

# icae

International Conference on Applied Energy

Qatar • Doha

Energy Transitions for a Sustainable Future

# 15th International Conference on Applied Energy

Dec. 3-7, 2023



[www.applied-energy.org/icae2023](http://www.applied-energy.org/icae2023)

# icae

International Conference on Applied Energy

Qatar • Doha

Energy Transitions towards Carbon Neutrality

## 15th International Conference on Applied Energy

Dec. 3-7, 2023

[www.applied-energy.org/icae2023](http://www.applied-energy.org/icae2023)



## **Welcome to the 15th International Conference on Applied Energy (ICAE2023): Energy Transitions toward Carbon Neutrality**

Welcome to the 15th International Conference on Applied Energy (ICAE2023)! After three years of online and hybrid events due to Covid-19, we are excited to announce that ICAE2023 will be held as an onsite event from December 3 to 7, 2023 at Qatar University in Doha, the host city of FIFA World Cup 2022. Our theme this year is 'Energy Transitions toward Carbon Neutrality,' and the conference will feature keynotes, invited speeches, plenary sessions, workshops, oral presentations, and exhibitions. ICAE2023 aims to address the interdisciplinary challenges related to the ultimate goal of a sustainable future. Our topics include clean energy conversion technologies, renewable energy (including hydrogen energy), mitigation technologies, intelligent energy systems, energy storage, energy sciences, energy management and firm sustainability, and policy, ethics, energy economics, and regulations. As a special topic, Hydrogen Energy will be highlighted.

Please visit [www.applied-energy.org](http://www.applied-energy.org) or contact [icae2023@applied-energy.org](mailto:icae2023@applied-energy.org) for more information. If you would like to propose and organize a session, panel, workshop, or special forum, please contact us. All papers will be peer-reviewed, and accepted papers are required to be presented orally at the conference. Selected papers from ICAE2023 will be recommended for further consideration of publication in prestigious journals including Applied Energy and Advances in Applied Energy. We look forward to meeting you at ICAE2023 in Doha, Qatar!

# Committees

## CONFERENCE CHAIRS

Prof. Jinyue Yan (Co-Chair)

Prof. Saud Ghani (Co-Chair)

## ORGANIZING COMMITTEE

Prof. Hailong Li

Prof. Elsadig Mahdi Ahmed Saad

Dr. Haoran Zhang

Dr. Waled Mukahal

Dr. Mingkun Jiang

Prof. Shiming Deng

Dr. Xiaodan Shi

Prof. Samer Fikry

Dr. Ying Du

Prof. Ahmed Sleiti

Dr. Zhenjia Lin

Mr. Pratheesh Ben

Mr. Dayin Chen

Dr. Zhiling Guo

Mr. Junxiang Zhang

Dr. Junwei Liu

## SECRETARY

Dr. X. Shi

Dr. Y. Du

## INTERNATIONAL SCIENTIFIC COMMITTEE

Prof. Jinyue YAN (Chair), Editor-in-Chief, Applied Energy

Prof. Jianzhong WU (Co-Chair), Co-Editor-in-Chief, Applied Energy

Prof. Zita VALE (Co-Chair), Co-Editor-in-Chief, Applied Energy

Prof. Siaw-Kiang CHOU (Co-Chair), Senior Editor, Applied Energy

Prof. Umberto DESIDERI (Co-Chair), Senior Editor, Applied Energy

A. K. Gupta, USA

A. Massardo, Italy

A. Meier, USA

A. P. Roskilly, UK

C. D. Rakopoulos, Greece

C. S. Wang, Singapore

D. Chiaramonti, Italy

D. Guan, UK

D. J. Lee, Taiwan

D. K. Zhang, Australia

E. Dahlquist, Sweden

E. Martelli, Italy

F. C. Sun, China

G. Hammond, UK

G. Strbac, UK

H. B. Sun, China

H. G. Jin, China

H. L. Li, Sweden

H. M. Xu, UK

J. Hetland, Norway

J. Milewski, Poland

J. Whalen, Canada

J. Z. Wu, UK

K. Hubacek, The Netherlands

K. Yoshikawa, Japan

L. Kazmerski, USA

M. K. H. Leung, Hong Kong

M. Kraft, UK

P. Yang, USA

M. Sorrentino, Italy

N. Hedin, Sweden

N. Zhou, USA

O. Veneri, Italy

P. Lund, Finland

P. Yang, USA

R. Madlener, Germany

R. Span, Germany

S. A. Kalogirou, Cyprus

S. Garimella, USA

S. T. Tu, China

T. Shamim, USA

X. G. Li, Canada

X. H. Xia, South Africa

Y. L. He, China

Y. M. Wei, China

Y. Yamagata, Japan

Z. Y. Luo, China

T. Wu, China

C. H. Pang, Malaysia

X. Gao, China

F. C. Wang, China

E. Lester, UK

G. Zhu, China

L. Chen, China

E. M. A. Saad, Qatar

S. Ghani, Qatar

H. Li, Sweden

S. Fikry, Qatar

A. Sleiti, Qatar

S. Deng, Qatar

# Acknowledgements



# Nexus

# Program of ICAE2023

**Conference Venue: Student Affairs Building (I11), Qatar University**

\*Note that the registration is always open during the conference. The above is the official centralized registration time. Please contact WeChat (doing\_do)/ Email (icae2023@applied-energy.org) for registration outside of the official registration time.

**\*Note that all time is local time**

**Official Registration Time**

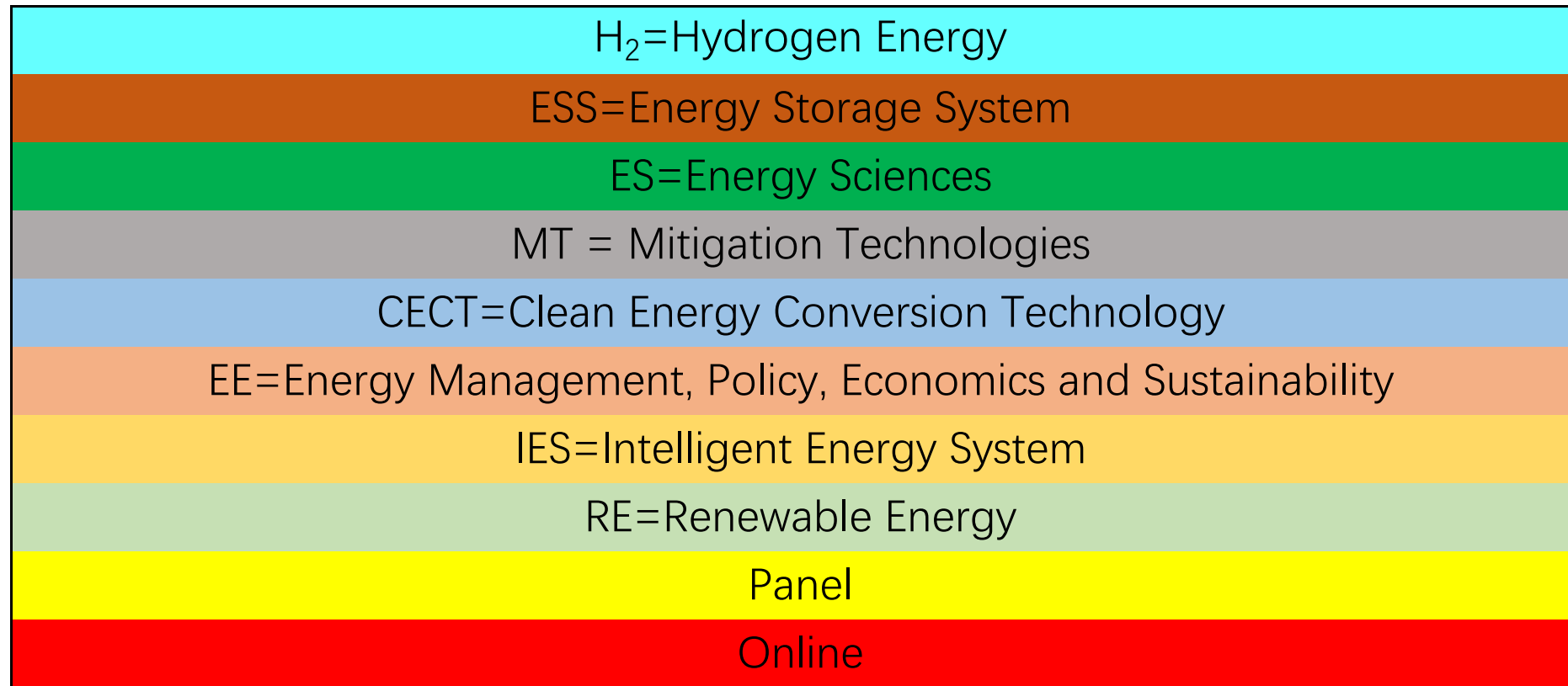
Date	Registration Venue	Doha Time
Dec 2, 2023 (Saturday)	Ground Floor(surround A1)	14:00 ~ 18:00
Dec 3, 2023 (Sunday)	Ground Floor(surround A1)	8:00 ~ 18:00

Time	Day 1: Dec 3								
9:00-10:00	Opening, General Conf. (Room A1)								
10:00-12:30	Exhibition (including Coffee Break)								
Room No	C243	C244	C245	C246	B219	B220	E215	E216	A1
	1-A1	1-B1	1-C1	1-D1	1-E1	1-F1	1-G1	1-H1	1-I1
Session Chair	Dr.Weicong Xu/ Dr.Bartosz Kątski	Dr. Wenlong Shang	Dr. Yuntian Chen	Prof. Roland Span	Prof. Meihong Wang	Dr.Arthur Stobert	Asso Prof. Wandong/ Dr. Zhenjia Lin	Dr. Zhiling Guo	
10:30-10:45	162	467	495	4	601	41	8	111	
10:45-11:00	296	621	138	139	684	463	169	128	
11:00-11:15	458	286	140	263	79	492	376	159	
11:15-11:30	489	614	146	300	150	216	481	178	
11:30-11:45	523	315	120	323	45	593	27	257	
11:45-12:00	673	34	461	379	618	65	52	325	
12:00-12:15	228		507	578	600	166	199	342	
12:15-12:30	348		689	103	514	676	592	428	
12:30-13:30	lunch								
	1-A2	1-B2	1-C2	1-D2	1-E2	1-F2	1-G2	1-H2	1-I2
Session Chair	Prof. Erik Dalquist/ Dr. Liang Wang	Mr. Nur Cahyo/ Dr. Sanli Tang	Asso Prof.Ocean Cheung	Dr. Shuai Yao/ Dr. Meysam Majidiezhad	Dr. Yue Zhou/ Dr. Yiming Yao	Dr.Patrik Klintenberg	Dr.Ying Du/ Dr. Xiaodan Shi	Prof.Ahmad Khalaf Sleiti	
13:30-13:45	372	380	37	631	490	666	260	13	
13:45-14:00	265	544	389	635	35	47	2	69	
14:00-14:15	573	634	167	185	78	164	650	234	
14:15-14:30	606	177	173	568	88	440	49	235	
14:30-14:45	250	267	176	90	525	294	63	259	
14:45-15:00	85	80	183	222	149	370	114	261	
15:00-15:15	598	531	202	208	362	528	161	313	
15:15-15:30	488	44		117	434	459	203	354	
15:30-16:00	Coffee Break								
	1-A3	1-B3	1-C3	1-D3	1-E3	1-F3	1-G3	1-H3	1-I3
Session Chair	Dr. Liang Wang	Dr. Anders Avelin	Prof. Junjie Yan/ Dr. Jakub Jurasz	Prof. Xiaosen Li/ Asso Prof. Zhenyuan Yin	Dr. Fang Guo/ Asso Prof. Jie Yan	Dr. Xiaodan Shi	Asso Prof. Xianming Ye/ Prof. Peng Li	Dr. Bo Liu/ Dr. Yong Hao	
16:00-16:15	196	99	7	651	295	534	343	539	
16:15-16:30	582	108	95	219	572	547	402	540	
16:30-16:45	448	147	160	627	653	591	646	542	
16:45-17:00	471	299	170	630	393	603	678	549	
17:00-17:15	554	345	180	559	86	655	64	669	
17:15-17:30	449	450	190	207	112	20			
17:30-17:45			134						
17:45-18:00			192						

Time	Day 2: Dec 4								
9:00-9:10	Opening of ICAE2023(Room A1)								
9:10-9:50	Keynote 1 Nexus for Net Zero: Fueling and Refining Energy Decarbonization with Generative AI, Quantum (Prof. Fengqi You, Room A1)								
9:50-10:30	Keynote 2 Challenges in the development of lithium-ion batteries (Prof. Haofeng Chen, Room A1)								
10:30-11:00	Coffee Break								
11:00-11:40	Keynote 3 Carbon Capture, Utilisation and Storage (CCUS) study through Systems Engineering techniques (Prof. Meihong Wang, Room A1)								
11:40-12:20	Keynote 4 Comprehensive Interdisciplinary Assessment and Economics of Negative Emission Technologies (Prof. Reinhard Madlener, Room A1)								
12:30-13:30	lunch								
Room No	C243	C244	C245	C246	B219	B220	E215	E216	A1
	2-A1	2-B1	2-C1	2-D1	2-E1	2-F1	2-G1	2-H1	2-I1
Session Chair	Prof. Ahmad Khalaf Sleiti	Dr. Jun Zhao/ Dr. Yuntian Chen	Prof. Zaoxiao Zhang	Dr. Susumu Yada/ Dr. Alaa Krayem	Dr. Qing Yu	Prof. Qie Sun/ Prof. Paola D' Orazio	Dr. Zhiling Guo/ Prof. Fengqi You	Prof. Jakub Kupecki	
13:30-13:45	476	181	205	381	516	87	256	429	<b>Panel:Hydrogen Integration for Accelerated Energy Transitions</b>
13:45-14:00	266	253	326	182	551	409	264	432	
14:00-14:15	339	280	366	46	575	230	269	438	
14:15-14:30	360	329	369	9	584	252	284	445	
14:30-14:45	17	509	184	92	626	417	287	446	
14:45-15:00	174	517	510	145	656	464	293	478	
15:00-15:15	558	596	520	187	680	585	318	479	
15:15-15:30	407	521	577	237	121	602		519	
15:30-15:45	665	268							
15:30-16:00	Coffee Break								
	2-A2	2-B2	2-C2	2-D2	2-E2	2-F2	2-G2	2-H2	2-I2
Session Chair	Asso Prof. Farzin Golzar/ Dr. Mohammed Guezgouz	Dr. Xianhua Nie/ Dr. Bashar Shboul	Prof. Sasan Sadrizadeh/ Dr. Xiaojun Luo	Dr. Weiling Luan/ Asso Prof. Xianming Ye	Dr. Junfei Guo/ Dr. Mpyana Danny Bajany	Dr. John W. Ballantine	Prof. Ottorino Veneri/ Dr. Wei Wang	Prof. Qie Sun	
16:00-16:15	42	494	351	341	125	85	84	281	
16:15-16:30	434	129	359	367	148	98	126	530	
16:30-16:45	54	200	469	395	155	115	221	576	
16:45-17:00	225	72	522	422	279	254	321	677	
17:00-17:15	390	137	465	622	349	679	324	552	
17:15-17:30	437	239	172	51	427	412	337	106	
16:00-19:00	Technical Visit to one world cup stadium								
19:00-21:00	Gala Dinner								
9:00-17:00	Workshop on Renewable Energies and Climate Change (New Engineering Building- H07 College Board meeting Room C262)								

Time	Day 3: Dec 5								
Room No	C243	C244	C245	C246	B219	B220	E215	E216	A1
	3-A1	3-B1	3-C1	3-D1	3-E1	3-F1	3-G1	3-H1	3-I1
Session Chair	Prof. Roland Span	Prof. Li Chen/ Prof. Guoyan Zhou	Dr. Mahmoud Alzoubi/ Dr. Xiaojie Lin	Prof. Rebei	Asso Prof. Guosheng Jia/ Dr. Freerk Klasing	Dr. Yichuan Ma/ Dr. Takahiro Yoshida	Dr. Xinhai Yu	Prof. Li Chen/ Dr. Yi Zong	
8:30-8:45	195	144	91	594	451	278	672	355	<b>Hydrogen Workshop</b>
8:45-9:00	652	274	165	30	496	430	683	436	
9:00-9:15	333	276	102	283	564	123	580	309	
9:15-9:30	408	319	357	535	571	563	59	486	
9:30-9:45	582	347	536	625	574	285	439	512	
9:45-10:00	194	511	671	188	613	406	56	643	
10:00-10:30	Tea/Coffee Break								
	3-A2	3-B2	3-C2	3-D2	3-E2	3-F2	3-G2	3-H2	3-I2
Session Chair	Prof. Jiawei Chen	Dr.Bashar Shboul/ Asso Prof.Wandong Zheng	Dr. Ying Du/ Mr. Guotao Wang	Prof.Rebei/ Dr. Junwei Liu	Dr. Patrik Klintenberg	Prof. Zaoxiao Zhang	Dr.Xiaodan Shi/ Dr.Zhiling Guo	Dr.Meysam Majidiezhad/ Dr. Wei Wang	
10:30-10:45	605	223	66	73	317	171	468	22	<b>Hydrogen Workshop</b>
10:45-11:00	628	255	163	141	378	297	529	28	
11:00-11:15	647	302	375	236	453	637	562	38	
11:15-11:30	132	454	466	303	455	210	649	100	
11:30-11:45	157	513	541	316	561	247	15	105	
11:45-12:00	608	156	500	16	566	258	273	533	
12:00-12:15	213	233	53	71	569	61	636	107	
12:15-12:30	218	400	97	416	579	62	312	110	
12:30-13:30	Lunch								
	3-A3	3-B3	3-C3	3-D3	3-E3	3-F3	3-G3	3-H3	3-I3
Session Chair	Dr. Qing Yu/ Mr.Junxiang Zhang	Dr. Zhenjia Lin	Dr. Anders Avelin	Dr.Junwei Liu	Dr.Holger Schlör/ Dr. Gbemi Oluleye	Dr. Mohammed Guezgouz	Asso Prof. Haoran Ji/ Dr.Ying Du	Prof. T.D. Bui/ Asso Prof. Zhenyuan Yin	
13:30-13:45	6	209	12	189	197	399	70	50	
13:45-14:00	101	152	675	191	377	498	14	462	
14:00-14:15	58	48	127	586	211	526	81	310	
14:15-14:30	175	431	128	94	311	545	131	444	
14:30-14:45	82	142	251	104	553	633	154	363	
14:45-15:00	411	387	642	32	235	641	365	241	
15:00-15:15	392	497	685	615	301	383	397	557	
15:15-15:30	158	385	640	535	500	231		456	
15:30-16:00								616	

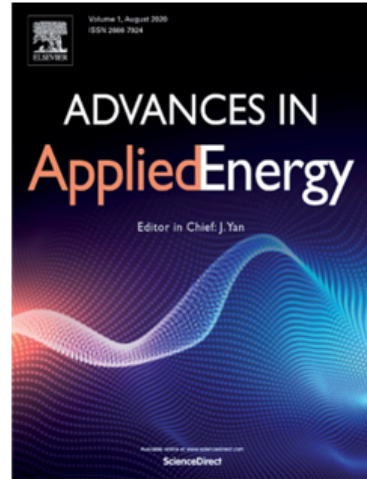
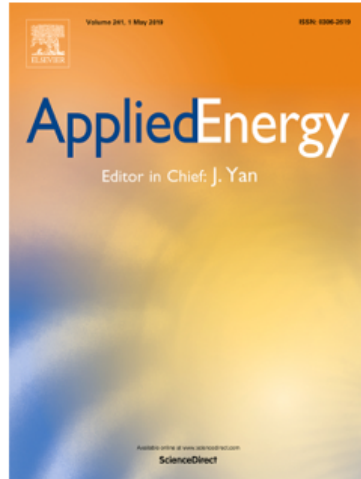
Time	Day 4: Dec 6	
9:00-12:15	Group1 and Group 2:Visit Qatar National Museum/Visit the Doha EXPO 2023/Visit the Souq Waqif	
14:00-17:15	Group3 and Group 4:Visit Qatar National Museum/Visit the Doha EXPO 2023/Visit the Souq Waqif	





# Conf. proceedings and preprints

Selected best papers from the conference will be considered for publication in a special issue jointly in **Applied Energy**, **Advances in Applied Energy**.



**Energy Proceedings** is a peer-reviewed, open-access collection of high-quality conference papers, covering a broad field of multidisciplinary subjects in not only in energy sciences and technologies but also in energy-related economics and social sciences, including policy and legal studies. The papers published in Proceedings—selected from high-quality conferences, workshops, and other scientific meetings—will constitute comprehensive, focused themes and timely topics.

<http://www.energy-proceedings.org/>



**EnerarXiv** is an open access preprint platform for the energy field, covering cutting-edge research in multidisciplinary and interdisciplinary fields including energy science and technology and energy-related economics, social sciences, and policy and law. Enerarxiv is committed to creating a high-quality sharing and exchange community for scholars and enthusiasts in the energy field. We provide a platform for uploading and sharing preprints, and the latest scientific developments, cutting-edge knowledge, and related information in order to stimulate more discussion and thinking, promote exchanges and collisions, and add momentum to scientific research and industry in the energy field.

