cue
Low-carbon Cities & Urban Energy

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Applied Energy Symposium:

LOW CARBON CITIES & URBAN ENERGY SYSTEMS

NOV 24-27, 2022 VIRTUAL/MATSUE, JAPAN

icae
International Conference on Applied Energy

Contents

Welcome to CUE 2022

Welcome to CUE2022-The 8th Applied Energy Symposium: Low carbon cities and urban energy systems.

Cities are rapidly getting on top of the agendas of various initiatives worldwide aimed at decreasing the cost and carbon footprint of energy products, services and activities. The demands and pressure on energy infrastructure and resources obliges city infrastructure and consumers to adapt intelligently to ensure efficient, affordable and sustainable solutions.

Developing intelligent energy solutions for resilient urban systems is a global and complex challenge which involves interdisciplinary fields. With this as theme of the conference, same as the previous serious symposiums, the CUE2022 aims to provide a premier international forum for all stakeholders including academia, industry and policy decision makers to present and share latest findings in all aspects across this domain, discussing how smart technologies and services can integrate the production and use of energy to support a more sustainable and resilient urban system.

CUE2022 is organized by the international journal, Applied Energy, Advances in Applied Energy, Applied Energy Innovation Institute (AEii) and Mälardalen University, Sweden. The event consists of three-day symposium and one-day lab/site tours for sharing the most recent progress of research RD&Ds in urban energy systems and one-day forum to engage all stakeholders for discussing how future urban energy systems can be implemented.

CUE2022 will be held online on November 24-27, 2022. The conference will include ke ynotes and invited speeches, plenary sessions, oral presentations and poster sessions. Select ed best papers from the conference will be considered for publication in a special issue joi ntly in Applied Energy (https://www.journals.elsevier.com/applied-energy) (IF=11.45) and Adva nces in Applied Energy (https://www.journals.elsevier.com/advances-in-applied-energy). For more detailed and updated information, please visit conference website at: www.applied-en ergy.org/cue2022. If you have questions regarding this conference or submission, please feel free to contact at: cue2022@applied-energy.org.

We are looking forward to meeting you.

Prof. Jinyue Yan
Editor-in-Chief of Advances in Applied Energy

Program at a glance

Conference Program: November 24 - Novembe 27

Session Overview

Tokyo Time	Day 1: Nov 24	
17:00 - 17:30	Opening (Room S)	
17:30 - 18:30	Keynote1 Prof. Eva Thorin (Room S)	
Room	1-A	1-B
18:30-18:45	1985	1126
18:45-19:00	1989	9438
19:00-19:15	3992	9735
19:15-19:30	5385	176
19:30-19:45	3970	4323
19:45-20:00	7117	5178
20:00-20:15	4911	6635
20:15-20:30	6374	9669
20:30-20:45	4224	6208
20:45-21:00	5191	8769

Tokyo Time	Day 2: Nov 25	
Room	2-A	2-B
17:00-17:15	852	4865
17:15-17:30	1101	5791
17:30-17:45	1210	313
17:45-18:00	1275	1032
18:00-18:15	1320	4731
18:15-18:30	1371	5962
18:30-18:45	1474	6312
18:45-19:00	2829	7868
19:00-19:15	3836	8171
19:15-19:30	8733	8773
19:30-19:40	Tea / Coffee Break	
Room	2-A	2-B
19:40-19:55	2099	1037
19:55-20:10	2353	1158
20:10-20:25	5256	1244
20:25-20:40	436	2682
20:40-20:55	1087	2859
20:55-21:10	7423	3407
21:10-21:25	7456	4184
21:25-21:40	175	7023
21:40-21:55	1431	9180
21:55-22:10	8132	9462

Tokyo Time	Day 3: Nov 26	
Room	3-A	3-B
16:30-16:45	266	8811
16:45-17:00	268	481
17:00-17:15	657	1897
17:15-17:30	841	3588
17:30-17:45	1024	3676
17:45-18:00	2334	7304
18:00-18:15	2444	8389
18:15-18:30	2608	8979
18:30-18:45	2798	–
18:45-19:00	3055	–
19:00-20:00	Keynote2 Prof. Zhifu Mi (Room S)	
20:00-21:00	Keynote3 Prof. Jerry D Murphy (Room S)	
Room	3-A	3-B
21:00-21:15	6964	4815
21:15-20:30	1763	8282
21:30-21:45	1772	656
21:45-22:00	3727	2026
22:00-22:15	4035	3535
22:15-22:30	9788	4630
22:30-22:45	5801	5179
22:45-23:00	2685	6652
23:00-23:15	6396	9034
23:15-23:30	6670	9356

Tokyo Time	Day 4: Nov 27		
Room	4-A	4-B	4-C
16:30-16:45	548	339	
16:45-17:00	884	1941	
17:00-17:15	2043	2855	
17:15-17:30	2230	3177	
17:30-17:45	2887	5415	
17:45-18:00	3399	7303	
18:00-18:15	3742	7371	
18:15-18:30	3814	8016	
18:30-18:45	3923	2300	
18:45-19:00	4299	3762	
19:00-20:00	Keynote4 Prof. Gang Liu (Room S)		
20:00-21:00	Keynote5 Dr. Max Wei (Room S)		
Room	4-A	4-B	4-C
21:00-21:15	4657	8906	3957
21:15-20:30	4934	8955	4046
21:30-21:45	5631	8978	4109
21:45-22:00	5653	9006	4191
22:00-22:15	6249	6764	4302
22:15-22:30	6628	8304	4641
22:30-22:45	6889	9363	6862
22:45-23:00	7170	9582	8694
23:00-23:15	7826	1538	8791
23:15-23:30	8697	2896	9091
23:30-23:45	–	5981	4503
23:45-24:00	–	6012	8189
24:00-24:15	–	–	5431

Asian Development Bank Institute
Workshop on Hydrogen in Decarbonization Strategies in Asia and the Pacific-25 November 2022 (Tokyo time)

Agenda

Tokyo Time	25-Nov
09:50 - 10:00	Introduction
10:0 - 10:10	Opening Remarks
10:10 - 11:55	Session I. Hydrogen Society and Cost
10:10-10:45	Paper 1: How Can Japan Help Create a Sustainable Hydrogen Society in Asia?
10:45-11:20	Paper 2: Technology Foresight for Hydrogen Society Transition in Japan: An Approach of GTAP-E-Power Model
11:20-11:55	Paper 3: Techno-Economic Analysis of Long-Distance
11:55-12:10	Short break
12:10 - 13:30	CUE-ADBI Special Session: Hydrogen Supply Chain and Transportation
12:10-12:30	Title: Assessing the Impact of Incentive Policy on Green and
12:30-12:50	Title: Cost-Benefit Analysis for Resilient Hydrogen Supply
12:50-13:10	Title: Which Is the Best Way to Export Extra Renewable Energy from an Island: Hydrogen or Electricity?
13:10-13:30	Title: Comprehensive Analysis for the Impact of Hydrogen Blending on the Economic Performance of Natural Gas
13:30 - 15:15	Session II. Hydrogen Economy
13:30-14:05	Paper 4: Experiences of Transition to Green Hydrogen Economy in Europe and East
14:05-14:40	Paper 5: Towards Hydrogen Economy in Kazakhstan
14:40-15:15	Paper 6: Role and Development Pathways of Hydrogen in the Renewable Dominated Energy System
15:15-15:30	Short break
15:30 - 17:15	Session III. Hydrogen in Industry and Transport Sectors
15:30-16:05	Paper 7: Future Hydrogen Society: India and the World
16:05-16:40	Paper 8: History, Status and Future Challenges of Hydrogen Energy in Transportation Sector
16:40-17:15	Paper 9: Decarbonizing Industry with Clean Hydrogen in Asia and the Pacific: Status and Perspectives
17:15-17:30	Short break
17:30 - 18:40	Session IV. Hydrogen Production and Transportation
17:30-18:05	Price: the Case of Ningxia Province in the People's Republic of China
18:05-18:40	Paper 11: Green Hydrogen International Market: Barriers and Prospects for South and Southeast Asia
18:40 - 18:50	Concluding Remarks

Acknowledgements

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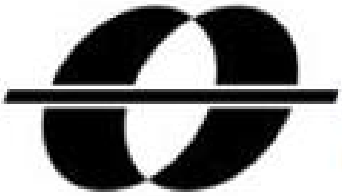

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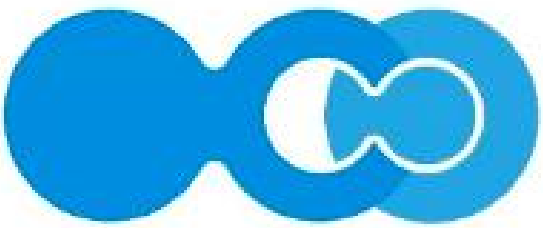

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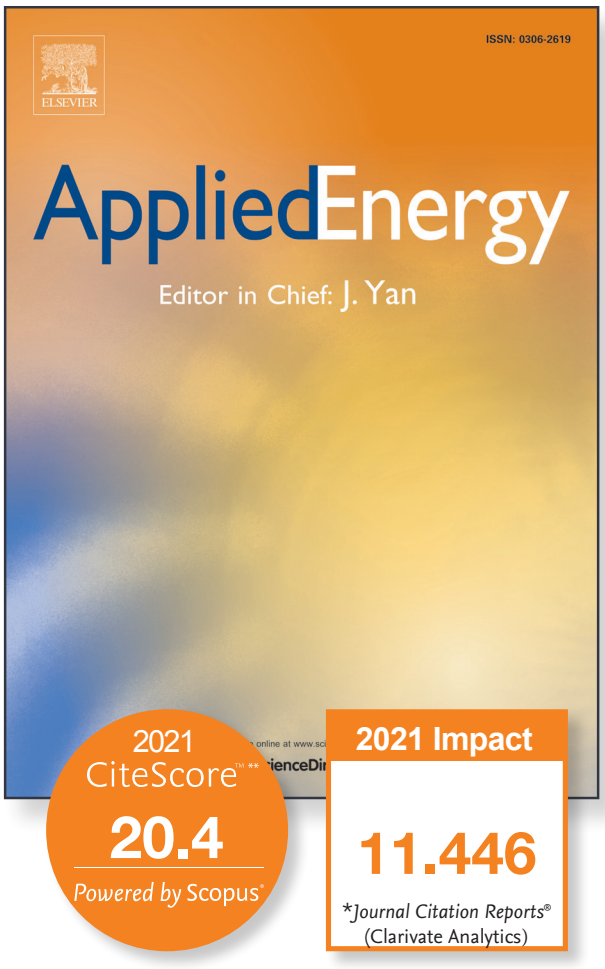

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Speaker´s Guide

Presentation

As CUE2022 will be a virtual conference, the poster session has been cancelled and all papers will be oral presentations.

