated Reactor-Transcritical CO_2 Cycle System for Floating Nuclear Power Plants under Variable Cold Source Conditions	Chaoyang Yuan
9:40-9:55	Flow Predictive Model of S-CO_2 Multi-Stage Labyrinth Regulating Valve by Hydrodynamic and Energy Loss Mechanisms	Junpeng Wang
9:55-10:10	Performance Analysis and Optimization of Closed Brayton Cycle Power Generation System for TBCC Engine with Wide Speed Range	Lei Lang
10:10-10:20	**Break**	
Session Chair：Ming Liu、Yijian He		
10:20-10:40	Keynote: Optimization Study on the Coal-Fired SCO_2 Power Generation System with Thermal Energy Storage	Ming Liu
10:40-11:00	Keynote: Study on Novel CO_2 Variable Cycles with Finite Fuel Heat Sink for Cooling and Power	Yijian He
11:00-11:15	Dynamic Simulation and Control Optimization of a Supercritical CO_2 Power System	Xinyu Li
11:15-11:30	Steady-State and Transient Characteristics of CO_2 Closed Cycle System for Underwater Unmanned Vehicle	Jiaqi Feng
11:30-11:45	Dynamic Modelling and Transient Analysis of Supercritical CO_2 Brayton Cycle Based on Small Lead-bismuth Fast Reactor	Shuaishuai Wu
11:45-12:00	A Study on the Shutdown Strategy for the SCO_2-FHR System	Shichang Yun
Lunch：Western Restaurant on the first floor		

New Power Cycle System Integration and Operation Control-2 13:30-17:30 Sep. 28 Conference Hall 8		
Time	**Title**	**Speaker**
Session Chair：Yao Zhao、Yongliang Zhao		
13:30-13:50	Keynote: Advances in Thermo-Mechanical Energy Storage Technologies for Multi-Energy Polygeneration: Carnot Batteries and CO_2 Energy Storage	Yao Zhao
13:50-14:10	Keynote: System Configuration Design of Multi-temperature Zone Carnot Batteries and Performance Evaluation Under Peaking Shaving Off-Design Processes	Yongliang Zhao
14:10-14:25	Thermal-Economic Analysis of S-CO_2 Recompression Brayton Cycle with MW-Scale Thorium Molten Salt Reactor	Hongbo Cui
14:25-14:40	High Precision Dynamic Simulation Modeling Method for Cylindrical Supercritical CO_2 Boiler	Yi Chen
14:40-14:55	Performance Evaluation and Optimization of a Supercritical CO_2 Multigeneration System for Power, Cooling, and Freshwater Production	Xiuqin Wang
14:55-15:10	Adaptive LSTM-MPC Coordinated Control for Split Ratio Regulation in Recompression Supercritical CO_2 Brayton Cycles	Song Xie
15:10-15:25	Selection Maps of Power Cycle Options for Small Mobile Nuclear Power Plants Under Different Cold and Heat Source Conditions	Jingru Chen
15:25-15:35	**Break**	
Session Chair：Quanbin Zhao、Ting Liang		
15:35-15:55	Keynote: Research on Load Control Technology of Supercritical Carbon Dioxide Brayton Cycle Title of the Presentation	Quanbin Zhao
15:55-16:15	Keynote: Design and Optimization of Novel CO_2-based Combined Energy Storage, Heat and Power Systems	Ting Liang
16:15-16:30	Research on Load Following Control Strategy and Dynamic Characteristics of Supercritical CO_2 Power Generation System	Junshuai Lv
16:30-16:45	Investigation of Cross-Dimensional Numerical Simulation Approaches for Compact Supercritical Carbon Dioxide Power Systems	Xiangbin Li
16:45-17:00	Study on the Dynamic Characteristics of a 50 MWe Supercritical CO_2 Coal-Fired Boiler	Xiaodi Xu
17:00-17:15	Development and Validation of a Transient Analysis Program for Tower Solar Energy Coupled with S-CO_2 Brayton Cycle Integration System	Chenxu Xu
17:15-17:30	Dynamic Performance Comparison of Supercritical CO_2 Power Cycles Under Different Bypass Control Loops	Tianyang Qin