<http://www.enerarxiv.org/>

# General Information

## Organized by

Applied Energy Innovation Institute (AEii)

## Co-organized by

Qatar University

## Supported by the international journals

Applied Energy

Advances in Applied Energy

## Date

December 3-7, 2023

## Time Difference

GMT +3 hours

## Time Zone Converter

City Location & Time Zone	Time				
Doha, Conf. Time	9:00	10:00	11:00	12:00	13:00
London	6:00	7:00	8:00	9:00	10:00
Johannesburg	8:00	9:00	10:00	11:00	12:00
New Delhi	11:30	12:30	13:30	14:30	15:30
Beijing	14:00	15:00	16:00	17:00	18:00
Tokyo	15:00	16:00	17:00	18:00	19:00
San Paulo	3:00	4:00	5:00	6:00	7:00
New York, Toronto	1:00	2:00	3:00	4:00	5:00
San Francisco	22:00 (-1)	23:00 (-1)	0:00	1:00	2:00

# General Information

## Venue

Student Affairs Building (I11), Qatar University,

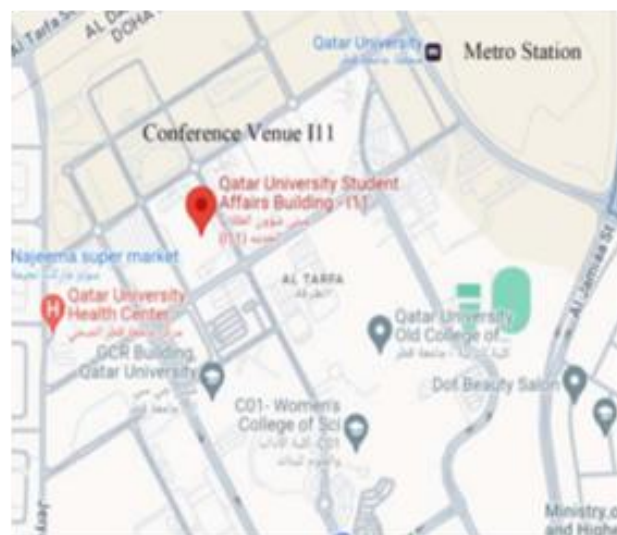
St 870 31, Doha, Qatar

The 15th International Conference of Applied Energy, ICAE2023, will be held at I11, the Student Affairs Building, at the Campus of Qatar University. A map showing the campus highlighting I11 and the metro station is as follows. Conference participants can take Doha metro to Qatar University and I11 is within walking distance from the metro station. In December, the weather in Doha is pleasant for people to walk. However, shuttle buses connecting the metro and I11 are available.

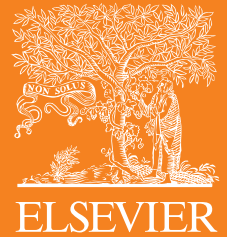


### Conference Venue I11

Address: Student Affairs  
Building (I11), Qatar University,  
St 870 31, Doha, Qatar  
TEL: (+974) 4403-3333  
E-mail: QUMCC@qu.edu.qa



# Applied Energy



*Applied Energy* covers a broad range of subjects from innovative technologies and systems of both fossil and renewable energy to the economic industrial and domestic use of energy.

## Reasons why you should publish in *Applied Energy*

### Speed

As an online only journal, there are no print delays, so once accepted your article will be made available online and fully citable quickly

### Visibility

*Applied Energy* is available via ScienceDirect, one of the biggest academic publishing platforms, so your article will be accessible by more than 12 million researchers, scientists, students and professionals from around the world.

### Impact

*Applied Energy* has a Journal Impact Factor of **11.2\*** and a CiteScore **21.1\*\***

### Value

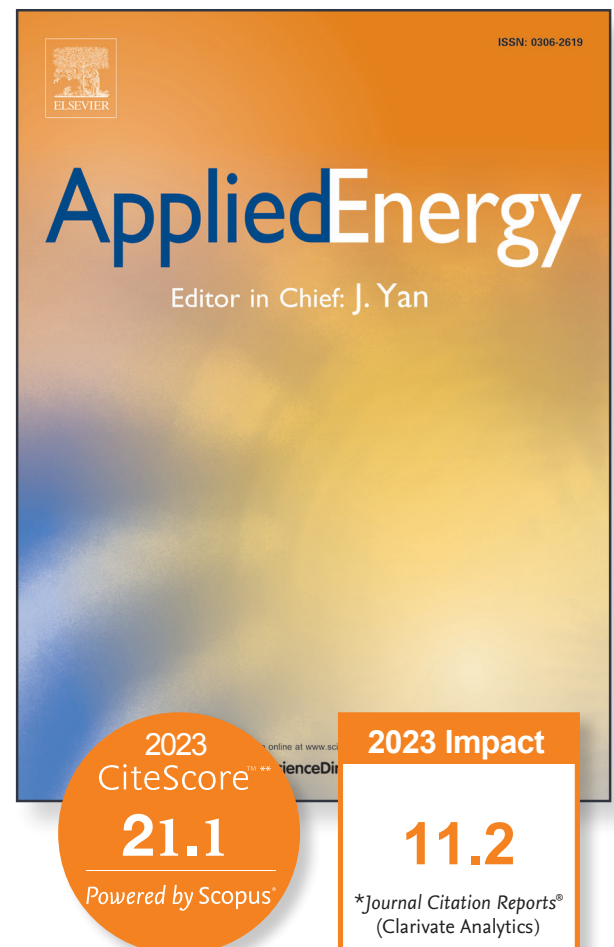
When you submit a manuscript to *Applied Energy* there are no submission fee, page charges or online colour costs

### Openness

*Applied Energy* supports open access, so you can choose to make your research freely available

### Reach

When your article has been published online, you will be sent a ShareLink which offers 50 days of complimentary online access to your article



\*\*CiteScore is an indicator of journal citation impact based on Scopus data. It measures the average number of citations in a given year from documents published in 5 previous calendar years. See [journalmetrics.scopus.com](http://journalmetrics.scopus.com) for more information on CiteScore™ metrics.

Submit your manuscript today: <http://bit.ly/ApEnergy>

# Keynote Speakers



**Prof. Fengqi You**

Smith School of Chemical  
and Biomolecular Engineering  
Cornell University

**Moderator:**

**Dr Ottorino VENERI**  
Italian National Research  
Council of Italy (CNR)

## ***Nexus for Net Zero: Fueling and Refining Energy***

## ***Decarbonization with Generative AI, Quantum***

## ***Computing, and Blockchain***

### **Abstract**

As we face escalating challenges in energy sustainability and climate imperatives, cutting-edge information and computing technologies (ICTs)—including generative AI, quantum computing, and blockchain—are emerging as critical players in establishing a nexus with energy systems decarbonization, propelling us toward the aspirational goal of net zero emissions. This presentation will explore the intricate nexus between these transformative ICTs and the decarbonization of energy systems. We will highlight several research initiatives: a deep generative learning-based, data-driven distributionally robust optimization framework for sustainable electric power operations under the variability of wind energy; an innovative quantum deep learning model aimed at bolstering the resilience of energy systems; and the design of carbon-neutral energy systems meticulously tailored to complement these advanced ICTs, collectively supporting our overarching climate goals. We will demonstrate how this symbiotic relationship fosters scientific and technological innovations toward “net zero,” and reciprocally, how decarbonizing energy and power systems promotes the development of low-carbon, sustainable ICT applications. The presentation will culminate with our perspectives on fostering integrated research, spurring interdisciplinary cooperation, and promoting a transformative shift in ICTs towards a net zero future.

### **Bio**

Fengqi You is the Roxanne E. and Michael J. Zak Professor in Energy Systems Engineering at Cornell University. He also serves as the Chair of Ph.D. Studies in Systems Engineering, Co-Director of the Cornell University AI for Science Institute (CUAISci), Co-Lead of the Schmidt AI in Science Program at Cornell, and Co-Director of the Cornell Institute for Digital Agriculture (CIDA). He has an h-index of 80 and authored over 250 refereed articles in journals such as Science, Nature Sustainability, Nature Communications, Science Advances, and PNAS. He is an award-winning scholar and teacher, earning over 20 major national and international awards over the past six years. He is an elected Fellow of the AAAS, AIChE, and RSC.

# Keynote Speakers



**Prof. Haofeng Chen**  
East China University of  
Science and Technology

**Moderator:**  
**Dr Ottorino VENERI**  
Italian National Research  
Council of Italy (CNR)

## ***Challenges in the development of lithium-ion batteries***

### **Abstract**

Lithium-ion batteries (LIBs) are integral to promoting the development of low-carbon, clean and sustainable energy systems and have a wide range of applications in transportation, aerospace, energy storage and other fields. Although the lithium-ion battery is an electrochemical system, there are many key issues and challenges throughout its design, production and use. LIBs have made great progress in developing new materials, advanced formation technology, intelligent management and other aspects. However, better performance, longer service life and increased safety are still huge challenges. The performance life and safety of LIBs are influenced by a combination of multi-physical fields of electrochemical, mechanical and thermal factors, making them complex and multi-physical in nature. There are complex and diverse multiscale degradation mechanisms in LIBs, typically involving interrelated processes where different degradation behaviors can interact and evolve. Despite extensive research efforts, these detailed mechanisms involving multiple physical fields and multiple scales require further clarification. To address this knowledge gap, this paper systematically investigates three key aspects: multi-scale battery degradation behaviors, their impact on performance, lifetime and safety, and the interconnections between different types and scales of degradation behaviors. By adopting a multiscale and multidisciplinary perspective, fragmented ideas from current research are integrated into a comprehensive framework, providing a deeper understanding of the degradation behaviors and interactions within LIBs. We highlight the future difficulties and opportunities for LIBs and present valuable insights and prospects in four key areas: theory, materials, design, and applications, thus providing new directions for meeting the challenges of further development of LIBs.

### **Bio**

Professor Haofeng Chen is a Chair Professor of East China University of Science and Technology, and both the ASME Fellow and IMechE Fellow. He was also a former Associate Editor of the ASME Journal of Pressure Vessel Technology (2011-2017). Professor Chen earned his BEng, MEng and PhD in solid mechanics from Tsinghua University in 1994, 1995 and 1998, respectively. He was then a research fellow at the Nanyang Technological University, and subsequently a research fellow at the University of Leicester. From 2006 to 2008, he was a chartered senior engineer at ALSTOM Power Technology Centre. From 2008 to 2023, he led the Structural Integrity and Life Assessment Research Group at the University of Strathclyde, and has built a major and sustainable research portfolio in structural integrity engineering, particularly in the field of advanced FEA, fracture mechanics, shakedown, ratchetting, high temperature creep and fatigue analysis. Professor Chen has published more than 200 peer-reviewed research papers in these fields, and is among the 2% most influential scientists in the world.

# Keynote Speakers



**Prof. Meihong Wang**

Department of Chemical and  
Biological Engineering  
University of Sheffield

**Moderator:**

**Professor Roland Span**  
**Head of the Chair of**  
**Thermodynamics at RUHR**  
**UNIVERSITÄT BOCHUM.**

## ***Carbon Capture, Utilisation and Storage (CCUS) study through Systems Engineering techniques***

### **Abstract**

This talk will start with an introduction to Systems Engineering, followed by motivations of our research. The main part will be our research on carbon capture and transport in the context of Carbon Capture, Utilisation and Storage (CCUS) for Power Plants. Then the topic will be extended to our current efforts in CCUS for petro-chemical manufacturing (e.g. ethylene plants). We also investigate how to apply Artificial Intelligence techniques for modelling, optimisation and control in CCUS.

### **Bio**

Professor Meihong Wang leads Process and Energy Systems Engineering Research Group at University of Sheffield, UK with expertise in modelling, optimization and control for power plants, carbon capture utilisation and storage (CCUS), energy storage and bio-energy.

He joined Centre for Process Systems Engineering at Imperial College London and UCL in 1999. He worked at Alstom Power, Cranfield University and University of Hull from 2004 to 2016. He has published over 200 papers. He has been investigator in over 20 research projects worth over £20 million from UK Research Councils, European Union and Industry.

One of his publications was awarded Ludwig Mond Prize 2014 by IMechE. He was joint winner of Nigeria Prize for Science 2019 (the biggest and most prestigious prize in Africa). He was Siemens PSE MBI Prize Winner 2022.

# Keynote Speakers



**Prof. Reinhard Madlener**  
Dept. of Industrial Economics  
& Technology  
Management (NTNU  
Trondheim)  
RWTH Aachen University

**Moderator:**  
**Professor Roland Span**  
**Head of the Chair of**  
**Thermodynamics at RUHR**  
**UNIVERSITÄT BOCHUM.**

## ***Comprehensive Interdisciplinary Assessment and Economics of Negative Emission Technologies***

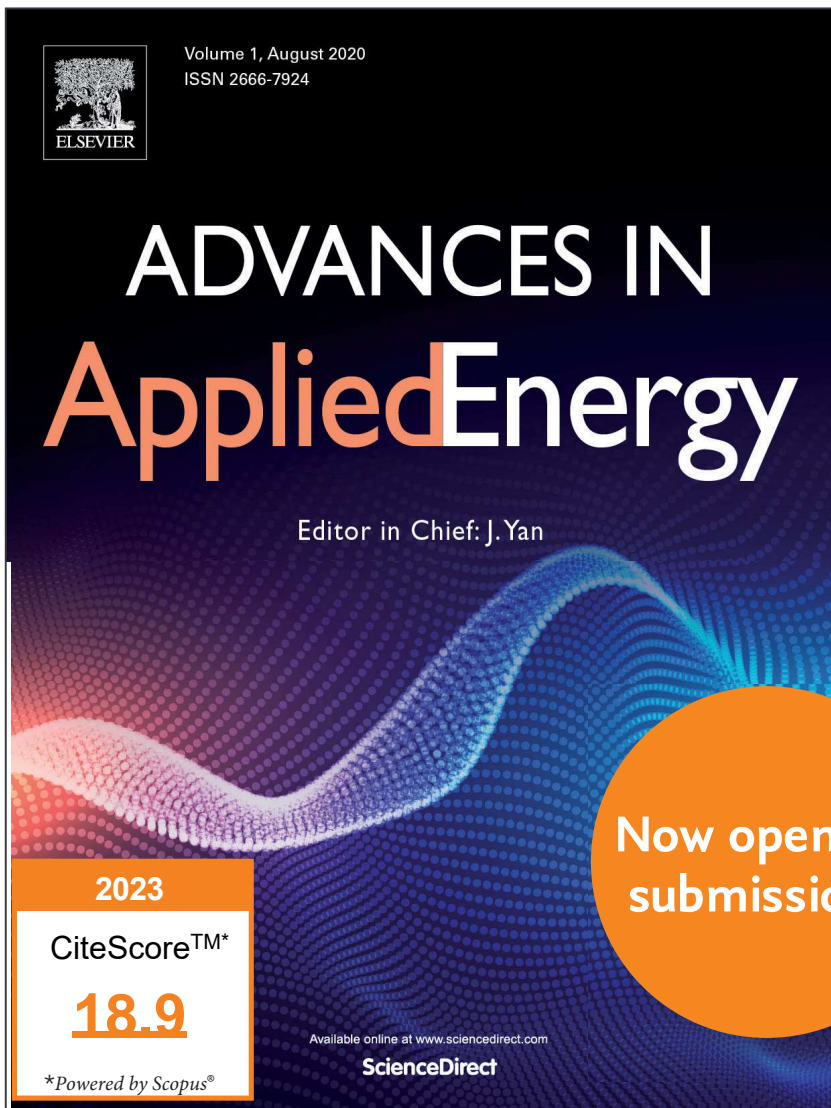
### **Bio**

Dr. Reinhard Madlener is Full Professor of Energy Economics and Management at RWTH Aachen University since 2007 and Vice-President (former President) of the Swiss Association for Energy Economics (SAEE). Moreover, he is the founding and current Director of the Institute for Future Energy Consumer Needs and Behavior (FCN), which forms an integral element of the interdisciplinary and integrated E.ON Energy Research Center established at RWTH Aachen University in 2006. Also, he is a member of the RWTH Aachen Steering Committee of the Profile Area “Energy, Chemical and Process Engineering (ECPE)” . Last but not least, since 2019, as a representative of the NTNU Energy Transition Initiative (NETI), he is also Adjunct Professor at the Department of Industrial Economics and Technology Management, Norwegian University of Science and Technology (NTNU). Professor Madlener’ s main research interests, on which he has published extensively over the last 25 years, are in the fields of energy economics and policy; sustainable energy systems; energy efficiency and rebound; transportation research; the adoption, temporal & spatial diffusion of innovation; and investment in innovative energy technologies under uncertainty and portfolio / system considerations.

The main teaching activities of Professor Madlener comprise Energy Economics, Environmental & Resource Economics, Economics of Technological Diffusion, Behavioral Energy and Environmental Economics, Economics of Technical Change, Smart Grid Economics and Management, and Energy Markets. He acted as Senior Editor of the Energy Policy journal until 2021 and serves on the Editorial Boards of a number of international scientific journals, including Advances in Applied Energy; Applied Energy; Decision Analytics, Energy Efficiency; Energy, Sustainability & Society; and the Journal of Energy Storage.



# Advances in Applied Energy



A brand new,  
peer-reviewed  
open access  
journal.

Editor-in-Chief:

**Jinyue Yan**

*Royal Institute of Technology and  
Mälardalen University, Sweden*

 @ElsevierEnergy

 Elsevier Energy



Find out more and submit  
your manuscript online:  
**[elsevier.com/locate/adapen](http://elsevier.com/locate/adapen)**



## ***Workshop on Renewable Energy and Climate Change***

<b>Time</b>	<b>9:00 am to 5:00 pm</b>
<b>Date</b>	<b>December 4, 2023</b>
<b>Venue</b>	<b>Room E 415, Level 3, I 11 (Student Affairs Building)</b>

Renewable energy sources are considered as the cornerstone and foundation for a safe and sustainable energy future, as more than 30% of the world's countries achieve their electricity supply from renewable energy sources.

The State of Qatar has witnessed a leap in development that dictated an increased demand in the energy sector. Thus, state of Qatar started to diversify its energy basket using renewable energy.

The Renewable Energy and Climate Change workshop will be held within as part of the World Congress on Engineering and Technology at Qatar University, in cooperation with the Ministry of Environment and Climate Change and the World Renewable Energy Network (WREN) on Monday, December 4, 2023. Distinguished guests will be leading the discussion panel:

<b>Time</b>	<b>Program</b>
<b>9:00 - 9:45</b>	Photovoltaic and wind energy will provide 70% of global electricity by 2035. Prof. Ali Sayigh - Chairman of World Renewable Energy Congress - UK
<b>9:45-10:30</b>	Harnessing offshore floating wind technology: Prof. Salam Darwish - University of Bolton - UK.
<b>10:30 -11:00</b>	Coffee Break
<b>11:00 -12:30</b>	Sustainability green buildings. Prof. Riadh H. Al-Dabbagh. President, Manchester Academy.
<b>12:30 – 13:30</b>	Lunch Break
<b>13:30 to 14:30</b>	(1) comprehensive study and analysis of main losses mechanisms of thin film solar cell using simulation program scaps - Prof. Wagah Al Azzawi, Iraq (2) Renewable energy, resources and technology textbook.
<b>14:30 -15:30</b>	“Heat driven cooling for a sustainability future” Jare Locke, University of Warwick , UK
<b>15:30 -16:00</b>	Coffee break
<b>16:00-16:40</b>	“Utilizing nano-materials for hydrogen production energy applications “ Prof.Dr. Mazin Auny Mahdi University of Basrah. College of science, department of physics
<b>16:40-17:00</b>	Recommendations Prof. Salwan K.J.Al-Ani # research center, # annual meeting, # Congress 2024

# Panel Sessions

## Hydrogen Integration for Accelerated Energy Transition

**Date:** December 4th, 2023 **Time:** 13:30pm-15:30pm

**Location:** Room A1

**Session chair:** Prof. Meysam Qadrdan, Cardiff University, UK

**Panelists:** Dr Danny Pudjianto, Imperial College London, UK  
Prof. Jianzhong Wu, Cardiff University, UK  
Dr Marcello Contestabile, Qatar Environment & Energy Research Institute, Qatar  
Dr Khalid Alanazi, Imperial College London, UK

**Description:** Many countries around the world have pledged to achieve the Net Zero emission target in the next three decades. Hydrogen is expected to play a crucial role in achieving this target, however, the optimum scales of hydrogen deployment and its applications are uncertain, and significantly depend on circumstances of specific countries and case studies. This panel session will discuss the role and value of hydrogen in the energy transition, with a particular focus on the 'whole system' approach. Barriers and opportunities associated with the large-scale development of hydrogen infrastructure will be discussed in the context of selected countries.

