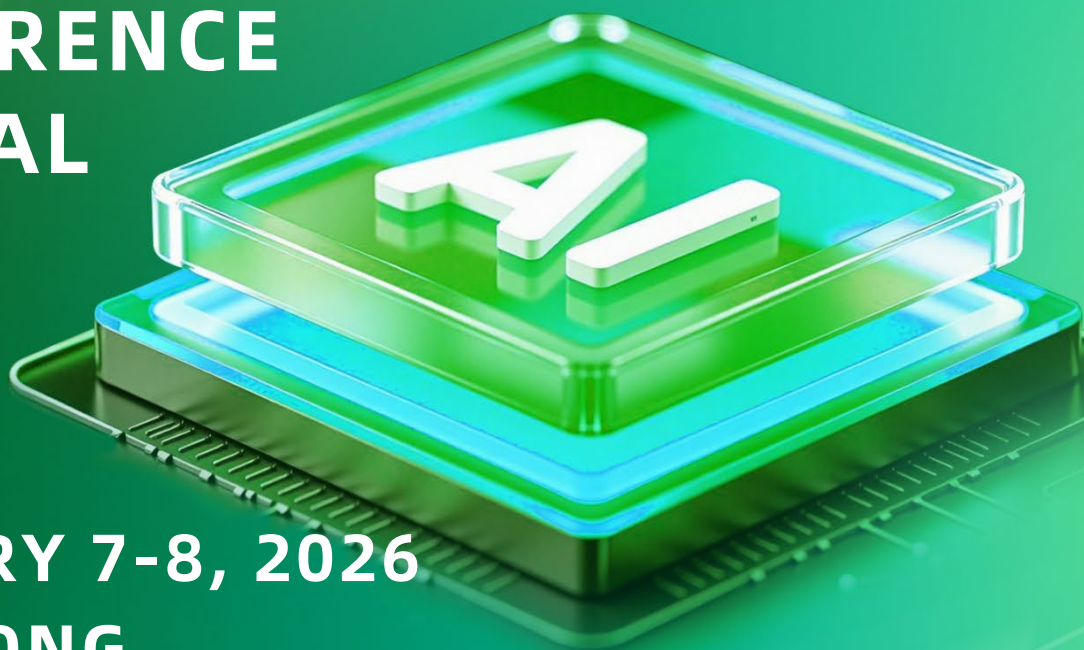


CARBON-FREE ENERGY UTILISATION EMPOWERED BY AI

CONFERENCE MANUAL



**FEBRUARY 7-8, 2026
HONG KONG**

ORGANISERS:

香港理工大學 THE HONG KONG POLYTECHNIC UNIVERSITY

上海交通大學 SHANGHAI JIAO TONG UNIVERSITY

SPONSORS:

国家自然科学基金 NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA (NSFC)

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香港研究资助局 RESEARCH GRANTS COUNCIL (RGC)

**THIS CONFERENCE WAS SUPPORTED BY A GRANT
FROM THE JOINT RESEARCH SCHEME SPONSORED
BY THE RESEARCH GRANTS COUNCIL
OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION, CHINA
AND THE NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA
(REFERENCE NO. N_POLYU503/25).**



WELCOME MESSAGES

Dear colleagues:

On behalf of The Hong Kong Polytechnic University (PolyU), it is my great pleasure to welcome you to the conference “Carbon-Free Energy Utilisation Empowered by AI.” I am delighted to serve as the Conference Chairman and to join you in this timely and important exchange of ideas.

The pursuit of carbon-free technologies has become a global priority as societies confront the challenges of climate change and sustainable development. In Hong Kong, this commitment has been further reinforced by recent policy initiatives. In 2024, the Hong Kong SAR Government initiated "The Strategy of Hydrogen Development in Hong Kong", marking a significant milestone in advancing clean energy adoption. Moreover, last year, the Chief Executive's Policy Address emphasised the creation of a "Green and Low-carbon Living Environment" and explicitly outlined the vision to develop Hong Kong into a "Demonstration Base for Green Technology". These strategic directions provide strong momentum for innovation, research, and cross-sector collaboration for us.



Against this backdrop, artificial intelligence is rapidly reshaping the landscape of scientific research and technological development. The integration of AI with carbon-free energy technologies offers unprecedented opportunities to enhance efficiency, optimise system performance, and accelerate the transition toward sustainable energy utilisation. PolyU is firmly committed to advancing the development and application of artificial intelligence, while actively promoting carbon-neutrality research and initiatives. Through interdisciplinary research, close collaboration with industry, and engagement with global partners, the University strives to translate innovative ideas into impactful solutions for a sustainable future.

This conference brings together leading researchers and industrial practitioners to share insights, explore emerging technologies, and foster meaningful collaborations between Hong Kong and Mainland China. At last, I would like to express my sincere appreciation to the organising committee, supporting organisations, and all participants for their contributions to this event. I wish you a stimulating, productive, and successful conference.

Professor Christopher Chao
Senior Vice President (Research and Innovation)
Conference Chair
The Hong Kong Polytechnic University

趙汝恆教授
高級副校長（研究及創新）
會議主席
香港理工大學

WELCOME MESSAGES

Dear colleagues:

On behalf of the organising committee, it is our great honour and pleasure to welcome you to the “Carbon-Free Energy Utilisation Empowered by AI” conference, funded by the NSFC/RGC Joint Research Scheme. We are privileged to gather such a distinguished group of researchers, all



united by a common focus: to tackle the urgent global challenge of zero-carbon energy utilisation with artificial intelligence (AI).

The strategic goals and ambitious targets set forth in both Mainland China and Hong Kong reflect a broader global imperative—the transition to clean energy systems is not merely an option, but an existential necessity. Central to this transition are zero-carbon fuels, which offer practical pathways to decarbonise power generation, industrial processes, and mobility. Concurrently, the rapid evolution of AI has emerged as a powerful catalyst, capable of accelerating scientific discovery, optimising complex energy systems, and unlocking efficiencies that were once beyond reach. This convergence of energy innovation and AI defines the core theme of our gathering.

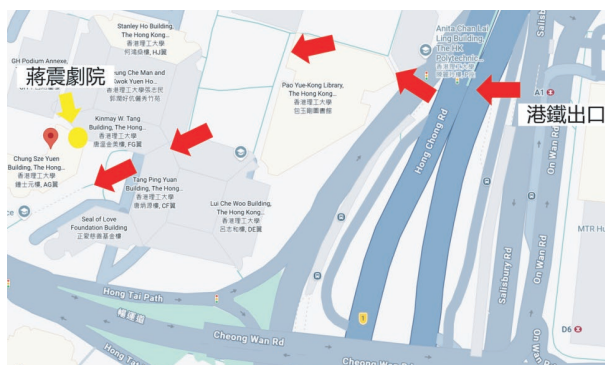
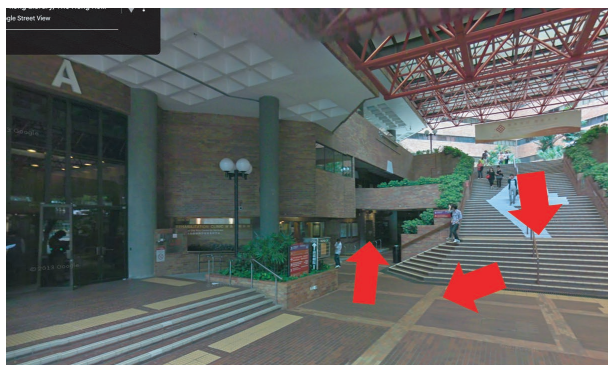
Importantly, this conference is designed to build bridges—between Mainland China and Hong Kong, and between different disciplines of scholars. We place special emphasis on engaging young researchers, whose vision, creativity, and expertise in emerging technologies will drive the energy transition forward in the decades to come. We hope that this forum will inspire new partnerships, mentor emerging talent, and spark ideas that contribute to a sustainable and intelligent energy future.