Supercritical Fluid Thermal Power Conversion & Turbomachinery 8:30-12:00 Sep. 28 Conference Hall-1		
Time	**Title**	**Speaker**
Session Chair：Shining Chan、Fang Liu		
8:30-8:50	Keynote: Design of a Wave Rotor Supercritical Carbon Dioxide Compressor	Shining Chan
8:50-9:10	Keynote: Performance Investigation of a Multiphase Ejector for CO_2 Heat Pumps under Various Operating Conditions	Fang Liu
9:10-9:25	Performance Analysis of a Supercritical Carbon Dioxide Brayton Cycle under Variable Operating Conditions Utilizing Flue Gas Waste Heat from Combustion Engine	Mingxiang Lin
9:25-9:40	Wetness Loss Prediction of Supercritical Carbon Dioxide Centrifugal Compressor Based on a Modified Non-equilibrium Phase Change Model	Zhe Huang
9:40-9:55	Thermodynamic Design and Numerical Study of an S-CO_2 Centrifugal Compressor with Real-Gas Effects under Off-Design Conditions	Mengxin Li
9:55-10:10	Optimization of Blade Angle Curve for Supercritical CO_2 Centrifugal Compressor Based on Surrogate Model	Yiming Wu
10:10-10:20	**Break**	
Session Chair：Yulong Song、Kailun Li		
10:20-10:40	Keynote: Recent Development of super-high temperature CO_2 heat pump technology	Yulong Song
10:40-11:00	Keynote: Research and Development Progress of Xi'an Thermal Power Research Institute in the Field of Carbon Dioxide Turbine and Compressor	Kailun Li
11:00-11:15	An Experimental Study of a 100 kW-Class Shrouded Supercritical CO_2 Centrifugal Compressor	Hongji Fu
11:15-11:30	Research on the Coupled Design of Aerodynamic and Axial Force in Radial-inflow Turbines	Jiaxiang Zhang
11:30-11:45	Analysis of Generalized Performance Curves for Supercritical CO_2 Compressors	Xiangbin Li
11:45-12:00	Turbulence Dissipation During Leakage Flow in the Scallop Bionic Seal of Supercritical CO_2 Turbomachinery	Enbo Zhang
Lunch：Western Restaurant on the first floor		

Other Topics related to New Working Medium, Cycle and System 13:30-17:30 Sep. 28 Conference Hall-1		
Time	**Title**	**Speaker**
Session Chair：Zhiqiang Wu、Wei Wang		
13:30-13:50	Keynote: Green Hydrogen Production from Biomass via Chemical Looping Reforming with CO_2 Utilization	Zhiqiang Wu
13:50-14:10	Keynote: Technology and Application of Molten Salt Thermal Energy Storage Coupled with Coal-Fired Units for Flexibility Enhancement	Wei Wang
14:10-14:25	A Coriolis Force-Based, On-line, Non-Invasive Measurement and Prediction Technique for CO_2 Thermophysical Properties Measurement in the Near/Trans-Critical Region	Zhentao Chen
14:25-14:40	Supercritical Region CO_2 Refractive Index Variations: Preliminary Measurements by Spectroscopic Ellipsometer	Huan Liu
14:40-14:55	Overview of Thermal Performance Testing Methodology for Air Brayton Nuclear Power Systems	Jingyu Lin
14:55-15:10	Multi-Objective Optimal Scheduling of an Integrated Energy System with P2G-HGT Coupling for Wind Power Accommodation Based on Tiered Carbon Emission Trading	Weichen Lv
15:10-15:25	Numerical Investigation on Carbonation Characteristics of Ca-based Materials under Supercritical CO_2 Conditions	Shaoxin Chen
15:25-15:35	**Break**	
Session Chair：Haixin Guo、Shan Sun		
15:35-15:55	Keynote: Supercritical CO_2-Ionic Liquid for Biomass-Derived Hydrogenation	Haixin guo
15:55-16:15	Keynote: Thermodynamic Analysis of CO_2 High Temperature Heat Pump and Pumped Thermal Energy Storage	Shan Sun
16:15-16:30	Analysis of Supercritical CO_2 Phase Heterogeneity by SANS Experiments and MD Simulations: a cluster viewpoint	Lichao He
16:30-16:45	Single-Peaked Convex Efficiency Curve in S-CO_2 Brayton Cycle under Wide Load Conditions: Distinctive Features Compared to the S-H2O Rankine Cycle	Xiaoming Zhang
16:45-17:00	Experimental Study of Pressure Drop Characteristic on Supercritical CO_2 in Vertical Circulation Loop	Yuhang Yang
17:00-17:15	Investigation of Condensation Characteristics of CO_2 in the Laval Nozzle under Different Inlet Conditions	Yuguang Chen
17:15-17:30	Hybrid Symbolic Regression for Data-Driven Discovery: Governing Dimensionless Numbers in Supercritical Heat Transfer	Yunzhi Shi