### Agenda:

10 minutes	<b>Prof. Meysam Qadrdan (Session Chair)</b> Introduction to the panel and setting the scene.
15 minutes	<b>Dr Danny Pudjianto</b> <b>Title:</b> A Holistic Approach to Empower Hydrogen Supporting Net-Zero <b>Abstract:</b> The lack of clarity and uncertainty about hydrogen's roles, demand, applications, and economics has hindered hydrogen development. This paper presents a systematic energy model to optimise the planning and operation of an energy system; the model is used to identify the role of hydrogen technologies in decarbonising energy systems, improving system flexibility and enhancing energy system security and resilience against extreme weather. The studies were conducted on the future (year 2050) Great Britain's energy system to understand the hydrogen infrastructure capacity needed and their utilisation from the production, transport, storage, and demand under different scenarios. In the models, hydrogen technologies will compete against other alternative technologies, and the optimisation models will determine the least-cost solution. The studies demonstrate that hydrogen is important for providing flexibility,

# Panel Sessions

	<p>energy system security and resilience against extreme weather. Synergy across hydrogen assets reduces the cost of hydrogen heating, which can be cost-competitive against the heat electrification approach.</p>
15 minutes	<p><b>Dr. Yi Zong</b></p> <p><b>Title:</b> TBC</p> <p><b>Abstract:</b> TBC</p>
15 minutes	<p><b>Dr Marcello Contestabile</b></p> <p><b>Title:</b> The role of hydrogen in the Qatar energy sector (provisional title)</p> <p><b>Abstract:</b> TBC</p>
15 minutes	<p><b>Mr Khalid Alanazi</b></p> <p><b>Title:</b> A novel framework for simulating market equilibrium in international hydrogen trade</p> <p><b>Abstract:</b> Hydrogen has gained significant attention as a possibly important energy vector in the pursuit of climate change mitigation objectives. Global demand for renewable hydrogen is anticipated to increase across many decarbonization scenarios. To meet this demand, many countries have unveiled strategies aimed at bolstering domestic low-carbon hydrogen production or facilitating imports. Within this context, international trade has emerged as a means of importing hydrogen from regions with low-cost production capabilities. However, investment decisions in the development of international hydrogen markets are moving slowly due to large uncertainties regarding the magnitude of future demand and willingness to pay for hydrogen in key end-use applications. In this study, we develop a novel modelling framework capable of simulating global hydrogen market equilibrium and international trade scenarios in the long-term future. Our methodology includes the development of supply and demand curves, as well as a global hydrogen trade model that takes into account various supply chain options. Using this framework, we are able to derive quantitative insights into equilibrium supply and demand, pricing dynamics, trade flows, costs, and many more. We apply this framework to investigate the optimal development of hydrogen markets in 2050 under a 1.5°C climate change mitigations scenario. Our findings indicate that new hydrogen sectors could see a global demand surge to 195.2 Mt, with international trade constituting a quarter of this demand.</p>

# Panel Sessions

30 minutes

Structured Q&A

## Speakers' bio

**Session Chair: Prof. Meysam Qadrdan** is a Professor of Energy Networks and Systems at Cardiff University. He is an Industrial Fellow of the Royal Academy of Engineering. He was an EPSRC–UKRI Innovation Fellow from 2018 to 2022. His research covers the expansion and operational planning of interdependent energy networks at different scales from community to national level.



**Panelist 1: Dr Danny Pudjianto** is an Advanced Research Fellow with expertise in energy system modelling and optimisation for planning and operation, energy system economics, regulation, system security, and evaluations of the benefits of emerging technologies in smart grids, active network management, demand response, distributed generation, energy storage, and energy networks. The current focus of his research is on integrated multi-energy systems and smart technology evaluations. He is a senior member of IEEE, a member of IET and the editorial board of Renewable Energy journal and has published more than 100 technical papers and 70 industrial/research reports.



**Panelist 2: Dr. Yi Zong** is a Senior Researcher in Department of Wind and Energy Systems in Technical University of Denmark.



**Panelist 3: Dr Marcello Contestabile** is Principal Economist at the Qatar Environment & Energy Research Institute (QEERI), where he leads economics and policy research. He has 20 years' experience working on techno-economic and policy analysis of low carbon technologies, particularly battery electric and hydrogen fuel cell vehicles and related infrastructures.



# Panel Sessions

**Panelist 4: Mr Khalid Alanazi** is a doctoral candidate at Imperial College's Sustainable Gas Institute (SGI), where he is researching the developmental pathways of a global hydrogen economy, with a focus on international trade. His current research aims to provide insights into future hydrogen markets and their implications for potential exporters and importers. Khalid has 5 years of industry experience, during which he held various roles including energy systems modeler and process engineer at Saudi Aramco. Throughout his career, he has been involved in several large-scale industrial projects in the energy sector. He is a licensed professional engineer (P.E.) and holds several professional designations, in addition to three US patents related to oil and gas processing. Khalid earned an MEng from Cornell University, USA, specializing in energy economics and engineering, and a BSc in chemical engineering from the University of Ottawa, Canada.



# Panel Sessions

## Workshop: Sustainability, Hydrogen and Decarbonization

**Date: December 5th, 2023**

**Organizer: Prof. Ahmad K. Sleiti, Prof. Saud Ghani, Prof. Samer Fikry**

### Abstract

Energy sustainability and security require having uninterrupted access to energy and securing energy supplies at an affordable price, while moving towards net zero emissions remains very important. Worldwide, the industrial sector accounts for significant amount of emissions and is considered a “difficult-to-decarbonize” sector. To enable the industrial sector to reach near-zero CO<sub>2</sub> emissions, several measures need to be taken including alternative strategies for energy efficiency, industrial electrification and adoption of low-carbon fuels, feedstocks, and energy sources (LCFFES). Clean hydrogen production from renewables, nuclear power, or fossil resources with carbon capture can reduce GHG emissions from high energy demand industries such as metal production, cement, vehicles, metals refining, synthetic fuel and biofuel production, and stationary fuel cells for power. This workshop will discuss the latest development in the decarbonization technologies emphasizing the applications of hydrogen in diverse industrial sectors for decarbonization. The workshop will also discuss the techno-economic aspects of adopting hydrogen in the energy transition plans. The workshop will include invited speakers, and panels.

### Workshop Agenda

#### Opening and Welcoming Speech Moderator: TBD

8:30 AM – 8:35 AM **Dr. Saud Ghani**, HOD, MIE, College of Engineering, Qatar University  
8:35 AM – 8:40 AM **Dr. Ahmad K. Sleiti**, MIE

#### Keynote Speakers Moderator: TBD

8:40 AM – 9:05 AM **Speaker 1: Prof. Jay Kapat**, Director of CATER, UCF, USA  
9:05 AM – 9:30 AM **Speaker 2: Dr. G. Subbu**, Institute Fellow at GTI Energy, USA

#### Invited Speakers, Moderator: TBD

Session 1: Decarbonization technologies emphasizing the applications of hydrogen  
9:30 AM – 9:45 AM **Speaker 1: Dr. Jitendra Gupta**, Shell Technology Center  
9:45 AM – 10:00 AM **Speaker 2: Prof. Shan-Tung Tu**, East China Univ. of Science and Tech.  
10:00 AM – 10:30 AM **Break**  
10:30 AM – 10:45 AM **Speaker 3: Dr. Muammer Koç**, Prof. of Sustainability, HBKU  
10:45 AM – 11:15 AM **Panel Discussion**

#### Invited Speakers, Moderator: TBD

Session 2: Adopting hydrogen in the energy transition  
11:15 AM – 11:30 AM **Speaker 1: Dr. Yusuf Bicer**, HBKU  
11:30 AM – 11:45 AM **Speaker 2: Prof. Mohamed Haouari**, MIE, Qatar University  
11:45 AM – 12:00 PM **Speaker 3: Prof. Ahmad Sleiti**, MIE, Qatar University  
12:00 PM – 12:30 PM **Panel Discussion**  
12:30 PM – 1:30 PM **Lunch Break**

# Advances in Applied Energy

*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.

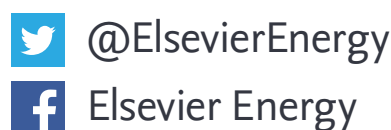
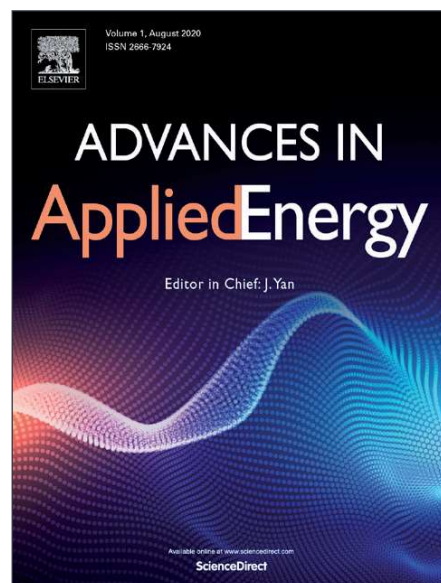
Covering a broad scope of topics, *Advances in Applied Energy* will publish applied research on all aspects of energy innovation that bridge the gaps between research, development, and implementation. Topics include, but are not limited to:

- 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.



Read the full Aims & Scope:  
[elsevier.com/locate/adapen](https://www.elsevier.com/locate/adapen)





# Editorial Board Meeting Notice

This notice is intended for the members of the AE/APEN Editorial Board

Dear Member of the Editorial Board,

We are pleased to announce the upcoming ICAE2023-Editorial Board Meeting scheduled as follows:

	Information
Topic	ICAE2023-Editorial Board Meeting
Time	December 3, 2023, 03:30-5:30 PM Qatar Time
Zoom Meeting Link	<a href="https://u-tokyo-ac-jp.zoom.us/j/88224456810?pwd=Y1bY3q0yflCf46pn7tbLfrDRNjbx7W.1">https://u-tokyo-ac-jp.zoom.us/j/88224456810?pwd=Y1bY3q0yflCf46pn7tbLfrDRNjbx7W.1</a>
Meeting ID	882 2445 6810
Passcode	788679
Location	Engineering complex H07, board room C262 (We can gather in I11 at 15:10 and walk to H07 for 6-8 minutes).

We look forward to your valuable participation in the meeting.

Best Regards,

ICAE committee

# Day 1: Dec. 3

9:00 - 10:00	<b>Openning, General Conf.</b>		
10:00 - 12:30	<b>Exhibition (including Coffee Break)</b>		
<b>Room: C243</b>			
<b>Session Name: Renewable Energy</b>			
<b>Session Chair: Dr. Weicong Xu, Tianjin University; Dr. Bartosz Kątski, Technical University of Denmark</b>			
Time	Paper ID	Author	Paper Title
10:30-10:45	162	Peng Li, Qiong Rao, Zhongrui Gai and Ying Pan	Solar-driven Chemical Looping Methane Dry Reforming on Rh-doped LaCeO <sub>3.5</sub> Oxygen Carrier at Mild Temperature
10:45-11:00	296	Xiaomeng Chen, Feiyu Zhu, Daoliang Li, Xudong Yang, Yang Wang	A novel rooftop solar thermal module to reconcile seasonal source-demand mismatch
11:00-11:15	458	X.B. Zhao, Z.G. Qu *, J.F. Zhang, Z.Y.Jiang	Enhancing solar-thermal conversion and storage performance of expanded perlite/paraffin wax composites by introducing expanded graphite and carbon nanotubes
11:15-11:30	489	Eliana Gaudino, Antonio Caldarelli, Alessandro Vitaliano Anacreonte, Nicola Bianco, Paolo Strazzullo, Marilena Musto, Francesco Di Giamberardino, Vittorio G.Palmieri, Roberto Russo	Impact of collector array orientation on the performance of a flat plate collectors field for middle-temperature applications
11:30-11:45	523	Shuangdui Wu, Hengxin Zhao, YifanWu, Hongli Sun, Borong Lin	Influence of control strategy and split-band spectral modulation on the energy performance of electrochromic smart windows
11:45-12:00	673	Bingqing Xu, Zhenyu Tian, Chuanchuan Liu, Yuanchao Liu, Wenjia Li	Optimization of Design Parameters for Enhanced Performance of Cavity Coil Solar-to-Fluid Thermal Energy Conversion
12:00-12:15	228	P. Vivekh, D. T. Bui, W.D. Chen, Md. R. Islam, K.X. Yu, D. Zhao, K. J. Chua	Experimental Study on The Dehumidification Performance of Solar-Powered Composite Superabsorbent Coated Heat Exchanger Dehumidifier
12:15-12:30	348	Hui Liu, Jinjia Wei, Qingyang Mei	Modified Dark Calcium-based Material with Long-term Stability for Effective Solar Energy Storage
12:30-13:30	<b>Lunch</b>		
<b>Room: C243</b>			
<b>Session Name: Renewable Energy</b>			
<b>Session Chair: Dr. Liang Wang, The Foundation for Industrial and Technical Research; Prof. Erik Dalquist, Malardalen University</b>			
13:30-13:45	372	M. Umamaheswara Rao, Harsh Jayesh Nagda, Ch. Subrahmanyam	The influence of H <sub>2</sub> S on plasma catalysis and the conversion of CH <sub>4</sub> and CO <sub>2</sub> in a dielectric barrier discharge reactor for reforming biogas into syngas
13:45-14:00	265	Hao Xu	Worth of knowledge in deep learning of energy tasks
14:00-14:15	573	Ahmad Adib Rosyadi, Ocktaeck Lim	A Numerical Investigation of Dual Fuel (Diesel-Propane) Strategy with EGR on The Compression Ignition Engine
14:15-14:30	606	LIANG WANG, Ingebjörg Neraas, Zsuzsanna Czégény	Pyrolysis of microalgae and lignocellulosic biomasses in a fixed-bed reactor: A comparative study on the composition and application potential of products
14:30-14:45	250	Xiangyu Yan, Fan Jiao, Yibiao Long, Shiyong Yang, Qibin Liu	Concentrated solar-driven methane dry reforming for fuel production
14:45-15:00	85	jing liu, Jun Zhao	Comparative environmental and economic performance of typical methanol production routes in China
15:00-15:15	598	Karim Rabea, Andy Heeley, Abdulaziz Gheit, Kris Milkowski, Kevin Hughes, Derek Ingham, Mohamed Pourkashanian	EXPERIMENTAL INVESTIGATION OF THE RISING CO-CURRENT GASIFIER OPERATION FOR CHP AND BIOFUELS PRODUCTION APPLICATIONS.
15:15-15:30	488	Hao Chen, Anton Hedén Sandberg, Giovanni Biancini, Erik Dahlquist, Konstantinos Kyprianidis	Profitability analysis of integrating fast pyrolysis into existing combined heat and power plants for biofuel production

# Day 1: Dec. 3

15:30-16:00			
TEA/COFFEE BREAK			
Room: C243			
Session Name: Renewable Energy			
Session Chair: Dr. Liang Wang, Stiftelsen for industriell og teknisk forskning (SINTEF)			
Time	Paper ID	Author	Paper Title
16:00-16:15	196	Xueyu Tian and Fengqi You	Sustainable Design and Operations of Hybrid Campus Energy Systems with Economic, Environmental, and Social Considerations
16:15-16:30	582	Dalibor Marinković, Daliborka Nikolić, Carsten Seidel, Andreas Seidel-Morgenstern, Achim Kienle, Menka Petkovska	Evaluation of possible improvements of forced periodically operated reactor in which methanol synthesis takes place – based on the Nonlinear Frequency Response analysis
16:30-16:45	448	Aamir Khan, Chung Yin Yu, Shazia Rehman, Molly Meng-Jung Li, Song Cheng, Shao-Yuan Leu	Comparison of the aromatics production from lignocellulosic biomass through solvolysis and hydrodeoxygenation to produce Sustainable Aviation Fuel
16:45-17:00	471	Hao Xu, Pu Yang, Douglas Hungwe, Fumitake Takahashi, Yuki Yamasaki, Kunio Yoshikawa	Co-hydrothermal carbonization of polyvinyl chloride and rice straw: Optimization of processing parameters for solid fuel production
17:00-17:15	554	Yong Boon Tan, Yuming Wen, Yiyang Wang, Chi-Hwa Wang	Machine Learning Model to Predict the Mass Yield of Digestate Hydrothermal Carbonization
17:15-17:30	449	Yvette Shihui Yang, Huichuan Zhuang, Ling Leng, Shao-Yuan Leu	Unlocking the Potential of Chain Elongation: Enhanced n-Caproic Acid Production Rate through Microbial Synergetic Interplay
Room: C244			
Session Name: Intelligent Energy System			
Session Chair: Dr. Wenlong Shang, Imperial College London; Dr. Xiaodan Shi, Mälardalen University			
Time	Paper ID	Author	Paper Title
10:30-10:45	467	Mateus Gheorghe de Castro Ribeiro; Justin Luke; Sonia Martin; Emmanuel Balogun; Gustavo Vianna Cezar; Marco Pavone; Ram Rajagopal	Towards a 24/7 Carbon-Free Electric Fleet: A Digital Twin Framework
10:45-11:00	621	Gang Yu; Xianming Ye	An evolutionary game model for EV and charging station adoption
11:00-11:15	286	Wen-Long Shang; Yishui Chen; Xuewang Song; Yanyan Chen; Washington Ochieng	Carbon footprint analysis of urban transportation systems
11:15-11:30	614	Ali Alderete Peralta; Nazmiye Balta-Ozkan; Adam Zagorecki	Bounding the risk: Application of agent-based modelling framework to analyse cyber security risk perceptions for the adoption of MaaS
11:30-11:45	315	Junxiang Zhang	Study on Mobility Patterns of Electric Vehicles and Its Applications in Urban Energy Systems
11:45-12:00	34	Clemente Capasso, Giovanni Chianese, Stanislao Patalano, Ottorino Veneri	Implementation of Machine Learning for automatic estimation of the State of Charge and the State of Health of battery cells for electric vehicles: a short Review and a case study
12:00-12:15	682	Ruibo Zhao, Dong Wang, Yuan Zeng, Kaisheng Wu	New Energy Vehicle Charging Facility Industry and Technology Forecast in China
12:15-12:30			
12:30-13:30			
Lunch			
Room: C244			
Session Name: Clean Energy Conversion Technology			
Session Chair: Mr. Nur Cahyo, PLN Research Institute; Dr. Sanli Tang, University of Chinese Academy of Sciences			
Time	Paper ID	Author	Paper Title
13:30-13:45	380	Tran Quang Khai, Nguyen Ho Xuan Duy, Ocktaeck Lim	Spray characteristics of high Ethanol-content Diesel blend in the Constant Volume Vessel under CI condition
13:45-14:00	544	Le Trong Hieu, Quach Nhu Y, Ocktaeck Lim	Improving the dynamic performance of fuel cell electric bicycle under effect of key input parameters

# Day 1: Dec. 3

14:00-14:15	634	Esmail M.A. Mokheimer Qazi Talal Mohammad Raghib Shakeel Zubairu Abubakar	Investigation of thermoacoustic instability for swirling flames in a dual annular stratified burner
14:15-14:30	177	I Komang Gede Tryas Agameru Putra, Nguyen Ho Xuan Duy, Tran Quang Khai, Ocktaeck Lim	Experimental Analysis of the Influence of Different Ethanol Blending Ratios in Diesel Fuel on the Spray Macroscopic Characteristic
14:30-14:45	267	Jianan Yin, Changqing Dong, Junjiao Zhang, Xiaoying Hu, Junjie Xue, Ying Zhao, Xiaoqiang Wang	The temperature measurement of hydrogen flame based on CCD and IR images
14:45-15:00	80	Yiran Qian, Meihui Song, Yuyang Leng, Weixiong Chen, Quanbin Zhao, Junjie Yan	Comparation and analysis of load changing control methods of closed air Brayton cycle
15:00-15:15	531	Yongrui Jiang Yihao Xu Jiyuan Zhang Xuezhi Dong Junchao Zheng Chunqing Tan	Matching Mechanism Research on a Turbine Hybrid Cycle Engine
15:15-15:30	44	Liqing Liu, Yi Chen, Huaxia Yan, Qiuhua Tao, Yiyang Fan	Study on Operational Characteristics of a Hybrid Thermal wheel and Evaporative Cooling Air-conditioning System for Marine Ships

## TEA/COFFEE BREAK

Room: C244

Session Name: Clean Energy Conversion Technology

Session Chair: Dr. Anders Avelin, Mälardalen University

Time	Paper ID	Author	Paper Title
16:00-16:15	99	Qingyang Wu, Gen Li, Ming Liu, Junjie Yan	Study on control strategy of AP1000 nuclear power plant coupled with LT-MED system
16:15-16:30	108	Shiyang Yang, Fan Jiao, Yibiao Long, Xiangyu Yan, Taixiu Liu, Qibin Liu	Thermodynamic Analysis of the Novel Carbon Neutral Hydrogen Production System Integrated Solar Chemical Looping Dry Reforming and Photovoltaic Electrolysis
16:30-16:45	147	Yu Yao, Xiaocun Sun, Jintao He, Bowen Lu, Lingfeng Shi, Gequn Shu	Experimental Investigation of CO <sub>2</sub> /R32 Mixture Combined Cooling and Power Cycle under Variable Heat Source Condition
16:45-17:00	299	Wenjing Ma, Wei Han, Qibin Liu, Jichao Li	Hydrogen and Electricity Cogeneration System Based on Chemical Recuperation Enabled by Complementary Utilization of Natural Gas and Electricity
17:00-17:15	345	Junxiang Wang, Limin Zhang, Kaiqi Luo, Ercang Luo, Jianying Hu, Zhanghua Wu, Rui Yang	Experimental validation of a direct-coupled Stirling combined cooling and power system
17:15-17:30	450	Luis Antonio Choque Campero Wujun Wang J. Villarroel-Schneider Andrew Martin	Techno-Economic Analysis of an Integrated Power and Water System based on a Brayton cycle: A case study for rural areas of Bolivia

Room: C245

Session Name: Energy Management, Policy and Economics

Session Chair: Asso Prof. Yuntian Chen, Eastern Institute for Advanced Study

Time	Paper ID	Author	Paper Title
10:30-10:45	495	Mrs. Tara Alkubaisi Dr. Wei Sun	Optimal investment for energy transmission options for offshore wind considering multiple energy vectors
10:45-11:00	138	Quanyu Pan, LinSong Cheng, Pin Jia, Zhikai Wang	An effective model for well-testing interpretation on carbonate reservoirs with complex cave connections
11:00-11:15	140	Kai Wen, Wei Gao, Li Li, Baolong Yang, Chaofei Nie, Jiaojian Feng, Kai Wen	Energy saving and environmental protection in coupled development of integrated gas-electric system: from the perspective of gas pipe network planning
11:15-11:30	146	Wenkui HUANG, Leng Tian, zechuan wang	Study on reasonable production allocation method of CO <sub>2</sub> assisted gravity flooding in low permeability reservoir considering pressure sensitivity effect
11:30-11:45	120	Binyu Wang Linsong Cheng Yafei Zhang	A novel dynamic boundary model of pressure propagation for volume fractured horizontal wells in shale oil reservoirs with developed natural fractures

