中国矿业大学 CHINA UNIVERSITY OF MINING AND TECHNOLOGY

低碳能源与动力工程学院 School of Low-Carbon Energy and Power Engineering

“能源科学与工程”创新论坛

燃烧检测前沿技术学术沙龙

Energy Science and Engineering Innovation Forum ——

Academic Salon on Combustion Detection Frontier Technologies

时间：2025 年 10 月 22 日

报告地点：南湖校区机电楼 A311

主办单位：能源学院、低碳能源与动力工程学院

Invited Lecturer	Time	Tittle of Presentation
Opening Ceremony	9:00-9:10	
Jinhua WANG, 王 金华 *Xi'an Jiaotong University*	9:10-9:50	Laser diagnostics on turbulent flame structure of hydrogen and ammonia 氢氨湍流火焰结构激光诊断研究
Shu ZHENG, 郑 树 *North China Electric Power University*	9:50-10:50	Non-Contact diagnostics for aerospace propulsion systems 空天动力系统高温非接触测量技术
	Break time	
Shixing WANG, 王 式兴 *Zhejiang University*	11:00-11:40	Local statistics of turbulent spherical expanding flames for $NH_3/CH_4/H_2$/air measured by 10 kHz PIV 10 kHz PIV 测量的 $NH_3/CH_4/H_2$/空气湍流球形火焰的局部统计特征
Yi GAO, 高 怡 *Shanghai Jiao Tong University*	11:40-12:20	Applications of high–speed laser imaging based measurements for combustion research 高速激光成像测量在燃烧中的应用研究
	Break time	
Kuangyu LI, 李 框宇 *CUMT*	14:00-14:40	Decoupling and reconstruction of flame visible radiation spectra 火焰可见光辐射光谱解耦重建
Xinyu WANG, 王 鑫雨 *CUMT*	14:40-15:20	In-situ Optical Diagnostics and Molecular-Level Insights into Biomass Combustion 原位光学诊断与分子动力学结合的生物质燃烧研究
	Break time	
Xuanqi LIU, 刘 轩奇 *CUMT*	15:30-16:10	Applications of spontaneous-emission spectroscopy and imaging methods in laboratory combustion and flame diagnostics 火焰光谱与成像方法在实验室燃烧及火焰诊断中的应用
Hao YANG, 杨 昊 *CUMT*	16:10-16:50	Radiation information driven combustion diagnostics and its application in industrial coal-fired boilers 辐射信息驱动的燃烧诊断技术及其在工业燃煤锅炉中的应用
Zhi WANG, 王 志 *CUMT*	16:50-17:20	Coupling mechanism and regulation method of furnace heat load and wall overheating 炉内热负荷与壁面超温耦合机制及调控方法

欢迎全校师生参加！

报告专家简介

Jinhua WANG，王 金华

王金华，西安交通大学能源与动力工程学院教授，绿色氢电全国重点实验室副主任，发动机及先进动力研究所主任，入选国家级青年人才。研究方向为发动机湍流燃烧，氢发动机及动力系统。建立了氢氨燃料光学测试平台和标模湍流火焰数据集，发展了氢回火与振荡燃烧不稳定性预测模型，研发了氢微混燃烧室和微型燃机样机；提出了发动机掺氢互补燃烧调控新思路，开展了掺氢内燃动力客车、商用车、发电机组等多场景示范。

主持国家自然科学基金重点/面上/青年项目 5 项，两机专项课题 1 项，其他国家、地区及工业项目 30 余项。发表权威期刊论文 100 余篇，获国家自然科学二等奖（排 2，2015）、中国内燃机学会史绍熙人才奖（2016）、JSPS 特别研究员（2010）等奖励和荣誉。

Jinhua WANG, Professor at the School of Energy and Power Engineering, Xi'an Jiaotong University, Deputy Director of the State Key Laboratory of Multiphase Flow in Power Engineering, Director of the Institute of Engine and Advanced Power System. Research interests are engine turbulent combustion, hydrogen engine and power system. Hydrogen and ammonia fuel optical testing platform and a standard model turbulent flame dataset were established, and the hydrogen combustion instability model was developed. Hydrogen micro combustion chambers and micro gas turbine prototypes were developed. A novel idea of combustion control with hydrogen addition in engines has been proposed, and multi scenario demonstrations have been carried out for hydrogen addition internal combustion engine, including buses, commercial vehicles, and generator set.