We encourage you to participate actively, share your perspectives, and connect with peers across fields and backgrounds. Let us make this conference not only a platform for knowledge exchange but also a catalyst for actionable progress toward a cleaner, greener, and more resilient world. Thank you for your commitment to this vital endeavor, and we wish you all a productive, insightful, and memorable conference.

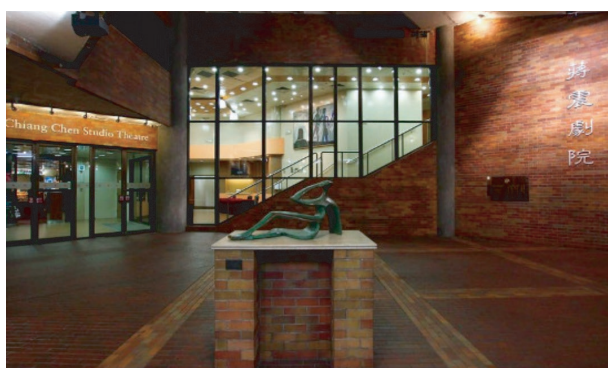
Professor Chih-yung Wen and Professor Fei Qi
Steering Co-Chairs of the Conference Organising Committee



VENUE / 會議場地 蔣震劇院



从大门直接进入



地址：

蔣震劇院（靠近香港理工大學A Core）

網上註冊地址：

<https://events.polyu.edu.hk/carbonfreeconference>

PROGRAMME / 會議日程

Day 1 (07 February 2026)		
Speakers	Time	Presentation topic
N/A	08:30-09:00	Registration
Christopher Chao 趙汝恒	09:00-09:15	Opening Remarks by the Conference Chair, Senior Vice President (Research and Innovation) of the Hong Kong Polytechnic University
Chih-yung Wen 溫志湧	09:15-09:25	Welcome Message by the Steering Committee Co-Chair
Group photo		
Zheng Chen 陳 正	09:40-10:00	AI-driven kinetic models for zero-carbon fuels
Zhuyin Ren 任祝寅	10:00-10:20	Development of hydrogen gas turbines empowered by AI
Kun Luo 羅 坤	10:20-10:40	The role of high-fidelity simulations and artificial intelligence methods in under- standing and modeling
Bin Yang 楊 斌	10:40-11:00	Development of reaction mechanisms of zero-carbon fuel oxidation via AI tools
Fei Qi 齊 飛	11:00-11:20	Diagnostics for clean combustion and energy applications: New horizons and beyond
Jeffrey Hung 洪藹誠	11:20-11:40	How AI can accelerate the decarbonisation journey



PROGRAMME / 會議日程

Free discussion & Lunch		
Meng Ni 倪 萌	14:30-14:50	AI-empowered material discovery for the development of solid oxide cells
Minhua Shao 邵敏華	14:50-15:10	Development of hydrogen fuel cells
Chi-sun Poon 潘智生	15:10-15:30	Net zero concrete: Pathways to sustainable construction
Chih-yung Wen 溫志湧	15:30-15:50	AI-empowered fan-array system control for a sustainable data center
Guanxiong Wang 王冠雄	15:50-16:10	Integrated hydrogen energy across the full value chain (Production–Storage–Transport–Utilisation): System Integration and Key Technologies
Free discussion		
Lab tour	16:30-17:10	Aviation Services Research Centre
Lab tour	17:30-18:00	Aviation Engineering Laboratory
Dinner		

PROGRAMME / 會議日程

Day 2 (08 February 2026)		
Speakers	Time	Presentation topic
Chenglong Tang 湯成龍	09:30-09:45	On screening the green hypergolic propellants
Liang An 安 亮	09:45-10:00	Electricity generation using liquid fuel cells
David Hung 孔令遜	10:00-10:15	Applications and challenges of AI in fuel injection systems
Xinyan Huang 黃鑫炎	10:15-10:30	Smart safety for battery energy storage system
Zhi Chen 陳 熾	10:30-10:45	Towards unified benchmarking for machine learning of reactive multiphysics flows
Wei Ren 任 偉	10:45-11:00	Development of novel laser-based diagnostic methods for fast and in situ analysis of zero-carbon fuel products
Yu Wang 王 宇	11:00-11:15	Simultaneous measurement of NO and NH ₃ in ultra-high humidity flue gases from ammonia combustion
Peng Zhang 張 鵬	11:15-11:30	Multiple-dimensional fuzzy modeling of droplet collision for Eulerian-Lagrangian simulation of spray combustion
Free discussion & Lunch		
Jingxuan Li 李敬軒	14:00-14:15	Recent progress in the prediction, control, and measurement of thermoacoustic instabilities



PROGRAMME / 會議日程

Mung-jung Li 李孟蓉	14:15-14:30	Ammonia-powered energy station: System integration and process validation through IoT infrastructure
Jun Li 李 軍	14:30-14:45	Effects of ammonia-diesel spray interaction on mixture formation characteristics under engine conditions
Song Cheng 成 松	14:45-15:00	Reconstruction of real-fluid thermo-physical properties and redefining high-pressure fundamental combustion modeling
Qiang An 安 強	15:00-15:15	Optical diagnostics for gas turbine combustion and AI-empowered data processing
Xi Xia 夏 溪	15:15-15:30	Application of the Fourier Neural Operator in unsteady combustion
Yu Guan 關 昱	15:30-15:45	Data-driven prediction for hydrogen-enriched flame dynamics and thermoacoustic behaviour
Fei Qi 齊 飛	15:45-15:55	Closing Remarks by the Steering Committee Co-Chair
Tea break & Free discussion		

ORGANISING COMMITTEE / 會議組織機構

會議主席 Conference Chair	趙汝恒 高級副校長（研究及創新），香港理工大學	
程序主席 Steering Co-Chairs	溫志湧 香港理工大學	齊 飛 上海交通大學
執行主席 Organising Co-Chairs	關 昱 香港理工大學	夏 溪 上海交通大學
組委會成員 Organising Committees	黃詠恩（香港理工大學） 郝佳傲（香港理工大學） 黃鑫炎（香港理工大學） 成 松（香港理工大學） 王 冰（香港理工大學） 楊曉鋒（香港理工大學） 孔令遜（上海交通大學） 顧明明（上海交通大學） 王國情（上海交通大學） 徐亮亮（上海交通大學）	



AI-DRIVEN KINETIC MODELS FOR ZERO-CARBON FUELS

Zheng Chen Peking University

Biography:

Dr. Zheng Chen is currently a Bo-Ya professor at Peking University. He received his bachelor and master degrees from Tsinghua University, and Ph.D. degree from Princeton University. His research focuses on the flame dynamics of fundamental combustion processes. Combining theoretical analysis, numerical simulation, and experiment measurement, he has worked on challenging problems on ignition theory, accurate laminar flame speed measurement, deflagration-to-detonation transition, and detonation engines. He was awarded the Bernard Lewis Fellowship and Hiroshi Tsuju Early Career Researcher Award from the Combustion Institute, and the Young Investigator Prize from Asian-Pacific Conference on Combustion. He also received the Distinguished Paper Award of the 39th International Symposium on Combustion. He is a fellow of the Combustion Institute, and is currently on the Board of Directors of the Combustion Institute and the Institute for Dynamics of Explosions and Reactive Systems. He serves as the associate editor of Combustion and Flame.