# Day 1: Dec. 3

11:45-12:00	461	Tianshou ZHOU, Dan WANG, Hongjie JIA, Yizhe LI, Jiawei LIU	Energy Station-Network Collaborative Planning of Integrated Energy System Based on Exergy-potential Constraints
12:00-12:15	507	Bruno Canizes, Fábio Castro, João Soares, José Almeida, Zita Vale	Optimizing Smart Distribution Network Expansion Incorporating the Seasonal Impacts, CO2 Emissions and Resources Remuneration: A Multi-Stage Stochastic Framework
12:15-12:30	689	Yanan Zhao, Zhenzhong Zeng	Increase of extreme wind speed and its implication for offshore wind farm
12:30-13:30	<b>Lunch</b>		
<b>Room: C245</b>			
<b>Session Name: Mitigation Technology and Energy Storage</b>			
<b>Session Chair: Asso Prof. Ocean Cheung, Uppsala University</b>			
13:30-13:45	37	Runye Zhang, Donghui Zhang, Wenbin Li	Multi-scale modeling of CO2 capture in fixed adsorption bed Using computational mass transfer and particle resolution method
13:45-14:00	389	Mingyang Yang, Shijun Huang, Fenglan Zhao, Haoyue Sun, Xinyang Chen, Xinhan Fan	Experimental investigation of CO2 flooding in tight oil reservoirs: Effects of the fracture aperture on production characteristics and oil distribution
14:00-14:15	167	Peng Sun, Meng Lin, Shuai Deng	Performance assessment and optimization of a bipolar membrane electro dialysis system for direct air capture
14:15-14:30	173	Dingyi Jiang Shouzhuang Li Mika Järvinen	Techno-economic Assessment of an integrated Coal Combustion and Solar-driven Calcium looping CO2 Capture System supplemented by Precipitated Calcium Carbonate from Deactivated Adsorbent
14:30-14:45	176	Ling Han, Shuai Deng, Ruikai Zhao, Li Zhao, Peng Sun	Feasibility analysis of electric energy-driven CO2 fixation in seawater through the formation of carbonate precipitation
14:45-15:00	183	Xinhan Fan, Shijun Huang, Fenglan Zhao, Bin Wang, Yuanpeng Luo, Yue Cheng	Research on the Zonal Coupling Mechanism of Flue Gas-Assisted Cyclic Steam Stimulation
15:00-15:15	202	yue fu, Ming Liu, Junjie Yan	Coal- fired power plants with large-scale carbon capture systems is optimized using waste heat utilization to operate load-cycling
15:15-15:30			
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room: C245</b>			
<b>Session Name: Clean Energy Conversion Technology</b>			
<b>Session Chair: Prof. Junjie Yan, Xi'an Jiaotong University; Dr. Jakub Jurasz, Wroclaw University of Science and Technology</b>			
Time	Paper ID	Author	Paper Title
16:00-16:15	7	Ms. Miryam Essadik Dr. Zahra Hajabdollahi Ouderji Pr. Zhibin Yu	Exergy analysis of the defrosting operation of a flexible heat pump with an integrated latent heat storage
16:15-16:30	95	Xiaoxuan Chen, Lu Wang, Xinyi Wang, Zhen Li	Theoretical and numerical energy saving analysis on the multi-stage data center cooling system
16:30-16:45	160	Lu Wang, Xiaoxuan Chen, Liang Chen, Zhen Li	Radiative Cooling Technology for Data Center Cooling Systems
16:45-17:00	170	Ibrahim Joseph Mwasubila Joseph, H. Kihedu Cuthbert Kimambo ole Nydal	Performance investigation of adsorber bed characteristic driven by solar energy: A case of heating and cooling
17:00-17:15	180	Bashar Shboul	Performance Investigation of a Single Effect Evaporator Desalination Unit: A Simulation Model
17:15-17:30	190	Yang Song, Davide Rolando, Gerhard Zucker, Hatef Madani	Development and validation of data-driven soft sensors for heat pumps
17:30-17:45	134	Fanchen Kong, Mingsheng Tang, Huiming Zou, Changqin Tian	Simulation and Performance Analysis of Two-Stage CO2 Linear Compressor for Enhanced Refrigeration Efficiency

# Day 1: Dec. 3

17:45-18:00	192	Yunchun Yang, Tianyang Yang, Wencong Shao, Huiming Zou, Changqing Tian	Heating Performance Improvement on a R290 Vapor-injection Heat Pump System with Waste Heat Recovery for Electric Vehicles
<b>Room: C246</b> <b>Session Name: Energy Sciences</b> <b>Session Chair: Prof. Roland Span, Ruhr University Bochum</b>			
Time	Paper ID	Author	Paper Title
10:30-10:45	4	Ziqi Sun; Renbao Zhao; Tiantian Wang; Xin Li	A dynamic control technique for improving oil recovery during the in-situ combustion
10:45-11:00	139	Jinchong Zhou, Renyi Cao, Meng Zhang, Bingchen Lyu	Pressure Calculation Method and Mechanism of Advance Water Injection in Ultra-low Permeability Reservoirs
11:00-11:15	263	ruhang Zhang, Chuandong Li, Xinhai Yu, Zheng Hongxiang, Xinqi Yao	Development of kW-scale efficient methanol reforming high-temperature proton exchange membrane fuel cells
11:15-11:30	300	Yixuan Li, Weicong Xu, Li Zhao, Chen Ruihua	Numerical modeling and performance of continuous thermally regenerative electrochemical cycle
11:30-11:45	323	Jitao Wang	Quantitatively study on influencing factors of high multiple water flooding based on NMR technology
11:45-12:00	379	Bing Bo, Wenbin Yao, Shouxiang Lu	Study on Ignition Characteristics of Rocket Kerosene in Oxygen-rich Atmosphere
12:00-12:15	578	Hui Yan, Zhu Wang, Meihong Wang, Ming Liu, Daotong Chong	Thermodynamic Performance and CO2 Emission Characteristics of Solar-aided Coal-fired Power Plant under Off-design Conditions
12:15-12:30	103	Chenchen Li, Xinli Lu, Wei Zhang, Hao Yu, Jiali Liu, Shuhui Li	Optimization and analysis of an LNG cold energy power generation model with different multi-energy complementary systems
12:30-13:30	<b>Lunch</b>		
<b>Room: C246</b> <b>Session Name: Energy Sciences</b> <b>Session Chair: Dr. Shuai Yao, Cardiff University; Dr. Meysam Majidiezhad, Mälardalen University</b>			
13:30-13:45	631	Chengwei Zhang ,Shiqing Cheng,Jing Xu,Xuesi Shen,Chong Zhang	A Layered Discrete Fracture-Matrix Simulation for Production Data Analysis in Well Intercepting with Multiple Non-Uniform Conductivity Fractures in Layered Tight Gas Reservoirs
13:45-14:00	635	Valentin Scheiff, Susumu Yada, Torbjorn Wass, Rebei Bel Fdhila, Mats Larsson, Philipp Ganter	Experimental investigation of Nucleate Boiling Propagation in Thermosyphon Cooling Systems for High-Power Electronic Components
14:00-14:15	185	Anna K. Sharishoy Joseph H. Kihedu Cuthbert Z. M. Kimambo Ole J. Nydal	Experimental Performance Investigation of Oil-Based Sensible Thermal Storage System for Cooking Applications
14:15-14:30	568	Mingyun Luo1, Ziyue Ling1*, Xiaoming Fang1, Zhengguo Zhang1*	Performance optimization of battery cooling system based on phase-change latent heat energy storage
14:30-14:45	90	Meiyang Xu, Gaosheng Wei, Chao Huang, Liu Cui, Xiaoze Du	Experimental Study on Synergistic Enhancement of Thermophysical Properties of Ternary Carbonates by Multidimensional Nanoparticles
14:45-15:00	222	Ahmad Zueter, Minghan Xu, Mohammad Zolfagharroshan, Putra Gani, Mahmoud Alzoubi, Navid Bahrani, Agus Sasmito	Thermal and computational analysis of U-Type geothermal heat exchangers of complex configurations using novel reduced-order models
15:00-15:15	208	Langyu Niu, Linsong Cheng, Pin Jia, Zhikai Wang, Yucheng Wu	A oil-water-gas three-phase flow model for flowback and early-production prediction of multi-fractured horizontal wells in lamellar shale reservoirs
15:15-15:30	117	Yibiao Long, Fan Jiao, Shiying Yang, Qibin Liu	Thermodynamic Analysis of Cerium-Based Solar Thermochemical Cycle for Carbon Monoxide Production
15:30-16:00	<b>TEA/COFFEE BREAK</b>		

# Day 1: Dec. 3

<b>Room: C246</b> <b>Session Name: Energy Sciences</b> <b>Session Chair: Asso Prof. Zhenyuan Yin, Tsinghua University; Prof. Xiaosen Li, Guangzhou Institute of Energy Conversion</b>			
Time	Paper ID	Author	Paper Title
16:00-16:15	651	Yue Zhang, Bin Wang, Jingchun Feng	Effect of marine environmental factors on the methane hydrate formation kinetics
16:15-16:30	219	Huihui Su, Enlu Wang, Yifei Xu	An experimental study on the fluid characteristics of a sieve tower with the circular downcomers
16:30-16:45	627	Hui zhang, Jing-Chun Feng, Yongming Shen, Bin Wang, Yan Xie, Yue Zhang	The Impact of Methane Seepage Intensity under Cold Seep In-Situ Conditions on Gas Migration Channels and Hydrate Formation Distribution Mechanisms
16:45-17:00	630	Yan Xie, Jingchun Feng, Junwen Wang, Xingyu Chen, Yi Wang, Zhenwu Zhou, Bin Wang, Si Zhang, Zhifeng Yang	Depressurization-induced CH <sub>4</sub> hydrate dissociation and CH <sub>4</sub> leakage characteristics under conditions of overburden sediment with different fracture scales
17:00-17:15	559	Xi Lai, Li Zhao, Xianhua Nie, Qi Zhang	Hydrate-based composition separation of R32/R1234yf mixed working fluids in tetrahydrofuran system
17:15-17:30	207	jibao Zhang, Zhenyuan Yin, Yan Li, Yizhi Rao, Xiang Yuan Zheng	Effects of thermodynamic promoter THF in promoting H <sub>2</sub> hydrate kinetics and the implication on hydrate-based H <sub>2</sub> storage
<b>Room: B219</b> <b>Session Name: Mitigation Technology and Energy Storage</b> <b>Session Chair: Prof. Meihong Wang, University of Sheffield</b>			
Time	Paper ID	Author	Paper Title
10:30-10:45	601	Ocean Cheung, Michelle Åhlén, Ribooga Chang and Maria Strømme	Visible light-triggered desorption of CO <sub>2</sub> in green coordination polymers
10:45-11:00	684	Kuankui Guo	Effect of heat exchange on carbon dioxide capture in flow-focusing microchannel
11:00-11:15	79	Arkadiusz Szcześniak <sup>1</sup> , Aliaksandr Martsinchyk <sup>1</sup> , Olaf Dybinski <sup>1</sup> , Katsiaryna Martsinchyk <sup>1,2,3</sup> , Kamil Futyma <sup>1</sup> , Łukasz Szablowski <sup>1</sup> , Jarosław Milewski <sup>1*</sup> , Małgorzata Dembowska <sup>1</sup>	FEASIBILITY STUDY OF A MOLTEN CARBONATE FUEL CELL AS A CO <sub>2</sub> SEPARATOR FOR VARIOUS INDUSTRIAL EXHAUST EMISSIONS
11:15-11:30	150	Qian Duan, Qingsong An, Boyang Sun, Jinxin Hou	Comparative study on cavitation characteristics of different fuels considering thermal effect in injector nozzle
11:30-11:45	45	Zhihao Xing; Xi Jiang	A reactive molecular dynamics study on the mechanisms of NO <sub>x</sub> and N <sub>2</sub> O formations during ammonia combustion with oxygenated fuel addition
11:45-12:00	618	Qifan Chang Lihui Zheng Naiyuan Zhang Yi Jin Qinhao Zhang Yitian Zhou	Proposing a Novel Reusable Fracturing Fluid for Tight Sandstone Fracturing in the Changqing Gas Field: Environmental and Economic Implications
12:00-12:15	600	Ocean Cheung, Michelle Åhlén, Ribooga Chang, Maria Strømme	Flue gas CO <sub>2</sub> capture with hybrid ultramicroporous materials (HUMs)
12:15-12:30	514	Wenhao Zhao, Wenjie Qia, Xiaolan Wei, Jing Ding, Jianfeng Lu, Weilong Wang, Shule Liu	Corrosion mechanism of chromium-rich nickel-based alloy in ternary NaCl-CaCl <sub>2</sub> -MgCl <sub>2</sub> molten salt
12:30-13:30	<b>Lunch</b>		
<b>Room: B219</b> <b>Session Name: Energy Storage System</b> <b>Session Chair: Dr. Yue Zhou, The Hong Kong Polytechnic University; Dr. Yiming Yao, East China University Of Science And Technology</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	490	XINYU MA, Baisheng Nie	Research review on thermal runaway of lithium-ion battery and safety early warning and prevention technology
13:45-14:00	35	Clemente Capasso, Ottorino Veneri, Luigi Iannucci	Impact of User Drive Style on EV Energy Storage System Aging
14:00-14:15	78	Siyuan ZHAO, Tong LIU, Meng NI	High-Energy-Efficiency Zinc-Air Batteries for Energy Storage

# Day 1: Dec. 3

14:15-14:30	88	Yong Kang Han, Ying Chuan Zhang, Yi Ke Lei, Jie Ni, Cun Man Zhang, Qiang Feng Xiao*	Enhancing Electrochemical Performance of Ni-rich Cathode by utilizing organic anhydride cathode additive
14:30-14:45	525	Josefin Rojas Vazquez, Meysam Majidi Nezhad, Maher Azaza, Erik Dahlquist	Analysis of Li-Ions Degradation Using Incremental Capacity Indicator
14:45-15:00	149	Yanyan Lu <sup>1</sup> , Junsheng Zheng <sup>1*</sup> , Liming Jin <sup>1*</sup>	Investigation of the Dynamic Process of Direct Contact Pre-lithiation in Graphite Anode of Lithium-ion Batteries
15:00-15:15	362	Baichen Liu, Salvatore De Angelis, Vedrana Andersen Dahl, Søren Bredmose Simonsen, Johan Hjelm	Electrochemical performance of dual-layer carbon electrodes for aqueous redox flow batteries
15:15-15:30	434	Ying Chen	Numerical Simulation of Intragranular and Intergranular Crack in NCM Polycrystalline Particles Under Different Operating Conditions
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room: B219</b>			
<b>Session Name: Energy Storage System</b>			
<b>Session Chair: Dr. Fang Guo, Tsinghua University; Asso Prof. Jie Yan, North China Electric Power University</b>			
Time	Paper ID	Author	Paper Title
16:00-16:15	295	Mingzhi Zhao, Yilin Zhu, Dongzi Hu, Yujie Xu, Haisheng Chen	Off-design performance of supercritical compressed carbon dioxide energy storage system
16:15-16:30	572	Bartosz Kałski, Nishith B. Desai, Fredrik Haglind	Thermodynamic optimization of solar aided liquid air energy storage system
16:30-16:45	653	Sajid Mehmood	Numerical model of solar-driven cold storage for small-scale fisheries
16:45-17:00	393	yuxuan Song	Study on Electric Field Distribution Characteristics at the end of Rotor Winding of Pumped-storage Electric Motor
17:00-17:15	86	Sheng Yang, Hong-Yi Shi, Li-Wu Fan	A high-supercooling-degree phase change material (PCM) based on erythritol by rheological behavior regulation for seasonal latent heat storage
17:15-17:30	112	Wenting Hu, Ming Liu, Peiye Zhang, Junjie Yan	Thermodynamic optimization of a supercritical combined heat and power plant based on molten salt heat storage
<b>Room: B220</b>			
<b>Session Name: Energy Management, Policy and Economics</b>			
<b>Session Chair: Dr. Arthur Stobert, TU Darmstadt; Dr. Zhiling Guo, The Hong Kong Polytechnic University</b>			
Time	Paper ID	Author	Paper Title
10:30-10:45	41	Victor Guillot Edi Assoumou	Combined decarbonization of the European and North African power systems: an emphasis on hydrogen trade
10:45-11:00	463	Pengyu Wei, Dongsheng Cai*, Chiagoziem Chima Ukwuoma, Olisola Bamisile, Qi Huang	Optimized Configuration of Hybrid Electric-Hydrogen Energy Storage System Considering Carbon Trading and Wind Power Fluctuation Smoothing
11:00-11:15	492	NKOU NKOU Joseph Junior, Dongsheng Cai, Chiagoziem C. Ukwuoma, Olusola Bamisile, Qi Huang	Trends and Patterns in Green Hydrogen Project Development: A Comprehensive Data-Driven Analysis
11:15-11:30	216	Patrik Klintonberg, Fastudo Mabecua, Sebastian Schwede	Is small-scale biogas production a viable source of electricity in rural Sub-Saharan Africa?
11:30-11:45	593	Fastudo Mabecua, Nilza Dimande, Adolfo Condo, Patrik Klintonberg, Carlos Lucas, Sebastian Schwede	Barriers to successful implementation of small-scale biogas technology in Southern Africa: What can be learned from past initiatives in Mozambique?
11:45-12:00	65	Yuanzheng Wang, Renyi Cao	A New Development Strategy: Numerical simulation and Field Application of Advanced Gas Injection Approach in Shale Reservoirs
12:00-12:15	166	Florian Siekmann, Holger Schlör, Sandra Venghaus	Navigating Data Management Challenges and Seizing Opportunities in the Sahel Region: Selecting Weighting Factors within a Sustainability Framework
12:15-12:30	676	Mustafa Jaradat, GJU	Feasibility and Environmental Considerations of Biodiesel Production from Waste Falafel Oil in Jordan
12:30-13:30	<b>Lunch</b>		



# Day 1: Dec. 3

<b>Room: B220</b> <b>Session Name: Energy Management, Policy and Economics</b> <b>Session Chair: Dr. Patrik Klintonberg, Blekinge Institute of Technology</b>			
13:30-13:45	666	Abel Martinez, Gregorio Iglesias	Wind energy resources in South America under climate change
13:45-14:00	47	Zhao Han and Akiyuki Kawasaki	Prospective Assessment of Multiple Environmental Impacts Caused by China's Domestic Demand Growth under the SSP Scenarios
14:00-14:15	164	Jingfeng Zhou, Pamela Fennell, Ivan Korolija, Kaixuan Wang, Paul Ruysevelt	Characterization of hotel stock for climate change mitigation in England and Wales
14:15-14:30	440	Kexin Yang, Qi Zhang, Ge Wang, Xiaoxuan Chen, Hailong Li	A New Simulation Framework for Charging Strategy Selection in Heterogeneous Policy Scenarios
14:30-14:45	294	Jiaojiao Zhang Shijun Huang Fenglan Zhao Yang Zhao	Fracture parameter inversion method of deep coalbed methane wells after hydraulic fracturing based on production dynamic analysis
14:45-15:00	370	Di Fan, Ke Wang	The effectiveness of Forest Farm Carbon Sink projects in reducing poverty
15:00-15:15	528	Danbi Kim, Steven Jige Quan	Examining the Relationship between Urban Form Factors and Extreme Heat in Seoul with A Machine Learning Approach
15:15-15:30	459	Mauro Zampilli, Ahmed Hassan, Silvia Garlatti, Katarzyna Slopicka, Sara Massoli, Pietro Bartocci, Francesco Fantozzi	Techno-economic assessment of the SURFOLY business model in the circular economy for activated carbon production from olive waste biochar
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room: B220</b> <b>Session Name: Energy Management, Policy and Economics</b> <b>Session Chair: Dr. Wenlong Shang, Beijing University of Technology; Dr. Yue Zhou, Cardiff University</b>			
Time	Paper ID	Author	Paper Title
16:00-16:15	534	Parth Bansal Steven Jige Quan	Examining mechanisms linking urban contextual form to building energy use – An empirical study in Seoul
16:15-16:30	547	Rafik Yamout, Alaa Krayem, Fredrik Wallin	Energy communities in Sweden: the case study of Sätra, Västerås
16:30-16:45	591	Haya Helmy, Takahiro Yoshida, Akito Murayama, Amal Bogoreh, Ishwar Ramnarine, Perry Pei-Ju Yang	Carbon-neutrality Architecting and New-age Visions for Urban Areas using Systems design (CANVAS) – A case study of Tokyo Nihonbashi
16:45-17:00	603	Amin Al-Habaibeh , Matthew Watkins , Bubaker Shakmak , Maryam Bathaei Javareshk and Seamus Allison	Towards more sustainable urban transportation for NetZero cities: Assessing air quality and risk for e-scooter users using sensor fusion and artificial intelligence.
17:00-17:15	655	Jiaying Li, Qing Yu, Likun Peng, Siyuan Liu, Haoran Zhang	Evaluating the Resilience of Highway Electric Vehicle Charging Networks Using Agent-Based Modeling
17:15-17:30	20	Tianle Liu; Mengye Zhu; Lyu Jing; Ye Qi	Assessing net employment effects for a just energy transition in China towards carbon neutrality: An Input-Output approach
<b>Room: E215</b> <b>Session Name: Intelligent Energy System</b> <b>Session Chair: Asso Prof. Wandong Zheng, Tianjin University; Dr. Zhenjia Lin, The Hong Kong Polytechnic University</b>			
Time	Paper ID	Author	Paper Title
10:30-10:45	8	Sally Shahzad, Wenjie Song, John K. Calautit	Heated Vest: A Personal Comfort System to Enhance Thermal Comfort and Energy Use
10:45-11:00	169	Jiayi Sun, Sui Li , Yixin Dong , Kaiyi Hou	Building energy consumption prediction model for edge effects in the case of high-rise buildings
11:00-11:15	376	Omar Osman, Dr. Alissar Yehya, Dr. Elsa Maalouf	A Novel Climate Responsive PCM-Insulation System for Building Envelopes