You are required to connect to the Zoom meeting room 15mins before your session starts. It is recommended to download the app of Zoom (https://zoom.us/);

Change your user name to your full name and add your paper ID;

Prepare a short bio, around 50 words, and share it in chat of Zoom. Your presentation should be in accordance with your allocated time.

It is 15mins for each paper, including a 12mins presentation and a 3mins Q&A. Please always refer to the latest conference program, which can be downloaded from the conference website：https://applied-energy.org/cue2022/index, for actual presentation time.

The links of Zoom will be sent before the opening of the conference. If you need any help, please do not hesitate to contact us via cue2022@applied-energy.org.

If you have any trouble with using Zoom, please see: https://support.zoom.us/hc/en-us

Presentation Venues

The following table lists all presentation venues with the associated Zoom links for online access to the sessions (each Zoom link is specific for one physical room).

Room	Zoom Link	Zoom ID	Password
S	https://mdu-se.zoom.us/j/61523273834	615 2327 3834	810886
A	https://mdu-se.zoom.us/j/66396416548	663 9641 6548	793467
B	https://mdu-se.zoom.us/j/66426923847	664 2692 3847	725080
C	https://mdu-se.zoom.us/j/68761799579	687 6179 9579	690286

ADBI Workshop

Cohosted by ADBI and the Applied Energy Symposium, a virtual workshop on Hydrogen in Decarbonization Strategies in Asia and the Pacific will be held as part of the CUE 2022. The virtual workshop will be public to all audiences, but registration in advance is necessary.

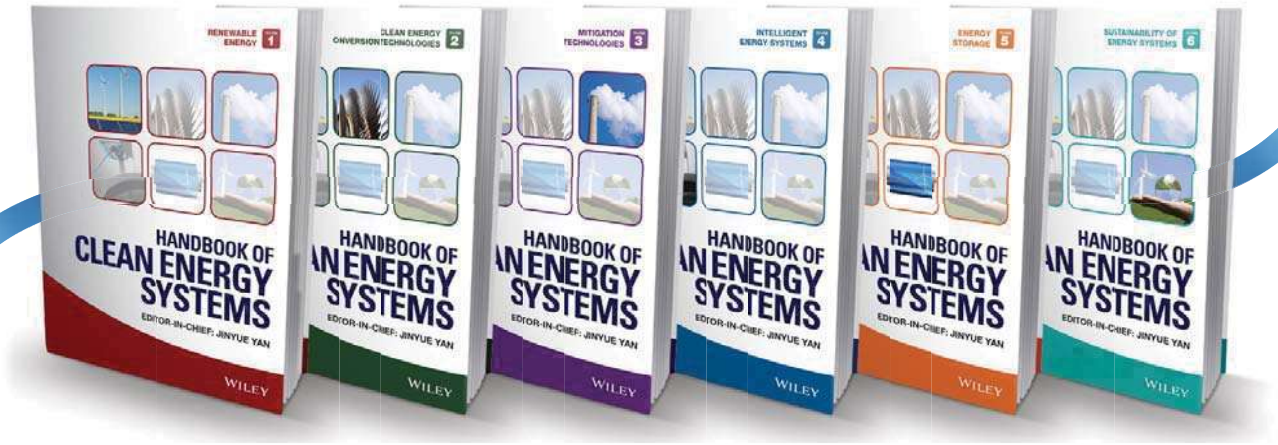
Webinar Registration(free): https://us06web.zoom.us/webinar/register/WN_QVJzY967TqSUtTeg32KkrA

Speaker´s Guide

Time Zone Converter

City Location & Time Zone	Time				
Tokyo, Conf. Time	16:00	17:00	18:00	19:00	20:00
London	7:00	8:00	9:00	10:00	11:00
Bochum	8:00	9:00	10:00	11:00	12:00
Johannesburg	9:00	10:00	11:00	12:00	13:00
New Delhi	12:30	13:30	14:30	15:30	16:30
Beijing	15:00	16:00	17:00	18:00	19:00
San Paulo	4:00	5:00	6:00	7:00	8:00
New York, Toronto	3:00	4:00	5:00	6:00	7:00
San Francisco	00:00	1:00	2:00	3:00	4:00

Are you working on the challenging issues associated with the development of our future energy systems?



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Keynote Speakers

Nov. 24th, 17: 30-18:30 JST (GMT+9)

Zoom link: https://mdu-se.zoom.us/j/61523273834 Zoom ID: 615 2327 3834 Zoom PW: 810886

Keynote Speaker

Prof. Eva Thorin
Energy Engineering,
Future Energy Center
Mälardalen University

Development towards resilient energy systems of cities

Abstract:

Resilient energy systems of cities are characterized by high security of supply ensuring functionality and robustness, predictable and secure supply of power, heat and fuel, and the capacity to meet disturbances, reorganize, and continuously develop without changing vital structures and functions. This leads to a demand for flexibility solutions, increased sector coupling, and new business models. The energy system transforms towards a more electrified, decentralized and digitalized system with high share of renewables including both new technology development and changes in roles of different stakeholders. The transformation towards resilient energy systems is both challenging and opens up for new opportunities.

Short Bio:

Eva Thorin is Professor in Energy Engineering and Research Director for Future Energy Center, at Mälardalen University (MDU), Sweden. Her research concerns measurements, modeling and simulation of processes and systems for energy conversion. The research work includes simulation of heat and power processes to study integration of production of fuels such as biogas/methane and drop-in fuels into power and heat plants, simulation of regional energy systems to investigate possibilities to increase waste-to-energy utilization and solar energy. She leads the MDU part of the interdisciplinary industrial research school Future Proof Cities and is the research leader for the RESILIENT competence centre.

Moderator

Short Bio:

Prof. Xiaonan Wang
Department of Chemical Engineering
Tsinghua University

Dr. Xiaonan Wang is currently an associate professor in the Department of Chemical Engineering at Tsinghua University. She received her BEng from Tsinghua University in 2011 and PhD from University of California, Davis in 2015. After working as a postdoctoral research associate at Imperial College London, she joined the National University of Singapore (NUS) as an assistant professor since 2017 and later became an adjunct associate professor. She is leading a Smart Systems Engineering research group at NUS and Tsinghua as PI and also the deputy director of the Accelerated Materials Development programme in Singapore. She has published more than 130 peer-reviewed papers and 3 book chapters. She is an associate editor of Applied Energy, and subject editor of Advances in Applied Energy. She was recognized as a Worlds's Top 2% Scientists, Forbes China Women in Tech, AIChE-SLS Outstanding Young Principal Investigator, IChemE Global Awards Young Researcher finalist and selected for Royal Society International Exchanges Award, as well several best paper awards at IEEE and Applied Energy conferences and journals.

Keynote Speakers

Nov. 26th, 19:00-20:00 JST (GMT+9)

Zoom link: https://mdu-se.zoom.us/j/61523273834 Zoom ID: 615 2327 3834 Zoom PW: 810886

Keynote Speaker

Prof. Zhifu Mi
Climate Change Economics, Director of Research of The Bartlett School of Sustainable Construction
University College London

Carbon emission accounting of cities

Abstract:

Cities are at the forefront of the battle against climate change. However, intercity comparisons and responsibility allocations among cities are hindered because cost- and time-effective methods to calculate the carbon footprints of global cities have yet to be developed. We establish a hybrid method integrating top-down input–output analysis and bottom-up crowdsourced data to estimate the carbon footprints of global cities. The increased carbon emissions that come from high consumption lifestyles offset the carbon reduction by efficiency gains that could result from compact city design and large city scale.

Short Bio:

Dr. Zhifu Mi is Professor of Climate Change Economics and Director of Research of The Bartlett School of Sustainable Construction, University College London (UCL). He has published papers in leading journals, such as Lancet, Science Advances, Nature Energy, Nature Food, and Nature Sustainability. He was awarded the World Sustainability Award and named in Clarivate Highly Cited Researchers. His research was awarded Best Paper Award in Energy Economics, Best Early Career Article in Environmental Research Letters, and Highly Cited Original Paper in Applied Energy. He is serving as an Editor-in-Chief of Structural Change and Economic Dynamics.

Moderator

Prof. Wenlong Shang
The College of Metropolitan Transportation
Beijing University of Technology (BJUT)

Short Bio:

Dr. Wen-Long Shang is currently a Lecturer in the College of Metropolitan Transportation, Beijing University of Technology (BJUT). He is the recipient of the Youth Project of Beijing High Level Talent Program, and he is appointed as Honorary Senior Research Fellow of Imperial College London. Prior to joining BJUT, he has received the Ph.D. degree from the Centre for Transport Studies, Department of Civil and Environmental Engineering, Imperial College London. He has already published more than 50 academic articles in peer-reviewed journals and conferences, obtained 2 software copyrights and 1 patent, and participated in the writing of two books.

Keynote Speakers

Nov. 26th, 20:00-21:00 JST (GMT+9)

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Keynote Speaker

Prof. Jerry D Murphy
MaREI centre for energy, climate and marine
University College Cork

Use of the power of the ocean to decarbonize society in circular economy, energy, and environmental systems

Abstract:

Net zero is challenging. Roadmaps tend to start with renewable electricity and use of decarbonised electricity in heating and transport. Difficulties lie in the variability of production of energy from wind and solar. In this work we propose providing a resource of offshore wind far in advance of electrical requirements and conversion of surplus electricity to hydrogen via electrolysis. Circular economy, energy, and environmental systems are proposed whereby renewable hydrogen molecules are employed: to decarbonise hydrocarbons for fuel for planes, ships and trucks and; as the decarbonised hydrogen source for green ammonia for renewable fertiliser production to decarbonise agriculture.

Short Bio:

Jerry is Director of the MaREI centre for energy, climate and marine with c. 220 researchers. He has published over 190 peer review journal papers. He was awarded the Engineers Ireland Excellence Award (2015) for best paper; Excellence in Marine Research (2017); adjunct professor at the University of Southern Queensland in 2018 and was elected to international membership of the Science Advisory Board of DBFZ in 2019. He was elected by his peers as the leader of the International Energy Agency Bioenergy Task “Energy from Biogas” for the trimester 2016 – 2018 and re-elected unanimously for the period 2019 - 2021.