Supercritical Fluid Flow Heat Transfer & Heat Exchanger 8:30-12:00 Sep. 28 Conference Hall-2		
Time	**Title**	**Speaker**
Session Chair：Ting Ma、Weihua Zhong		
8:30-8:50	Keynote: Research Progress on Integrated Intelligent Design and Manufacturing Methods of Additively Manufactured Mini-channel Heat Exchangers	Ting Ma
8:50-9:10	Keynote: Research Progress on the Supercritical CO_2 Corrosion Behavior of Materials in CIAE	Weihua Zhong
9:10-9:25	Investigation of Bonding Quality in Diffusion Bonding of 316L Semi-Circular Plate Channel Structures	Xiangjie Qi
9:25-9:40	The Particle Swarm Optimization Based Aero-thermodynamic Design of S-CO_2 Radial Turbine	Yanli Feng
9:40-9:55	Development of Numerical Model for Supercritical CO_2 Thermal Convection Analysis with Thermophysical Property Scaling	Rui Zhang
9:55-10:10	Numerical Simulations of Flow and Heat Transfer Characteristics of Packed Beds based on CFD-DEM Method	Ruiting Hao
10:10-10:20	**Break**	
Session Chair：Keyong Cheng、Zhiyuan Liang		
10:20-10:40	Keynote: Numerical Investigation of Thermal-hydraulic Performance of Hitec Molten Salt in Airfoil Fin Printed Circuit Heat Exchanger	Keyong Cheng
10:40-11:00	Keynote: Corrosion Analysis and Protection of Materials in Supercritical Carbon Dioxide	Zhiyuan Liang
11:00-11:15	Experimental Study on Heat Transfer Characteristics of Transition Boiling between Subcritical and Supercritical Carbon Dioxide	Fang Yin
11:15-11:30	Study on Heat Transfer Characteristics of CO_2 in Vertical Circular Tubes under Supercritical Pressures: New Experimental Data Set	Wen Kai
11:30-11:45	Experimental Study on Wall Thermal Response Characteristics During Transient Flow of Supercritical CO_2	Wenxuan Cao
11:45-12:00	Data-Driven Dimensional Analysis with Inlet Parameters for Onset Criterion of Heat Transfer Deterioration in Vertical Upward Supercritical CO_2 Flow	Chaojie Xing
Lunch：Western Restaurant on the first floor		

Young Scientists Forum 13:30-17:20 Sep. 28 Conference Hall-2		
Time	**Title**	**Speaker**
Session Chair：Zhouhang Li、Xianliang Lei		
13:30-13:50	Keynote: Thermal Stratification of Supercritical Heat Transfer in Horizontal Flow and the Resulting Challenges to Heat Exchanger Design	Zhouhang Li
13:50-14:10	Keynote: Heat Transfer Mechanism and Synergistic Optimization of Liquid Metal/Supercritical CO_2 Asymmetric Coupled Heat Exchangers	Xianliang Lei
14:10-14:30	Keynote: Supercritical CO_2 Fully Enclosed Turbine-Generation Integrated Unit and the Corresponding System Simulation Control Based on Deep Reinforcement Learning	Xuan Wang
14:30-14:45	Study on Flow and Heat Transfer Characteristics of Supercritical Carbon Dioxide in 3D-Printed Zigzag Channels	Haohao Zhao
14:45-15:00	Research on the Flow Loss of Supercritical Carbon Dioxide Shrouded Centrifugal Compressors by Surface Roughness	Yichen Tian
15:00-15:15	Comprehensive Estimation and Optimization Method for the Efficiency of sCO_2 Integrated Machine	Zhi Ling
15:15-15:30	Emergence of Sub-Short-Range Structural Order Defines the Crossover Boundary Between a Gas and a Supercritical Fluid	Xinyang Li
15:30-15:40	**Break**	
Session Chair：Yongchang Feng、Tuantuan Xin		
15:40-16:00	Keynote: Comparative Study on Heat Transfer Characteristics of Supercritical CO_2-based Mixtures and Pure CO_2 in Vertical Tubes	Yongchang Feng
16:00-16:20	Keynote: Oxy-Combustion Turbine Semi-Closed Supercritical CO_2 Cycle: Process Modification and System Integration	Tuantuan Xin
16:20-16:35	Comparative Study on Thermal economy between the Gas Turbine Recuperative Cycle and the Gas turbine Combined Cycle	Weiqi Zhang
16:35-16:50	A 100kW-Scale Two-Stage Opposite Supercritical CO_2 Axial Turbine	Yurong Wang
16:50-17:05	Impact of Coal Type and Cycle Configuration on Multi-Stage Coupling in a Semi-Closed H_2O/CO_2 Composite Working Fluid Power System	Qiukai Zhang
17:05-17:20	Design Scheme of an Engine Waste Heat to Power Conversion Facility for Testing Supercritical CO_2 Rankine Cycle Power Units with Split Branches and Regenerators	Xianyu Zeng