# Day 1: Dec. 3

11:15-11:30	481	Yifan Wu, Hengxin Zhao, Shuangdui Wu, Hongli Sun, Borong Lin.	Comparative study on thermal performance of novel terminal based on flat heat pipes and traditional fan coil and floor heating
11:30-11:45	27	Bürgler Florian , Humbert Gabriele, Heer Philipp, Koirala Binod Prasad	Optimizing Waste Heat Utilization from Small-scale Data Centers in Multi-Energy Building Systems
11:45-12:00	52	Peng Liu, Jing Gong, Bohui Shi, Shangfei Song	Predictive Scheduling of Parallel Pump Systems Based on Airport Gate Assignment
12:00-12:15	199	Renan Lima Baima Iván Abellán Álvarez Ivan Pavić Emanuela Podda	Public Sector Sustainable Energy Scheduler – A Blockchain and IoT Integrated System
12:15-12:30	592	Alexandre d'Orgeval Valentina Sessa Edi Assoumou Quentin Avenas	Towards Improved Datacenter Assessment: Review and Framework Proposition
12:30-13:30	<b>Lunch</b>		
<b>Room: E215</b>			
<b>Session Name: Intelligent Energy System</b>			
<b>Session Chair: Dr. Ying Du, The Hong Kong Polytechnic University; Dr. Xiaodan Shi, Mälardalen University</b>			
13:30-13:45	260	Khalid Alanazi, Shivika Mittal, Adam Hawkes, Nilay Shah	A novel framework for simulating market equilibrium in international hydrogen trade
13:45-14:00	2	Chengkai Zhang, Xianzhi Song, Yinao Su, Gensheng Li,	Real-time prediction of oil and gas drilling rate based on physics-based model and particle filter method
14:00-14:15	650	DZhengyaun Lin, Zhiling Guo, Hongjun Tan, Dou Huang, Haoran Zhang, Jinyue Yan	TLeveraging Generative AI for A Better PV Panels Installation Planning
14:15-14:30	49	Anna Harman, Lukas Baur, Alexander Sauer	Systematic Comparison of Imputation Models for Automatized Gap Filling on Electrical Load Data of Compressor Composites in the Industrial Sector
14:30-14:45	63	Weijia Li, Jing Gong, Jiuda Zhang, Haochen Pan	Hybrid modeling digital twin for natural gas station systems of long-distance pipelines
14:45-15:00	114	Margi Shah , Yue Zhou , Jianzhong Wu , Max Mowbray	A review of reinforcement learning based approaches for industrial demand response
15:00-15:15	161	Jintao He, Yu Yao, Meiyang Zhang, Yonghao Zhang, Bowen Lu, Lingfeng Shi*, Gequn Shu	CO2 Heat Pump for Simultaneous Cooling and Heating: Enhancing Efficiency through Model Predictive Control and Neural Network Identification
15:15-15:30	203	A. Stobert, H. Ranzau, I. Pfenning, M. Weigold	Interpretable Machine Learning for Deep Reinforcement Learning based Control Strategy Optimization of Industrial Energy Supply Systems
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room: E215</b>			
<b>Session Name: Intelligent Energy System</b>			
<b>Session Chair: Asso Prof. Xianming Ye, University of Pretoria; Prof. Peng Li, Tianjin University</b>			
Time	Paper ID	Author	Paper Title
16:00-16:15	343	Xiaojie Lin, Jiahao Xu, Xueru Lin, Yihui Mao	Multi-scale Optimization of Integrated Industrial Energy Systems with Carnot Battery
16:15-16:30	402	Yizhe Li, Dan Wang, Hongjie Jia, Tianshuo Zhou, Jiawei Liu	Entropy State Modelling method for Integrated Energy System based on Flow Hub model
16:30-16:45	646	Zhang Yuhuan, Lun Zhang, Xiaosong Zhang	Dynamic Optimization of Energy Station Layout in District Energy Systems Considering Temporal Load Characteristic
16:45-17:00	678	Yingya Zhou, Linwei Ma, Weidou Ni	A Community-driven Data Integration Trinity of Framework, Connector Platform, and Operation Strategy to Connect Data Islands in Integrated Energy Systems
17:00-17:15	64	Helder Pereira, Luis Gomes, Zita Vale	Optimizing participation in the local energy market using a deep reinforcement learning approach
17:15-17:30			
<b>Room: E216</b>			
<b>Session Name: Hydrogen Energy</b>			
<b>Session Chair: Prof. Jarek Milewski, Warsaw University of Technology</b>			
Time	Paper ID	Author	Paper Title

# Day 1: Dec. 3

10:30-10:45	111	Zhongrui Gai, Yang Li, Yuanhui Shen, Yunlian Liu, Ying Pan	Chemical Looping Steam Methane Reforming Using NiFe <sub>2</sub> O <sub>4</sub> as Oxygen Carrier for Hydrogen Production
10:45-11:00	128	Chuangdong Li, Zheng Hongxiang, ruhang zhang, Xinhai Yu, Bo Li, Shan-Tung Tu	3D Printing Combined with Dealloying to Prepare Cu/ZnO Structural Catalysts for On-board Methanol Steam Reforming
11:00-11:15	159	Pengfei Wang, Jiawei Chen	Optimal Sizing Strategy for the Stand-Alone Hydrogen Production System Composed of Wind-PV-Energy Storage System
11:15-11:30	178	Tianlong Yang, Jinrui Zhang, Qiong Rao, zhongrui gai, Ying Pan, Yang Li, Hongguang Jin	Lanthanide-Based Perovskite Enhance Syngas Production for a Low-Carbon Future through Chemical Looping Dry Reforming of Methane
11:30-11:45	257	Chun Wang, Songtao Ye, Dou An, Huan Xi*	Comprehensive battery monitoring and warning system based on hierarchical temporal convolutional network (HTCN)
11:45-12:00	325	Wei Li, Zhiguo Qu, Guobin Zhang, Jianlin Fu, Jianfei Zhang*	Comprehensive Analysis of Bubble Behavior within the PEMWEs Based on the VOF Method
12:00-12:15	342	Bo Liu, Hao Zhang, Zhengjun Chen, Qiang Yang	The gas hold-up feature in a 1.2 m tall alkaline electrolytic cell: a critical limit for the increase of current density
12:15-12:30	428	Stefano Mingolla Kevin Rouwenhorst Paolo Gabrielli Giovanni Sansavini Magdalena M. Klemun Zhongming Lu	Towards Sustainable Fertilizer Production: Cost Comparison of Flexible and Continuous Electrolytic Ammonia Production

12:30-13:30

**Lunch**

**Room: E216**  
**Session Name: Hydrogen Energy**  
**Session Chair: Prof. Ahmad Khalaf Sleiti, Qatar University**

13:30-13:45	13	Ruchen Huang, Hongwen He	Enabling Cross-Type Transferable Energy Management of Fuel Cell Hybrid Electric Vehicles via Deep Transfer Reinforcement Learning
13:45-14:00	69	Shuhao Zhang, Nan Zhang	Economic Analysis of Green Hydrogen Decarbonization in Ethylene Plant
14:00-14:15	234	Gaopeng Huang, Feng Ye	Hetero-interface from Fe <sub>2</sub> P and NiFe LDH for Oxygen Evolution Reaction in Water Splitting
14:15-14:30	235	Gbemi Oluleye, Oliver Morgan, Lucy Elwy	Assessing the UK's attempt to Establish a Zero-carbon Hydrogen Economy in the Industrial Sector
14:30-14:45	259	Dan Zhao, Baisheng Nie	Study on the Distribution of Coal Mine Resources and Gas Carbon Emission in China
14:45-15:00	261	Cahyani Windarto, Ocktaeck Lim,	Optimization of operating parameters of spark discharge duration effect on low carbon combustion of propane with high pressure direct injection using an ANN-GA
15:00-15:15	313	Pengfei Zhu, Zhen Wu, Jing Yao, Fusheng Yang, Zaoxiao Zhang	The comprehensive review on modeling of solid oxide fuel cells: from large system to fine electrode
15:15-15:30	354	Xiayi Shi, Chunjun Huang, Yi Zong	Techno-Economic Analysis of Alkaline Electrolyzers' Scaling-up Strategies

15:30-16:00

**TEA/COFFEE BREAK**

**Room: E216**  
**Session Name: Hydrogen Energy**  
**Session Chair: Dr. Bo Liu, East China University of Science and Technology; Dr. Yong Hao, University of Chinese Academy of Sciences**

Time	Paper ID	Author	Paper Title
16:00-16:15	539	M. Hussein N. Assadi	Critical Dimensionality Effects in Europium Nanosheets Supported on Titanium Dioxide for Catalytic Hydrogen Production
16:15-16:30	540	Yue Zhou, Jun Li, Jian Huang, Liang Zhang, Qian Fu, Xun Zhu, Qiang Liao	Influence of working conditions on temperature variation and performance evaluation of PEM water electrolysis
16:30-16:45	542	Qiteng Huang, Bosheng Su, Yilin Wang, Yupeng Huang, Zhi Huang, Shuo yuan	A novel negative carbon emission hydrogen production method for biogas reforming based on moderate reinjection of flue gas
16:45-17:00	549	Tianchao Kuang, Jun Li, Jian Huang, Liang Zhang, Qian Fu, Qiang Liao, Xun Zhu	Effect of dispersion method on the performance of the anodic catalyst layer for proton exchange membrane water electrolyzer

# Day 1: Dec. 3

17:00-17:15	616	Jakub Kupecki, Maciej Bakala, Stanislaw Jagielski, Anna Niemczyk, Giovanni Cinti	Investigation of pressurized steam electrolysis and co-electrolysis of H <sub>2</sub> O/CO <sub>2</sub> in solid oxide electrochemical cells for highly efficient production of synthetic fuels
17:15-17.:30	669	Shibo Cui, Yueyang Wang, Zhenyu Tian, Wenjia Li	Hydrogen production in an anion exchange membrane photoelectrochemical (AEM-PEC) cell with a hematite photoanode

# Nexus

A Cell Press partner journal

A brand new open access journal,  
now open for submissions

Nexus, to be published jointly by **Cell Press** and the **PolyU Press**, covers all subjects in the areas of applied sciences, engineering, technology, and inter- and multi-disciplinary fields. The journal will publish original research, review articles, and commentary on innovations that aim to improve lives, protect the planet, and contribute to the UN Sustainable Development Goals.

Nexus is Cell Press's first partner journal to be issued in collaboration with a university.

Editor-in-chief  
**Jerry Yan, Professor of Energy and Buildings**



For details at

<https://www.cell.com/nexus/home>

To contact the editor-in-chief or for inquiries about the journal, email [nexus.polyu@polyu.edu.hk](mailto:nexus.polyu@polyu.edu.hk).



THE HONG KONG  
POLYTECHNIC UNIVERSITY  
香港理工大學



# Day 2: Dec. 4

9:00 - 9:10	Opening of ICAE2023		
9:10 - 9:50	Keynote 1 Nexus for Net Zero: Fueling and Refining Energy Decarbonization with Generative AI, Quantum (Prof. Fengqi You)		
9:50- 10:30	Keynote 2 Carbon Capture, Utilisation and Storage (CCUS) study through Systems Engineering techniques (Prof. Meihong Wang)		
10:30 - 11:00	Coffee Break		
11:00 - 11:40	Keynote 3 Accelerating Power Grid Decarbonization through Distributed Energy Resources: Insights from the United (Prof. Haofeng Chen)		
11:40 - 12:20	Keynote 4 Comprehensive Interdisciplinary Assessment and Economics of Negative Emission Technologies (Prof. Reinhard Madlener)		
12:30 - 13:30	Lunch		
<p style="text-align: center;"><b>Room C243</b>  <b>Session Name: Hydrogen energy</b>  <b>Session Chair: Ahmad Khalaf Sleiti, Qatar University</b></p>			
Time	Paper ID	Author	Paper Title
13:30-13:45	476	Yongze Li, Jianwei Li	A Multi-source Data Fusion Method for Visualizing Image Reconstruction of Hydrogen Leakage Concentration Distribution
13:45-14:00	266	Jiale Duan, Changqing Dong, Junjiao Zhang, Xiaoying Hu, Junjie Xue, Ying Zhao, Xiaoqiang Wang	Prediction the Moisture Content of Corn Straw, Wheat Straw and Rice Straw Based on Near Infrared Spectroscopy
14:00-14:15	339	Ahmad K. Sleiti and Wahib A. Al-Ammari	Design and analysis of a novel liquid hydrogen production system using dual mixed refrigerant-based cryogenic precooling and liquefaction processes
14:15-14:30	360	Luming Yang, Jianwei Li, Qingqing Yang, Tianci Wang, Weitao Zou	Quantitative Risk Assessment of Fuel Cell Vehicles Based on Component Leakage Risk Analysis
14:30-14:45	17	Nithin B. Kummamuru, Sammy W. Verbruggen, Patrice Perreault	Experimental investigation of H2 storage in clathrate hydrates through a metallic packed bed reactor
14:45-15:00	174	Marco Maggini, Andrea Luigi Facci, Giacomo Falcucci, Stefano Ubertini	Simulation-Driven Optimization of Metal Hydride-Packed Hydrogen Storage Systems for Enhanced Performance
15:00-15:15	558	Arton Merovci Yunting Ge	Low Carbon and High-pressure Hydrogen Production with Highly Efficient Metal Hydride Reactors
15:15-15:30	407	Laveet Kumar and Ahmad K. Sleiti	Modeling and Analysis of Effect of Various Tank Geometries and Relief Pressure on Liquid Hydrogen (LH2) Boil-Off Losses
15:30-15:45	665	Yang Ye	Performance Optimization of a PCM based Array Metal Hydride Hydrogen Storage Reactor
15:30-16:00	TEA/COFFEE BREAK (Optional for C243 on Day 1)		
<p style="text-align: center;"><b>Room C243</b>  <b>Session Name: Renewable Energy</b>  <b>Session Chair: Asso Prof. Farzin Golzar, KTH Royal Institute of Technology; Dr. Mohammed Guezgouz, Mälardalen University</b></p>			
Time	Paper ID	Author	Paper Title
16:00-16:15	42	T. Kobashi, J. Xiao	1km mesh analyses of cities for decarbonization potentials of rooftop PV integrated with EVs as battery
16:15-16:30	434	Ying Chen, Kexin Mao, Weiling Luan, Haofeng Chen, Shan-tung Tu	Numerical simulation of intragranular and intergranular crack in NCM polycrystalline particles under different operating conditions.
16:30-16:45	54	Li Zhu, Yifan Jing ,Baoquan Yin, Liu Bing	Building Surface PV Design Based on UAV Photogrammetry, Balancing Energy Production and Aesthetics - Method and Case Study
16:45-17:00	225	Afroza Nahar Rifat Al Mamun Rudro Md. Faruk Abdullah Al Sohan Rubina Islam Reya	PREDICTING PHOTOVOLTAIC POWER GENERATION BY MACHINE LEARNING USING TIME SERIES ANALYSIS
17:00-17:15	390	Tianqi Ruan, Wujun Wang, Bjorn Laumert	Techno-economic analysis of urban bifacial PV in high-latitude area
17:15-17:30	437	Matteo Catania, Abdullah Bamoshmoosh, Vincenzo Dipierro, Marco Ficili, Andrea Fusco, Domenico	Improving the performance of a pumped hydro storage plant through integration with floating photovoltaic

# Day 2: Dec. 4

		Gioffré, Federico Parolin, Lorenzo Pilotti, Ferdinando Vincenti, Andrea Zelaschi	
<b>Room C244</b>			
<b>Session Name: Clean Energy Conversion Technology</b>			
<b>Session Chair: Dr. Rodolfo Freitas, Queen Mary University; Dr. Jun Zhao, Beijing University of Chemical Technology</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	181	Man Zhen, Xuezi Dong, Chunqing Tan, Aidao Dong	Thermal cycle performance optimization and advantage analysis of an adaptive cycle engine in various bypass modes
13:45-14:00	253	Bruno Laurini, Yi Zong, Chresten Træholt, Sebastian Andres Quevedo Parra, Meenakshisundaram Shanmugasundaram	Techno-economic analysis on the integration of an electrified clay calcination process into a cement plant
14:00-14:15	280	Jing Luo, Zhe Kang, Qiuyu Liu, Haonan Sun, Junxiang Chen, Zhenlv Mo, Kefu Yao, Yongliang Pan	Optimization of Fuel Economy Using Cooled LP-EGR within a Hybrid Dedicated Gasoline Engine
14:15-14:30	329	Ardhika Setiawan, Wonjun Cho, Ocktaeck Lim	A study of combustion characteristics prediction of dual direct injection fuel (diesel-propane) on RCEM based on an artificial neural network approach
14:30-14:45	509	Nguyen Ho Xuan Duy, Tran Quang Khai, I Komang Gede Tryas Agameru Putra, Ocktaeck Lim	A study on vaporization characteristics of gasoline-biodiesel blended under GCI engine conditions
14:45-15:00	517	Wei Yidi, Zuo Zhengxing, Jiayu Wang, Boru Jia, Feng Huihua, Zhiyuan Zhang	A Whole Process Control Strategy of Free-piston Linear generator
15:00-15:15	596	Tze Yeung Cho, Jingyuan Xu, Simone Hochgreb	Numerical modelling of a looped travelling wave thermoacoustic engine
15:15-15:30	521	Ali, Ocktaeck Lim	A numerical approach on the combustion characteristics and performance of compression ignition engine with EGR fueled with various diesel-butane mixtures
15:30-15:45	268	Hafiz Aman Zaharil, Hong-Xing Yang	Performance evaluation of direct parabolic trough supercritical Brayton cycle with direct contact membrane distillation (DCMD) for co-generation of power and water.
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room C244</b>			
<b>Session Name: Clean Energy Conversion Technology</b>			
<b>Session Chair: Dr. Xianhua Nie, Tianjin University; Dr. Bashar Shboul, Al Al-Baty University</b>			
Time	Paper ID	Author	Paper Title
16:00-16:15	494	Sandeep Yadav, Srinivas Seethamraju, Rangan Banerjee	Thermodynamic Analysis of a Dual-Stage ORC System Utilizing LNG Cold Energy for District Cooling Application
16:15-16:30	129	Guofeng Ma, Ming Liu, Junjie Yan	Study on energy consumption characteristics of combined heat and power unit considering overlaps of governing valves
16:30-16:45	200	Shuai Yao, Meysam Qadrdan, Jianzhong Wu, Tong Zhang, Micheal Taylor	Generic load analysis of the 5th generation district heating networks based on matrixed model representation
16:45-17:00	72	Kun Hou, Ningze Han, Xiangyang Liu, Maogang He	Design and Performance Evaluation of a Gas-liquid Interconversion CO <sub>2</sub> Energy Storage System Coupled with a Coal-fired Power Plant
17:00-17:15	137	Ruihua Chen, Weicong Xu, Shuai Deng, Ruikai Zhao, Li Zhao	The energy storage/release density and net energy density of the electrochemical Brayton cycle: thermodynamic considerations
17:15-17:30	239	Yiwei Hu Zhanghua Wu Jingyuan Xu Ercang Luo	Experimental investigation on a multimode single-unit thermoacoustic system for cooling and heating
<b>Room C245</b>			
<b>Session Name: Mitigation Technologies</b>			
<b>Session Chair: Prof. Zaoxiao Zhang, Xi'an Jiaotong University</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	205	Xinyuan Gao, Shenglai Yang, Jiatong Wang, Lerao Tian, Haiwei Zuo, Xing Zhang, Bin Shen	Study on Engineering Parameters and Risks of CO <sub>2</sub> Geological Storage Based on WR-THM Coupling Model