个人简介：

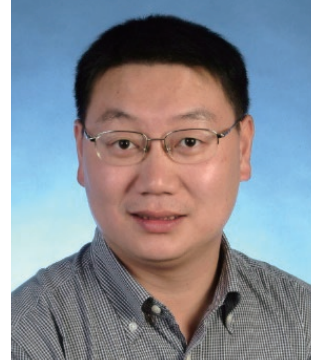
陈正，北京大学工学院博雅特聘教授，博士生导师。先后在清华大学获得学士和硕士学位、在普林斯顿大学获博士学位。博士毕业后到北京大学工作，从事与能源和推进技术相关的基础燃烧研究，主要研究方向为燃烧火焰动力学，研究内容包括火焰动力学理论、燃料基础燃烧特性、极限燃烧、缓燃转爆轰、爆轰发动机等。曾获得国际燃烧学会Hiroshi Tsuju Early Career Researcher Award和第39届国际燃烧会议杰出论文奖，以及第十六届中国力学学会青年科技奖，入选国际燃烧学会会士。目前担任Combustion and Flame副主编和国际燃烧学会执行委员会委员。

DEVELOPMENT OF HYDROGEN GAS TURBINES EMPOWERED BY AI

Zhuyin Ren Tsinghua University

Biography:

Dr. Zhuyin Ren received his Ph.D. in Mechanical Engineering from Cornell University and has been a Professor at Tsinghua University since 2013. His research interests include turbulent combustion modeling, uncertainty quantification, and carbon-neutral energy and propulsion systems. Dr. Ren has published over 150 SCI papers, and is a Fellow of the Combustion Institute, Associate Fellow of AIAA. Currently he serves as an associate editor of Journal of Propulsion and Power and an editorial member of Combustion Theory and Modelling.



个人简介:

任祝寅，清华大学长聘教授，康奈尔大学机械工程博士。主要研究领域为湍流燃烧建模、仿真不确定性分析、和零碳能源和推进系统。已在能源动力期刊上发表SCI论文150余篇，是国际燃烧学会会士和美国航空航天学会副会士。现担任AIAA J. Propul. Power 副主编和 Combust. Theory Modelling编委。



THE ROLE OF HIGH-FIDELITY SIMULATIONS AND ARTIFICIAL INTELLIGENCE METHODS IN UNDERSTANDING AND MODELING

Kun Luo Zhejiang University

Biography:

Kun Luo is a distinguished professor at State Key Laboratory of Clean Energy Utilization, and serves as the dean of the School of Energy Engineering of Zhejiang University. He obtained his PhD degree from Zhejiang University in 2005. After completing the postdoc fellowship in Center of Turbulence Research in Stanford, he became a Full professor at Zhejiang University since 2011. He is currently a Fellow of the Combustion Institute and a recipient of National Science Fund for Distinguished Young Scholars, Science Xplorer Award from Tencent, First Prize of Natural Science Award of Ministry of Education, and Distinguish Paper Award of the 33rd International Symposium on Combustion. He is also selected as one of Elsevier's "Highly Cited Scholars in China". His research interests are broadly on the understanding and modeling of multiphase reacting flow, including gaseous, solid, and spray flames, using high-fidelity numerical approaches, focusing on direct numerical simulation and large eddy simulation using advanced combustion models, such as direct moment and flamelet models. His recent research work also aims to develop efficient and parametric combustion modeling methods using artificial intelligence methods, such as the pioneering work of extending the physics-informed neural networks approach to solving complicated turbulent combustion physics.



个人简介:

罗坤，浙江大学能源工程学院院长，清洁能源利用国家重点实验室教授。2005年获浙江大学博士学位，于斯坦福大学湍流研究中心开展博士后研究，2011年晋升为教授。现任国际燃烧学会会士，先后获国家杰出青年科学基金、腾讯“科学探索奖”、教育部自然科学一等奖及第33届国际燃烧会议杰出论文奖，并入选爱思唯尔“中国高被引学者”。其研究聚焦多相反应流动的机理与建模，涵盖气相、固相及喷雾燃烧，采用高精度数值模拟方法，重点发展基于直接矩模型和火焰面模型的直接数值模拟与大涡模拟；近期致力于运用人工智能方法，率先将物理信息神经网络应用于复杂湍流燃烧物理求解，开发高效参数化燃烧模型。

DEVELOPMENT OF REACTION MECHANISMS OF ZERO-CARBON FUEL OXIDATION VIA AI TOOLS

Bin Yang Tsinghua University

Biography:

Dr. Bin Yang is a Professor at the Center for Combustion Energy and the Department of Energy and Power Engineering, Tsinghua University. He is a recipient of the National Science Fund for Distinguished Young Scholars and currently serves as a board member of the Combustion Institute, Editor-in-Chief of Applications in Energy and Combustion Science, and an elected Fellow of the Combustion Institute. His research focuses on theoretical and technological aspects of combustion chemistry, fuel design, and the intelligent construction of combustion reaction kinetic models. He has been honored with the Second Prize of the Chinese National Award for Natural Sciences and the Research Excellence Award from the Combustion Institute, and was invited to deliver a keynote lecture at the 38th International Symposium on Combustion.



个人简介：

杨斌，清华大学燃烧能源中心/能源与动力工程系教授，国家杰出青年科学基金获得者。曾在康奈尔大学、普林斯顿大学、南加州大学和桑迪亚国家实验室从事化石燃料及新型生物燃料的燃烧反应动力学研究。现任国际燃烧学会理事、能源与燃烧科学应用期刊主编，并当选为国际燃烧学会会士。他长期致力于燃烧化学理论及技术、燃料设计与燃烧反应动力学模型智能构建等方向的研究工作，曾荣获国家自然科学基金二等奖及燃烧学会研究卓越奖，并受邀在第38届国际燃烧会议上作大会特邀报告。



DIAGNOSTICS FOR CLEAN COMBUSTION AND ENERGY APPLICATIONS: NEW HORIZONS AND BEYOND

Fei Qi Shanghai Jiao Tong University

Biography:

Fei Qi is a Chair professor at Shanghai Jiao Tong University (SJTU). He has co-authored more than 350 peer-reviewed journal papers. He was elected as a fellow of American Physical Society in 2012, a fellow of the Combustion Institute in 2018. He is a recipient of the National Award for Natural Sciences of China in 2018 and the Humboldt Research Award in 2021. He gave a plenary lecture on the 34th International Symposium on Combustion in 2012. He was a Program Co-Chair of the 38th International Symposium on Combustion. He is co-Editor-in-Chief of Applications in Energy and Combustion Science (2019-2025) and Proceedings of the Combustion Institute (2025-).



个人简介:

齐飞，上海交通大学讲席教授，主要从事燃烧诊断、燃烧反应动力学和燃烧不稳定性研究，发表SCI论文360余篇，出版专著《燃烧诊断学》和《燃烧反应动力学》。他于2012年当选美国物理学会会士，2018年当选首批国际燃烧学会会士，2018年获国家自然科学基金二等奖，2021年获德国洪堡研究奖；2012年在第34届国际燃烧会议上作1小时大会特邀报告，任第38届国际燃烧会议大会主席、Applications in Energy and Combustion Science (2019-2025)和Proceedings of the Combustion Institute (2025-)期刊主编。

HOW AI CAN ACCELERATE THE DECARBONISATION JOURNEY

Jeffrey Hung Friends of the Earth

Biography:

Dr. Jeffrey Hung holds a PhD in Environmental Science and currently serves as the Chief Policy Research Officer at Friends of the Earth (HK). He has made substantial contributions to public service through his involvement in various government committees, including the Energy Advisory Committee, the Country and Marine Parks Board, the Community Involvement Committee on Greening, the Working Group for the Review of Air Quality Objectives, and the Harbourfront Commission. Dr. Hung has successfully led numerous initiatives to advance policy reform, promote environmental awareness, and strengthen community engagement.