Energy Storage Technology and System 8:30-12:00 Sep. 28 Conference Hall 5&6		
Time	**Title**	**Speaker**
Session Chair：Zhentao Zhang、Yuan Tian		
8:30-8:50	Keynote: Research Progress on Carbon Dioxide Energy Storage Technology	Zhentao Zhang
8:50-9:10	Keynote: Enhanced Heat Transfer in Thermal Energy Storage Applications by Porous Metal Foams and Graphite Materials	Yuan Tian
9:10-9:25	Thermodynamic Analysis and Optimization of a Novel Carnot Battery System Based on a Coal-Fired Power Plant	Shifei Zhao
9:25-9:40	Performance Evaluation and Optimization of a Coupled System Integrating Compressed Carbon Dioxide Energy Storage with Double Reheat Thermal Power Units	Mujie Xue
9:40-9:55	Thermo-Economic Analysis of Liquid Carbon Dioxide Energy Storage Coupled with Coal-Fired Power Plant	Lei Chen
9:55-10:10	Comparative of Two Low-Pressure Side Gas Storage Methods in Compressed Carbon Dioxide Energy Storage Systems	Yingxin Zhang
10:10-10:20	**Break**	
Session Chair：Jiangfeng Guo、Cheng Zhang		
10:20-10:40	Keynote: Maximizing Uninterrupted Solar Electricity via Spectral-Splitting Photovoltaic-Thermal Systems Integrated with CO_2-Based Energy Storage	Jiangfeng Guo
10:40-11:00	Keynote: Innovation and Commercialization of Flow Battery Technology: Towards New Breakthroughs	Cheng Zhang
11:00-11:15	Study on LPF-fuzzy PI Control Strategy for DC Bus Voltage Fluctuation Regulation of Marine Electric Power System	Longxiang Feng
11:15-11:30	Thermodynamic Analysis and Optimization of a Novel Compression Energy Storage System Based on Near-Normal Temperature Liquid Carbon Dioxide	Jingyi Xu
11:30-11:45	Coupling Mechanism of Combustion and Expansion: Thermodynamic Optimization and Efficiency Enhancement for Near-Isothermal Processes	Feng Chen
11:45-12:00	Enhanced Thermal Integration Carnot Battery Based on Group Contribution Method: Comprehensive Analysis and Multi-objective Optimization	Huipeng Wang
Lunch：Western Restaurant on the first floor		

The National Key Projects and the First Units (Sets) 13:30-17:40 Sep. 28 Conference Hall 5&6		
Time	**Title**	**Speaker**
Session Chair：Jianqiang Wang、Huanrong Li		
13:30-13:50	Invited: Comprehensive Utilization of Molten Salt Reactors for Nuclear Energy	Jianqiang Wang
13:50-14:10	Invited: Research on a 10 MWe Supercritical Carbon Dioxide Power Generation Facility	Huanrong Li
14:10-14:30	Invited: Research on Supercritical Carbon Dioxide Power Generation Systems Based on Ultra-High-Temperature Heat Pumps and High-Temperature Molten Salts	Mingfeng Yu
14:30-14:50	Invited: Research and Verification of Key Equipment for Carbon Dioxide Thermal Batteries	Xin Liu
14:50-15:10	Invited: Design of High-Efficiency and Flexible Coal-fired Power Plant with sCO_2 Cycle	Xuwei Zhang
15:10-15:30	Invited: Characteristics and Zero-Carbon Applications of the Bairang Compressed CO_2 Energy Storage System	Jun Liu
15:30-15:40	**Break**	
Session Chair：Jiabin Fang、Enhui Sun		
15:40-16:00	Invited: Theory and Method of High-Flux Concentrated Solar Thermochemical Conversion and Energy Storage，	Jiabin Fang
16:00-16:20	Invited: Key Technologies for the Thermal-Hydraulic Characteristics and Efficient Flexible Design of a Supercritical CO_2-Coupled Coal-Fired Boiler	Enhui Sun
16:20-16:40	Invited: Research Progress on Calcium-Based Thermochemical Energy Storage Technology	Wei Han
16:40-17:00	Invited: Fundamental Research of Coal-based High-Efficiency and Low-carbon Emission Composite Working Media Power Cycle	Linyao Zhang
17:00-17:20	Invited: Key Technologies for Supercritical CO_2 Coal-Fired Power Generation Systems	Yifan Zhang
17:20-17:40	Invited: Recent Progress in the Commissioning of China HiGT-sCO_2 Test Platform	Xinyu Gong