# Day 2: Dec. 4

13:45-14:00	326	Xiunan Sun, Tuo Guo, GuoZhang Chang, JingJing Ma, XiuDe Hu, YuRong He, QingJie Guo	Highly selective conversion of CO <sub>2</sub> to C <sub>2</sub> – C <sub>4</sub> olefins over the bifunctional K/BayFeO <sub>3</sub> -x
14:00-14:15	366	Yali Liu, Chao Zhang, Zhaomin Li	Feasibility study of CO <sub>2</sub> sequestration by high quality foam in high water-cut reservoirs late development stage
14:15-14:30	369	XUAN Bie, Shiyu Zhang, Leyan Gao, yongqing Xu, Yuyao Yang, Xiaoxiao Yang, Qinghai Li, Yanguo Zhang, Hui Zhou	Revealing effect of NH <sub>3</sub> on Cu/ZnO/Al <sub>2</sub> O <sub>3</sub> catalyst for reverse water gas shift reaction
14:30-14:45	184	Huifeng Fan, Yuanhao Mao, Sayd Sultan, Xiaomei Wu, Yunsong Yu, Zaoxiao Zhang	Optimization of the electrochemically mediated amine regeneration (EMAR) for CO <sub>2</sub> capture through computational modeling
14:45-15:00	510	Qi Zhang, Shuai Deng, Ruikai Zhao, Bingyang Zhang	Multi-optimization of carbon capture by temperature swing adsorption based on artificial neural network surrogate model
15:00-15:15	520	Chuangde Zhang, Li Chen, Zi Wang, Wen-Quan Tao	Computational Microfluidic Study of Multiphase Reactive Transport with Mineral Dissolution and Bubble Generation based on Lattice Boltzmann Method
15:15-15:30	577	Ahmed M. Alatyar; Abdallah S Berrouk; Mohamed S. AlShehhi	Numerical Modelling and Simulation of Turbulent Micro-mixing and Chemical Absorption in Rotating Packed Bed
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room C245</b>			
<b>Session Name: Intelligent Energy System</b>			
<b>Session Chair: Prof. Sasan Sadrizadeh, Mälardalen University; Dr. Xiaojun Luo, University of the West of England</b>			
16:00-16:15	351	Shan Liu, Yamin Yan, Jie Yan, Haoran Zhang, Shuang Han, Yongqian Liu	Electricity consumption simulation of residential buildings driven by population trajectory big data
16:15-16:30	359	Jiarui Zhang, Yunfei Mu, Wei Yang	Energy Performance of a Residential Zero Energy Building Energy System – R-CELLS in Solar Decathlon China2022
16:30-16:45	469	Yin Baoquan Luo Tianyu Zhang Chunyan	Research on energy consumption analysis and zero-carbonization transformation of existing universities ---- Take the Balitai Campus of Nankai University as an example
16:45-17:00	522	Jun Liu, Nannan Sun, Guixiang Zhu, Xu Lyu, Xingyu Liang, Kun Wang	Simulation study of combustion and emission in a low-speed two stroke diesel engine with diesel/methanol dual fuel
17:00-17:15	465	Hengxin Zhao , Shuangdui Wu ,Yifan Wu, Hongli Sun , Borong Lin	Application potential analysis of a new dynamic building envelope in public buildings
17:15-17:30	172	Mr. WANG Zixuan Dr. ASSOUMOU Edi Mr. MONNET Antoine	The role of hybrid heat pumps in design of resilient residential heating system for France
<b>Room C246</b>			
<b>Session Name: Energy Sciences</b>			
<b>Session Chair: Dr. Susumu Yada, KTH Royal Institute of Technology; Dr. Alaa Krayem, Mälardalens University</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	381	Zhihan Deng	Study on energy regulation of solar assisted heat pump energy storage drying system under high cold and large temperature difference
13:45-14:00	182	Bin Wang, Shijun Huang, Fenglan Zhao, Yue Cheng, Xinhan Fan	A comparative study of machine learning algorithms for Predicting steam-assisted gravity drainage (SAGD) production Performance Using Field Data
14:00-14:15	46	Huaxia YAN, Xiaona MA, Yi CHEN, Qihua TAO	Performance analysis of wet pad assisted air-cooled battery thermal management system
14:15-14:30	9	Ibrahim Halil Ozdemir Sally Shahzad (Wyville)	Energy dependent behaviour and thermal comfort: home and office based workspaces
14:30-14:45	92	Amin Moosavi, Anna-Lena Ljung, Staffan Lundström	Investigating the potential and limitations of cell spacing modification for optimized air-based battery thermal management systems
14:45-15:00	145	Tao Ding; Gang Meng; Yi Sheng Liu; Jing Wei Zhang; Ling Yun Hou	Research on modeling analysis of the thermal temperature probe used in the area of high temperature measurement
15:00-15:15	187	Liang Chen, Xinyi Wang, Zhen Li	Research on new hydroelectric power generation Technologies
15:15-15:30	237	Weiling Luan, Ying Chen, Haofeng Chen	Current Progress on Key Safety Issues of Lithium-ion Power Battery
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room C246</b>			
<b>Session Name: Intelligent Energy System</b>			
<b>Session Chair: Dr. Weiling Luan, East China University of Science and Technology; Asso Prof. Xianming Ye, University of Pretoria.</b>			
Time	Paper ID	Author	Paper Title



# Day 2: Dec. 4

16:00-16:15	341	Meng Wang	Research on Safety Evaluation of Expansion/Aging Lithium Ion Batteries
16:15-16:30	367	Zixian Zhuang	Optimization of AC Self-Heating for Efficient Heating and Minimal Capacity Loss in Lithium-Ion Batteries
16:30-16:45	395	jixiang cai, Xueze Wei, jiangong zhu, Bo Jiang, xueyuan wang, jinding liang, Haifeng Dai	3D Reconstruction And Quantitative Characterization Of A NCM523 Cathode For Microstructure-Based Modeling
16:45-17:00	422	Gaoqi Lian, Min Ye*, Qiao Wang, Yan Li, Baozhou Xia, Jiale Zhang, Xinxin Xu	An Enhanced Battery Model Considering Energy Recovery and Temperature for Robust State-of-Charge Estimation of Lithium-Ion Batteries
17:00-17:15	622	Kosaku Nakano, Kenji Tanaka	Transformer-based online battery state-of-health estimation from electric vehicle driving data
17:15-17:30	51	Koharu Okada, Yusei Sugiyama and Takuro Kobashi	"PV + EV" potentials of 1896 municipalities of Japan

**Room B219**  
**Session Name: Energy Storage System**  
**Session Chair: Prof. Ottorino Veneri, National Research Council of Italy; Dr. Qing Yu, Peking University**

Time	Paper ID	Author	Paper Title
13:30-13:45	516	Xianbo Zhou, Kai Jiang, Kangli Wang	Enhancing the Discharge Performance of Liquid Metal Batteries through External Magnetic Fields
13:45-14:00	551	Vikalp Jha Muditha Abeysekera Nicholas Jenkins Jianzhong Wu	Battery digital twin: State of Charge and State of health estimation of LTO battery storage
14:00-14:15	575	Muhammad Shuzub Gull Huzaiifa Rauf Naveed Arshad Muhammad Khalid	Developing a Multipurpose Battery Swapping Station to Energize Mobile and Stationary Loads
14:15-14:30	584	Han Cui, Patrick Luk, Lu Zhang, Chao Long	Techno-economic Analysis of Second Life Electric Vehicle Batteries for Stationary Energy Storage Applications
14:30-14:45	626	Sheng Wang, E Zhang, Haomiao Li, Kai Jiang, Kangli Wang	Robust online parameter identification for batteries using exponential resetting recursive least squares
14:45-15:00	656	Lyuming Pan, Jing Sun, Lei Wei, Tianshou Zhao	Understanding Mass Transfer Dead Zones within Redox Flow Batteries: Mechanism, Characteristics, and Strategies
15:00-15:15	680	Chuanchuan Liu	Heat-electricity-metal-oxygen polygeneration system based on the in-situ utilization of lunar soil
15:15-15:30	121	Nils Collath, Martin Cornejo, Veronika Engwerth, Holger Hesse and Andreas Jossen	Aging aware operation of battery energy storage systems: Prolonged lifetime, enhanced profitability and improved resource efficiency

**TEA/COFFEE BREAK**

**Room B219**  
**Session Name: Energy Storage System**  
**Session Chair: Dr. Junfei Guo, Xi'an Jiaotong University; Dr. Mpyana Danny Bajany, University of Pretoria**

16:00-16:15	125	Zeyang Kang, Maogang He	Hybrid silver nanowire and black phosphorus–CNF aerogels: multifunctional thermal insulating aerogels for building thermal management
16:15-16:30	148	Ruiqiang Sun	Thermodynamic analysis of a sCO <sub>2</sub> coal-fired power system integrated with pumped thermal electricity storage
16:30-16:45	155	X.K. Yu, Y.B. Tao	Experimental study of integrated photovoltaic thermal management system with coupled phase change and water cooling
16:45-17:00	279	Zi-Rui Li, Nan Hu, Liwu Fan	Optimization of the performance of a shell-and-tube latent heat storage device by enhancing the close-contact melting mechanism
17:00-17:15	349	Jiaming Zhang; Haiwen Li; Yue Han; Yanliang Du; Tao Xu; Ting Zou; Dongqiao Zhang.	Development of CaCl <sub>2</sub> · 6H <sub>2</sub> O-mannitol/SiO <sub>2</sub> shape-stabilized composite phase change material for the radiant chilled ceiling system
17:15-17:30	427	Rima Aridi, Alissar Yehya	Enhancing the integration of encapsulated phase change materials in building envelopes for eco-environmental benefits

**Room B220**  
**Session Name: Energy Management, Policy, Economics and Sustainability**  
**Session Chair: Prof. Qie Sun, Shandong University; Prof. Paola D' Orazio, Technische Universität Chemnitz**

Time	Paper ID	Author	Paper Title
------	----------	--------	-------------

# Day 2: Dec. 4

13:30-13:45	87	Lijie Huang, Minhyun Lee , Ruixiaoxiao Zhang, and Geoffrey Qiping Shen	Economic feasibility analysis of community solar projects in Hong Kong
13:45-14:00	409	AZLIN MOHD AZMI	Sustainable Energy City: Learning from Japan's Model
14:00-14:15	230	Huaitao Zhu, Gongnan Xie, Abdallah S. Berrouk	Enhancing Performance of Multi-pressure Evaporation ORC/SCO2 Brayton Cycle through Genetic Algorithm and Machine Learning Optimization
14:15-14:30	252	Kun Yang, Shenglai Yang, Xinyue Liu, Jiyu Chen, Jiayi Yu	Study on microscopic development characteristics and influencing factors of nanopores during CO2 huff and n-puff in Lucaogou Formation shale oil reservoir
14:30-14:45	417	Paola D' Orazio, Garima Vasishtha	Critical Minerals and the Low-Carbon Transition: Economic Implications for Emerging Markets and Developing Economies
14:45-15:00	464	Kun Xiao, Ximu Liu, Yujian Ye	Market Bidding Strategy for Energy-Operating Reserve Market of Wind-Storage Power Station Considering Multiple Uncertainties
15:00-15:15	585	José Almeida, Fernando Lezama, João Soares, Bruno Canizes, Fábio Castro, Gabriel Puerta, Leonardo H. Macedo, Zita Vale, Ruben Romero	Hybrid-Adaptive Differential Evolution with Iterated Local Search for Long-Term Transmission Network Expansion Planning Optimization
15:15-15:30	602	Silvia Laera, Gianvito Colucci, Valeria Di Cosmo, Daniele Lerede, Matteo Nicoli, Laura Savoldi	Technology-specific hurdle rates for Energy System Optimization Models
15:30-16:00	<b>TEA/COFFEE BREAK</b>		
<b>Room B220</b>			
<b>Session Name: Energy Management, Policy, Economics and Sustainability</b>			
<b>Session Chair: Dr. John W. Ballantine, Brandeis International Business School</b>			
16:00-16:15	85	jing liu, Jun Zhao	Comparative environmental and economic performance of typical methanol production routes in China
16:15-16:30	98	Xinqi Yao, Xinhai Yu, Shan-Tung Tu	Powering hydrogen refueling stations with local renewable curtailment – A Lanzhou case study
16:30-16:45	115	Woo Jae Shin, Yeim Lee, Yejin Yu, Han Ho Song	Designing Clean Hydrogen Incentive Scheme based on Life Cycle Greenhouse Gas Emissions and Cost Analysis Using MINLP
16:45-17:00	254	I Wayan Warsita, Wonjun Cho, Ocktaeck Lim	An Experimental Study on the Performance Investigation of Independent High-Pressure Pump with Dimethyl Ether (DME) and Propane as Alternative Fuels.
17:00-17:15	679	Dou Huang, Junxiang Zhang, Zhiling Guo, Wenjie Guo, Haoran Zhang	Understanding Human Mobility Patterns from Urban Energy Consumption Records: A Data-Driven Approach
17:15-17:30	412	Takahiro Yoshida, Hideo Suda, Koichi Oota, Makiyo Maekawa, Takuo Inoue, Junya Yamasaki, Ryoichi Nitani, Rikutarō Manabe, Akito Murayama	A roadmap toward carbon neutrality of the building sector in a central urban area of Tokyo
<b>Room E215</b>			
<b>Session Name: Intelligent Energy System</b>			
<b>Session Chair: Dr. Zhiling Guo, The Hong Kong Polytechnic University; Prof. Fengqi You, Cornell University</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	256	Jiaxin Chi, Zhanghua Wu, Lei Xiao, Jingyuan Xu, Liming Zhang, Ercang Luo	Multi-unit heat-driven thermoacoustic refrigerator with cascade configuration of cooler core
13:45-14:00	264	BC. Wang, G. Mhenni, GG. Cheng, JN. Ding T. Bui	Thermodynamic analysis of a compact counterflow indirect dew-point evaporative cooler
14:00-14:15	269	Han-Gyeong Chu Seongkwon Cho Cheol-Soo Park	Development of FDD model for a real-life case using transfer learning with synthetic data
14:15-14:30	284	Timothée Hornek, Sergio Potenciano Menci, Joaquín Delgado Fernandez, Ivan Pavić	Comparative Analysis of Baseline Models for Rolling Price Forecasts in the German Continuous Intraday Electricity Market
14:30-14:45	287	Jiaxin Gao, Qinglong Cao, Yuntian Chen	Photovoltaic power forecasting based on PV-Client
14:45-15:00	293	Jinyu Liu, Hongye Guo, Qinghu Tang, En Lu, Qiuna Cai, Qixin Chen	High-dimensional Bid Learning for Energy Storage Bidding in Energy Markets
15:00-15:15	318	Ruizhe Deng, Yuntian Chen	Combining self-supervision learning and pre-trained transformer for distributed photovoltaic power forecasting

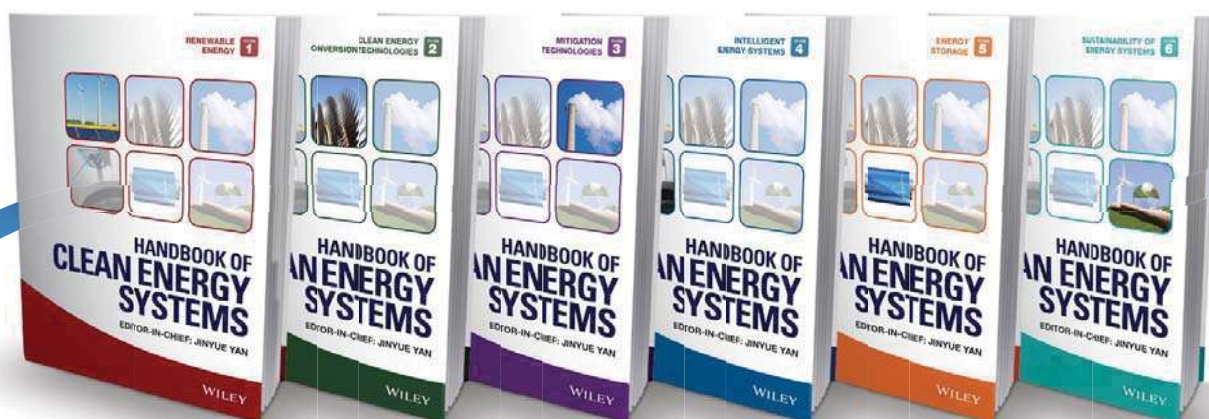
# Day 2: Dec. 4

15:30-16:00			
TEA/COFFEE BREAK			
Room E215			
Session Name: Intelligent Energy System			
Session Chair: Prof. Ottorino Veneri, National Research Council of Italy; Dr. Wei Wang, Beijing Institute of Industry			
Time	Paper ID	Author	Paper Title
16:00-16:15	84	Shangting Jin, Yunfei Mu, Kangning Zhao, Hongjie Jia, Guoqiang Zu, Xiaonan Liu, Yan Qi	Charging Pricing Strategy of Fast Charging Station Considering Electric Vehicle Charging Right Trading Mechanism
16:15-16:30	126	Benedikt Tepe, Sammy Jablonski, Anupam Parlikar, Holger Hesse, Andreas Jossen	Vehicle-to-X Service Provision for various Modes of e-Transportation with Consideration of the Influence on Lithium-Ion Battery Utilization
16:30-16:45	221	jiasen tai, fenlong chen	EV charging load forecasting based on model driven and data driven
16:45-17:00	321	Xiaohong Dong, Yanqi Ren, Xiaodan Yu*, Xing Dong, Mingshen Wang	An electric vehicle flexibility characterization method based on the behavior data of users
17:00-17:15	324	Zirun Jia, Zhenpo Wang, Zhenyu Sun, Peng Liu, Zhaosheng Zhang	A Data-Driven Approach for Anomaly Detection in Electric Vehicle Battery Systems
17:15-17:30	337	Yiming Yao, Ying Chen, Weiling Luan, Hailong Li	In-situ Observation of Crack Initiation and Propagation in The NCM811 Cathode particle
Room E216			
Session Name: Hydrogen energy			
Session Chair: Prof. Jakub Kupecki, Institute of Power Engineering			
Time	Paper ID	Author	Paper Title
13:30-13:45	429	Zhi Huang, Bosheng Su, Yilin Wang, Yupeng Huang, Shuo Yuan, Jiahao Cai, Xiaoyu Yang, Zhiqiang Chen	Novel hydrogen production system based on biogas multi-grade chemical energy conversion
13:45-14:00	432	Huchao Song, Xinyue Zhang, Xiaolong Lin, Hao Bian, Yinhe Liu	System design and integration for Sorption Enhanced Electrified Steam Methane Reforming
14:00-14:15	438	Chiagoziem C. Ukwuoma, Dongsheng Cai, Chibueze D. Ukwuoma, Gladys W. Muoka, Olusola Bamisile, Qi Huang, Chidera O. Ukwuoma	Security Concerns for Using Deep Learning Models in Predicting Hydrogen Production: A Comparative Study on Adversarial Attack
14:15-14:30	445	Chiagoziem C. Ukwuoma, Dongsheng Cai, Chibueze D. Ukwuoma, Favour AB Ekong, Emmanuel S.A Gyarteng, Qi Huang, Chidera O. Ukwuoma	Evaluation of Explainable Deep Learning Models in Predicting Hydrogen Production
14:30-14:45	446	Yu Shao, Bin Wang, Lingzhi Yang, Yong Hao	Re-acquirement of hydrogen from hydrogen-blended natural gas via synergistic conversion of hydrogen and carbon dioxide
14:45-15:00	478	Shuo Yuan, Bosheng Su, Zhi Huang, Yilin Wang, Yupeng Huang, Liang Li, Zhiqiang Chen, Su Wang	Performance investigation of a novel solar-driven thermochemical reactor for green hydrogen production using helical flow channels
15:00-15:15	479	Junjie Wang, Jun Li, Jian Huang, Liang Zhang, Qian Fu, Xun Zhu, Qiang Liao	Effect of the wettability of the cathode microporous layer on performance and hydrogen permeation in proton exchange membrane water electrolysis
15:15-15:30	519	Lingzhi Yang, Xiao Li, Ke Guo, Yunyun Wu, Yu Shao, Yong Hao	Hydrogen production via low-temperature methanol autothermal reforming promoted by in-situ CO <sub>2</sub> adsorption
15:30-16:00			
TEA/COFFEE BREAK			
Room E216			
Session Name: Hydrogen energy			
Session Chair: Prof. Qie Sun, Shandong University			
16:00-16:15	281	Mohammed Taha, Nick Lundvall, Konstantinos Kyprianidis, Awais Salman, Stavros Vouros, Valentina Zaccaria	Techno-economic evaluation of hydrogen production for airport hubs

# Day 2: Dec. 4

16:15-16:30	530	Jian Yang, Yangzhong Li, Hongbo Tan	Optimized design and performance evaluation of a novel hybrid energy submarine pipeline for offshore power-liquid hydrogen delivery
16:30-16:45	576	Hongwei Yue, Hongwen He*, Xuyang Zhao, Mo Han	An adaptive internal state observer based on the cubature Kalman filter algorithm for a vehicular PEMFC system
16:45-17:00	677	Roland Span	Thermodynamic Properties of Hydrogen and Related Mixtures – Why Improvements are Relevant for a Global Hydrogen Economy
17:00-17:15	552	Luqiao Yao, Jianwei Li, Tianci Wang, Luming Yang	Measurement of hydrogen leakage pressure based on laser beam profile deformation technology and BP neural network
17:15-17:30	106	Lei Wang, Bolong Mao, Yanping Ren	Low-carbon economic scheduling optimization of distribution network with hydrogen storage system
18:00 - 19:00	<b>Technical Visit to one world cup stadium</b>		
19:00 - 21:00	<b>Gala Dinner</b>		

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



See how this new reference can help!