个人简介：

洪藹誠博士擁有環境科學博士學位，現任香港地球之友首席政策研究員。他積極參與多個政府委員會的工作，為公眾服務作出了卓越貢獻，包括能源諮詢委員會、郊野公園及海岸公園委員會、社區參與綠化委員會、空氣質素指標檢討工作小組，以及海濱事務委員會。洪博士成功領導多項旨在推動政策改革、提升公眾環保意識及加強社區參與的項目。



AI-EMPOWERED MATERIAL DISCOVERY FOR THE DEVELOPMENT OF SOLID OXIDE CELLS

Meng Ni The Hong Kong Polytechnic University

Biography:

Prof. Meng Ni received his PhD from University of Hong Kong in 2007 and received the Hong Kong Young Scientist Award in the same year. He joined The Hong Kong Polytechnic University as an Assistant Professor in 2009. Currently, he is a Chair Professor of Energy Science and Technology, Associate Dean (Research) of Faculty of Construction and Environment, and Head of Department of Building Environment and Energy Engineering. He is a Humboldt Fellow, RGC Senior Research Fellow, and a highly cited researcher in 2025. His research focuses on high temperature solid oxide fuel cells, electrolyzers including modelling and new materials development, metal-air batteries and low-grade heat utilization. He is a Co-Editor-in-Chief of Energy Reviews (Elsevier) and a Senior Editor of Sustainable Energy Technologies and Assessments (Elsevier).



个人简介:

倪萌教授2007年于香港大學獲得博士學位，同年獲得香港青年科學家獎。倪萌教授于2009年加入香港理工大學，目前為香港理工大學能源科學與技術講席教授（Chair Professor），建設及環境學院副院長，德國洪堡學者，香港研究資助局（RGC）高級研究學者（Senior Research Fellow），2025高被引學者。倪萌教授的研究主要包括高溫固體氧化物燃料電池和電解池的模擬分析和新材料開發，金屬-空氣電池和低溫餘熱利用。倪萌教授目前擔任Energy Reviews（Elsevier）聯合主編，Sustainable Energy Technologies and Assessments (Elsevier)高級編輯。

DEVELOPMENT OF HYDROGEN FUEL CELLS

Minhua Shao The Hong Kong University of Science and Technology

Biography:

Minhua Shao is the Cheong Ying Chan Professor of Energy Engineering and Environment, Head and Chair Professor in the Department of Chemical and Biological Engineering at the Hong Kong University of Science and Technology (HKUST). He is also the Director of the HKUST Energy Institute. He earned BS and MS degrees in Chemistry from Xiamen University, and a PhD degree in Materials Science and Engineering from the State University of New York at Stony Brook. Dr. Shao joined UTC Power in 2007 leading the development of advanced electrocatalysts for fuel cells, and was promoted to UTC Technical Fellow in 2012. In 2013, he joined Ford Motor Company to conduct research on lithium-ion batteries. He then joined HKUST in 2014. He is the Technical Editor of Journal of the Electrochemical Society and Associate Editor of Applied Catalysis B: Environment and Energy. He is one of the founding members of Young Academy of Science of Hong Kong and Fellow of the Electrochemical Society. He is currently the Chair of the Energy Technology Division of the Electrochemical Society.



个人简介:

邵敏华是香港科技大学张英灿工程及环境学系冠名教授，化学和生物工程学系系主任和讲座教授，能源研究院院长。邵教授于厦门大学获得学士和硕士学位，2006年在纽约州立大学石溪分校获得材料科学与工程博士学位，2007年加入联合技术动力公司（UTC Power），担任资深研究员和技术总监。2013年在福特汽车公司担任电动车资深工程师。2014年起加盟香港科技大学。邵教授是香港青年科学院创始成员之一，美国电化学学会会士及能源技术部主席，Journal of The Electrochemical Society 技术主编和Applied Catalysis B: Environment and Energy 副主编。他现为美国电化学会能源技术分会主席。



NET ZERO CONCRETE: PATHWAYS TO SUSTAINABLE CONSTRUCTION

Chi Sun POON The Hong Kong Polytechnic University

Biography:

Ir Prof. Chi Sun POON is currently the Michael Anson Professor in Civil Engineering and Distinguished Research Professor in the Department of Civil and Environmental Engineering, and Director of Research Centre for Resources Engineering towards Carbon Neutrality, The Hong Kong Polytechnic University. He is also one of the Directors of PolyU-NAMI 3D Concrete Robotic Printing Research Centre. He was awarded the title of Changjiang Chair Professor by the Ministry of Education in 2017. Ir Prof. Poon specialises in the research and development of environmentally friendly construction materials, waste management, waste recycling technologies, concrete technologies and sustainable construction. He has been listed among the World's Top 2% Scientists released by Stanford University and ranked 6th globally in the field of Building and Construction. Ir Prof. Poon has been an Editor of Construction and Building Materials from 2014 to 2024. He has also been an Editorial Board Member of Cement and Concrete Composites since 2017. He has published over 500 papers in international journals. He has obtained more than 20 patents related to concrete and waste recycling technologies. He was awarded the State Technological Innovation Award 2017 (2nd Class).



个人简介：

潘智生教授工程師現任香港理工大學土木及環境工程學系安禮信土木工程教授、傑出研究教授，以及碳中和資源工程研究中心主任。他亦是理大納米3D混凝土打印研究中心的總監之一。在2017年獲國家教育部頒與長江講座教授。潘教授工程師專長於環保建築材料、廢棄物管理、廢棄物回收技術、混凝土技術及永續建築的研發。入選史丹佛大學發布的全球前2%科學家，在建築領域排名全球第六。潘教授工程師自2014年至2024年擔任國際期刊Construction and Building Materials的編輯。自2017年起，他還擔任國際期刊Cement and Concrete Composites的編委。他在國際期刊上發表了超過500篇論文。他已獲得20多項與混凝土和廢棄物回收技術相關的專利。並曾榮獲2017年度國家技術發明獎二等獎。

AI-EMPOWERED FAN-ARRAY SYSTEM CONTROL FOR A SUSTAINABLE DATA CENTER

Chih-Yung Wen The Hong Kong Polytechnic University

Biography:

Professor Chih-Yung Wen obtained his Master of Science and Doctor of Philosophy degrees from the Department of Aeronautics at the California Institute of Technology (Caltech), U.S.A., in 1989 and 1994, respectively. He subsequently held positions, including Head of Department and Provost, at several universities. In August 2012, Professor Wen joined the Department of Mechanical Engineering at The Hong Kong Polytechnic University. He is currently the Chair Professor of Aeronautical Engineering in the Department of Aeronautical and Aviation Engineering, and also serves as the Director of the COMAC–PolyU Research Institute for Large Aircraft (RILA), Director of the Research Centre for Unmanned Autonomous Systems (RCUAS), Associate Director of Research Institute for Sports Science and Technology (RISports), and a core member of the Research Centre for Low Altitude Economy (RCLAE). He has published or co-authored over 300 scientific works, including journal articles, conference proceedings, and four monographs, and has received multiple international honours and patents. He has been listed among the world's top 2% most-cited scientists for several consecutive years. Professor Wen is a Fellow of the Royal Aeronautical Society (UK), the American Society of Mechanical Engineers, the Hong Kong Institution of Engineers, and an Associate Fellow of the American Institute of Aeronautics and Astronautics. Professor Wen actively participates in professional and academic activities related to mechanical and aerospace engineering, and has led several national key laboratory open fund projects, including those at the State Key Laboratory of High-Temperature Gas Dynamics (Chinese Academy of Sciences), the State Key Laboratory of Explosion Science and Safety Protection (Beijing Institute of Technology), and the Key Laboratory of Liquid Engine Technology (Xi'an Aerospace Propulsion Institute). He has also been invited multiple times to participate in science and technology policy consultations, including the Low-altitude Economy Regulatory Sandbox (Sandbox) project by the Hong Kong SAR Government.