Host 5 key/general/youth projects funded by the NSFC, and more than 30 other national, regional, and industrial projects. Published over 100 peer reviewed journal papers, and awarded several national, industry and academic awards.

Shu ZHENG，郑 树

郑树，华北电力大学能源动力与机械工程学院教授、博导。于 2005-2013 年在华中科技大学完成了本硕博的学习，获得热能工程工学博士学位，2013-2016 年在清华大学热能工程系开展博士后研究，2018-2019 年普林斯顿大学机械与航空航天工程学院访问学者。获国家自然科学基金青年科学基金项目 B 类（原优秀青年科学基金项目）资助，中国发明协会发明创新奖一等奖（第 1 完成人），教育部王宽诚教育基金会资助，入选江苏省 333 高层次人才。担任中国工程热物理学会燃烧学年会程序委员会委员，中国能源学会燃煤智能发电专业委员会委员。先后主持了国家自然科学基金、国家重点研发计划、军科委项目、北京市科委成果转化项目等 30 余项。已发表第一/通讯作者 SCI 论文 80 余篇，引用 1700 余次，出版中文专著 1 部，参编标准 2 项，授权或公开发明专利 25 项（第 1 发明人 15 项）。

Shu ZHENG is a Professor and Doctoral Supervisor at the School of Energy, Power and Mechanical Engineering, North China Electric Power University. He received his B.S., M.S., and Ph.D. degrees in Thermal Engineering from Huazhong University of Science and Technology between 2005 and 2013. From 2013 to 2016, he conducted postdoctoral research at the Department of Thermal Engineering, Tsinghua University. From 2018 to 2019, he served as a visiting scholar at

the Department of Mechanical and Aerospace Engineering, Princeton University.

He was supported by the National Natural Science Foundation for Young Scientists Fund Program B (formerly Excellent Young Scientists Fund), awarded the First Prize of Invention Innovation Award of China Invention Association (as the first contributor), and funded by the Wang Kuancheng Education Foundation of the Ministry of Education. He was selected for the 333 High-level Talents Training Program of Jiangsu Province.

He serves as a member of the Program Committee of China National Symposium on Combustion, and a member of the Committee on Coal-Fired Intelligent Power Generation of the China Energy Society.

He is the principal investigator of more than 30 research projects, including the National Natural Science Foundation of China, National Key Research and Development Program, Military Science and Technology Commission projects, and Beijing Municipal Science and Technology Commission Achievement Transformation Project. He has published over 80 SCI papers as the first or corresponding author (with more than 1700 citations), authored one Chinese monograph, participated in the compilation of two national standards, and holds 25 authorized or published invention patents (15 as the first inventor).

Shixing WANG, 王 式兴

王式兴，浙江大学“百人计划”研究员。主要从事高压燃烧、零碳燃料清洁利用、反应动力学以及燃烧激光诊断等研究方向。作为项目骨干参与沙特阿拉伯微型燃气轮机研发项目，负责高压氨燃烧、合成燃料燃烧、双旋流燃烧特性等研究内容，参与国家重点研发计划(国际合作)等研究项目。近 5 年在燃烧与能源利用领域《Combustion and Flame》、《Proceeding of the Combustion Institute》等顶级期刊发表 SCI 论文 17 篇， ESI 高被引论文 1 篇，谷歌学术累计引用 1600 余次。长期担任《Combustion and Flame》、《Fuel》、《International Journal of Hydrogen Energy》等能源与燃料领域期刊审稿人。

Shixing WANG is a researcher of Zhejiang University's "Hundred Talents Program." His research interests include high-pressure combustion, clean utilization of zero-carbon fuels, reaction kinetics, and combustion laser diagnostics. He participated in the Saudi Arabian micro-gas turbine R&D project as a key member of the project, responsible for research on high-pressure ammonia combustion, synthetic fuel combustion, and dual-swirl combustion characteristics. He also participated in research projects such as the National Key R&D Program (International Cooperation). In the past five years, he has published 17 SCI papers in top journals such as *Combustion and Flame* and *Proceeding of the Combustion Institute* in the field of combustion and energy utilization, as well as one ESI highly cited paper, with over 1,600 citations on Google Scholar. He has long served as a reviewer for journals in the energy and fuel fields, including Combustion and Flame, Fuel, and International Journal of Hydrogen Energy.