Find news, sample content and more at:  
[wileyonlinelibrary.com/ref/hces](http://wileyonlinelibrary.com/ref/hces)

WILEY-VCH

WILEY

# Day 3: Dec. 5

<b>Room C243</b> <b>Session Name:Renewable Energy</b> <b>Session Chair:Prof. Roland Span RUHR-UNIVERSITÄT BOCHUM</b>			
Time	Paper ID	Author	Paper Title
8:30-8:45	195	Si Li, liang zhang	Performance of an all-aqueous thermally regenerative flow battery using CNT/carbon cloth composite electrode
8:45-9:00	652	Yu-Hao Xiang, Jun-Jun Wu, Yi-Wen Lv, Hong Wang, Xun Zhu, Qiang Liao	Modeling the Phase-Change Cooling of Molten Slag Granule: An Appraisal
9:00-9:15	333	David Aliaga Christian Romero Rodolfo Feick Alasdair Campbell	Enhancing Energy Efficiency in Chilean Cryogenic Gas Plants with Liquid Piston Systems: A Dynamic Modelling and Simulation Study
9:15-9:30	408	Primary Author Name: Mohamed Hassan Ali Co-other Name: Heba I. Khafajah	Impacts of System Configurations on Exergy Destruction and Efficiency: An In-depth Analysis of Thermal Oil and Organic Rankine Cycle Interactions
9:30-9:45	582	Dalibor Marinković, Daliborka Nikolić, Carsten Seidel, Andreas Seidel-Morgenstern, Achim Kienle, Menka Petkovska	Evaluation of possible improvements of forced periodically operated reactor in which methanol synthesis takes place – based on the Nonlinear Frequency Response analysis
9:45-10:00	194	Yichao An, Fang Zhou, Yu Shi, Liang Zhang*, Jun Li, Qian Fu, Xun Zhu, Qiang Liao	Reduced-graphene-oxide-modified nickel foam as anode electrode for increased performance of a non-aqueous thermally regenerative flow battery
10:00-10:30	<b>TEA/COFFEE BREAK</b>		
<b>Room C243</b> <b>Session Name:Renewable Energy</b> <b>Session Chair:Prof.Jiawei Chen,Chongqing University</b>			
10:30-10:45	605	Azeez Qudah, A. Almerbati, Esmail M.A. Mokheimer	Optimizing Photovoltaic and Battery Integration for RO Desalination Using Differential Evolution Algorithm
10:45-11:00	628	Jie Shi	Research on Optimal Configuration of Energy Storage Capacity Considering High Proportion of Stable Photovoltaic Consumption
11:00-11:15	647	Hongjun Tan, Zhiling Guo, Yuntian Chen, Haoran Zhang, Jinyue Yan	Rooftop Solar Potential Analysis and Comparison of Different Land Uses Using Remote Sensing
11:15-11:30	132	Jiachen Liu, Shunqi Zeng, Zhongguan Wang*, Li Guo	Primary Frequency Regulation Characteristics Assessment and Allocation of Wind Farm Based on Data-driven Linear MPC
11:30-11:45	157	Lei Wang, Cheng Zhao, Yanping Ren	Design of Key Parameters of Mooring System and Dynamic Response Analysis for Semisubmersible Wind Turbines
11:45-12:00	608	Dr Siti Diana Nabilah Mohd Nasir Prof Ben Richard Hughes Ms Azlizawati Ibrahim	Numerical Analysis on Conceptual Feasibility of Hybrid Windcatcher and Turbine Roof Ventilator for Optimum IEQ and Wind Power Harvesting
12:00-12:15	213	Toufik TAHRI, Mohamed Dekkiche, Mouloud DENAI	A Comparative Study of Solar Tracking Systems in Grid-Connected Photovoltaic/Electrolyzer/Fuel Cell Power System for the Electrification of a Village
12:15-12:30	218	Mohamed Dekkiche, Toufik TAHRI, Mouloud DENAI	Design and optimisation of a hybrid photovoltaic/fuel cell power system for an isolated village based on HOMER pro
12:30-13:30	<b>Lunch</b>		
<b>Room C243</b> <b>Session Name:Renewable Energy</b> <b>Session Chair:Asso Prof.Yi Wang, Chinese Academy of Sciences</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	6	Ashmore Mawire	An experimental comparison of food cooking tests using two different solar cookers
13:45-14:00	101	Peiye Zhang, Ming Liu, Wenting Hu, Ruiqi Mu, Junjie Yan	A model predictive control strategy to enhance dynamic performances of parabolic trough solar receiver-reactor of methanol decomposition reaction
14:00-14:15	58	Hao Yu; Xinli Lu; Wei Zhang; Jiali Liu	Integrated research on hot dry rock power generation and heat extraction with utilization of an increasing-pressure endothermic power cycle (IPEPC)

# Day 3: Dec. 5

14:15-14:30	175	Rodolfo S. M. Freitas Cheng Chen Xi Jiang	Liquid synthetic fuels design guided by chemical structure: A machine learning perspective
14:30-14:45	82	Hongxia Wang, Pengfei Zhu, Zhen Wu, Zaoxiao Zhang*, Wei Shen, Kai Chen, Bingqing Hong	A multi-level low-carbon carbide acetylene production system driven by biomass energy and its performance optimization
14:45-15:00	411	Laveet Kumar and Ahmad K. Sleiti	Dynamic Modeling and Analysis of Solar Industrial Process Heating (SIPH) for Food industry
15:00-15:15	392	Yi Wang, Xiao-Sen Li, Xuan Kou, Jing-Chun Feng	From Laboratory Scale to Field Scale: Investigation of Gas Production Test from Methane Hydrate Reservoir
15:15-15:30	158	Po-Yuan Chang, Jia Yaw Chang	The Development of Advanced Electrode Materials for Environmentally Sustainable Mg-O <sub>2</sub> /CO <sub>2</sub> Fuel Batteries

## Room C244

### Session Name: Clean Energy Conversion Technology

Session Chair: Prof. Li Chen, Xi'an Jiaotong University Prof. Guoyan Zhou East China University of Science and Technology

Time	Paper ID	Author	Paper Title
8:30-8:45	144	Dongmei Yao, Junsheng Zheng, Pingwen Ming	Effects of surface functionalization on interface bonding of graphite/epoxy composites
8:45-9:00	274	Qilin Shuai, Yiheng Wang, Wei Wu, Qingsong Hua	Reinforcement Learning-Based Energy Management for Fuel Cell Vehicles Incorporating Temperature Dynamics
9:00-9:15	276	Binyamin, Ocktaeck Lim	Research on mass transport characteristics and power performance under various flow channel streamlined water-drop block configurations for proton exchange membrane fuel cells
9:15-9:30	319	Azamy Mariam S I A, Ocktaeck Lim	360KW Vessel Fuel Cell System Simulation Using Simcenter Amesim
9:30-9:45	347	Lang CAI, Caizhi ZHANG	Droplet dynamic characteristics in PEM fuel cell with variable-section channels
9:45-10:00	511	Yifan Wang, Xiaoyi Ding, Wei Sun, Gareth Harrison, Pengcheng Guo	Design of Efficient and Safe Wind-P2G-SOFC-GT Hybrid Systems through Machine Learning Enhanced Optimisation

## TEA/COFFEE BREAK

## Room C244

### Session Name: Clean Energy Conversion Technology

Session Chair: Dr. Bashar Shboul, Al al-Bayt University; Asso Prof. Wandong Zheng, Tianjing University

10:30-10:45	223	Chong Zhai, Wei Wu, Jingjie Zhang	Comparative studies between adiabatic plate frame membrane and hollow fiber membrane desorber in a compact and efficient absorption chiller
10:45-11:00	255	Li Zhu, Shibai Cui	Study on Urban Dimension of Disaster Capacity for Storm Surges in China
11:00-11:15	302	Le Vu Tran, Sivanand Somasundaram, Swapnil Dubey, Jacques Mouchet	Design of energy efficient ice-skating rink using phase change material
11:15-11:30	454	minqi su	Investigation on frost free air source heat pump system integrated with recirculated regenerated desiccant wheel
11:30-11:45	513	Mingxi Xie, Guorui Huang, Yanjun Dai	Theoretical Investigation and Performance Analysis of an Integrated Deep Dehumidification System Based on Pressure and Temperature Swing Adsorption
11:45-12:00	156	Qifan Wang, Minxia Li, Chaobin Dang, Dandan Su, Xuetao Liu, Zhipeng Wang, Jiaying Zhang	3D Numerical simulation of heat transfer characteristics of falling-film evaporation of R32/R134a outside a horizontal tube
12:00-12:15	233	Yihe Yu, Junfeng Cao, Minxia Li, Kan Xu, Zhendong Fu	Simulation and experimental study of a cyclone separator under microgravity condition
12:15-12:30	400	Muhammad Reshaeel, Mohamed I. Hassan Ali	Optimization of a VRF System with Vapor Injection for Cooling Load at High Ambient Temperatures: Thermodynamics Study

## Lunch

## Room C244

### Session Name: Energy Management, Policy, Economics and Sustainability

Session Chair: Dr. Zhenjia Lin, The Hong Kong Polytechnic University

Time	Paper ID	Author	Paper Title
13:30-13:45	209	Gbemi Oluleye, Thomas Savage, Fushan Hu	A Novel Stochastic Market Potential Optimisation Model for Clean Technology Uptake Modelling
13:45-14:00	152	Jonas Wendt, Arthur Stobert	Development of Forecasting Models for German Energy Prices and Carbon Intensity as a Decision Basis for Energy Flexibility Measures

# Day 3: Dec. 5

14:00-14:15	48	Holger Schlör, Sandra Venghaus	The rural-urban energy-water gap of West African households - Marshallian demand functions and the utility function of the household
14:15-14:30	431	Amin Al-Habaibeh, Benjamin Nweke	Challenges And Opportunities of the Implementation of NetZero Strategy: Analysis of Key Issues that Affect the Adoption of Domestic Renewable Energy in the UK from Consumers' Perspective
14:30-14:45	142	Baobiao Pu, Renyi Cao, Zhihao Jia, Linsong Cheng, Yongchao Xue	Machine Learning Evaluation Method of Inter-well Sand Body Connectivity by CatBoost Model: A Field Example from Tight Oil Reservoir, Ordos Basin, China
14:45-15:00	387	Alonso Alegre-Bravo, Lindsay Anderson	Rethinking the Role of Access to Electricity Indicators in Latin America: Towards Energy Justice
15:00-15:15	497	Yi Shen Tew, Lanyu Li, Xiaonan Wang	Construction of Knowledge Graph for Material and Energy Flow Integration in Biochemical Industry
15:15-15:30	385	Yao Huang Delin Fang Saige Wang	Greenhouse gas emissions reduction pathways of wastewater treatment facilities in China based on energy recovery and utilization

**Room C245**  
**Session Name:Renewable Energy**  
**Session Chair:Dr. Mahmoud Alzoubi,Queen's University;Dr. Xiaojie Lin,Zhejiang University**

Time	Paper ID	Author	Paper Title
8:30-8:45	91	Emanuel J. Nyirenda, Joseph H. Kihedu, Cuthbert Z. M. Kimambo	Transient Behaviour of Pump as Turbine Coupled to Self-Excited Induction Generator Under Variable Load Conditions
8:45-9:00	165	Shuhui Li, Xinli Lu, Wei Zhang, Jiali Liu, Hao Yu, Chenchen Li	Investigation of an office building geothermal heating system integrating heat pump and energy storage
9:00-9:15	102	Jingxuan Xie, Jiansheng Wang	Flexible operation strategy for geothermal power generation adapted to the uncertainty of demand response
9:15-9:30	357	Nianling Kuang, Linlong Liang, Yimeng Kang, Binbin Jiang	High power density of open structure flexible thermoelectric generator and energy management electronics based on body heat harvesting
9:30-9:45	536	Jiali Liu, Xinli Lu, Wei Zhang, Hao Yu, Maoqin Hu, Shuhui Li, Chenchen Li	A Case Study on Well Structure Optimization Based on Improving the Heat Extraction Efficiency of Geothermal Wells
9:45-10:00	671	Yali Fan, Chuanshan Dai, Haiyan Lei, Fei Ma, Jun Li	Performance of optimized underground pipe network for hydrothermal geothermal energy

**10:00-10:30**      **TEA/COFFEE BREAK**

**Room C245**  
**Session Name:Energy Management, Policy, Economics and Sustainability**  
**Session Chair:Dr.Ying Du, The Hong Kong Polytechnic University; Guotao Wang, The Hong Kong Polytechnic University**

10:30-10:45	66	Meysam Khojasteh, Pedro Faria, Zita Vale	A Robust Strategy for Energy Management in Local Energy Communities
10:45-11:00	163	Xiangying Shan, Hao Wang, Weichao Yu, Kai Wen, Jing Gong, Honglong Zheng, Ranran Wei, Shengyuan Wei	A Methodology to Determine the Maximum Allowable Repair Time for Critical Units of Natural Gas Pipeline System Using Gas Supply Reliability Theory
11:00-11:15	375	Lucija Matulin, Tomislav Capuder, Tomislav Plavšić	Short-term probabilistic load forecasting based on conformalized quantile regression
11:15-11:30	466	Lloyd Corcoran, Pranaynil Saikia, Carlos E. Ugalde-Loo, Muditha Abeysekera	Methodology to Quantify the Cooling Demand in Typical UK Dwellings
11:30-11:45	541	Weike PENG, Yuntian Chen	Toward Carbon Neutrality: Challenges and Opportunities in Deeply Integrating Hong Kong's Grids with the Power System in Guangdong Province
11:45-12:00	503	Amin Lahnaoui, Gianmarco Aniello, Wilhelm Kuckshinrichs	Assessing the feasibility of a green hydrogen economy in Africa with composite indicators: the case of West Africa
12:00-12:15	53	Xiong Yin, Kai Wen, Yichen Li, Yan Wu, Weihe Huang, Yunqi Hao, Yi Li, Jing Gong	Energy flow analysis of complex natural gas pipeline network considering the hydrogen injection and storage of energy
12:15-12:30	97	Yutaro Akimoto, Keiichi Okajima, Shin-nosuke Suzuki	Time-series evaluation of net energy potentials of solar power generation and electric vehicles in Japan

**12:30-13:30**      **Lunch**



# Day 3: Dec. 5

Room C245			
Session Name: Clean Energy Conversion Technology			
Session Chair: Dr. Anders Avelin, Mälardalen University			
Time	Paper ID	Author	Paper Title
13:30-13:45	12	Dmitry Pashchenko	Ammonia Fired Combined Cycle Power Plant with Chemically Recuperated Gas Turbine
13:45-14:00	675	Xueyao Xiong, Guo-yan Zhou, Zunquan Liu, Shan-Tung Tu, Xing Luo	Experimental Investigation of Temperature Fluctuation Characteristics Associated with Thermal Striping Phenomena
14:00-14:15	127	Yuanhao Mao, Huifeng Fan, Sayd Sultan, Xiaomei Wu*, Zaoxiao Zhang*	Electrochemically mediated CO <sub>2</sub> capture process with high CO <sub>2</sub> capacity polyamine absorbents — The basic properties and optimization direction
14:15-14:30	128	Chuangdong Li, Zheng Hongxiang, ruhong zhang, Xinhai Yu, Bo Li, Shan-Tung Tu	3D Printing Combined with Dealloying to Prepare Cu/ZnO Structural Catalysts for On-board Methanol Steam Reforming
14:30-14:45	251	Seyyed Majid TalebiZonoozi, Behrouz Jalilpour, Samad jafarmadar, Behzad KarimzaD, Mohammadhasan Behrouzivand	Experimental and CFD Exploration of Centrifugal Double Suction Pump Behavior in Turbine Running Mode for Innovative Small Power Plant Applications
14:45-15:00	642	Nur Cahyo, Yayak Triasdian	Agglomeration Analysis in Combustion of CFB Coal-Fired Power Plant
15:00-15:15	685	Fanbei Kong, Baisheng Nie, Xiaopan Luo, Zhaoying Shao	Microstructural evolution of a palladium-based nanofilm catalyst during ventilation mine methane oxidation
15:15-15:30	640	Rachmat Hermawan, Muhammad Idris, Nono Darsono	A Comparison Impact of Various Biomass Utilization in Indonesian Cofiring Coal-Fired Power Plant

Room C246			
Session Name: Energy Sciences			
Session Chair: Prof. Rebei Mälardalen University			
Time	Paper ID	Author	Paper Title
8:30-8:45	594	Mohammad Zolfagharroshan, Minghan Xu, Muhammad S.K. Tareen, Ahmad F. Zueter, Mary Kang, Agus P. Sasmito.	Geothermal Energy Potential from Abandoned Oil and Gas Wells in Appalachian Basin of New York and Pennsylvania
8:45-9:00	30	Yu-Zhi Zhu, Si-Bo Wan, You-Rong Li	Numerical Simulation of Poiseuille-Rayleigh-Benard Convection for Density Extreme Fluid in a Horizontal Rectangular Channel
9:00-9:15	283	Yonghui Miao, Haiyan Lei, Rui Xue, Chuanshan Dai	Lab-scale Experiment on Enhanced Open-loop Geothermal Single Well Heat Extraction Using Heat Pipes
9:15-9:30	535	Qirui Yang, Li Chen*, Xinjian Zheng, Lingran Gu	Topology Optimization of Dual-Fluid Printed Circuit Heat Exchangers with Supercritical CO <sub>2</sub> Considering Variable Thermophysical Properties Based on Density Method
9:30-9:45	625	Abdulsalam M.A. Hasan1, Esmail M.A. Mokheimer Dhahran, Saudi Arabia	Performance Analysis of a Counter-flow Cooling Tower Under Different Weather Conditions
9:45-10:00	188	KAI ZHAO, Li Zhao, Chang He, Qinglin Chen, Bingjian Zhang	Optimal design of complex large-scale heat exchanger networks

10:00-10:30 **TEA/COFFEE BREAK**

Room C246D			
Session Name: Energy Sciences			
Session Chair: Prof. Rebei, Mälardalen University; Dr. Junwei Liu, The Hong Kong Polytechnic University			
Time	Paper ID	Author	Paper Title
10:30-10:45	73	Ziwen Zhang, Jianchun Chu, Xiangyang Liu, Maogang He	Exploring high-ionic conductivity antiperovskite electrolytes for all-solid-state batteries by machine learning
10:45-11:00	141	Qiong Rao, Tianlong Yang, Jinrui Zhang, Yang Li, zhongrui gai, Ying Pan	Light-enhanced Catalyzed Hydrogenation of Gaseous CO <sub>2</sub> over Nanostructured Ni-Fe/La <sub>0.8</sub> Sr <sub>0.2</sub> FeO <sub>3</sub>
11:00-11:15	236	Jie Peng, Jianfeng Chao, Qifan Wang, Xuetao Liu, Minxia Li, Chaobin Dang,	Influence of lubricating oil on heat transfer and pressure drop characteristics of R134a flow condensation in mini-channels

# Day 3: Dec. 5

		Yu Zhang	
11:15-11:30	303	Yifan Zhou, Junwei Liu, Jinyue Yan	Eco-Building Materials: Metakaolin-based Geopolymer for CO2 Emission Reduction and Enhanced Energy Efficiency
11:30-11:45	316	Boyuan Wang Zijian Chen Haitao Zhao	Robotics and Artificial Intelligence Accelerated Data-driven Energy Materials Discovery
11:45-12:00	16	Lu Ning, Dong Xiaohu, Chen Zhangxin, Liu Huiqing, Zeng Deshang, Xiao Zhan, Li Yu	Molecular Transition Mechanisms of Heavy Oil in Hybrid CO2-surfactant Thermal Systems for Post-steam Reservoirs
12:00-12:15	71	Lan Tian, Maogang He	Characterization of Thermoelectric Properties of Sputtered Molybdenum Disulfide Thin Films
12:15-12:30	416	Shengmei Zhang	Types of Phase Change Materials and Encapsulated Methods for Microcapsules: Review and One Case Study
12:30-13:30	<b>Lunch</b>		
<b>Room C246</b>			
<b>Session Name:Energy Sciences</b>			
<b>Session Chair:Prof.Guoyan Zhou, East China University of Science and Technology</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	189	Li Zhao, Kai Zhao, Chang He, Qinglin Chen, Bingjian Zhang	Simultaneous optimization and screening of integrated HEN-AR system for zeolite/NH3 working pair
13:45-14:00	191	Shasha Han, Xingtao Li, Chang He, Bingjian Zhang, Qinglin Chen	Performance optimization of Organic Rankine cycle systems for waste-heat recovery: Phase change heat exchanger sizing based on infinitesimal method
14:00-14:15	586	Ahmad K. Sleiti and Wahib A. Al-Ammari	Enhanced Gas Pipeline Multiple Leak Detection Using Artificial Neural Networks in Complex Multiphase Flow Conditions
14:15-14:30	94	ZhongFu Lu, JingZheng Tian, ZaoXiao Zhang, Wei Shen, Kai Chen, Bingqing Hong	Numerical Study of Heat Transfer inside a Hexagonal Enclosure Containing a Finite Heat Source
14:30-14:45	104	Donghao Jin, Heyang Wang, Xin Liu, Chaoqun Zhang, Xinying Li	Prediction of oxide scale layer distribution of boiler platen superheater by a coupled combustion and hydrodynamic model
14:45-15:00	32	Si-Bo Wan, You-Rong Li	Numerical Investigation on the Effect of Container Geometry on Water Evaporation in Pure Vapor at Low Pressures
15:00-15:15	615	Tomas Nhabetse, Boaventura Cuamba, ole Nydal, Claudio Tingote	Experimental Investigation of an Oil-Based Heat Pipe Evacuated Tube Collector for Cooking Application
15:15-15:30	535	Qirui Yang, Li Chen, Xinjian Zhang, Lingran Gu	Topology Optimization of Dual-Fluid Printed Circuit Heat Exchangers with Supercritical CO2 Considering Variable Thermophysical Properties Based on Density Method
<b>Room B219</b>			
<b>Session Name:Energy Storage System</b>			
<b>Session Chair:Guosheng Jia, Dr. Freerk Klasing; Deutsches Zentrum für Luft- und Raumfahrt (DLR)</b>			
Time	Paper ID	Author	Paper Title
8:30-8:45	451	Yali Liu	Surfactant modification of expanded graphite to fabricate composite glycine water-based phase change material for cold energy storage
8:45-9:00	496	Pengchao Li, Xuejing Yang, Fang Guo, Xudong Yang	A dynamic prediction method for the outlet fluid temperature of the large-scale borehole thermal energy storage system based on the multi-channel parallel neural network model
9:00-9:15	564	Freerk Klasing, Thomas Bauer	Repurposing of supercritical coal plants as grid storage with adapted 620 ° C nitrate salt technology
9:15-9:30	571	Yao Lin, Fu Xiao, Shengwei Wang	Experimental studies on a mobilized three-phase absorption thermal energy storage system for distributed heating and cooling supply
9:30-9:45	574	Guo Fang, Yongfei Li, Lei Zhang, Pengchao Li, Xudong Yang	Analysis on the Long-term performance of a large-scale seasonal borehole thermal energy storage system
9:45-10:00	613	Hamidreza Ermagan, Leyla Amiri, Agus P. Sasmito	Improved Rock-based Thermal Energy Storage (RTES) with Perforated Plate Based on Double Thermocline Design
10:00-10:30	<b>TEA/COFFEE BREAK</b>		
<b>Room B219</b>			
<b>Session Name:Energy Management, Policy, Economics and Sustainability</b>			
<b>Session Chair:Dr.Patrik Klintonberg, Blekinge Institute of Technology</b>			

