

NESMT 2025

2025 International Conference on
New Energy Engineering, Energy Storage and Micro-Grid Technology

2025年新能源工程、储能与微电网技术
国际学术会议

会议手册

Conference Manual

June 20-22, 2025

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会议简介

Introduction

2025 年新能源工程、储能与微电网技术国际学术会议 (NESMT 2025) 于 2025 年 6 月 20-22 日在江苏镇江线上召开。新能源工程、储能与微电网技术的研究和应用是能源领域热门研究重点, 也深受全世界的专家学者瞩目。因此本届会议将继续专注研究和探讨新能源工程、储能与微电网技术领域, 为国际学术界和工程界提供一个论坛, 旨在汇集来自全球各地的相关领域的学者, 共同分享研究成果, 探讨生态电力、绿色发展。

会议官网: www.nesmt.org

2025 International Conference on New Energy Engineering, Energy Storage and Micro-Grid Technology (NESMT 2025) will be grandly held in Zhenjiang, Jiangsu, China on June 20-22, 2025. The purpose of the conference is to provide a platform for experts, scholars, engineers and R&D personnel engaged in the fields of "New Energy Engineering", "Energy Storage" and "Micro-Grid Technology" to share scientific research achievements and cutting-edge technologies, understand academic development trends, broaden research ideas, strengthen academic research and discussion, and promote industrial cooperation of academic achievements. The conference invites experts, scholars, business people and other relevant personnel from universities and research institutions at home and abroad to attend and exchange. Participants can not only listen to the wonderful reports of well-known experts at home and abroad, but also personally participate in face-to-face exchanges and discussions with experts and scholars from all over the world.

Conference Website: <https://www.nesmt.org/>



合作单位

Conference Sponsorship

主办单位：江苏科技大学

Organized by: Jiangsu University of Science and Technology

协办单位/ Co-organized by

National Research Mordovia State University

支持单位/Supported by

江苏省工程热物理学会，江苏省能源研究会，江苏省内燃机学会



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Conference Committee

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Yingya Zhang, Jiangsu University of Science and Technology

Wei Mao, Jiangsu University of Science and Technology



大会议程

Conference Agenda

Date/时间: Saturday, June 21, 2025/ 2025 年 6 月 21 日 腾讯会议号: 852-681-612 Password/密码: 0621 https://meeting.tencent.com/dm/nbLhXEHQRty4	
09:00-09:05	Opening Ceremony/开幕式
09:05-09:35	Keynote Speech 1/大会报告 1 Prof. Yiming Zhang, Fuzhou University 张艺明教授, 福州大学 Speech Title: <i>Interoperability Study of Electric Vehicle Wireless Charging System</i>
09:35-10:05	Keynote Speech 2/大会报告 2 Prof. Shuai Wang, Harbin Institute of Technology 王帅教授, 哈尔滨工业大学 Speech Title: <i>Performance of catalyst reforming for hydrogen production by means of multiscale simulation</i>
10:05-10:35	Keynote Speech 3/大会报告 3 Assoc. Prof. Shuo Yang, Shenyang Institute of Engineering 杨硕 副教授, 沈阳工程学院 Speech Title: <i>Catalytic combustion, and thermochemical conversion of low-grade carbon-based energy resources</i>
10:35-10:50	Break 茶歇
10:50-11:00	Oral Presentation 1/口头汇报 1 Jinrong Fang, Shanghai Maritime University 方瑾嵘, 上海海事大学 Speech Title: Simplified Analytical Solutions Based on Finite Line Source Theory for Borehole Thermal Energy Storage Systems
11:00-11:10	Oral Presentation 2/口头汇报 2 Yongkang Fan, Southeast University 范永康, 东南大学 Speech Title: Multi-objective optimization of an integrated system based on high-temperature adiabatic CAES and thermal energy storage unit: Energy, Economic and Economic (3E) analysis

11:10-11:20	<p>Oral Presentation 3/口头汇报 3</p> <p>Bin Wang, Guizhou Power Grid Co., Ltd. Power Grid Planning and Research Center</p> <p>王斌, 贵州电网有限责任公司电网规划研究中心</p> <p>Speech Title: A Spatiotemporal Long-Short-Term Feature-Integrated Joint Assessment Method for Wind-Solar Resources</p>
11:20-11:30	<p>Oral Presentation 4/口头汇报 4</p> <p>Haoyu Liu, Rocket Force University of Engineering</p> <p>刘浩宇, 火箭军工程大学</p> <p>Speech Title: Analysis of the Minimum Failure Threshold for Automotive Lithium Batteries</p>
11:30-11:40	<p>Oral Presentation 5/口头汇报 5</p> <p>Changshun Hao, North China University of Water Resources and Electric Power</p> <p>郝常顺, 华北水利水电大学</p> <p>Speech Title: Mechanism of Coupled Aboveground-Underground Thermal Energy Interaction in Urban Spaces: Geothermal Potential Transfer and Synergistic Energy Optimization</p>