个人简介：

溫志湧教授於1989年及1994年在美國加州理工學院航空工程學系分別取得理學碩士及哲學博士學位，其後於多所高校擔任系主任、教務長等職務。溫教授於2012年8月加入香港理工大學機械工程學系，現任航空及民航工程學系航空工程講座教授，並兼任中國商飛－香港理工大學大飛機研究院院長、無人自主系統研究中心主任，以及體育科技研究院副院長、低空經濟研究中心核心成員。他已發表或合著超過三百篇科學出版物，包括期刊論文、會議論文集及四部專著，獲多項國際榮譽及專利，連續多年入選全球前2%高被引科學家。他是英國皇家航空學會、美國機械工程師學會、香港工程師學會會士及美國航空航天學會副院士。溫教授積極參與機械與航空航天工程領域相關專業與學術活動，主持多項國家重點實驗室開放基金項目，包括中科院力學所高溫氣體動力學國家重點實驗室、北理工爆炸科學與安全防護全國重點實驗室、西安航天動力研究所液體發動機技術重點實驗室。溫志湧教授亦多次受邀參與科技政策諮詢，包括香港特區政府低空經濟「監管沙盒」項目。



INTEGRATED HYDROGEN ENERGY ACROSS THE FULL VALUE CHAIN (PRODUCTION-STORAGE-TRANSPORT-UTILISATION): SYSTEM INTEGRATION AND KEY TECHNOLOGIES

Guanxiong Wang

Shenzhen Academy of Aerospace Technology
Academy of Aerospace Propulsion Technology

Biography:

Guanxiong Wang, Research Fellow, is the Director of the Hydrogen Energy R&D Center at the Shenzhen Academy of Aerospace Technology. He also serves as an industry mentor for professional-degree graduate programs at the University of Science and Technology of China (USTC) and the Southern University of Science and Technology (SUSTech). His research focuses on electrocatalysis and membrane electrode assembly (MEA) key materials and their engineering applications. He has 15 years of experience in the development and manufacturing of fuel-cell and water-electrolysis hydrogen production equipment, with internationally leading expertise in MEA fabrication, structural regulation, and comprehensive performance testing and evaluation. He has led and contributed to multiple national and provincial/ministerial hydrogen R&D and industrialization projects, advancing technology transfer and demonstration deployment. To date, he has published 30+ peer-reviewed papers, filed 15 invention patents, co-authored one professional book in membrane science and technology, and serves as a reviewer and arbitrator for high-impact journals such as Energy & Environmental Science and Journal of Materials Chemistry A.



个人简介:

王冠雄研究员现任深圳航天科技创新研究院氢能研发中心主任，兼任中国科学技术大学专业学位实践导师、南方科技大学专业学位研究生业界导师。研究方向聚焦电催化与膜电极（MEA）关键材料及工程化应用，拥有15年燃料电池与电解水制氢装备研发和生产经验，掌握国际领先的膜电极制备、结构调控与测试评价技术。主持/参与多项国家及省部级项目，推动成果转化与示范应用。已发表论文30余篇、申请发明专利15项，参编专业书籍1部，并担任 E&ES、JMCA 等期刊审稿与仲裁专家。

ON SCREENING THE GREEN HYPERGOLIC PROPELLANTS

Chenglong Tang Xi'an Jiaotong University

Biography:

Dr. Chenglong Tang is a Professor in the School of Energy and Power Engineering in Xi'an Jiaotong University. He joined Xi'an Jiaotong University in 2011 after he received his PhD degree in Power Engineering and Engineering Thermophysics in the same year. He has been working as a research collaborator in Princeton University from 2009 to 2011. His research interests include spray and mixture formation, spray and droplet combustion, combustion chemistry, new concept propulsion and reactive flows in internal-, aero-, and rocket-engines. His research has received 5 consecutive National Natural Science Foundation of China support, including one Key and one Excellent Youth Foundation. He is now the author/co-author of more than 150 publications with an H index of 44 in J Fluid Mech, Phys Fluids, Combust Flame, Proc Combust Inst, etc. Dr. Tang is now a member of Combustion Section Committee, Chinese Society of Engineering Thermophysics and a member of technique committee of the micro-gravity combustion office, Chinese Space Science and Application Center. He also serves as member of editorial board for Atomization and Sprays, Energetic Materials (in Chinese), and has given invited lectures at over 10 national/international conferences.



个人简介:

汤成龙，西安交通大学能源与动力工程学院教授，博士生导师。2011年获西安交通大学动力工程及工程热物理专业博士学位后留校任教。主要从事动力装置燃烧过程化学反应流基础研究。主持国家自然科学基金重点、优青、重大研究计划培育等基金项目5项，军口国家级项目5项；在流体力学和燃烧领域期刊J Fluid Mech, Combust Flame, 《含能材料》等发表论文150余篇，H因子44，授权发明专利20余项，爱思唯尔中国高被引学者。获国家自然科学基金二等奖，中国内燃机学会自然科学一等奖，“史绍熙人才奖”，“仲英青年学者”等奖励或荣誉，任职中国工程热物理学会燃烧学分会委员、国防科技工业动力系统专业标准化技术委员、载人航天工程空间科学与应用中心微重力燃烧科学专家组专家、Atom and Sprays、《含能材料》等期刊编委或青年编委等。



ELECTRICITY GENERATION USING LIQUID FUEL CELLS

Liang An The Hong Kong Polytechnic University

Biography:

Liang An is a recipient of the NSFC Outstanding Young Scholars (Hong Kong and Macau) and a Fellow of the Royal Society of Chemistry (RSC). He obtained his B.Eng. in Thermal Energy and Power Engineering from Harbin Institute of Technology in 2008 and his Ph.D. in Mechanical Engineering from the Hong Kong University of Science and Technology in 2012. Since 2015, he has been serving as Assistant Professor/Associate Professor in the Department of Mechanical Engineering at the Hong Kong Polytechnic University. His research focuses on fundamental and applied studies of new energy power generation and storage technologies. He has published over 200 SCI-indexed papers and edited four academic monographs on new energy. Currently, he serves as Editor-in-Chief of Future Batteries, Editor of International Communications in Heat and Mass Transfer, Associate Editor of Journal of Energy Storage, and Associate Editor of HKIE Transactions. He also previously served as Topic Editor for Applied Thermal Engineering (2022–2025). He has led multiple research projects funded by NSFC and RGC.



个人简介:

安亮，国家优秀青年科学基金（港澳）获得者，英国皇家化学学会（RSC）会士，2008年获哈尔滨工业大学热能与动力工程学士学位，2012年获香港科技大学机械工程博士学位，2015年至今于香港理工大学机械工程学系任助理教授/副教授。主要从事新能源发电与储存技术的基础与应用研究，已发表SCI论文200余篇。主编新能源学术专著4部，目前还担任国际期刊《Future Batteries》主编，《International Communications in Heat and Mass Transfer》编辑，《Journal of Energy Storage》副编辑，《HKIE Transactions》副编辑，并曾担任《Applied Thermal Engineering》主题编辑（2022年-2025年）。主持多项国家自然科学基金委与香港研究资助局研究课题。

APPLICATIONS AND CHALLENGES OF AI IN FUEL INJECTION SYSTEMS

David Hung

Shanghai Jiao Tong University

Biography:

Professor David Hung is an Associate Dean and full Professor at the Global College of Shanghai Jiao Tong University. He focuses his research in the fields of engineering thermophysics, energy, and power systems, with research directions centered on the development, testing, and analysis of optical diagnostics, machine learning methods for fuel sprays analysis. He has published extensively in renowned journals such as Nature Physics, Energy, Progress in Energy and Combustion Science, Applied Thermal Engineering, and International Journal of Heat and Mass Transfer. Currently, he serves as the Editor-in-Chief for the Asia region of the journal Atomization and Sprays (the flagship journal of the International Council of Liquid Atomization and Spray). He has served as a core voting member of the SAE (Society of Automotive Engineers) Gasoline Fuel Injection Standards Committee, was elected as a SAE Fellow, and was appointed as a Distinguished Visiting Fellow at the University of Oxford. He received his PhD in mechanical engineering from Carnegie Mellon University.