Moderator

Short Bio:

Prof. Jiashuo Li
Blue and Green Development School
Shandong University

Dr. Jiashuo Li graduated from Peking University. He is now a professor at Blue and Green Development School, Shandong University and Young Taishan Scholar of Shandong Province. His research focuses on the impact of energy transition on environmental and resources. He has published over 30 papers peer-reviewed journals, such as Nature Sustainability, Nature communications, One Earth, ES&T, Global Environmental Change and Applied Energy, with an H index of 38 (Google Scholar). 10 of his articles were listed in the ESI highly cited papers or ESI hot papers, and two were listed in Elsevier Most Cited Articles. He is the PI & Co-PI of 5 NSFC and MOST research projects. He was awarded the 2016 Young Scholars Outstanding Paper Award of the Regional Science Association of China, the Innovation award of Peking University, the 2020 Shandong Provincial Higher Education Humanities and Social Sciences Award, etc.

Keynote Speakers

Nov. 27th, 19:00-20:00 JST (GMT+9)

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Keynote Speaker

Prof. Gang Liu
Department of Green Technology (IGT) • SDU Life Cycle Engineering.
University of Southern Denmark

Digitalizing urban built environment stocks for circular and low-carbon transition of cities

Abstract:

Built environment stocks play multiple roles in human development and societal metabolism. Thus, their spatiotemporal dynamics are key to the circular and low-carbon transition of cities. Circular economy and climate strategies and activities in the construction industry are, however, often hindered by a lack of detailed knowledge on the built environment stocks at a high resolution. To address this significant knowledge gap, we have harnessed multidisciplinary tools from architecture and civil engineering, remote sensing and geospatial analysis, machine learning, and industrial ecology to characterize the spatial and temporal dynamics of built environment stocks. These models have been implemented at building, city, national and global levels. Such spatiotemporally explicit stock mapping offers a physical and resource perspective for measuring urbanization and provides the public and government insight into urban spatial planning and related resource, waste, and climate strategies.

Short Bio:

Gang Liu has been professor of Industrial Ecology at the University of Southern Denmark and is now a chair professor at Peking University. His research interests concern mapping and informing the circular, low carbon, and just transition of resource, industry, and urban systems. His work has been published widely in high-profile journals such as Nature Climate Change, Nature Food, and Nature Communications. He has been awarded the Robert A. Laudise medal by the International Society for Industrial Ecology, the James J. Morgan Early Career Award by Environmental Science & Technology, and the Best Research for Digital Built Environment by the World of Digital Built Environment.

Moderator

Short Bio:

Prof. Haoran Zhang
School of Urban Planning and Design
Peking University

Haoran Zhang is an Assistant Professor at the School of Urban Planning and Design, Peking University. His research includes urban data mining, smart supply chain, and urban energy system. He is the author of numerous journal articles and Editorial Board Member of several international academic journals, such as Advances in Applied Energy and Engineering Reports. He has PhDs in both Engineering and Sociocultural Environment and was awarded Excellent Young Researcher by Japan's Ministry of Education, Culture, Sports, Science and Technology.

Keynote Speakers

Nov. 27th, 20:00-21:00 JST (GMT+9)

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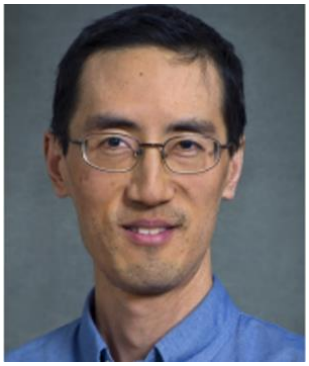


Dr. Max Wei
Research Scientist of
Lawrence Berkeley
National Lab

Advancing climate equity and heat resilience in disadvantaged urban communities

Abstract:

Disadvantaged communities (DACS) bear high pollution burdens and have poor social and health outcomes. DAC areas are historically underserved in public and private investment with much lower rates of clean technology adoption. Improving equity and climate resilience in DACS are key policy objectives together with wide scale decarbonization. We present results together with policy and program recommendations from recent work advancing these objectives in several DAC neighborhoods in Fresno, California. We describe the community science approach, neighborhood-scale modeling results for several cooling measures and integrated retrofits, and how this work can be applied in the field and to other areas.

Short Bio:

Dr. Max Wei is a Research Scientist at Lawrence Berkeley National Lab. He has extensive experience modeling decarbonization pathways for California and techno-economic studies of building electrification, zero net energy homes and emerging technologies such as low global warming potential refrigerant room air conditioners and hydrogen fuel cells. Dr. Wei has led work on community outreach, heat resilience, and integrated building/transportation modeling for greater equity in disadvantaged communities. Prior to joining LBNL in 2010, he worked as a technology integration manager at Intel. Dr. Wei has a Ph.D. in electrical engineering and an MBA from the University of California, Berkeley.

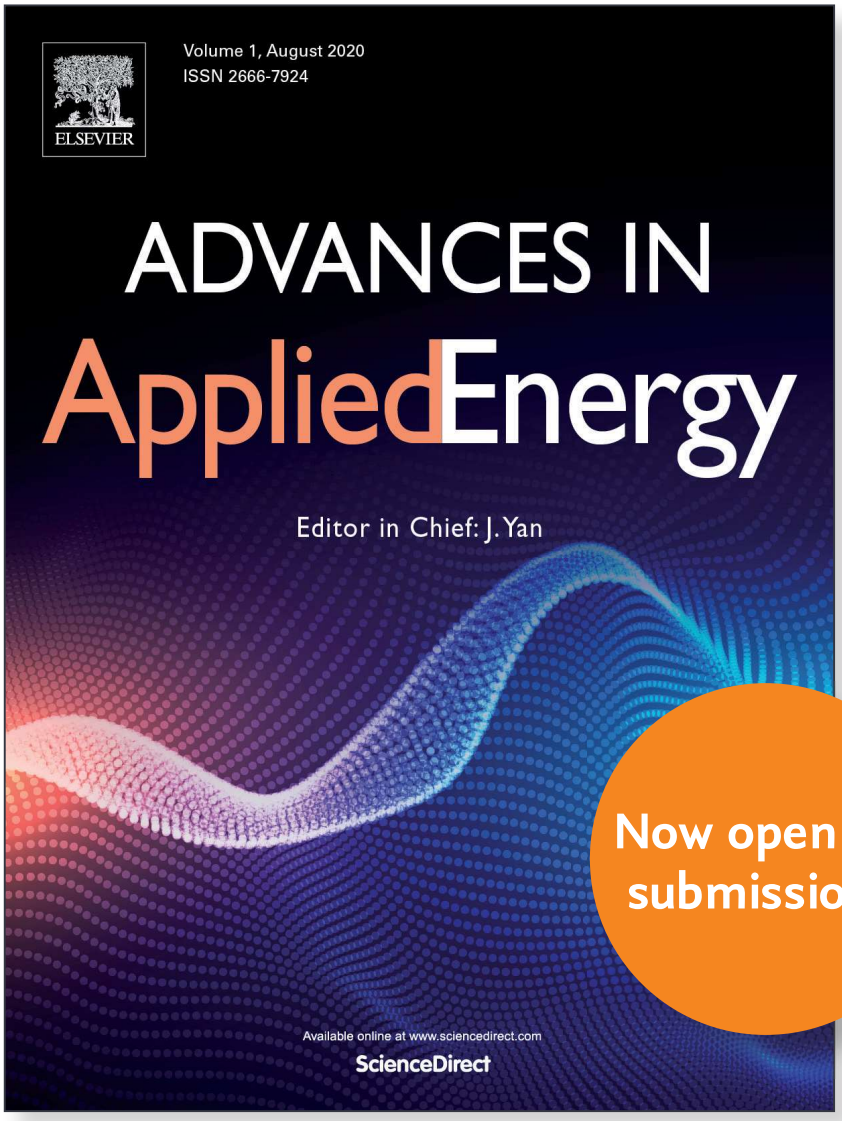
Moderator

Short Bio:

Prof. Junqing Tang
School of Urban Planning
and Design
Peking University

Dr. Junqing Tang is an Assistant Professor in Urban resilience and sustainability research at School of Urban Planning and Design, Peking University. Prior to his faculty position, he was a Postdoc Research Associate at the Centre for Smart Infrastructure and Construction at the University of Cambridge. He obtained his PhD from the Department of Environmental Systems Science at ETH Zurich in 2019, MSc in Transport from Imperial College London and University College London in 2014, and BEng in Architectural Engineering from Cardiff University in 2013. His research focuses on how resilience and sustainability can be effectively embedded and managed in urban systems.

Advances in Applied Energy



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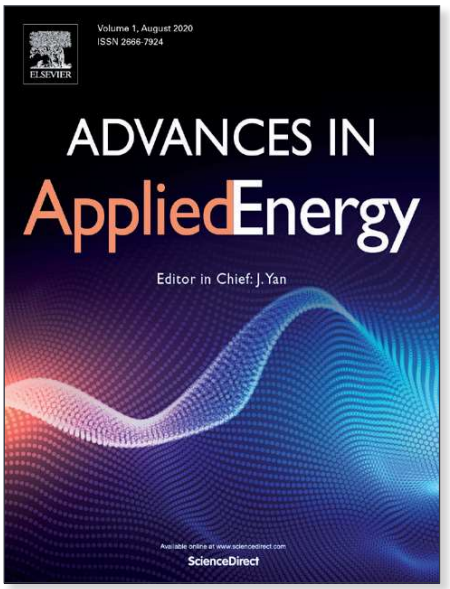
Advances in Applied Energy



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Advances in Applied Energy is a new, open access journal for publishing cutting-edge research in the field of applied energy. This new, fully peer-reviewed journal is a companion journal to the highly regarded journal *Applied Energy*.

With an expert editorial team, led by Editor-in-Chief Professor Jinyue Yan (Royal Institute of Technology and Mälardalen University, Sweden) this exciting new journal aims to provide authors and the community with a quality open access outlet for significant and impactful research.

Covering a broad scope of topics, *Advances in Applied Energy* will publish applied research on all aspects of energy innovation that bridge the gaps between research, development, and implementation. Topics include, but are not limited to:

- New development trends: advances in cutting-edge applied energy areas, including renewable energy, clean energy conversion and utilization, smart and flexible system integration and optimization, energy storage, climate change mitigation, and energy sustainability;
- Systems characteristics: integrated energy systems such as industry, transport, and buildings; renewable energy; advanced conversion technologies; energy storage; emission mitigations; smart grids and mini/micro grids; distributed energy systems; e-mobility; and sustainability of energy systems;
- Energy nexus and synergy with other critical global issues: energy-water, energy-emissions, power-to-x, waste-to-energy, flexibility of renewable energy systems.