开幕式&大会报告 9.27 华海大宴会厅		
主持人: 李红智		
时间	**活动**	
8:30-8:40	超临界二氧化碳动力循环国际大会（ICSPC2025）介绍	
8:40-8:50	中国华能集团有限公司领导致辞	
8:50-9:00	西安热工研究院有限公司领导致辞	
时间	**题目**	**报告人**
9:00-9:40	长时储能	赵天寿
9:40-10:00	**合影，茶歇**	
主持人: 刘存良		
10:00-10:30	二氧化碳能量转化与存储技术领域的挑战与机遇	Christos N. Markides
10:30-11:00	超临界与水热流体的基础理论及其在能源和化学中的应用	Richard Smith
11:00-11:30	多态协同压缩二氧化碳储能技术及工程实践	谢永慧
11:30-12:00	燃煤 sCO_2动力循环：最优功率容量及其偏离设计运行研究	徐进良
午餐（一楼西餐厅）		
时间	**题目**	**报告人**
主持人: 程立新		
13:30-14:00	超临界流体在动力与核能领域的应用现状与展望及传热特性	Igor Pioro
14:00-14:30	金属氢化物储氢系统的优化与管理研究	Giacomo Falcucci
14:30-15:00	高通量聚光太阳能热化学转化储能研究	魏进家
15:00-15:30	超临界二氧化碳发电系统的热量流分析与优化方法	陈　群
15:30-15:50	**茶歇**	
主持人: 谢公南		
15:50-16:20	超临界反应流动的自适应网格模拟及其相似准则	金　辉
16:20-16:50	超临界区域的波动传递	陈　林
16:50-17:20	50MW 级超临界二氧化碳轴流透平研发	李　军
17:20-17:50	二氧化碳热力电池关键技术及工程示范	张一帆

新型动力循环发电系统及运行控制-1 8:30-12:00 9.28 会议厅8		
时间	**题目**	**报告人**
分会场主席：程立新、高建民		
8:30-8:50	主旨报告：面向跨临界CO_2热泵的微通道换热器：热流体模型及其与可持续能源集成设计方法	程立新
8:50-9:10	主旨报告：吸附压缩CO_2储能技术研究进展	高建民
9:10-9:25	基于混合高斯过程回归与遗传算法的超临界二氧化碳布雷顿循环优化：以船用低速发动机烟气余热回收系统为例	谢良涛
9:25-9:40	变冷源条件下用于浮动核电站的一体化反应堆-跨临界CO_2循环系统的运行分析	袁朝阳
9:40-9:55	基于流体动力学与能量损失机理的超临界二氧化碳多级迷宫调节阀流动预测模型	王俊鹏
9:55-10:10	针对宽速域TBCC发动机的闭式布雷顿循环发电系统性能分析与优化	郎磊
10:10-10:20	**茶歇**	
分会场主席：刘明、何一坚		
10:20-10:40	主旨报告：带储热的燃煤超临界二氧化碳发电系统的优化研究	刘　明
10:40-11:00	主旨报告：耦合有限燃料热沉的新型CO_2变循环冷电联供系统研究	何一坚
11:00-11:15	超临界二氧化碳动力系统的动态仿真与控制优化	李新宇
11:15-11:30	水下无人航行器用二氧化碳闭式循环系统的稳态及瞬态特性研究	冯佳琪
11:30-11:45	基于小型铅铋快堆的超临界二氧化碳布雷顿循环的动态建模与瞬态分析	吴帅帅
11:45-12:00	SCO_2-FHR系统停机策略研究	负世昌
午餐（一楼西餐厅）		

新型动力循环发电系统及运行控制-2 13:30-17:30 9.28 会议厅8		
时间	**题目**	**报告人**
分会场主席：赵耀、赵永亮		
13:30-13:50	主旨报告：面向多能联供系统的热机械储能技术新进展——卡诺电池与二氧化碳储能	赵　耀
13:50-14:10	主旨报告：多温区卡诺电池的系统构型设计与调峰变工况下的性能评估	赵永亮
14:10-14:25	兆瓦级钍基熔盐堆耦合超临界二氧化碳再压缩布雷顿循环的热经济性分析	崔宏博
14:25-14:40	圆柱形超临界CO_2锅炉的高精度动态仿真建模方法研究	陈　一
14:40-14:55	超临界二氧化碳供电、制冷与淡水多联产系统的性能评估与优化	王修钦
14:55-15:10	自适应LSTM-MPC协调控制及其在再压缩sCO_2布雷顿循环分流比调节中的应用	谢　松
15:10-15:25	小型移动式核电站的动力循环选型：不同冷热源条件下的选择图谱	陈静如
15:25-15:35	**茶歇**	
分会场主席：赵全斌、梁婷		
15:35-15:55	主旨报告：超临界二氧化碳布雷顿循环系统变负荷控制技术研究	赵全斌
15:55-16:15	主旨报告：新型CO_2基综合能源系统的设计与优化：集成储能、供热与发电	梁　婷
16:15-16:30	超临界二氧化碳发电系统的负荷跟踪控制策略与动态特性研究	吕军帅
16:30-16:45	面向紧凑型超临界二氧化碳动力系统的跨维度数值模拟方法研究	李祥斌
16:45-17:00	50兆瓦级超临界二氧化碳燃煤锅炉动态特性研究	徐小迪
17:00-17:15	塔式太阳能与超临界二氧化碳布雷顿循环集成系统瞬态分析程序的开发与验证	徐晨旭
17:15-17:30	不同旁路控制回路下超临界二氧化碳动力循环的动态性能对比	秦天阳