个人简介:

孔令逊是上海交通大学浦江国际学院副院长，长聘教授，博士生导师。长期研究聚焦于工程热物理、能源及动力系统领域，研究方向集中于燃油喷雾光学诊断的开发、测试与分析，燃料喷雾的机器学习技术与方法。已在《Nature Physics》《Energy》《Progress in Energy and Combustion Science》《Applied Thermal Engineering》《International Journal of Heat and Mass Transfer》等知名期刊发表多篇论文。目前他担任《Atomization and Sprays》期刊（国际液体雾化和喷雾协会的旗舰期刊）亚洲区主编。他曾担任国际汽车工程师协会（SAE）汽油燃油喷射标准委员会核心投票成员，当选为SAE会士，并曾被任命为牛津大学杰出访问研究员。他于卡内基梅隆大学获得机械工程博士学位。



SMART SAFETY FOR BATTERY ENERGY STORAGE SYSTEM

Xinyan Huang The Hong Kong Polytechnic University

Biography:

Prof. Xinyan Huang is an Associate Professor at Dept of Building Environment and Energy Engineering, The Hong Kong Polytechnic University. He received his PhD from Imperial College London and was a Postdoc at the University of California, Berkeley. Prof. Huang is a Combustion Scientist and a Fire Safety Engineer who has co-authored over 200 journal papers and reviewed over 80 journals. He is an Associate Editor of *Proc. Combust. Inst.*, *Fire Technology* and *International Journal of Wildland Fire*, and a board member of Int. Association of Fire Safety Science (IAFSS) and the Int. Association of Wildland Fire (IAWF). He is a winner of the NSFC Excellent Young Scientists Fund, Bernard Lewis Fellowship and Sugden Best Paper Award from Combustion Institute and Institute of Physics, and Early Career Award from IAFSS.



个人简介：

黄鑫炎博士是香港理工大学建筑环境及能源工程系副教授，英国帝国理工博士，美国加州大学伯克利博士后。主要研究领域涉及基础燃烧科学和火灾安全应用，发表了200余篇SCI论文，并担任80多本国际期刊的审稿人。黄教授担任 *Proc. Combust. Inst.*, *Fire Technology* 和 *Intl. J. Wildland Fire* 副主编、国际火灾学会和国际林火学会理事；承担国家优秀青年科学基金；获得国际燃烧学会伯纳德-刘易斯学者、英国物理学会和燃烧学会最佳论文奖、国际火灾学会杰出青年科学家奖等。

TOWARDS UNIFIED BENCHMARKING FOR MACHINE LEARNING OF REACTIVE MULTIPHYSICS FLOWS

Zhi X. Chen Peking University

Biography:

Dr. Zhi X. Chen is an Assistant Professor in the School of Mechanics and Engineering Science at Peking University, and the Deputy Director of AI for Science Institute, Beijing. He received his B.S. from Huazhong University of Science and Technology in 2012 and Ph.D. from University of Cambridge in 2017. His research interests include turbulent combustion, computational fluid dynamics, machine learning, high-performance computing, and their interdisciplinary areas. He has published over 60 peer-reviewed research articles. Before joining Peking University, Zhi was a Fellow of Robinson College at University of Cambridge. He received a number of awards including the Exceptional Talent of the Royal Academy of Engineering in 2019, the Bernard Lewis Fellowship from the Combustion Institute in 2020, and the Best Supercomputing Application Award of China Computer Federation in 2025.



个人简介：

陈帜，北京大学力学与工程科学学院助理教授、研究员、博士生导师，北京科学智能研究院副院长。2012年获华中科技大学学士学位，2017年获剑桥大学博士学位。研究方向为湍流燃烧、计算流体力学、机器学习、高性能计算以及AI for Science等多学科交叉领域。发表SCI论文60余篇，入选国家青年拔尖人才、剑桥大学Robinson College终身荣誉会士。曾获英国皇家工程院Exceptional Talent奖、国际燃烧学会Bernard Lewis Fellowship奖，中国计算机学会超算最佳应用奖。



DEVELOPMENT OF NOVEL LASER-BASED DIAGNOSTIC METHODS FOR FAST AND IN SITU ANALYSIS OF ZERO-CARBON FUEL PRODUCTS

Wei Ren The Chinese University of Hong Kong

Biography:

Wei Ren is a Professor in the Department of Mechanical and Automation Engineering at The Chinese University of Hong Kong, where he also serves as the Assistant Dean in the Faculty of Engineering and the Director of the Energy and Environmental Engineering Programme. He earned his B.S. degree from Tsinghua University in 2006 and completed his Ph.D. in Mechanical Engineering at Stanford University in 2013. Prof. Ren's research has led to over 150 peer-reviewed journal publications, focusing on optical sensing, laser spectroscopy, and combustion diagnostics. He is currently the co-editor of Applied Physics B, a senior editor for PhotonIX, an editorial board member of The Innovation Energy. Prof. Ren is the vice chairman of the Laser Spectroscopy Committee of the Chinese Optical Society, and a member of the Combustion Branch of the Chinese Society of Engineering Thermophysics.



个人简介：

任伟，博士生导师，目前为香港中文大学机械与自动化工程系教授、工程学院助理院长。2006年本科毕业于清华大学精密仪器与机械学系，2013年博士毕业于斯坦福大学机械工程系。面向能源和环境领域的重大需求，深入开展新型激光光谱、光纤传感、以及燃烧诊断方法及应用研究，主持包括科技部重点研发计划、国家自然科学基金青年科学基金（B类）、香港研究资助局、香港创新科技署等科研项目30余项，在Progress of Energy and Combustion Research、Nature Communications等学术期刊发表论文150余篇，申请及授权国内外专利20余项。担任国际期刊Applied Physics B和PhotonIX副主编、The Innovation Energy编委，中国光学学会激光光谱学专委会副主任委员，中国工程热物理学会燃烧分会委员。

SIMULTANEOUS MEASUREMENT OF NO AND NH₃ IN ULTRA-HIGH HUMIDITY FLUE GASES FROM AMMONIA COMBUSTION

Yu Wang Wuhan University of Technology

Biography:

Yu Wang is a Professor at the School of Automotive Engineering, Wuhan University of Technology, and serves as the Director of the Zero-Carbon Combustion Center at Foshan Xianhu Laboratory. He received his PhD degree in 2013 from the Clean Combustion Research Center (CCRC) at King Abdullah University of Science and Technology (KAUST), his Master's degree in 2009 from Tsinghua University, and his Bachelor's degree in 2006 from Wuhan University of Technology. His main research interests focus on carbon-neutral fuels, ammonia/hydrogen zero carbon combustion, soot and NO_x formation and control, and laser-based combustion diagnostics. He has led more than 20 research projects, including those funded by the National Natural Science Foundation of China, and the National Key R&D Program. Professor Wang has published over 100 papers in international journals in the fields of combustion and optical measurements, with more than 5,000 citations.