The journal considers full length articles, reviews, letters, commentaries, perspectives, forums and news & views for publication.

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Asian Development Bank Institute

Workshop on Hydrogen in Decarbonization Strategies in Asia and the Pacific

25 November 2022 (Tokyo time)

Agenda

25 November 2022	
9:50 - 10:00 Tokyo time (10 minutes)	**Introduction (technical guidance and speakers' group photo)** **Dina Azhgaliyeva**, Research Fellow, Asian Development Bank Institute (ADBI), Japan
10:00 - 10:10 (10 minutes)	**Opening Remarks** **Tetsushi Sonobe**, Dean and CEO, ADBI, Japan
10:10 – 11:55 (105 minutes)	**Session I. Hydrogen Society and Cost** Chair: **Haoran Zhang,** Researcher, University of Tokyo, Japan Paper 1: ***How Can Japan Help Create a Sustainable Hydrogen Society in Asia?*** Presenter: **Nanda Kumar Janardhanan**, Research Manager & Regional Research Coordinator, Climate and Energy, Institute for Global Environmental Strategies, Japan Discussant: **Jie Yan,** Professor, School of Renewable Energy, North China Electric Power University, People's Republic of China Question and Answer (Q&A) Paper 2: ***Technology Foresight for Hydrogen Society Transition in Japan: An Approach of GTAP-E-Power Model*** Presenter: **Michael C. Huang**, Senior Research Fellow, Ocean Policy Research Institute, The Sasakawa Peace Foundation, Japan Discussant: **Jiyoung An**, Associate Research Fellow, Hydrogen Economy Research Team, Korea Energy Economics Institute, Republic of Korea Q&A Paper 3: ***Techno-Economic Analysis of Long-Distance Hydrogen Pipeline Transportation*** Presenter: **Qi Liao**, Postdoc, College of Mechanical and Transportation Engineering, China University of Petroleum-Beijing, People's Republic of China Discussant: **Victor Nian**, Co-Founder and CEO, Centre for Strategic Energy and Resources, Singapore Q&A
11:55 – 12:10 (15 minutes)	**Short break**
12:10 – 13:30 (80 minutes)	**CUE-ADBI Special Session: Hydrogen Supply Chain and Transportation** Chair: **Dina Azhgaliyeva**, Research Fellow, ADBI, Japan Title: ***Assessing the Impact of Incentive Policy on Green and Blue Hydrogen in People's Republic of China: An Evolutionary Game Theory Perspective*** Speaker: **Cheng Cheng,** Associate Professor, School of Management Science and Engineering, Shanxi University of Finance and Economics, People's Republic of China

	Q&A Title: ***Cost-Benefit Analysis for Resilient Hydrogen Supply Chain Design: A Case Study in the People's Republic of China*** Speaker: **Xingyuan Zhou,** Assistant Professor, Supply Chain Management Department, Beijing Wuzi University, People's Republic of China Q&A Title: ***Which Is the Best Way to Export Extra Renewable Energy from an Island: Hydrogen or Electricity?*** Speaker: **Bohong Wang,** Lecturer, Zhejiang Ocean University, People's Republic of China Q&A Title: ***Comprehensive Analysis for the Impact of Hydrogen Blending on the Economic Performance of Natural Gas Pipeline Network*** Speaker: **Bo Zhang,** PhD candidate, China University of Petroleum, People's Republic of China Q&A
13:30 – 15:15 (105 minutes)	**Session II. Hydrogen Economy** Chair: **K E Seetha Ram**, Senior Consulting Specialist for Capacity Building and Training Projects, ADBI, Japan Paper 4: ***Experiences of Transition to Green Hydrogen Economy in Europe and East Asia: Lessons for South Asia*** Presenters: **Falendra Kumar**, Professor, Department of Economics, University of Jammu, India Discussant: **Yuntian Chen**, Assistant Professor, Engineering, Eastern Institute for Advanced Science, People's Republic of China Q&A Paper 5: ***Towards Hydrogen Economy in Kazakhstan*** Presenter: **Saule Zholdayakova,** Acting Head, Hydrogen Energy Competence Center, KMG Engineering, Kazakhstan Discussant: **Ranjeeta Mishra**, Economist, Reserve Bank of India, India Q&A Paper 6: ***Role and Development Pathways of Hydrogen in the Renewable Dominated Energy System*** Presenter: **Han Wang**, Research Associate, Department of Electrical Engineering, Tsinghua University, People's Republic of China Discussant**: Eric Zusman**, Senior Policy Researcher and Area Leader, Integrated Sustainability Centre, Institute for Global Environmental Strategies, Japan Q&A
15:15 – 15:30 (15 minutes)	**Short break**
15:30 – 17:15 (105 minutes)	**Session III. Hydrogen in Industry and Transport Sectors** Chair: **Priyantha Wijayatunga,** Chief of Energy Sector Group, Sustainable Development and Climate Change Department, ADB, Philippines Paper 7: ***Future Hydrogen Society: India and the World*** Presenters: **Ranjeeta Mishra**, Economist, Reserve Bank of India, India

	Discussant: **Haoran Zhang,** Researcher, University of Tokyo, Japan Q&A Paper 8: ***History, Status and Future Challenges of Hydrogen Energy in Transportation Sector*** Presenter: **Wen-Long Shang**, Honorary Senior Research Fellow of Imperial College London, United Kingdom and Assistant Professor of Beijing University of Technology, People's Republic of China Discussant: **Manuel Antonio Heredia**, Senior Researcher, Research, Asia Pacific Energy Research Centre, Japan Q&A Paper 9: ***Decarbonizing Industry with Clean Hydrogen in Asia and the Pacific: Status and Perspectives*** Presenter: **Meng Yuan,** Postdoc, The Sustainable Energy Planning Research Group, Department of Planning, Aalborg University, Denmark Discussant: **Mathieu Geze**, Director Asia, HDF Energy, Indonesia Q&A
17:15-17:30 (15 minutes)	**Short break**
17:30 – 18:40 (70 minutes)	**Session IV. Hydrogen Production and Transportation** Chair: **Aiming Zhou,** Senior Advisor to the Vice President, Office of the Vice-President (Operations 1), ADB, Philippines Paper 10: ***Green Hydrogen Production Cost and Carbon Price: the Case of Ningxia Province in the People's Republic of China*** Presenter: **Shuang Han**, Professor, Research, North China Electric Power University, People's Republic of China Discussant: **Michael C. Huang**, Senior Research Fellow, Ocean Policy Research Institute, Sasakawa Peace Foundation, Japan Q&A Paper 11: ***Green Hydrogen International Market: Barriers and Prospects for South and Southeast Asia*** Presenter: **Livia Sapochetti**, MPP/IP Public Policy student, University of Tokyo, Japan Discussant: **Saule Zholdayakova,** Acting Head, Hydrogen Energy Competence Center, KMG Engineering, Kazakhstan Q&A
18:40-18:50 (10 minutes)	**Concluding Remarks** **Peter Morgan**, Senior Consulting Economist and Advisor to the Dean, ADBI, Japan

[Note: 35 minutes for each paper – 15 minutes presenter, 10 minutes discussant, 10 minutes Q&A;

for special session, 20 minutes for each paper – 15 minutes presenter, 5 minutes Q&A]

MÄLARDALEN UNIVERSITY
SWEDEN

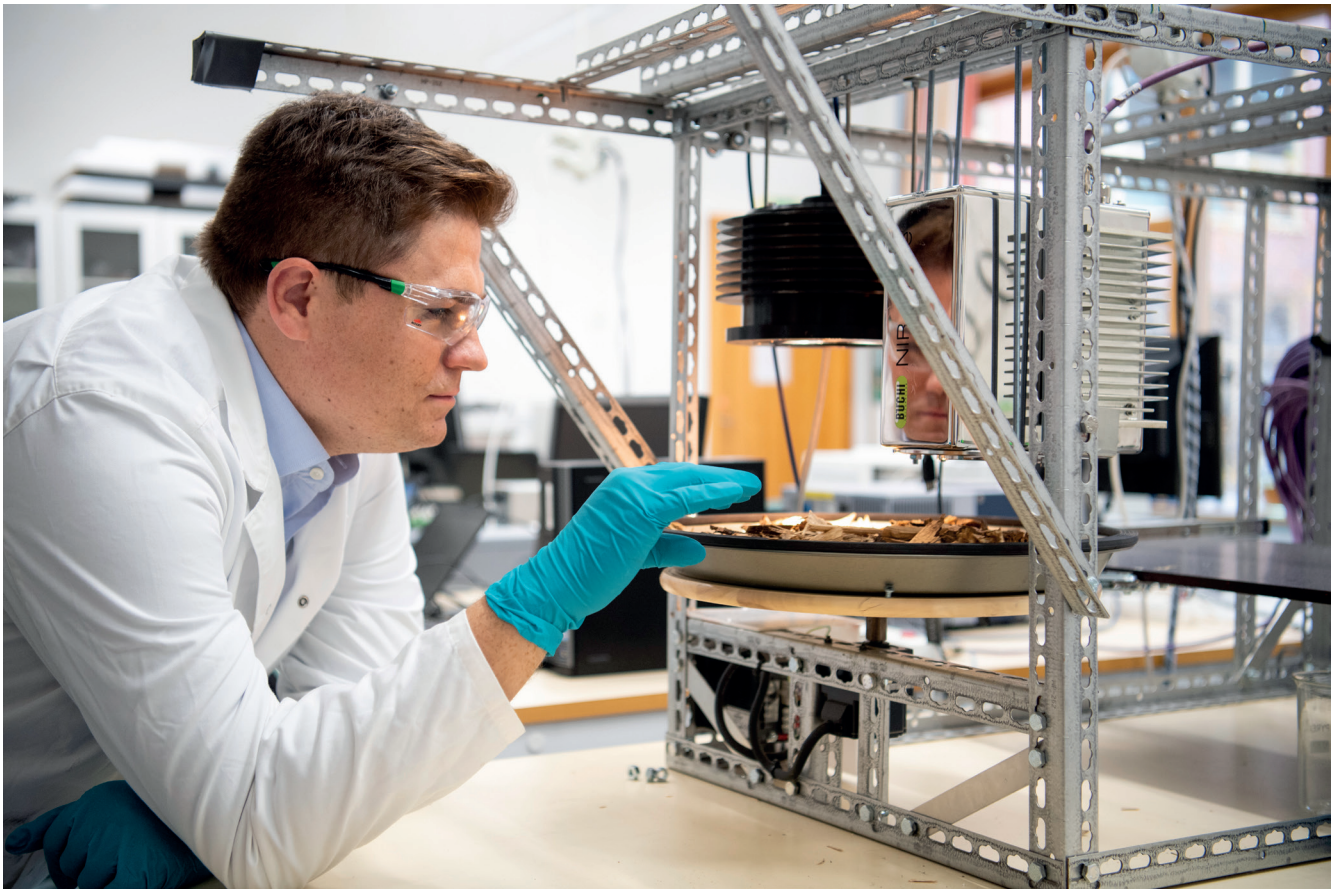
Future Energy Center

The Future Energy Center (FEC) is an internationally competitive research environment at Mälardalen University (MDH), Sweden. FEC focus on renewable energy, resource efficiency and digitalisation – towards a sustainable future, in co-production with industry and society.