CO_2等新工质热功转换及透平压缩机 8:30-12:00 9.28 会议厅 1		
时间	**题目**	**报告人**
分会场主席：产世宁、刘方		
8:30-8:50	主旨报告：超临界二氧化碳波转子压缩机的设计	产世宁
8:50-9:10	主旨报告：不同运行工况下CO_2热泵多相引射器的性能研究	刘　方
9:10-9:25	利用内燃机烟气余热的超临界二氧化碳布雷顿循环变工况性能分析	林明祥
9:25-9:40	基于修正非平衡相变模型的超临界二氧化碳离心压缩机湿气损失预测	黄　哲
9:40-9:55	考虑真实气体效应的超临界二氧化碳离心压缩机变工况热力学设计与数值研究	李梦馨
9:55-10:10	基于代理模型的超临界二氧化碳离心压缩机叶片角度曲线优化	Yiming Wu
10:10-10:20	**茶歇**	
分会场主席：宋昱龙、李凯伦		
10:20-10:40	主旨报告：超高温CO_2热泵技术研究进展	宋昱龙
10:40-11:00	主旨报告：西安热工院二氧化碳循环储发电系统透平及压缩机关键技术研究进展	李凯伦
11:00-11:15	100千瓦级闭式超临界二氧化碳离心压缩机的实验研究	傅泓吉
11:15-11:30	径向进气涡轮气动与轴向力的耦合设计研究	张加想
11:30-11:45	超临界二氧化碳压缩机通用性能曲线分析	李祥斌
11:45-12:00	超临界二氧化碳透平机械扇贝仿生密封泄漏流的湍流耗散研究	张恩搏
午餐（一楼西餐厅）		

新工质、新循环、新系统相关专题 13:30-17:30 9.28 会议厅 1		
时间	**题目**	**报告人**
分会场主席：吴志强、王伟		
13:30-13:50	主旨报告：基于生物质化学链重整的绿氢制备与CO_2利用	吴志强
13:50-14:10	主旨报告：熔盐储热耦合燃煤机组提升灵活性技术及应用	王　伟
14:10-14:25	基于科里奥利力的近/跨临界区CO_2热物性在线非侵入式测量与预测技术	陈真韬
14:25-14:40	超临界区CO_2折射率变化：基于光谱型椭圆偏振仪的初步测量	刘　欢
14:40-14:55	空气布雷顿核能系统热性能测试方法综述	林靖宇
14:55-15:10	基于阶梯式碳交易的P2G-氢储耦合综合能源系统多目标优化调度（面向风电消纳）	吕伟琛
15:10-15:25	超临界CO_2条件下钙基材料碳化特性的数值模拟研究	陈绍鑫
15:25-15:35	**茶歇**	
分会场主席：郭海心、孙山		
15:35-15:55	主旨报告：超临界CO_2-离子液体体系用于生物质衍生加氢反应	郭海心
15:55-16:15	主旨报告：CO_2高温热泵与泵送热能储存系统的热力学分析	孙　山
16:15-16:30	基于SANS实验与MD模拟的超临界CO_2相异质性分析：团簇视角	贺立超
16:30-16:45	宽负荷条件下S-CO_2布雷顿循环的单峰凸效率曲线：相较于S-H_2O朗肯循环的显著特征	张小明
16:45-17:00	超临界CO_2在垂直循环回路中压降特性的实验研究	杨宇航
17:00-17:15	不同入口条件下CO_2在拉瓦尔喷管内凝结特性的研究	陈昱光
17:15-17:30	混合符号回归在数据驱动发现中的应用：超临界传热中主导无量纲数的识别	石云志

CO_2等新工质流动传热及换热器 8:30-12:00 9.28 会议厅 2		
时间	**题目**	**报告人**
分会场主席：马挺、钟巍华		
8:30-8:50	主旨报告：增材制造微通道换热器的集成智能设计与制造方法研究进展	马　挺
8:50-9:10	主旨报告：原子能院关于材料在超临界二氧化碳环境腐蚀行为的研究进展	钟巍华
9:10-9:25	316L 半圆形板片流道结构扩散焊接焊合质量研究	祁祥杰
9:25-9:40	基于粒子群算法的超临界二氧化碳径向涡轮气动热力学设计	冯彦力
9:40-9:55	考虑热物性尺度效应的超临界二氧化碳热对流数值模型开发	张睿
9:55-10:10	基于 CFD-DEM 方法的填充床流动与传热特性数值模拟	郝瑞霆
10:10-10:20	**茶歇**	
分会场主席：成克用、梁志远		
10:20-10:40	主旨报告：高效灵活超临界 CO_2 换热器研究	成克用
10:40-11:00	主旨报告：超临界二氧化碳环境中材料腐蚀剖析与防护	梁志远
11:00-11:15	亚临界与超临界二氧化碳间过渡沸腾传热特性的实验研究	Fang Yin
11:15-11:30	超临界压力下二氧化碳在垂直圆管内传热特性研究：新的实验数据集	Wen Kai
11:30-11:45	超临界二氧化碳瞬态流动过程中壁面热响应特性的实验研究	曹文宣
11:45-12:00	基于入口参数的数据驱动量纲分析用于竖直向上超临界CO_2流动传热恶化的起始判据	邢超杰
午餐（一楼西餐厅）		