主讲嘉宾

Keynote Speaker

Prof. Yiming Zhang

张艺明教授

Fuzhou University

福州大学



Prof. Yiming Zhang, National High-Level Oversea Youth Talent, “Minjiang Scholar” of Fujian Province, Professor of Fuzhou University, Ph.D. supervisor, IEEE Senior Member, Vice Dean of School of Electrical Engineering. He was recognized as the World’s Top 2% Scientist by Elsevier. His research interest is power electronics and wireless power transfer. He has authored one book from Springer and published more than 100 technical papers in renowned journals and conference proceedings. He has an H-index of 44 and has won multiple excellent conference papers including ECCE, EVS, EVCP, and CIEEC. He was recognized as the Outstanding Reviewer for IEEE TPEL and TIE. He is the PI of the Excellent Youth Project and Youth Fund from National Natural Science Foundation of China, the Outstanding Youth Project of Fujian Provincial Natural Science Foundation.

Speech Title: Interoperability Study of Electric Vehicle Wireless Charging System

Abstract: In electric vehicle wireless charging systems, the charging device providers may offer different charging solutions, which leads to the interoperability issue. The interoperability issue in an electric vehicle wireless charging system includes the interoperability of magnetic couplers, the battery voltage levels, and the power levels. The research works on these topics by our research team are presented. Future development is discussed.

主讲嘉宾

Keynote Speaker



Prof. Shuai Wang

王帅教授

Harbin Institute of Technology

哈尔滨工业大学

Wang Shuai, Professor, Doctoral Supervisor at Harbin Institute of Technology, Youth Director of the Chinese Society of Particuology, and recipient of the Excellent Youth Fund in Heilongjiang Province. Main research directions are hydrogen energy and fuel cells, multiphase flow thermophysics. In recent years, He has published more than 70 SCI indexed papers as the first/corresponding author, with more than 1000 SCI citations. He has been authorized 7 national invention patents and 9 software copyrights. He is responsible for the projects such as the National Natural Science Foundation and the Collaborative Education Project of the Ministry of Education. He has won the second prize of the Natural Science Award of Heilongjiang Province, and guided multiple students who won honors such as the National Scholarship for Graduate Students and the Outstanding Doctoral Dissertation.

Speech Title: Performance of catalyst reforming for hydrogen production by means of multiscale simulation

Abstract: Hydrogen energy plays an increasingly important role on the world energy stage owing to its high calorific value, good combustion performance, and pollution-free reaction products. Catalytic reforming hydrogen production, as one of the important means of natural gas hydrogen production, can not only reduce methane and carbon dioxide emissions, but also achieve high hydrogen production rates, which has dual significance for resource conservation and environmental protection. This presentation elaborates on the process of catalytic reforming for hydrogen production from the perspectives of particle-scale and reactor-scale. The interaction of diffusion between multi-level pores and reaction difference are introduced to construct a particle-bed multi-scale simulation method. The influence of structural parameters on hydrogen production performance of bi-disperse pore catalyst is analyzed. The dynamic evolution of pore structure caused by coke deposition is considered and the spatiotemporal evolution law of pore structure is analyzed. The competitive mechanism of reaction and diffusion is revealed. Introducing two enhancing reforming methods, hydrogen membrane separation and carbon dioxide adsorption, the synergistic enhancement of hydrogen production process by hydrogen membrane separation and carbon dioxide adsorption in fluidized bed reactors is analyzed. The interaction mechanism between hydrogen membrane separation and carbon dioxide adsorption is revealed, which provides a guidance for catalyst design and optimization of fluidized bed reforming hydrogen production system.