FEC meets the future challenges in energy and environmental systems by investigating and developing processes and systems for increased resource efficiency and digitalisation in the transition towards a renewable energy system. A core area is enhancing the flexibility, to accommodate intermittent renewable energies such as solar and wind, and to meet the growing need of capacity. Resource efficiency includes utilizing bioenergy sources and at the same time enabling recovery of other resources, as for example nutrients. Another important area is investigating possible process integrations for both increased flexibility and resource efficiency. Further, digitalisation concerns developing new mathematical methods for model based diagnostics, decision support, optimization and control. Different simulation tools and soft sensors built on e.g. spectral measurement techniques are used in combination to develop new systems for optimization and control. Interdisciplinary work and the integration of research approaches from engineering and natural sciences with those in social sciences and humanities perspectives, as for example markets, big data handling and behaviour, are important to consider.

FEC conducts education within energy, building and environmental engineering at bachelor, master and postgraduate levels. Strategic collaboration with industry is an important part of the education. On-going activities include development of modern web-based education, which extends to the international market. Moreover, FEC participates in several research schools in collaboration with industry and the public sector.

THE FUTURE ENERGY CENTER PRODUCES OVER 100 publications per year, including in the top ranked journals Nature Energy and Nature Climate Change. FEC Professors are active in leading international communities and organises several international conferences together with other partners. FEC has 40+ ongoing projects, of which most are carried out in collaboration with industry and the public sector.



Today, the center comprises 8 professors, 20 senior researchers and about 30 graduate students. The research environment is characterised by a high level of cross-collaboration and communication that drives synergies in interdisciplinary work. International exchange including visiting professors and other researchers at FEC has been highly active over the past 10 years, with visiting professors from Canada, South Africa, Norway, India, and China etc. The Future Energy Center has an annual research budget of about 40 million SEK of which around 70% is external funding.

FEC HAS STRONG RELATIONSHIPS WITH INDUSTRY as well as with recognized national and international centers, including universities across the world. The collaborations with other international partners are carried out through international platforms, where activities connected to the ICAE conference is one important part. The research within FEC is an important part of the development of MDH's strategic collaboration with both private and public sector, partly based on strategic agreements with for example ABB and Bombardier Transportation. In addition, cooperation is carried out with several regional small and medium sized companies. There is also a strong development of energy related interests in industry in the Mälardalen region as for example the establishment of Northvolt Labs and Hitachi ABB Power Grids.

Nov. 24 Tokyo Time

17:00	**Opening (Room S)**		
17:30-18:30	**Keynote 1: Prof. Eva Thorin (Room S)**		
Session 1 (Room A) **Session Name: Big Data and Artificial Intelligence in Energy Systems** **Session Chair:Xiaodan Shi, The University of Tokyo; Yuntian Chen, Eastern Institute for Advanced Study**			
Time	Paper ID	Author	Paper Title
18:30	1985	Ying Hui, Yuliang Liu and Qing Yu	Reducing Carbon Emissions by Optimizing Dispatch of Urban Bicycle Sharing Service Based on Bicycle Inner Circulation Area
18:45	1989	Shengchun Liu, Zhiming Xu, Shen Yin, Xueqiang Li, Xinyu Zhang and Haiwang Sun	Optimization of the single-phase immersion cooling system: Impact of heat sink and coolant
19:00	3992	Xiaoxin Zeng, Quanyi Liu, Hao Yu and Ning Mao	Thermal and flow characteristics of microchannel heat sink with rectangular grooves using nanofluids
19:15	5385	Hui Yin, Kaile Zhou and Shanlin Ynag	Decentralized NILM Model Considering Privacy Protection with Federated Learning
19:30	3970	Dingrong Dai, Huakun Huang, Sihui Xue, Longtao Guo and Lingjun Zhao	Accurate Building Energy Consumption Prediction with Hybrid Deep Neural Networks
19:45	7117	Pengfei Zhu and Zhen Wu	Multi-physics modeling and performance attenuation prediction of syngas fueled SOFC under Ni coarsening
20:00	4911	Corne van Zyl, Xianming Ye and Raj Naidoo	Explaining Multi-Headed CNN Deep Learning for Day Ahead National Demand Load Forecasting
20:15	6374	Akshay Ajagekar and Fengqi You	Demand Response in Microgrids with Attention-based Multi-Agent Reinforcement Learning
20:30	4224	Zhihong Jiang, Guanxiang Shan, Xiuyan Wang, Feishuai Zhang, Kangnan Song and Guiyuan Liu	Research on Frequency Modulation Control of Doubly Fed Induction Generators with High Wind Power Proportion
20:45	5191	Zhengzuo Liu, Lanyu Li, Ling Fu, Jing Li, Sun Tianrui and Xiaonan Wang	Knowledge Graph for Low Carbon Power and Energy Systems
Session 2 (Room B) **Session Name: Big Data and Smart Cities** **Session Chair: Zhiling Guo, The University of Tokyo; Jie Yan, North China Electric Power University**			
Time	Paper ID	Author	Paper Title
18:30	1126	Jiawei Tan, Fang Zhang, Xianya He, Yuan He, Yutian Wang, Lidian Niu, Rui Jing and Yingru Zhao	Data-driven approaches predict hourly electricity demand profiles at industry and city-level
18:45	9438	Chonghao Yan, Jianwei Li, Weitao Zou, Shucheng He and Luming Yang	Quantitative Diagnosis Method of PEM Fuel Cell Membrane Humidity Based on Operating Conditions
19:00	9735	Wei He, Chenchen Xu and Shengchun Liu	Structure Optimization on Water-Air Mixed Cooling Heat Sink When Used for Server Cooling
19:15	176	Lingfei Qi, Yuan Wang, Juhuang Song and Jinyue Yan	Mechanical motion rectification-based electromagnetic vibration energy harvesting: A review
19:30	4323	Yong You, Wenfei Li and Ning Mao	A fast prediction method of wind environment around buildings based on deep learning model
19:45	5178	Quanyi Liu, Xiaoxin Zeng, Lin Zeng and Ning Mao	An operating characteristics study on a small-scale CPV-ORC power generating system in summer typical day
20:00	6635	Tingsheng Zhang, Lingji Kong, Minfeng Tang, Zutao Zhang and Jinyue Yan	An Electromagnetic Energy Harvester with Rotary Motion Rectifying Mechanism and Half-Wave Flywheel for Heavy Railroads
20:15	9669	Bei Liu, Yao Hu, Jingru Zhang and Wendong Wei	How does smart city construction affect urban total factor energy efficiency? ——A quasi-natural experiment from China
20:30	6208	Yanfei Ji	Rapid Retrofit Analysis for City Scale Residential Buildings
20:45	8769	Shengchun Liu, Huan Liu, Yang Zheng, Xueqiang Li and Yonghui Guo	Optimization of open refrigerated display cabinet based on different package arrangements

Nov.25 Tokyo Time

Session 3 (Room A) Session Name: Energy and Buildings Session Chair: Minda Ma, Lawrence Berkeley National Laboratory, UC Berkeley; Rui Zhu, Institute of High Performance Computing, A*STAR, Singapore			
Time	Paper ID	Author	Paper Title
17:00	852	Dina Azhgaliyeva and Dil Rahut	Financing Green Buildings
17:15	1101	Xiaodong Tian, Kefeng Xu and Jia Hua Liang	Research on Modular Carbon Emission Measurement of Engineering Construction Stage
17:30	1210	Ji Zhang and Chuang Wen	Effects of flow boiling heat transfer correlations of zeotropic mixtures on the design of evaporator and parameters of ORC system
17:45	1275	Chenhang Bian, Chunmei Guo, Xi Chen and Chi-chung Lee	Sensitivity analysis on the operating energy efficiency of public buildings in China
18:00	1320	Wenfei Li, Yong You and Ning Mao	Thermal and flow characteristics of adaptive microchannel heat sink for electronic chips
18:15	1371	Tengfei Huo, Qianxi Du, Huadun Chen and Weiguang Cai	Dynamic scenario simulation of Chinese urban residential building carbon emission peak toward 2060
18:30	1474	Zhang Deng, Kavan Javanroodi, Vahid Nik and Yixing Chen	Urban building energy modeling under climate change: A case study of Geneva, Switzerland
18:45	2829	Xiwang Xiang and Minda Ma	Drivers and mitigation of the operational carbon in the developing world's buildings
19:00	3836	Weichao Yan, Xin Cui, Yilin Liu, Liwen Jin and Xiangzhao Meng	Effect of Random Packing of Fibers on Evaporative Cooling Performance of Counter-flow Hollow Fiber Membrane Modules
19:15	8733	Minxia Chen, Minda Ma and Ran Yan	Kuznets assessment of CO2 emissions in residential buildings
Session 4 (Room B) **Session Name: BIPV and Buildings** **Session Chair: Zhengjia Lin, The Hong Kong Polytechnic University; Houpei Li, Hunan University**			
Time	Paper ID	Author	Paper Title
17:00	4865	Zhengguang Liu, Ying Du, Zhiling Guo, Chenchen Song, Qi Chen, Wene Wang and Haoran Zhang	Planning Building Integrated Photovoltaics (BIPV) Adapting to Extreme Wind Weather
17:15	5791	Wanlei Wei and Yixing Chen	Rapid Building Energy Modeling using Prototype Model and Automatic Model Calibration for Retrofit Analysis with Uncertainty
17:30	313	Xingyu Zhu, Jinpeng Bi, Yuexia Lv, Yancai Su and Jinyue Yan	Analysis of the technical and economic feasibility of photovoltaics on university campuses in different irradiated regions
17:45	1032	Jinpeng Bi, Mengli Li, Yuexia Lv, Xingyu Zhu and Jinyue Yan	Design, Fabrication and Evaluation of a Reversible Dual-Axis Solar Tracking System
18:00	4731	Kai Zhang, Jinyue Yan and Min Chen	Assessment of the photovoltaic potential of photovoltaic noise barriers in 52 of China's main cities
18:15	5962	Sisi Chen, Guanghong Bi, Zichuan Nie and Lihua Zhao	Modeling the energy saving potential of typical office building rooftop PV system in Guangzhou
18:30	6312	Xinyu Pan, Xing Ju and Chao Xu	Multi-physics analysis of Perovskite solar cells for spectral-splitting photovoltaic/thermal (PVT) systems
18:45	7868	Ghazaleh Asefi, Tao Ma and Ruzhu Wang	An experimental study on the effect of Phase change material on hybrid Photovoltaic thermal systems
19:00	8171	Sangkyo Jeong and Steven Jige Quan	Predicting rooftop solar energy potential in Seoul with the techno-economic method
19:15	8773	Xingbao Lyu, Yi Yuan, Wenjing Ning, Li Chen and Wenquan Tao	Data-driven modeling and optimization analysis of a proton exchange membrane fuel cell combined heat and power system
19:30-19:40	**TEA/COFFEE BREAK**		