个人简介:

王宇，武汉理工大学汽车工程学院教授、博士生导师，兼任佛山仙湖实验室零碳燃烧中心主任。2013年于阿卜杜拉国王科技大学(KAUST)清洁燃烧中心(CCRC)获博士学位，2009年获清华大学硕士学位，2006年武汉理工大学本科毕业。主要研究方向为碳中性燃料，氨氢融合新能源、碳烟及NO_x生成与控制及燃烧激光诊断。主持国家自然科学基金、国家重点研发计划课题/子课题、湖北省“杰出青年”基金项目、广东省自然科学基金重点项目、企业合作项目等科研项目20余项。在燃烧及光学测量领域发表国际期刊论文100余篇，被引5000余次。曾获中国机械工业科学技术奖一等奖（技术发明类）、北京市科学技术一等奖、清华大学学术新秀提名等荣誉。

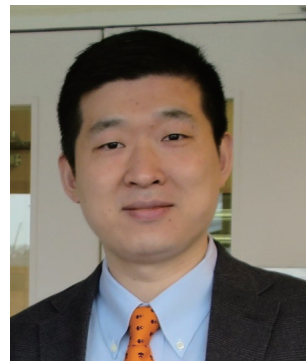


MULTIPLE-DIMENSIONAL FUZZY MODELING OF DROPLET COLLISION FOR EULERIAN-LAGRANGIAN SIMULATION OF SPRAY COMBUSTION

Peng Zhang City University of Hong Kong

Biography:

Dr. Peng Zhang joined the City University of Hong Kong as an associate professor in 2022. Previously, he served as an assistant and then associate professor and associate head at the Hong Kong Polytechnic University from 2012 to 2022. He received a Ph.D. degree in Mechanical and Aerospace Engineering from Princeton University in 2010 and worked as a Combustion Energy Research Fellow at Princeton University from 2010 to 2012. He is the founding chairman of ILASS-Hong Kong (Institute for Liquid Atomization and Spray Systems, Hong Kong). Dr. Zhang's current research areas are droplet and spray dynamics, theoretical and numerical combustion, theoretical chemical kinetics, and AI for science. He has published about 140 papers in international peer-reviewed journals in these areas (see <https://www.rgcombustion.org/> for details).



个人简介：

张鹏博士于2022年加入香港城市大学，担任副教授。此前，他于2012年至2022年在香港理工大学任职，先后担任助理教授、副教授及系副主任。他于2010年获得普林斯顿大学机械与航空航天工程博士学位，并于2010年至2012年在普林斯顿大学担任燃烧能源研究博士后研究员。他是国际液体雾化与喷雾系统学会香港分会（ILASS-Hong Kong）的创始主席。张博士当前的研究领域包括液滴与喷雾动力学、理论与数值燃烧、理论化学动力学以及科学智能（AI for Science）。他在这些领域的国际同行评审期刊上发表了约140篇论文（详见链接 <https://www.rgcombustion.org/> for details）。

RECENT PROGRESS IN THE PREDICTION, CONTROL, AND MEASUREMENT OF THERMOACOUSTIC INSTABILITIES

Jingxuan Li Beihang University

Biography:

Jingxuan Li is currently a Professor at the School of Astronautics, Beihang University. His research interests focus on the prediction, measurement, and control of combustion instabilities. As the first author, he developed the combustion instability prediction code OSCILOS, which has been widely adopted in industry. To address challenges in measuring heat release rate fluctuations and combustion temperature, he has developed advanced diagnostic techniques based on laser interferometry, ultrasound, and background-oriented schlieren. He has also conducted extensive research on passive control strategies for combustion instability, including baffles and baffle injectors. To date, he has published more than 80 papers in leading combustion and acoustics journals, such as Proceedings of the Combustion Institute and Combustion and Flame.



个人简介:

李敬轩，北京航空航天大学宇航学院教授。主要围绕不稳定燃烧问题开展预测、测量和控制研究工作。作为第一作者开发了OSCILOS软件，广泛应用于工业界。针对非定常燃烧释热以及燃烧温度测量难题，发展了基于激光干涉、超声波、背景纹影的测量方法。在隔板、隔板喷嘴等不稳定燃烧被动控制方面开展机理研究。迄今为止，在Proceedings of Combustion Institute, Combustion and Flame等燃烧和声学领域的权威期刊上发表SCI论文80余篇。



AMMONIA-POWERED ENERGY STATION: SYSTEM INTEGRATION AND PROCESS VALIDATION THROUGH IOT INFRASTRUCTURE

Molly Meng-Jung Li The Hong Kong Polytechnic University

Biography:

Prof. Molly Meng-Jung Li is an Assistant Professor in the Department of Applied Physics at The Hong Kong Polytechnic University (PolyU). She completed a DPhil in Inorganic Chemistry at the University of Oxford as a Swire Scholar at University College, and subsequently conducted postdoctoral research at the Commonwealth Scientific and Industrial Research Organisation in Australia before joining PolyU in April 2020. Her research focuses on nanomaterials and applied catalysis, with emphasis on developing catalytic technologies for green energy production, ammonia-hydrogen conversion, liquid hydrogen storage fuels, and environmental applications. She specialises in using synchrotron spectroscopic techniques to elucidate the local structure of nanocatalysts and investigate the fundamental mechanisms behind their exceptional performance in heterogeneous catalytic processes. Prof. Li has published over 80 papers in leading international journals, including Nature Communications, Advanced Materials, ACS Catalysis, Angewandte Chemie International Edition, Applied Energy, Chemical Engineering Journal, etc. She leads multiple research projects in Hong Kong and mainland China, establishing a complete R&D pipeline from catalyst design to system integration and testing. Her team has achieved significant engineering milestones, developing the world's first ammonia-fueled golf cart and Hong Kong's first ammonia-powered passenger minibus, which earned the Global Innovation Award at TechConnect World 2023.



个人简介：

李孟蓉（Molly Meng-Jung Li）博士現為香港理工大學應用物理學系助理教授。她于英國牛津大學化學系獲得無機化學博士學位，期間獲牛津大學學院 Swire獎學金資助，隨後在澳大利亞聯邦科學與工業研究組織從事博士後研究工作，並於2020年4月加入香港理工大學。李博士的研究方向主要包括納米材料和應用催化，重點開發用於綠色能源生產、氨－氫轉化、液體儲氫燃料以及環境應用的催化技術。她亦擅長利用同步輻射光譜技術解析納米催化劑的局部結構，並研究其在新型異相催化過程中的優異性能機理。李博士在Nature Communications、Advanced Materials、ACS Catalysis、Angewandte Chemie International Edition、Applied Energy、Chemical Engineering Journal 等國際期刊發表論文80餘篇，目前主持多項香港及內地科研項目，已建立從催化劑設計到系統集成測試的完整研發鏈條。其團隊已完成氨燃料發電系統的工程化示範，先後開發全球首輛氫燃料高爾夫球車和香港首輛氫動力載人小巴，並在TechConnect World 2023全球創新大會中榮獲“全球創新獎”。

EFFECTS OF AMMONIA-DIESEL SPRAY INTERACTION ON MIXTURE FORMATION CHARACTERISTICS UNDER ENGINE CONDITIONS

Jun Li Guangzhou Institute of Energy Conversion, CAS

Biography:

Jun Li is a professor at the Guangzhou Institute of Energy Conversion (GIEC), Chinese Academy of Sciences (CAS), and a doctoral supervisor at the University of Science and Technology of China. He earned his Ph.D. from Nagoya University in 2016. Currently, he serves as the Director of the Integrated Urban and Rural Mining Technology Research Laboratory at GIEC. He has been selected for several prestigious programs, including the Chinese Academy of Sciences "Hundred Talents Program," the CAS Stable Support Program for Basic Research in Key Fields (Youth Team), and the Jiangxi Province "Double Thousand Plan." He has led or participated in over ten provincial and ministerial-level projects, including talent programs of the CAS during recent five years. His research focuses on fundamental theories and engineering technology development for the clean and efficient utilization of carbon-free/low-carbon fuels. His work includes studies on spray characteristics and in-cylinder combustion characteristics of liquid ammonia-diesel dual high-pressure direct injection, stabilization and enhancement methods for ammonia premixed swirl flames with hydrogen / methane, fundamental combustion characteristics and reaction mechanisms of ammonia/diesel, etc. He has published about 80 research papers in internationally renowned journals such as Chemical Engineering Journal, Energy Conversion and Management, Energy. Additionally, he has granted 10 Chinese invention patent and 1 Japanese patent.