主讲嘉宾

Keynote Speaker



Assoc. Prof. Shuo Yang

杨硕 副教授

Shenyang Institute of Engineering

沈阳工程学院

Shuo Yang, associate professor and postgraduate supervisor, assistant dean of Energy Power and Nuclear Technology Engineering Institute, deputy director of Key Laboratory for Liaoning Province for Clean Combustion Power Generation, director of Key Laboratory for Circulating Fluidized Bed Combustion and head of Key Laboratory for Interface Phenomena and Process Control Technology about Medium/Microscale Fluids. He was selected as the Liaoning Provincial "Bai Qian Wan Talents Program" - Ten Thousand Talents Level in 2018 and Shenyang High-level Talents Program (Top talents) in 2020. He was a member of Chinese Society of Theoretical and Applied Mechanics, Chemical Industry and Engineering Society of China in Engineering Thermochemistry, China Renewable Energy Society (Specialized in Biomass Energy Committee), Chinese Electrotechnical Society, Liaoning Provincial Society of Engineering Thermochemistry, Chinese Nuclear Society, China Invention Association, and Biophysical Society of China.

Speech Title: Catalytic combustion, and thermochemical conversion of low-grade carbon-based energy resources

Abstract: The analysis of ash deposition samples by electron microscopy (EM), scanning electron microscopy (SEM)/energy dispersive scanning (EDS), and X-ray diffraction (XRD) was carried out at three sampling points of a one-dimensional furnace (sampling temperatures were TL5 = 960 °C, TL6 = 855 °C, and TL7 = 820 °C, respectively). The improvement of ash deposition characteristics of biomass combustion with the different addition ratios of coal fly ash (CFA) ($M_r = 1:1$, $1.5:1$ or $2:1$) and the heterogeneous removal of gas phase alkali metal heterogeneous were studied. The results showed that under the condition of $M_r = 1:1$, the ash sample presented a three-dimensional porous loose structure like "coral reef" with the rice husk ash as the skeleton and the combustion products of CFA as the bonding point. The spherical and filamentous crystals mainly composed of SiO_2 , Al_2O_3 , and silicates were distributed in the slag, and the surfaces of these crystals were accompanied by the eutectic composite salt of K-Al-Si with a high melting point, reflecting the heterogeneous curing effect of CFA on the gas phase migration of the alkali metal (K). With the decreasing addition ratio of CFA ($M_r = 1.5:1$ or $2:1$), the spherical and filamentous crystals were increased in the slag. MgO , Fe_2O_3 , and Al_2O_3 may be involved in the formation of high-temperature refractory Mg-Fealuminate, Ca- and Mg-silicate, which were the precursors of the rigid slag. The alkali metals mostly presented in the form of K_2O and KCl in the gas-solid conversion under the temperature effect, serving as binders for bridging, agglomeration, and slagging of the above precursors. In addition, the kalium enrichment was accompanied by Al and S in the CFA, indicating that the Al- and S-active sites have obvious adsorption to kalium.



江苏科技大学

JIANGSU UNIVERSITY OF SCIENCE AND TECHNOLOGY

Jiangsu University of Science and Technology is mainly located in the scenic and historic city of Zhenjiang, Jiangsu province. It is an engineering-oriented university with a competitive edge in three disciplines: shipbuilding, marine engineering and sericulture study. With its excellence at cultivating engineers, it is credited as being one of the best institutions by the Ministry of Education. With diligence, virtues, experience, and practice as its motto, and the Belt and Road Initiative as its mission, JUST is dedicated to the well-being of Chinese society and world development.

JUST has a faculty body of 1,320 faculty members, of which 190 are professors, 630 associate professors, 2 members of the Chinese Academy of Engineering (CAE), 1 a distinguished chair professor, 2 young talents from the “Thousand Talent Program”, and more than 140 top-notch professors, innovators and leaders on both the provincial and national level.

Since 1978 JUST has been recruiting undergraduates, and became entitled to award master degrees in 1993, and doctoral degrees in 2008. It boasts 11 disciplines that grant doctorate degrees (including a Post-Doctoral Research Center), and 71 disciplines that confer master degrees. For engineering and material sciences it ranks in the top 1% of ESI. JUST is the home to 5 journals, namely Journal of Jiangsu University of Science and Technology (Edition of Natural Science), Journal of Jiangsu University of Science and Technology (Edition of Social Science), China Sericulture, and Science of Sericulture and Modern Flour Milling Industry.

The faculty greatly values the combination of research in three key scientific fields: naval architecture, marine engineering and sericulture studies, along with the cultivation of talented engineers with a keen sense of innovation for selected industries both at home and abroad.

For the achievement of graduating more than 140,000 talented students, it has earned the title of the “Cradle of Chinese Shipbuilding Engineers”.



NESMT

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