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Session 5 (Room A) Session Name: Low Carbon City and Urban Planning Session Chair: Wenlong Shang, Beijing University Of Technology /Imperial College London; Linchuan Yang, Southwest Jiaotong University (SWJTU)			
Time	Paper ID	Author	Paper Title
19:40	2099	Jiali Wang, Huibo Bi, Wen-Long Shang, Yishui Chen and Xuewang Song	Low Carbon Enabled Travel Mode Selection Factors Inference based on Ensemble Learning
19:55	2353	Lu Haiyan and Haolun Men	Exploring influencing factors of selecting cases and their carbon emission performance in the low carbon urban experiment literature
20:10	5256	Huibo Bi, Wen-Long Shang, Jiali Wang, Yishui Chen and Xuewang Song	Green vehicle routing with a faster-than-real-time generative neural network framework
20:25	436	Guoqing Hu and Fengqi You	Improvement in Energy Efficiency in Controlled Environment Agriculture with AI-based Modeling Methods and Data-Driven Predictive Control Approach
20:40	1087	Na Li and Steven Jige Quan	An Empirical Investigation of Apartment Typologies and Building Energy Use in Seoul
20:55	7423	Ke Fan, Rui Zhu and Man Sing Wong	Opportunities to reduce energy demand and promote renewable energy through urban planning: a conceptual framework
21:10	7456	Rui Zhu, Dongxue Guo, Man Sing Wong and Joon Heo	A detail-oriented deep learning network for refined segmentation of distributed photovoltaic areas from satellite imagery
21:25	175	Qian Huang and Jinyue Yan	Peer-to-peer energy trading strategies for PV prosumers using bi-level programming approach
21:40	1431	Zonghan Li, Chunyan Wang, Yi Liu, Xiaoyuan Ni, Wenlei Shi, Jia Zhang and Jiang Bian	Hourly resolution water and energy consumption prediction in households: revealing the water-energy nexus
21:55	8132	Zonghan Li, Chunyan Wang and Yi Liu	Predicting annual household water consumption using the water-energy nexus concept
Session 6 (Room B) **Session Name: Demand Response and Energy Network** **Session Chair: Zhaoming Yang, China University of Petroleum, Aalborg University; Haoran Ji, Tianjin University**			
Time	Paper ID	Author	Paper Title
19:40	1037	Houfan Du and Shengxi Zhou	The simulation and experimental study on a novel buckling beam energy harvester
19:55	1158	Kaile Zhou and Dingding Hu	Optimal sizing of electric vehicle charging station: A techno-economic perspective
20:10	1244	Tianqi Xiao and Fengqi You	Physically Consistent Neural Network for Control-Oriented Modeling of Buildings
20:25	2682	Yating Sun, Hongchuan Qin, Xi Li, Bingtao Zhang, Renjie Zhou, Haichuan Tian, Jian Li and Jianhua Jiang	Modeling and analysis of carbon-neutral solid oxide fuel cell and electrolyzer cell microgrid system driven by renewable energy
20:40	2859	Kunshu Zhou, Kaile Zhou and Xinhui Lu	Generative Adversarial Network-based Scenario Generation Method for Energy Storage Capacity Configuration of Newly–built Microgrid
20:55	3407	Jiaqi Yuan, Wenjie Gang and Fu Xiao	Collaborative Demand-side Management Optimization for Regional Distributed Energy System under Carbon Emission Restriction
21:10	4184	Lei Wang, Xuesong Chang, Yingzi Xian and Bolong Mao	Capacity Optimization of Photovoltaic Storage Microgrid System Considering Carbon Trading Under Power Rationing Conditions
21:25	7023	Yuekuan Zhou	Techno-economic-environmental performance analysis on stochastic vehicle schedules for a distributed renewable energy sharing network
21:40	9180	Huirong Zhang and Shengxi Zhou	A novel savonius wind turbine energy harvester with electromagnetic for self-power application in railway tunnel
21:55	9462	Lijun Shi and Pengfei Si	Energy System Framework of buildings in remote districts based on Photovoltaic power supply -- Application case analysis of Agricultural and pastoral areas buildings in Qinghai-tibet plateau

Nov. 26 Tokyo Time

Session 7 (Room A) Session Name: CCHP and Energy Storage Session Chair: Wandong Zheng, Tianjin University; Chuang Wen, University of Exeter			
Time	Paper ID	Author	Paper Title
16:30	266	Shengdong Zhou, Yu Yuan, Zhang Bai and Bo Zheng	Dynamic operation potential of employing thermochemical recuperation in combined cooling, heating and power system with energy storage
16:45	268	Jinxin Feng, Ziye Ling, Xiaoming Fang and Zhengguo Zhang	Performance enhancement and dual-phase change heat transfer mechanism for latent heat thermal energy storage unit using phase change nanoemulsion
17:00	657	Qi Wang, Haitao Zhang, Songsong Zhao and Bin Liu	Numerical simulation analysis of photovoltaic energy storage and constant temperature storage system
17:15	841	Jianbo Shi, Xueqiang Li, Xu Luo, Yabo Wang, Shengchun Liu and Hailong Li	Influence of temperature on aging of lithium ion batteries
17:30	1024	Jing Chen, Hui Kong, Yong Hao, Hongsheng Wang and Hongguang Jin	A novel solar-driven thermochemical fuel production system
17:45	2334	Ke Zhao, Sicong Tan, Xiaoguang Yang and Hui Kong	Performance analysis of an integrated system combining solar-assisted methanol reforming and fuel cell power generation
18:00	2444	Junfei Guo, Xuewen Yan, Xiaohu Yang, Zhan Liu and Jinyue Yan	Solid-liquid phase change heat absorption performance in finned tubes under the impact of rotational speed
18:15	2608	Kaile Zhou and Zenghui Zhang	Comparative Analysis of Shared Energy Storage Architectures in Industrial Parks
18:30	2798	Xu Luo, Xueqiang Li, Yabo Wang, Shengchun Liu and Hailong Li	Numerical study of thermal runaway caused by local overheating of LiFePO4 battery
18:45	3055	Xinyu Huang, Jialu Ding, Xiaohu Yang, Zhan Liu and Jinyue Yan	Application of flip mechanism in latent heat energy storage system
Session 8 (Room B) **Session Name: Emission Mitigation and Reliability** **Session Chair: Ya Zhou, Guangdong University of Technology; Saige Wang, Beijing Normal University**			
Time	Paper ID	Author	Paper Title
16:30	8811	Dan Fang, Saige Wang and Bin Chen	Climate resilience promotion in China's food production with agricultural mechanization from 2000 to 2020
17:00	481	Tingting Kang, Han Wang and Pengjun Zhao	The effects of urban functional land on energy-related CO2 emissions in China
17:15	1897	Binyuan Liu, Riemer Kuik, Lazarus Chapungu, Yuli Shan and Klaus Hubacek	The landscape of city-level GHG emission accounts in Africa
17:30	3588	Ya Zhou, Sheng Liang, Heran Zheng and Yang Zhou	Rebuilding decarbonization paths of industrial clusters for Pearl River Delta urban Agglomeration: A regional carbon productivity upgrading perspective
17:45	3676	Xinyu Dou, Piyu Ke and Zhu Liu	Pathway of achieving carbon neutrality: A city-level analysis in China's Xiong'an
18:00	7304	Yingying Han, Lichun Xiao, Xiuyan Wang, Chang Wang, Rui Wu, Yifeng Xue, Xiang Zhang, Weiwei Wang, Yangyang Cui, Jinxiu Han, Zongbo Shi and Taosheng Jin	More heavy-duty diesel trucks on national highways in Beijing-Tianjin-Hebei Region pose a continuing challenge in road traffic emission control from 2016 to 2020
18:15	8389	Xin Shi, Fang Fang, Gangcheng Wen, Zhiyue Wu and Qi Yao	Digital twin technology and its application for carbon emission of building integrated energy system
18:30	8979	Patrick Eigbe, Olatunbosun Ajayi, Olabode Olakoyejo, Opeyemi Fadipe, Steve Efe and Adekunle Adelaja	A Review of CO2 Sequestration in Underground Geological Formations: Recent Developments and Potential Opportunities in the Niger Delta
19:00-20:00	**Keynote 2: Prof. Zhifu Mi (Room S)**		
20:00-21:00	**Keynote 3: Prof. Jerry D Murphy (Room S)**		