青年科学家论坛 13:30-17:20 9.28 会议厅 2		
时间	**题目**	**报告人**
分会场主席：李舟航、雷贤良		
13:30-13:50	主旨报告：超临界流体水平流动传热中的热分层现象及其对换热器设计的挑战	李舟航
13:50-14:10	主旨报告：液体金属与超临界二氧化碳非对称耦合换热器传热机理及协同优化	雷贤良
14:10-14:30	主旨报告：超临界二氧化碳全封闭涡轮发电一体机及其基于深度强化学习的系统仿真控制	王　轩
14:30-14:45	超临界二氧化碳在 3D 打印锯齿流道内流动与传热特性研究	赵昊昊
14:45-15:00	表面粗糙度对超临界二氧化碳闭式离心压缩机流动损失的影响研究	Yichen Tian
15:00-15:15	超临界二氧化碳（sCO_2）集成机组效率的综合评估与优化方法	凌　智
15:15-15:30	亚短程结构序态的出现定义了气体到超临界流体的相变边界	李欣阳
15:30-15:40	**茶歇**	
分会场主席：冯永昌、辛团团		
15:40-16:00	主旨报告：超临界 CO_2 基混合工质及其与纯 CO_2 在垂直圆管内传热特性的对比研究	冯永昌
16:00-16:20	主旨报告：透平侧富氧燃烧半闭式超临界 CO_2 循环流程重构与系统集成	辛团团
16:20-16:35	燃气轮机回热循环与联合循环热经济性对比研究	张伟琪
16:35-16:50	100 千瓦级双级对置式超临界二氧化碳轴流涡轮设计	王语荣
16:50-17:05	煤种与循环配置对半闭式 H_2O/CO_2 复合工质动力系统多级耦合的影响	张秋凯
17:05-17:20	用于测试分支再热式超临界 CO_2 朗肯循环机组的发动机余热发电实验装置设计方案	曾宪宇

新型储能技术与系统- 8:30-12:00 9.28 会议厅 5&会议厅 6		
时间	**题目**	**报告人**
分会场主席：张振涛、田原		
8:30-8:50	主旨报告：二氧化碳储能技术研究进展	张振涛
8:50-9:10	主旨报告：多孔金属泡沫与石墨材料增强热储能系统的传热性能	田　原
9:10-9:25	基于燃煤电厂的新型卡诺电池系统的热力学分析与优化	赵世飞
9:25-9:40	压缩二氧化碳储能与双再热火电机组集成耦合系统的性能评估与优化	薛慕婕
9:40-9:55	液态二氧化碳储能耦合燃煤电厂的热经济性分析	陈　磊
9:55-10:10	压缩二氧化碳储能系统中两种低压侧储气方法的对比研究	张盈鑫
10:10-10:20	**茶歇**	
分会场主席：郭江峰、张成		
10:20-10:40	主旨报告：利用光谱分频光伏热耦合二氧化碳储能技术最大化不间断太阳能发电	郭江峰
10:40-11:00	主旨报告：液流电池技术创新与商业化：迈向新突破	张　成
11:00-11:15	船舶电力系统直流母线电压波动调节的 LPF-模糊 PI 控制策略研究	冯龙祥
11:15-11:30	基于近常温液态二氧化碳的新型压缩储能系统热力学分析与优化	徐景怡
11:30-11:45	燃烧与膨胀的耦合机制：面向近等温过程的热力学优化与效率提升	陈　峰
11:45-12:00	基于基团贡献法的增强型热集成卡诺电池：综合分析及多目标优化	王朋辉
午餐（一楼西餐厅）		