个人简介:

李军，中国科学院广州能源研究所研究员，中国科学技术大学博士生导师，2016年毕业于日本名古屋大学获博士学位。现任中国科学院广州能源研究所城乡矿山集成技术研究室主任，入选中国科学院“百人计划”、中国科学院稳定支持基础研究领域青年团队计划、江西省“双千”计划等。近5年，主持并参与中国科学院、广东省基础与应用基础研究基金项目重点项目、广东省科技合作项目等省部级项目十余项。主要从事无碳/低碳燃料的清洁高效利用基础理论研究和工程技术开发，开展了液氨-柴油双高压直喷喷雾特性及缸内燃烧特性、氨氢/氨甲烷预混旋流火焰稳燃及强化方法、氨/柴油基础燃烧特性及燃烧反应机理等方面的研究，开发了旋流促混氨燃料稳燃低氮原型燃烧器及天然气掺氨锅炉示范系统。在 Chemical Engineering Journal、Energy Conversion and Management、Energy等国际知名期刊发表相关研究成果80余篇。授权中国发明专利10余项，授权日本专利1项。



RECONSTRUCTION OF REAL-FLUID THERMO-PHYSICAL PROPERTIES AND REDEFINING HIGH-PRESSURE FUNDAMENTAL COMBUSTION MODELING

Song Cheng The Hong Kong Polytechnic University

Biography:

Prof. Song Cheng received his Ph.D. degree from the Department of Mechanical Engineering of the University of Melbourne. He was appointed a Visiting Researcher in the Department of Mechanical Engineering of the University of California, Berkeley from 2017 to 2018, and a Postdoc in the Energy Systems Division of Argonne National Laboratory from 2019 to 2021. In 2021, Prof. Cheng joined the Department of Mechanical Engineering of the Hong Kong Polytechnic University as an Assistant Professor. Prof.



Cheng's current research interests include gas-phase chemical kinetics, trans-/super-critical combustion fundamentals, uncertainty quantification, and near real-time model optimization.

个人简介:

成松，获墨尔本大学博士学位、2017-2018加州大学伯克利分校访问学者、2019-2021美国阿贡国家实验室博士后研究员，现任香港理工大学机械工程学系助理教授、博士生导师，美国阿贡国家实验室交通与推进系统部客座研究员，墨尔本大学工学院 Visiting Fellow。研究方向为极端燃烧理论和诊断技术、近实时协同优化。主持多项美国能源部研究项目、香港杰出青年研究计划、香港研究影响基金计划、香港特首政策研究资助计划、香港环境保护署研究基金、国家自然科学基金委项目、广东省自然科学基金面上项目等。相关研究成果在燃烧与流体领域发表80多篇期刊论文。

OPTICAL DIAGNOSTICS FOR GAS TURBINE COMBUSTION AND AI-EMPOWERED DATA PROCESSING

Qiang An Beihang University

Biography:

Dr. Qiang An is currently an Associate Professor in the Research Institute of Aero-Engine at Beihang University. He obtained his PhD degree in Aerospace Engineering from the University of Toronto Institute for Aerospace Studies (UTIAS) in 2019 under the supervision of Prof. Adam Steinberg, and subsequently worked as a postdoctoral fellow at the National Research Council (NRC) of Canada. He joined Beihang university as a faculty member in 2020. His research interests mainly include thermo-fluid optical diagnostics and aero-engine combustion. He has led 10 research projects, including a national-level talent program, and has published more than 30 papers in peer-reviewed journals such as Combustion and Flame.



个人简介:

安强，副研究员，博士生导师，国家级青年人才。2019年博士毕业于加拿大多伦多大学，随后在加拿大国家研究院从事博士后研究工作，2020年底入职北京航空航天大学航空发动机研究院，主要研究方向为燃烧光学诊断和航空发动机燃烧，主持科研项目10项，参与多项，在《Combustion and Flame》等行业知名期刊发表SCI论文三十余篇。



APPLICATION OF THE FOURIER NEURAL OPERATOR IN UNSTEADY COMBUSTION

Xi Xia **Shanghai Jiao Tong University**

Biography:

Dr. Xi Xia is an Associate Professor at Shanghai Jiao Tong University (SJTU). He obtained his Ph.D. from the University of Florida in 2016. His research revolves around vortex-interface interaction problems of both non-reacting and reacting flows. He has published more than 50 research articles in the leading journals, including PNAS, J. Fluid Mech., Combust. Flame, etc. He has delivered over 10 invited/keynote lectures in academic conferences on topics related to vortex-flame interaction. As the Principle Investigator, he has led more than 10 research projects, including 4 funded by the National Natural Science Foundation of China (NSFC). He received the honor of Shanghai Overseas High-Level Young Talent.



个人简介:

夏溪，上海交通大学机械与动力工程学院副教授。2016年博士毕业于美国佛罗里达大学机械与航空工程系，2016-2018年在香港理工大学从事博士后研究，2019年入职上海交通大学担任副教授。围绕非定常空气动力学、火焰动力学、液滴动力学等方向开展实验、仿真与理论研究，致力于揭示其中旋涡与界面的相互作用机理。主持国家自然科学基金项目4项，在PNAS、J. Fluid Mech.、Combust. Flame等期刊发表论文50余篇。入选上海市海外高层次人才。

DATA-DRIVEN PREDICTION FOR HYDROGEN-ENRICHED FLAME DYNAMICS AND THERMOACOUSTIC BEHAVIOUR

Yu Guan The Hong Kong Polytechnic University

Biography:

Dr. Yu Guan is an Assistant Professor in the Department of Aeronautical and Aviation Engineering at the Hong Kong Polytechnic University. He obtained his PhD degree in the Department of Mechanical and Aerospace Engineering at The Hong Kong University of Science and Technology and continued working there as a Postdoctoral Fellow before joining PolyU AAE. His research focuses on combustion instability and control, combustion dynamics of zero-carbon fuels, nonlinear dynamics, and data-driven methods. His work has been supported by the Hong Kong Research Grants Council, the National Natural Science Foundation of China, and the Hong Kong Innovation and Technology Commission. To date, he has published over 50 SCI-indexed papers in international journals on combustion, fluid mechanics, and nonlinear dynamics.



个人简介:

关昱，现为香港理工大学航空及民航工程学系助理教授、博士生导师。博士毕业于香港科技大学，并在加入香港理工大学前于该校从事博士后研究工作。其研究方向涵盖燃烧不稳定性及控制、零碳燃料燃烧动力学、非线性动力学与数据驱动方法等领域，相关研究获香港研究资助局、国家自然科学基金委及香港创新科技署等项目资助。目前，已在燃烧、流体力学及非线性动力学领域的国际期刊上发表SCI论文50余篇。



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