Nov. 26 Tokyo Time

Session 9 (Room A) Session Name: EV and Distributed Energy System Session Chair: Quan Zhou, University of Birmingham; Nan Xu, Jilin University			
Time	Paper ID	Author	Paper Title
21:00	6964	Hongbing Ding, Yuanyuan Dong, Yu Zhang and Chuang Wen	Energy efficiency of hydrogen recirculation ejectors for PEMFC system considering the non-equilibrium condensation
21:15	1763	Qiao Liu and Nan Xu	Analysis of driving cycle formation principle based on "drivers-vehicles-roads" information constraint framework
21:30	1772	Xuewang Song, Wen-Long Shang, Huibo Bi, Yishui Chen and Jiali Wang	Congestion and Pollutant Emission Analysis Based on Floating Vehicle Data
21:45	3727	Xiaoning Zhang, Pengfei Sun, Shixue Wang and Yu Zhu	Effects of over-discharging cycling on battery degradation at low temperatures
22:00	4035	Shengchun Liu, Zhongyao Zhang, Xiaohan Zhao, Xueqiang Li, Chengming Zhang and Hailong Li	Performance prediction of heat pipe used in motor cooling
22:15	9788	Cetengfei Zhang, Min Hua, Quan Zhou, and Hongming Xu	An asynchronous system of joint estimation for battery status based on LSTM
22:30	5801	Min Hua, Zhi Li and Quan Zhou	Energy Management of Multi-mode Hybrid Electric Vehicles based on Hand-shaking Multi-agent Learning
22:45	2685	Hanbei Zhang and Fu Xiao	Model-based multi-objective optimal energy scheduling for energy management of distributed energy system
23:00	6396	Yongdong Wu, Zhiquan Liu, Jilian Zhang, Kaimin Wei, Dejia Lin and Bingwen Feng	Selective Packet Dropping Attacks to BESS-integrated Smart Grids
23:15	6670	Ke Guo, Mingkai Liu, Bin Wang and Yong Hao	Hydrogen Production via Methane Steam Reforming with Simultaneous Separation of Hydrogen and Carbon Dioxide
Session 10 (Room B) **Session Name: Bioenergy and Negative Emission** **Session Chair: Qie Sun, Shandong University; Rui Jing, Xiamen University**			
Time	Paper ID	Author	Paper Title
21:00	4815	Li Tang, Jingchun Feng, Yan Xie, Hui Zhang, Canrong Li and Si Zhang	Distribution characteristics of methane in the water column and sea-to-air flux in “Haima” cold seep, South China Sea
21:15	8282	Hui Zhang, Jingchun Feng, Yongming Shen, Li Tang, Zhifeng Yang and Si Zhang	Biogeochemical Footprints In Variant Methane Seepage Intensity Reveal Methane Ultimate Fate In Cold Seep
21:30	656	Shuaihua Guo, Zhiwei Wang ,Gaofeng Chen , Mengju Zhang, Tanglei Sun, Yan Chen , Mengge Wu , Tingzhou Lei , Kiran G. Burra, Ashwani K. Gupta	Co-pyrolysis characteristics of forestry and agricultural residues and waste plastics using TGA, FTIR and Py-GC/MS analysis
21:45	2026	Yu Xin, Xueli Xing, Qiongqiong Jiang, Fan Sun and Hui Hong	A Sustainable fuel production system integrating concentrated solar assisted biomass gasification and photovoltaic water electrolysis
22:00	3535	Zhijie Zhang, Yanqiang Di, Chen Zhao, Zhen Li, Shousong Liu, Haiyan Di and Mengying Li	Study of the combustion performance of new biomass heating stoves
22:15	4630	Dongtai Yang, Sheng Li, Song He and Yawen Zheng	Zero/negative carbon emission coal-steam gasification power generation system via biomass heating
22:30	5179	Wei-Han Chen and Fengqi You	Climate Control on Building-Integrated Greenhouse Using Model Predictive Control
22:45	6652	Yan Chen, Zhiwei Wang, Gaofeng Chen ,Tanglei Sun ,Mengju Zhang, Qun Wang , Mengge Wu , Shuaihua Guo ,Shuhua Yang , Tingzhou Lei , Kiran G. Burra, Ashwani K. Gupta	Products distribution and synergistic effects analysis during co-pyrolysis of agricultural residues and waste tire by Py-GC/MS
23:00	9034	Okwesilieze Uwadoka, Adekunle Adelaja, Olabode Olakoyejo, Opeyemi Fadipe and Steve Efe	Effect of inclination angle on the laminar flow of CO2-mango bark nanofluid in inclined tube-in-tube heat exchanger
23:15	9356	Mengge Wu, Zhiwei Wang, Gaofeng Chen, Mengju Zhang, Tanglei Sun, Huina Zhu, Shuaihua Guo, Yan Chen, Youjian Zhu, Tingzhou Lei, Kiran G. Burra, Ashwani K. Gupta	Products distribution analysis of the co-pyrolysis of rapeseed stalk with PET, PP and PVC based on Py-GC/MS

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Session 11 (Room A) Session Name: Energy Management 1 Session Chair: Yamin Yan, North China Electric Power University; Ning Xu, China University of Petroleum-Beijing			
Time	Paper ID	Author	Paper Title
16:30	548	Weiyu Yuan, Jingchun Feng, Si Zhang, Songwei Sheng, Liwei Sun and Chenyao Le	Environmental and Energy Performance of Offshore Aquaculture Systems Incorporating with Ocean Renewable Energy Sources
16:45	884	Bo Chen, Fan Xu, Wei Chen and Zuming Liu	MACHINE-LEARNING ENABLED SOLAR PHOTOVOLTAIC POWER PREDICTION
17:00	2043	Bo Li and Chi Zhang	Evaluating the stranded assets of coal power units in China under the constraint of carbon emission
17:15	2230	Fang Luo, Siqi Chang, Pengfei Zhang and Wendong Wei	Drivers of Air Pollutants Embodied in China's Interprovincial Electricity Transmission
17:30	2887	Wei He, Qing Xu and Shi Zhao	Performance Analysis of Data Centers Applying Hybrid Renewable Energy Power Systems
17:45	3399	Lijun Wang, Donglan Zha and Dequn Zhou	Energy Demand Elasticities and the Bidirectional Price Effects in Urban Chinese Households: A Two-Stage LA-AIDS Approach
18:00	3742	Chuanjun Yang, Xinyu Wang, Weichao Yan and Xin Cui	APPLICABILITY ANALYSIS OF INDIRECT EVAPORATIVE COOLING TECHNOLOGY FOR DATA CENTERS IN CHINA
18:15	3814	Xing Yao, Shao-Chao Ma and Lei Zhu	The role of vehicle-to-grid on the power sector transitions towards carbon neutrality: A case study of China
18:30	3923	Peilin Chen, Ruiping Jiang and Zhan-Ming Chen	Characteristics and driving forces of household energy consumption: An international comparison from production-based and consumption-based perspectives
18:45	4299	Ziyang Wang and Ryuji Matsuhashi	Day-ahead electricity spot price prediction by knowledge-aware LSTM
Session 12 (Room B) **Session Name: Negative Emission and Climate Change** **Session Chair: Meng Yuan, Aalborg University; Chi Zhang, Beijing Institute of Technology**			
Time	Paper ID	Author	Paper Title
16:30	339	Bo Zhang, Yongtu Liang, Ning Xu, Haoran Zhang and Qi Liao	Comprehensive analysis for the impact of hydrogen blending on the economic and environmental performance of natural gas pipeline network
16:45	1941	Cheng Cheng, Runfei An, Kangyin Dong and Zhen Wang	Assessing the impact of incentive policy on green and blue hydrogens in China: An evolutionary game theory perspective
17:00	2855	Qiang Wang and Yueling Yang	Let farmers embrace "carbon neutrality": taking self-built rooftop photovoltaic power generation projects as an example
17:15	3177	Jinkai Li, Yarong Hou, Jin Zhang, Gang Lu and Xiaochen Wang	Can the Energy Internet promote China's energy system to achieve carbon peaks in 2030?
17:30	5415	Yueqiao Sun, Zheng Li and Hui Kong	Low carbon pathway and life cycle assessment of ammonia co-firing in coal-fired power plants in the context of carbon neutrality
17:45	7303	Hui Kong, Zheng Li, Hongfei Zheng, Jian Wang and Hongsheng Wang	The development path and techno-economic analysis of direct coal liquefaction system for oil production under carbon neutrality target
18:00	7371	Fanghong Yao, Yiping Zeng, Rui Zhang and Chi Zhang	Estimating Heat-related physical activity loss in China in the Context of Climate Change：1986—2021
18:15	8016	Jiyeon Park, Sujin Lee, Na Li and Steven Jige Quan	Forecasting Building Energy Consumption in Seoul using ARIMA under Climate Change and Socioeconomic Scenarios
18:30	2300	Xinyang Zeng, Si Zhang, Jingchun Feng and Zhenwu Zhou	Growth kinetics mechanism of CO2-CH4 hydrate film on gas bubble in pure water and solution with inhibitors
18:45	3762	Zhenwu Zhou, Jingchun Feng, Yan Xie, Yanyan Huang and Si Zhang	Kinetic formation behaviors of CO2 hydrate in carbonate sediment of the South China Sea
19:00-20:00	**Keynote 4: Keynote Prof. Gang Liu (Room S)**		
20:00-21:00	**Keynote 5: Keynote Prof. Dr. Max Wei (Room S)**		