国家重点项目及能源局首台套项目专题 13:30-17:40 9.28 会议厅 5&会议厅 6		
时间	**题目**	**报告人**
分会场主席：王建强、李焕荣		
13:30-13:50	特邀报告：熔盐堆核能综合利用	王建强
13:50-14:10	特邀报告：10MW 超临界二氧化碳发电装置研究	李焕荣
14:10-14:30	特邀报告：基于特高温热泵及高温熔盐的超临界二氧化碳发电系统研究	俞明峰
14:30-14:50	特邀报告：二氧化碳热力电池关键设备研发与验证	刘　鑫
14:50-15:10	特邀报告：超临界 CO_2 循环耦合高效灵活燃煤电站的设计	张旭伟
15:10-15:30	特邀报告：百穰二氧化碳储能的特性及零碳应用	刘　军
15:30-15:40	**茶歇**	
分会场主席：方嘉宾、孙恩慧		
15:40-16:00	特邀报告：高通量聚光太阳能热化学转换与储能的理论与方法	方嘉宾
16:00-16:20	特邀报告：sCO_2 燃煤锅炉耦合换热特性和高效灵活设计关键技术	孙恩慧
16:20-16:40	特邀报告：钙基热化学储能技术研究进展	韩　伟
16:40-17:00	特邀报告：燃煤高效低碳复合工质动力循环基础研究	张林瑶
17:00-17:20	特邀报告：超临界二氧化碳燃煤发电系统关键技术	张一帆
17:20-17:40	特邀报告：高效低碳燃气轮机试验装置国家重大科技基础设施-低碳超临界二氧化碳循环试验台调试进展	龚新宇

9. Publication/合作期刊

The Journal of Supercritical Fluids is an international journal devoted to the fundamental and applied aspects of supercritical fluids and processes. Its aim is to provide a focused platform for academic and industrial researchers to report their findings and to have ready access to the advances in this rapidly growing field. Its coverage is multidisciplinary and includes both basic and applied topics. Thermodynamics and phase equilibria, reaction kinetics and rate processes, thermal and transport properties, and all topics related to processing such as separations (extraction, fractionation, purification, chromatography) nucleation and impregnation are within the scope. Accounts of specific engineering applications such as those encountered in food, fuel, natural products, minerals, pharmaceuticals and polymer industries are included. Topics related to high pressure equipment design, analytical techniques, sensors, and process control methodologies are also within the scope of the journal.

Applied Thermal Engineering disseminates novel research related to the design, development and demonstration of components, devices, equipment, technologies and systems involving thermal processes for the production, storage, utilization and conservation of energy, with a focus on engineering application.

The journal publishes high-quality and high-impact Original Research Articles, Review Articles, Short Communications and Letters to the Editor on cutting-edge innovations in research, and recent advances or issues of interest to the thermal engineering community.

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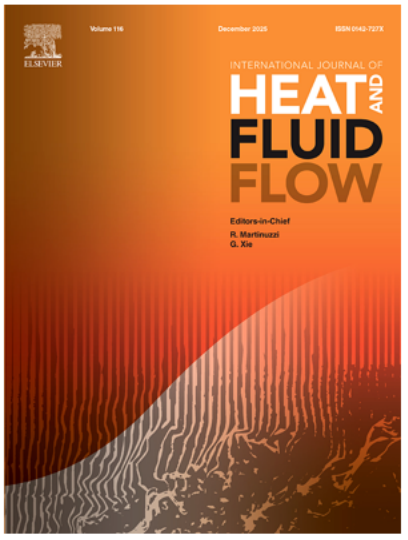

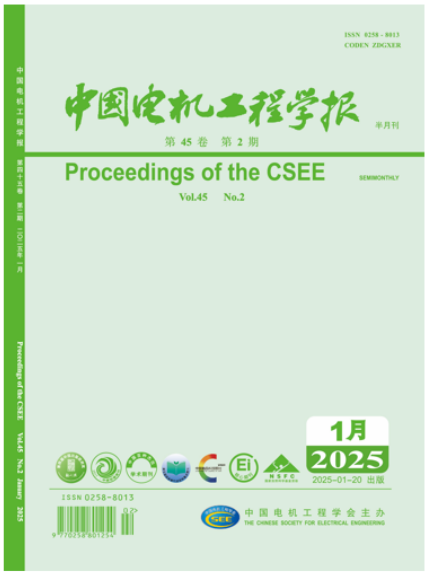

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《热力发电》（Thermal Power Generation）创刊于1972年，由中国华能集团有限公司主管，西安热工研究院有限公司、中国电机工程学会主办，是我国能源动力与发电技术领域的重要刊物，现为中国科学引文数据库（CSCD）核心期刊、全国中文核心期刊、中国科技核心期刊、RCCSE中国核心学术期刊（A），被评为“百种中国杰出学术期刊”“中国精品科技期刊”“三秦卓越科技期刊发展计划”重点期刊，入选中国科协能源电力领域“高质量科技期刊分级目录”T1级和“中国科技期刊提能拓展计划” 。期刊主要报道能源动力与发电技术领域的基础研究和开发利用，包括：化石燃料及其清洁燃烧、发电设备及热力系统、电站智能控制、电站辅机、电厂化学、电厂金属材料、电力环境保护及综合利用，以及风能、氢能、太阳能、核能等发电技术，并适时报道相关领域的发展动态。

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数据库收录：CSCD、 Ulrichsweb、 CAS、 JST、 WJCI等。