Yi GAO, 高 怡

高怡，上海交通大学长聘副教授、博导，AIAA Journal 副主编。研究方向围绕万赫兹超高重频光学精细成像方法在燃烧技术领域的应用。主持、参研多项国家级科研项目。近 5 年发表学术论文 50 余篇、申报专利 10 余项。获评国家级人才计划与多项省部级科研奖励。

Yi GAO is a tenured associate professor at Shanghai Jiao Tong University and an associate editor

of the AIAA Journal. Her research focuses on the application of ultra-high repetition rate optical imaging methods in combustion. She has led and participated in multiple national-level scientific research projects, published over 50 academic papers and filed more than 10 patents in the past 5 years. She has been awarded multiple provincial and ministerial-level scientific research honors.

Xinyu WANG, 王 鑫雨

王鑫雨，中国矿业大学，低碳能源与动力工程学院，讲师。2022 年 4 月博士毕业于哈尔滨工业大学，2018 年 10 月-2020 年 11 月，在美国东北大学进行博士联合培养（CSC），导师 Yiannis A. Levendis 教授。研究方向：生物质热化学利用，燃烧系统在线监测与诊断。主持国家重点研发计划青年科学家项目子课题（经费 90 万）、中央高校基本科研业务费项目、中国矿业大学第十五批“启航计划”人才项目、中国矿业大学人才引进项目及企业横向课题等。在《Chemical Engineering Journal》、《Combustion and Flame》、《Energy》、《工程热物理学报》等期刊共发表学术论文 29 篇，其中一作或通讯论文 15 篇，他引 470 余次。

Dr. Xinyu Wang, Lecturer, School of Low-Carbon Energy and Power Engineering, China University of Mining and Technology. He earned his Ph.D. from Harbin Institute of Technology in April 2022. From October 2018 to November 2020, he undertook joint Ph.D. training at Northeastern University (USA) under the sponsorship of the China Scholarship Council (CSC), where he was supervised by Professor Yiannis A. Levendis. Research Focus: Thermochemical conversion of biomass, and online monitoring & diagnosis of combustion systems. Dr. Wang has presided over several research projects, including a subproject of the National Key R&D Program for Young Scientists (with total funding of 900,000 RMB), projects supported by the Basic Scientific Research Funds for Central Universities, the 15th "Qihang Program" Talent Project of China University of Mining and Technology, the university’s Talent Introduction Program, and industry-academia horizontal cooperation projects. He has published 29 academic papers in prestigious journals such as Chemical Engineering Journal, Combustion and Flame, Energy, and Journal of Engineering Thermophysics. Among these, 15 are first-authored or corresponding-authored, with a total of over 470 citations.

Zhi WANG, 王 志

王志，中国矿业大学，低碳能源与动力工程学院，师资博士后。2023 年博士毕业于东北电力大学（2020-2023 年中国矿业大学联合培养博士，导师周怀春）。主要从事锅炉燃烧监控及智能发电技术研究。入选 2024 年江苏省卓越博士后计划、主持中国矿业大学引进人才项目等。近年来，参与国家自然科学基金重大科研仪器研制 1 项、国家重点研发计划青年科学家 1 项、五大发电集团委托多项，吉林省电力科技进步一等奖 1 项。近年来，发表论文 30 余篇，其中高被引 ESI 论文 3 篇，获授权发明专利 10 余项。担任中国能源学会燃煤智能发电专业委员会委员，EcoEnergy 编委，担任 Energy、ATE、JCLP 等 Top 期刊审稿专家。

Zhi WANG is a Postdoc researcher at the School of Low-Carbon Energy and Power Engineering, China University of Mining and Technology. He obtained his Ph.D. in 2023 from Northeast Electric Power University (2020–2023 Joint Ph.D. training at China University of Mining and Technology under the supervision of Professor Zhou Huaichun). His research primarily focuses on boiler

combustion monitoring and intelligent power generation technologies.

He was selected for the 2024 Jiangsu Provincial Outstanding Postdoctoral Program and leads the Talent Introduction Project at China University of Mining and Technology. In recent years, he has participated in one Major Scientific Instrument Development Project of the National Natural Science Foundation of China, one Young Scientist Project of the National Key R&D Program, and multiple projects commissioned by the top five power generation groups. He also received the Jilin Provincial Electric Power Science and Technology Progress Award (First Class).