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Session 13 (Room A) Session Name: Energy Management 2 Session Chair: Qi Liao, China University of Petroleum-Beijing; Kangyin Dong, University of International Business and Economics			
Time	Paper ID	Author	Paper Title
21:00	4657	Yilong Xiao, Hancheng Dai, Teng Ma, Yanru Fang and Chen Huang	Heterogeneity and driving forces of provincial energy consumption in the urban residential sector under carbon neutrality target in China
21:15	4934	Rui Qiu, Xintong Wei, Haoran Zhang, Yongtu Liang and Jinyue Yan	Integrating Renewable Energy into China's Natural Gas Supply Chain: A Comprehensive Techno-Economic Assessment and Analysis
21:30	5631	Wei He, Jifang Zhang and Hailong Li	Energy Consumption Analysis of a Server Cooling System Utilizing Different Water-Cooled Radiators and Different Cooling Equipment
21:45	5653	Lei Zeng, Bo Hu and Feiyan Zhao	China's New Energy Efficiency Standards for Room Air Conditioners and Its Impact on Market Transformation
22:00	6249	Dongxu Chen, Ran Wu, Zhuoqun Gao, Nairong Tan and Tao Ma	Strategies for Energy Enterprises to Participate in Emission Trading Market Considering the Characteristics of Urban Emissions
22:15	6628	Sujin Lee and Steven Jige Quan	Examining nonlinear relationship between building energy use and urban form using gradient boosting decision tree
22:30	6889	Tianci Wang, Jianwei Li and Weitao Zou	Energy management for fuel cell electric vehicle considering performance degradation and hydrogen temperature in high-pressure hydrogen storage tank
22:45	7170	Yebo Zhao, Liang Tang, Bo Chen and Zuming Liu	Optimal Transition Pathway of Power Systems for Guangdong-Hongkong-Macau Region in China
23:00	7826	Xingyuan Zhou	Cost-benefit analysis for resilient hydrogen supply chain design: A case study in China
23:15	8697	Shiyu Yang, H. Oliver Gao and Fengqi You	Building Electrification and Integration of Distributed Energy Resources Toward Decarbonization: Integrated System Design and Control Optimization
Session 14(Room B) **Session Name: Distributed Energy System and Energy Management** **Session Chair: Bohong Wang, Zhejiang Ocean University; Ying Du, The Hong Kong Polytechnic University**			
Time	Paper ID	Author	Paper Title
21:00	8906	Hui Fang and Tao Ma	The connotation, current situation and future layout trends of China's hydrogen energy infrastructure industry chain
21:15	8955	Zhengyu Shi, Yang Zhou and Libo Wu	Aging society enlarges the peak and non-peak gap in energy demand
21:30	8978	Renfu Tu, Rui Qiu, Yingqi Jiao, Qi Liao, Ning Xu, Jian Du and Yongtu Liang	Low carbon transport for petroleum products: A pipeline pricing optimization perspective
21:45	9006	Weiqi Chen, Jiaxun Zhou, Chunhai Wang, Xinfu Pan, Xinwei Fan and Jiankun Peng	Health-Aware Energy Management Strategy for Fuel Cell Hybrid Electric Vehicle Based on Soft Actor-Critic Algorithm
22:00	6764	Qiliang Wang, Yao Yao, Zhicheng Shen and Hongxing Yang	A novel concentrated solar power tower system locally integrated unique solar selective coatings for enhancements of technology and economy metrics
22:15	8304	Yifan Xu, Mengmeng Ji and Bohong Wang	Optimal renewable energy export strategies of islands: Hydrogen or electricity?
22:30	9363	Xiao Li, Lingzhi Yang and Yong Hao	Adsorption-enhanced methanol steam reforming for low-temperature hydrogen production with carbon capture
22:45	9582	Lingqi Su, Zheng Yang, Wei Feng and Philippe Calvez	Optimization of District Cooling System Equipment Selection and Investment Strategy during the Ramp-Up Phase
23:00	1538	Tong Shi, Xueqing Zou, Jinzhou Li and Qiyu Huang	Natural gas supply chain network design: An optimization-oriented review
23:15	2896	Danni Lu, Jian Lin, Xianya He, Meina Xie, Nianyuan Wu, Jingzhi Huang, Shan Xie, Rui Jing and Yingru Zhao	Zero-carbon island energy systems planning with waste-to-energy
23:30	5981	Guojun Yu, Huyu Li and Huijin Xu	A New Fracture Configuration for The Enhanced Geothermal System (EGS) and Its Thermal-Hydraulic Characteristics During Thermal Exploitation
23:45	6012	Fengjuan Wang, Jinyue Yan and Jiuping Xu	Urban power systems resilience evaluation: An multi-criteria method and its validation

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Session 15(Room C) Session Name: Energy Storage Session Chair: Hui Kong, Beijing Institute of Technology; Xiaohu Yang, Xi'an Jiaotong University			
Time	Paper ID	Author	Paper Title
21:00	3957	Ziyun Wang, Jia Zhu, Moxin Wang, Pengfei Si, Lijun Shi and Xinxin Gao	Experimental study on heat transfer and heat storage of solar flat heat pipe and building phase change ceiling coupled radiant heating
21:15	4046	Zhengyang Du, Zhenxue Dai, Zhijie Yang, Wei Chen, Mingxu Cao, Vo Thanh Hung, Mohamad Reza Soltanian and Reza Ershadnia	Hydrogen geologic storage in China: Feasibility and challenges
21:30	4109	Xuewen Yan, Jialu Ding, Junfei Guo, Zhan Liu and Xiaohu Yang	Thermodynamic analysis of a compressed carbon dioxide energy storage system with a big flexible holder
21:45	4191	Huiru Sun, Bingbing Chen, Jinyue Yan, Mingjun Yang and Yongchen Song	Methane hydrate phase transition characteristics during the water-gas two-phase flow process
22:00	4302	Xueli Xing, Yu Xin, Fan Sun and Hui Hong	A hybrid system for the conversion of full spectrum solar energy to hydrogen by integrating PV-electrolysis and methanol steam reforming
22:15	4641	Chunyu Liu, Haibin Yang, Guochen Sang and Hongzhi Cui	Techno-economic evaluation of energy storage systems for concentrating solar power plants using the Monte Carlo method
22:30	6862	Qili Shi, Shunhua Yao and Xinghui Zhang	Effects of nanomaterial additives on thermal properties of sodium acetate trihydrate as a phase change materials: An experimental study
22:45	8694	Yabo Wang, Changjiang Fu, Xueqiang Li, Zhongyao Zhang and Hailong Li	Study of energy consumption of air conditioning system in container energy storage system
23:00	8791	Jialu Ding, Xuewen Yan, Xinyu Huang, Zhan Liu and Xiaohu Yang	Thermodynamic analysis of an underwater compressed air energy storage system
23:15	9091	Zhiguo Qu, Qian Liu and Jianfei Zhang	Sustainable solar thermal boosted salinity-gradient osmotic energy conversion with phase change thermal storage
23:30	4503	Tao Qiu, Chao Qin, Yan Lei, Ying Wang, Jun Fu and Dingwu Zhou	Effect of High Pressure Nitrogen Jet on Hydrogen Premixed Flame
23:45	8189	Gechuanqi Pan, Yongjun Xu, Huibin Yin, Zi-Yian Lim, Fenglin Zhou, Dan Liu, Junxu Liao, Zhiyong Li and Xiaoxi Yang	H2 Production, Storage, Transportation: A Review
24:00	5431	Milan Zlatkovikj , Hailong Li , Valentina Zaccaria	Dynamic model for large scale hot water storage tank

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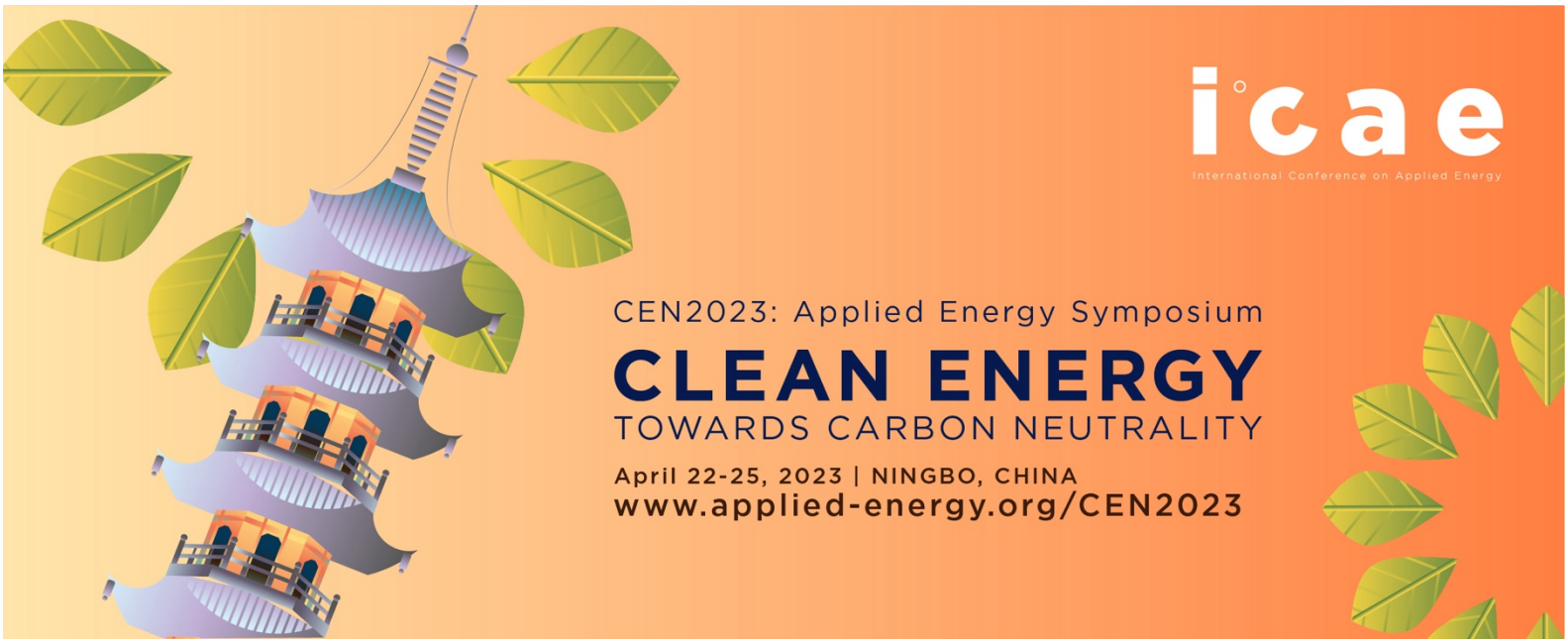

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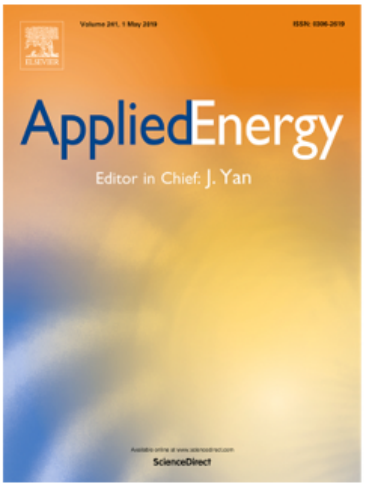

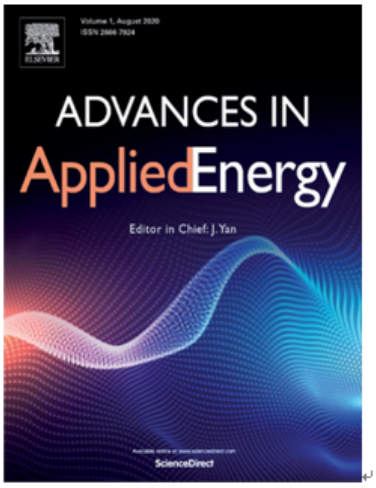

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