He has published over 30 papers, including three ESI highly cited papers, and holds more than 10 authorized invention patents. He serves as a committee member of the Intelligent Coal-Fired Power Generation Committee of the China Energy Society and as an editorial board member of *EcoEnergy*. Additionally, he acts as a peer reviewer for top-tier journals such as *Energy*, *ATE*, and *JCLP*.

Xuanqi LIU, 刘 轩奇

刘轩奇，中国矿业大学，低碳能源与动力工程学院，师资博士后，博士毕业于谢菲尔德大学，主要从事燃烧诊断技术，热声不稳定性，氨-甲烷燃烧火焰特性方向研究。入选 2024 年度江苏省卓越博士后计划，参与国家自然科学基金重大科研仪器项目，面上项目等科研项目。先后在 *Proceedings of the Combustion Institute*、*Fuel*、*Journal of Sound and Vibration*、*Experimental Thermal and Fluid Science*、*Fire Safety Journal* 等知名学术期刊上发表 SCI 论文 13 篇，其中第一/通讯作者 8 篇。担任 Fire、Frontiers in Mechanical Engineering 期刊特刊客座编辑、Aerospace Science and Technology 等期刊审稿人。

Xuanqi LIU, PhD, Postdoc researcher at School of Low-Carbon Energy and Power Engineering, China University of Mining and Technology, School. He received his PhD from the University of Sheffield. His research focuses on combustion diagnostics, thermoacoustic instability, and the combustion characteristics of ammonia and methane flames. He was selected for the 2024 Jiangsu Excellent Postdoctoral Programme and participates in projects funded by the National Natural Science Foundation of China, including Major Research Instrument and General Programme projects. He has published 13 SCI-indexed articles in leading journals such as *Proceedings of the Combustion Institute*, *Fuel*, *Journal of Sound and Vibration*, *Experimental Thermal and Fluid Science*, and *Fire Safety Journal*, including 8 as first or corresponding author. He serves as a guest editor for special issues of *Fire* and *Frontiers in Mechanical Engineering*, and as a reviewer for *Aerospace Science and Technology* and other journals.

Kuangyu LI, 李 框宇

李框宇，中国矿业大学，低碳能源与动力工程学院，行健博士后。本硕博均就读于中国矿业大学低碳能源与动力工程学院（原电力工程学院，电气与动力工程学院），博士导师为周怀春教授，博士后合作导师为刘凤山教授，主要研究方向为燃烧诊断和多相流测试技术。以第一作者在 *Proceedings of the Combustion Institute*、*Fuel*、*Energy and Fuels* 等燃烧和能源领域期刊发表论文 4 篇，授权发明专利 2 项（其中 1 项获美国发明专利授权）。入选“2024 年度中国科协青年人才托举工程博士生专项计划”项目，托举学会为工程热物理学会。

Kuangyu LI, Postdoc researcher in Xingjian Program at the School of Low-Carbon Energy and Power Engineering, China University of Mining and Technology. He completed his Bachelor's, Master's, and Ph.D. degrees at the School of Low-Carbon Energy and Power Engineering (formerly the School of Electric Power Engineering, and the School of Electrical and Power Engineering) of China University of Mining and Technology. His doctoral supervisor was Professor Huaichun ZHOU, and his postdoctoral mentor is Professor Fengshan LIU. His primary research focuses on combustion diagnostics and multiphase flow measurement techniques. As first author, he has published four papers in prominent combustion and energy journals, including *Proceedings of the Combustion Institute*, *Fuel*, and *Energy & Fuels*. He has also been granted two invention patents (one of which is a U.S. patent). He was selected for the "2024 China Association for Science and Technology Youth Talent Support Program - Doctoral Student Special Project" with the sponsoring society being the Chinese Society of Engineering Thermal Physics.

Hao YANG, 杨 昊

杨昊，中国矿业大学，低碳能源与动力工程学院，2024 级博士生，研究方向为热辐射分析、辐射测温及铁粉燃烧，目前以第一作者在 *IEEE Transactions on Instrumentation and Measurement* 等 SCI 期刊发表论文 3 篇。

Yang Hao, doctoral candidate at the School of Low-Carbon Energy and Power Engineering, China University of Mining and Technology. His research focuses on thermal radiation analysis, radiometric temperature measurement, and iron powder combustion. He has published 3 papers as the first author in SCI journals, including *IEEE Transactions on Instrumentation and Measurement*, etc.