# Day 3: Dec. 5

10:30-10:45	317	Mohammed Guezgouz*, Fredrik Wallin, Meysam Majidi Nezhad	Does Peak Load Occur at the Same Time as High Electricity Prices? A Case Study of Sports Facilities
10:45-11:00	378	Sanja Duvnjak Zarkovic, Patrik Hilber, Ebrahim Shayesteh	Outage Statistics and Trends in Sweden – What does data tell us?
11:00-11:15	453	Neda Maleki, Xianwei Xie, Arslan Musaddiq, Tobias Olsson, David Mozart, Fredrik Ahlgren	Unraveling Energy Consumption Patterns: Insights through Data Analysis and Predictive Modeling
11:15-11:30	455	Bo Huang, Jia He	Direct quantification of global anthropogenic CO2 emissions: Insights from Satellite Observations
11:30-11:45	561	Fangfang Li, Li Zhu	Evaluation of Water-Energy-Carbon Nexus in University Campuses Based on Machine Learning Algorithms - Taking Nankai University in China as an Example
11:45-12:00	566	Yefei Bai*, Wei Pan, Cong Yu	Impact of passive design measures on energy performance gap: A case study of high-rise residential buildings in Hong Kong
12:00-12:15	569	Cong Yu, Wei Pan	Improving accuracy on energy use for high-rise office buildings via considering microclimate effect
12:15-12:30	579	Adel Ahmadihosseini, Azlan Aslam, Ferri Hassani, Agus Sasmito	Investigating the efficiency of microwave treatment in mine-to-mill operations: an energy-based analysis

12:30-13:30

Lunch

## Room B219

**Session Name: Energy Management, Policy, Economics and Sustainability**

**Session Chair: Dr. Holger Schlör, Forschungszentrum Jülich; Dr. Gbemi Oluleye, Imperial College London**

Time	Paper ID	Author	Paper Title
13:30-13:45	197	Anupam Parlikar, Nils Collath, Benedikt Tepe, Holger Hesse, Andreas Jossen	The Lifetime Carbon Footprint of Lithium-Ion Battery Systems in Exemplary Applications
13:45-14:00	377	John Ballantine	Epistemology of Net Zero: Shifting World - Faster Transition to Cleaner Hydrogen by 2035
14:00-14:15	211	Mohammed Ali, Steve Evans	Enhancing Industrial Sustainability Policy: The Unrecognized Role of Best Practice in Energy Efficiency
14:15-14:30	311	Changjing Ji	Research on The Economic and Emission Impacts of the Expansion Strategy of the National Carbon Market
14:30-14:45	553	Xuequn Chong, Yi Shen, Tew, Lanyu Li, Xiaonan Wang	Digital twin assists multi-scale carbon reduction in chemical industry parks
14:45-15:00	235	Gbemi Oluleye, Oliver Morgan, Lucy Elwy	Assessing the UK's attempt to Establish a Zero-carbon Hydrogen Economy in the Industrial Sector
15:00-15:15	301	Xuan Kou, Tian Liang, Yi Wang, Xiao-Sen Li	Sustainable Utilization of Hydrogen Energy: Facing the Crisis of Traditional Energy
15:15-15:30	500	Amin Lahnaoui, Mohamadu Balde, Wilhelm Kuckshinrichs	Analyzing the current opportunity for green hydrogen and its derivatives in Sub-Saharan Africa

## Room B220

**Session Name: Intelligent Energy System**

**Session Chair: Yichuan Ma, Dr. Takahiro Yoshida The University of Tokyo**

Time	Paper ID	Author	Paper Title
8:30-8:45	278	Dayin Chen, Xiaodan Shi, Haoran Zhang, Jinyue Yan	A distributed Phone-based Ambient Temperature Estimation System
8:45-9:00	430	Linda Lundmark, Mariana Flor Lopez, Farzin Glozar, Rafael Guedez	Forecasting and optimization of dispatch schedule for PV coupled with BESS in apartment building
9:00-9:15	123	Chiho Jimba, Yutaro Akimoto, Keiichi Okajima	Resilience evaluation of Positive Energy Building in Japan
9:15-9:30	563	D.M. Bajany, X. Ye, G. Yu, S. Koch, Y. Ye, B. Nkuna, T. Cattle-Jones	Sharing renewable energy from independent power producers via mobile energy storage
9:30-9:45	285	Behrouz Nourozi, Rebei Bel Fdhila, Amir Vadiiee, Sasan Sadrizadeh	Innovative Approaches to Sustainable Heating and Cooling in Nordic Residential Buildings: Wastewater Heat Recovery and Geo-Assisted Cooling Solutions

# Day 3: Dec. 5

9:45-10:00	406	Mostafa Ismail, Kabbir Ali, Mohamed I Hassan Ali	Overall energy assessment of multifunctional glazing system integrating semitransparent PV technology with a spectrally selective liquid-filter
10:00-10:30	<b>TEA/COFFEE BREAK</b>		
<b>Room B220</b>			
<b>Session Name:Energy Management, Policy, Economics and Sustainability</b>			
<b>Session Chair:Prof.Zaoxiao Zhang, Xi'an Jiaotong University</b>			
10:30-10:45	171	ZHU Li; CAO Meng-ying	Evaluation and Obstacle Factor Analysis of Energy Transition in Coal Resource-based Cities to Achieve Carbon Neutrality Goals
10:45-11:00	297	Beidong Wang, Shenglai Yang, Jiangtao Hu, Sishi Lin, Qiaoling Wang, Lufei Bi	Study on high pressure imbibition characteristics of ultra-deep carbonate rocks based on nuclear magnetic resonance method
11:00-11:15	637	Yangmin Ren, Yongyue Zhou, Shiyu Sun, Fengshi Guo, Mingcan Cui, Jeehyeong Khim	Design of Permeable Reactive Barrier for Petroleum-polluted Groundwater
11:15-11:30	210	Jiangtao Hu, Shenglai Yang, Xiangshang ZHAO, Sishi Lin, Beidong WANG, Qiaoling Wang, Lufei BI	Pore structure characteristics of deep carbonate gas reservoir based on CT scanning
11:30-11:45	247	Shuai Zhao, Shenglai Yang, Yun Luo, Li You, Yubo Liu	Factors Controlling Stress Sensitivity of Shale Oil Reservoirs: Mineral Composition and Mechanical Properties
11:45-12:00	258	Fahad N. Alotaibi, Abdallah S. Berrouk, Kyriaki Polychronopoulos	Industrial-Scale Comparative Analysis of Fixed Bed and Fluidized Bed for Dry Methane Reforming: CPFD Analysis and Machine Learning Optimization
12:00-12:15	61	Zechuan Wang, Leng Tian, Jinbu Li, Junguo Dong, Feng Xiao, Lian Zhao, Qinghua Tian, Xiaolong Chai	Study on water invasion law and development strategy of fractured gas reservoir based on pore throat structure
12:15-12:30	62	Ximeng Xu, Chao Ma	Optimal Operation of a Photovoltaic-Energy Storage System Considering Forecast Uncertainty
12:30-13:30	<b>Lunch</b>		
<b>Room B220</b>			
<b>Session Name:Intelligent Energy System</b>			
<b>Session Chair:Dr.Mohammed Guezgouz, Mälardalen University</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	399	Dongliang Xiao; Zhenjia Lin; Haoyong Chen; Haodong Zeng	A Stochastic Dominance-Constrained Approach for Industrial Demand Response with Intermittent Renewable Energy and Volatile Electricity Prices
13:45-14:00	498	Xingli Ding Xudong Yang	A novel control strategy of space heating equipment for peak shaving based on operating data
14:00-14:15	526	Wu Zhijun, Mu Yunfei, Guo Haochen	Low Carbon Scheduling Method for Integrated Community Energy System Based on Extended Carbon Emission Flow and Demand Response
14:15-14:30	545	Newell Sarpong Boateng, Carla Alejandra Calle Garcia, Marco Ciro Liscio, Paolo Sospiro, Giacomo Talluri	Smart Grid implementation in China: A Cost-Benefit Analysis
14:30-14:45	633	Haoran Ji	Real-Time Topology Identification-Tracking Framework of Distribution System via Graph Database and Bayesian Networks
14:45-15:00	641	Zhang ZhiCheng	A Distributed Multi-Stage Power Restoration Strategy for Active Distributed Network Considering Switching Sequence
15:00-15:15	383	Hieu Le Trong, OckTaeck Lim, NhuY Quach	Improving the dynamic performance of fuel cell-powered bicycle under effect of key input parameters
15:15-15:30			
<b>Room E215</b>			
<b>Session Name:Clean Energy Conversion Technology</b>			
<b>Session Chair:Dr. Xinhai Yu,East China University of Science &amp; Technology</b>			
Time	Paper ID	Author	Paper Title
8:30-8:45	672	Zhanglin Ruan, Handong Wu, Ruilin	Particle swarm optimization Fuzzy algorithm applied to temperature control in PEM fuel cell systems

# Day 3: Dec. 5

		Wang, Wenjia Li, Zhenyu Tian	
8:45-9:00	683	Wei Zhang	Multi-phase and multi-species transport inside air-breathing photocathode of photocatalytic fuel cell
9:00-9:15	580	Roberto Scaccabarozzi; Chiara Artini; Maurizio Spinelli; Stefano Campanari	Molten Carbonate Fuel Cell Integration in a DRI Production Plant for the Decarbonization of the Steel Industry
9:15-9:30	59	Bohan Li, Chaoyang Wang, Junjie Yan	Three-dimensional numerical investigation on the transient response characteristics of DIR-SOFC during increasing electrical load process
9:30-9:45	439	Guomeng Wei, Zhiguo Qu, Weiwen Chen, Jianfei Zhang	Analysis of Technology and Economy of Island Self-Sufficient Renewable Energy System Based on SOFC
9:45-10:00	56	Qiangqiang Zhang, Xin Li	Performance analysis of a combined solar thermochemical high-temperature electrolysis system
10:00-10:30	<b>TEA/COFFEE BREAK</b>		
<b>Room E215</b>			
<b>Session Name: Intelligent Energy System</b>			
<b>Session Chair: Dr. Xiaodan Shi, Mälardalen University; Dr. Zhiling Guo, The Hong Kong Polytechnic University</b>			
10:30-10:45	468	E.R. Joy , R.C. Bansal, C. Ghenai, E. Gryazina, R. Kumar, Sujil. A	Multivariate Regression for Electricity Load Forecasting in Power Systems
10:45-11:00	529	Yichuan X. Ma, Lawrence K. Yeung	DAF-GAN: Day-ahead forecasting of building HVAC energy consumption using multi-channel generative adversarial networks
11:00-11:15	562	Xuyang Zhao, Hongwen He <sup>1*</sup> , Jianwei Li, Zhongbao Wei, Ruchen Huang, Hongwei Yue	Battery thermal-health jointly concerned charging scheduling for Solar PV penetrated Energy-Transportation Nexus: a DRL-based approach empowered by a Cyber-Physical system
11:15-11:30	649	Zhiling Guo, Qing Yu, Hongjun Tan, Haoran Zhang, Jinyue Yan, Yanxiu Jin, Kechuan Dong	Façade Parsing with Occlusion in the Context of Distributed Solar Photovoltaic Potential Estimation
11:30-11:45	15	Dr. Xiaojun Luo	Towards net-zero community through blockchain-based peer-to-peer energy trading among multiple building blocks
11:45-12:00	273	BIN JIANG, Shiqing Cheng, Cao Wei	Optimization method for three-dimensional intelligent equilibrium flooding in thin interbed reservoirs A case study in P Oilfield China
12:00-12:15	636	Yongyue Zhou, Yangmin Ren, Shiyu Sun, Fengshi Guo, Mingcan Cui, Jeehyeong Khim	Predicting the degradation kinetic constants of organic pollutants in sonoelectrochemical system using machine learning methods
12:15-12:30	312	Shibo Zhu, Xiaodan Shi, Haoran Zhang, Xuan Song, Jinyue Yan	PF-HoLo: Personalized Federated Learning Framework for Household Load Prediction
12:30-13:30	<b>Lunch</b>		
<b>Room E215</b>			
<b>Session Name: Intelligent Energy System</b>			
<b>Session Chair: Asso Prof. Haoran Ji, Tianjing University; Dr. Ying Du, The Hong Kong Polytechnic University</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	70	Kaiqing Qiu, Wei Gan, Yue Zhou, Wenlong Ming, Jianzhong Wu	Coordinated Operation of Mobile Emergency Generators and Local Flexible Resources for Distribution Network Resilience Enhancement
13:45-14:00	14	Yuxin Liu, Han Zhu, Zhuohui Zhang, Zhengrong Li, Bin He	Decentralized power cooperative dispatch based on the coupling of MAPPO and digital twin for BIPV cluster with ESS
14:00-14:15	81	Xiaoyu Wang, Xiaolong Jin, Hongjie Jia, Yunfei Mu, Wei Wei, Xiaodan Yu, Shuo Liang	Coordinated Optimal Operations for Integrated Community Energy Systems and Multiple Prosumers with Peer-to-Peer Behaviors
14:15-14:30	131	Zeyu Tian, Zhu Wang, Zhaoyang Sha, Daotong Chong, Hui Yan	The evaluation of response processes to frequency fluctuations in a Virtual Power Plant (VPP) using different optimization approaches
14:30-14:45	154	Boyu He, Xiaolong Jin, Hongjie Jia, Yunfei Mu, Xiaodan Yu, Shuo Liang	Dispatch of Low-carbon Campus Power System Considering Flexible Loads and Green Power
14:45-15:00	365	Christine van Stiphoudt, Sergio Potenciano Menci, Can Kaymakci,	Energy Synchronization Platform Concept to Enable and Streamline Automated Industrial Demand Response

# Day 3: Dec. 5

		Simon Wenninger, Dennis Bauer, Sebastian Duda, Gilbert Fridgen, Alexander Sauer	
15:00-15:15	397	Yanze Xu, Yunfei Mu, Zeqing Wu, Xiaolong Jin, Hongjie Jia	Multi-objective optimal dispatch method for residential building cluster considering virtual energy storage
15:15-15:30			
<b>Room E216</b>			
<b>Session Name:Hydrogen Energy</b>			
<b>Session Chair:Dr. Yi Zong;Prof. Li Chen, Xi'an Jiaotong University</b>			
Time	Paper ID	Author	Paper Title
8:30-8:45	355	Kaixuan Feng, Ruixiang Lin, Yuyan Hu, Yuheng Feng, Tongcheng Cao	Experimental and theoretical study on the NO reduction by H2 over char decorated with Ni at low temperatures
8:45-9:00	436	Danny Pudjianto, Goran Strbac	A Holistic Approach to Empower Hydrogen Supporting Net-Zero
9:00-9:15	309	Xiaodan Wang	Developing advanced hydrogenation technology for photoelectrocatalytic hydrogen production
9:15-9:30	486	Kangling Sheng, Xiaojun Wang, Fangyuan Si, Zhao Liu, Jinghan He, Yizhi zhang	Capacity configuration optimization of hydrogen-based steelmaking system with high renewable energy penetration
9:30-9:45	512	Akshaykumar N. Desai, Surajeet Mohanty, Venkatasailanathan Ramadesigan, Suneet Singh	Modelling of membrane swelling-shrinking induced mechanical degradation of the Low-Temperature PEMFC
9:45-10:00	643	Wenjing Ning, Xingbao Lyu, Yi Yuan, Li Chen, Wen-quan Tao.	Performance analysis of proton exchange membrane fuel cell-based combined heat and power system with Lithium-ion battery under hierarchical energy management strategy
10:00-10:30	<b>TEA/COFFEE BREAK</b>		
<b>Room E216</b>			
<b>Session Name:Hydrogen Energy</b>			
<b>Session Chair:Dr.Meysam Majidiezhad, Mälardalen University; Wei Wang</b>			
10:30-10:45	22	Gabriele Humbert, Hanmin Cai, Binod Prasad Koirala, Philipp Heer	Cost-Effective Hydrogen Generation: Concurrent Optimization of Component Sizes and System Operation
10:45-11:00	28	Yuqi Zhang, Wenzhi Cui, Longjian Li, Chen Zhan, Junyi Cui	Effect of nickel powder morphology on hydrogen evolution performance of the prepared aligned porous electrode
11:00-11:15	38	Sanli Tang, Zhongrui Gai, Yang Li, Mingkai Liu, Ying Pan	Scalable Bimetallic Nano Oxygen Carrier for Green Hydrogen from Mid-temperature Methane Chemical Looping Reforming
11:15-11:30	100	Tiantian Wang, Renbao Zhao, Hao Wang, Ningning Jiang, Xin Li, Haitao Ren, Ziqi Sun	Investigation on hydrogen production through in-situ heavy oil gasification process under different atmospheres conditions
11:30-11:45	105	Lei Wang,Xuesong Chang	Research on Capacity Configuration of Wind Solar Off-grid Hydrogen Production System
11:45-12:00	533	Sara Ramezani; Fahimeh MollaAhmadi; Amir Safari	A Hydrogen-driven Sustainable Marketing Strategy for Future Energy Hubs
12:00-12:15	107	Junxiao Xia, Jiawei Chen, Lei Wang	Power Coordination Control Method of Wind Turbine Considering Power Demand Characteristics of Hydrogen Production System
12:15-12:30	110	Lei Wang, Yingzi Xian, Yanping Ren	Energy Scheduling Method for Wind-Solar-Storage Off-Grid Hydrogen Production System based on Adaptive Model Predictive Control
12:30-13:30	<b>Lunch</b>		
<b>Room E216</b>			
<b>Session Name:Renewable Energy</b>			
<b>Session Chair:Dr.T.D. Bui, National University of Singapore; Asso Prof.Zhenyuan Yin, Tsinghua University</b>			
Time	Paper ID	Author	Paper Title
13:30-13:45	50	Eliana Gaudino, Roberto Russo, Marilena Musto, Antonio Caldarelli, Daniela De Luca, Paolo Strazzullo, Emiliano Di	Hemispherical Emittance in Multilayer Solar Absorbers: A MATLAB-Based Approach for Optimizing Solar Thermal Efficiency

# Day 3: Dec. 5

		Gennaro, Umar Farooq	
13:45-14:00	462	Serhat Yesilyurt, Asal Saeidfar	Investigating the transient response of a low Pt-loaded PEMFC under various operating conditions
14:00-14:15	310	Yuanhong Tong, Haiyan Lei, Chuanshan Dai	Numerical Simulation of In-Situ Heat Extraction in Hot Dry Rock Single Well
14:15-14:30	444	Min Li, LiYuan Song, Ju Cao, Chenbo Bai, Lanyu Li	Correlation analysis of meteorological factors on daily solar photovoltaic power generation
14:30-14:45	363	Rui Xu, Zhaoyang Chen, Xiao-Sen Li, Yi Wang	Pore-scale investigation into the effects of fluid perturbation during hydrate formation
14:45-15:00	241	Alhulw H. Alsijammari, MUSAAD ALSRSHDI, T. A. Taha	Graphitic Carbon Nitride based Zinc Sulfide as catalyst for Hydrogen production from Hydrolyzed Sodium Borohydride
15:00-15:15	557	M. Hussein N. Al Assadi, Kabir Suraj	Detrimental 2p-3d Hybridisation in Ni Nanosheets Supported on Strontium Dioxide for Catalytic H <sub>2</sub> Production, Necessitating Thickness Optimisation
15:15-15:30	456	Gan Huang	Hybrid photovoltaic-thermal solar collectors based on semi-transparent perovskite solar cells

# Presentation Guide

## Presentation

ICAE2023 will be held both on-line and on-site. All accepted papers will be oral presentations.

Speakers are required to copy your slides to the computer of the conference room in advance.

If you take part in on-line conference, it is recommended to download the app of Zoom (<https://zoom.us/>) and connect to the Zoom meeting room 15mins before your session starts.

Please change your user name to your full name and 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: [www.applied-energy.org](http://www.applied-energy.org), 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 [icae2023@applied-energy.org](mailto:icae2023@applied-energy.org).

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

## Presentation Venues

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

[ICAE2023 Presentation Online Link](#)

<https://resilient-suede-bc3.notion.site/ICAE2023-Presentation-Online-Links-6499e43db1134296be87ae6ea81c915d>



# Useful Information - Dress Code

## Qatari University dress Code

**Male:** Men are advised not to wear short pants.



**Female:** Women are advised not to wear short pants and T-shirts. Long sleeves and long pants are recommended.



and



# Useful Information - Registration

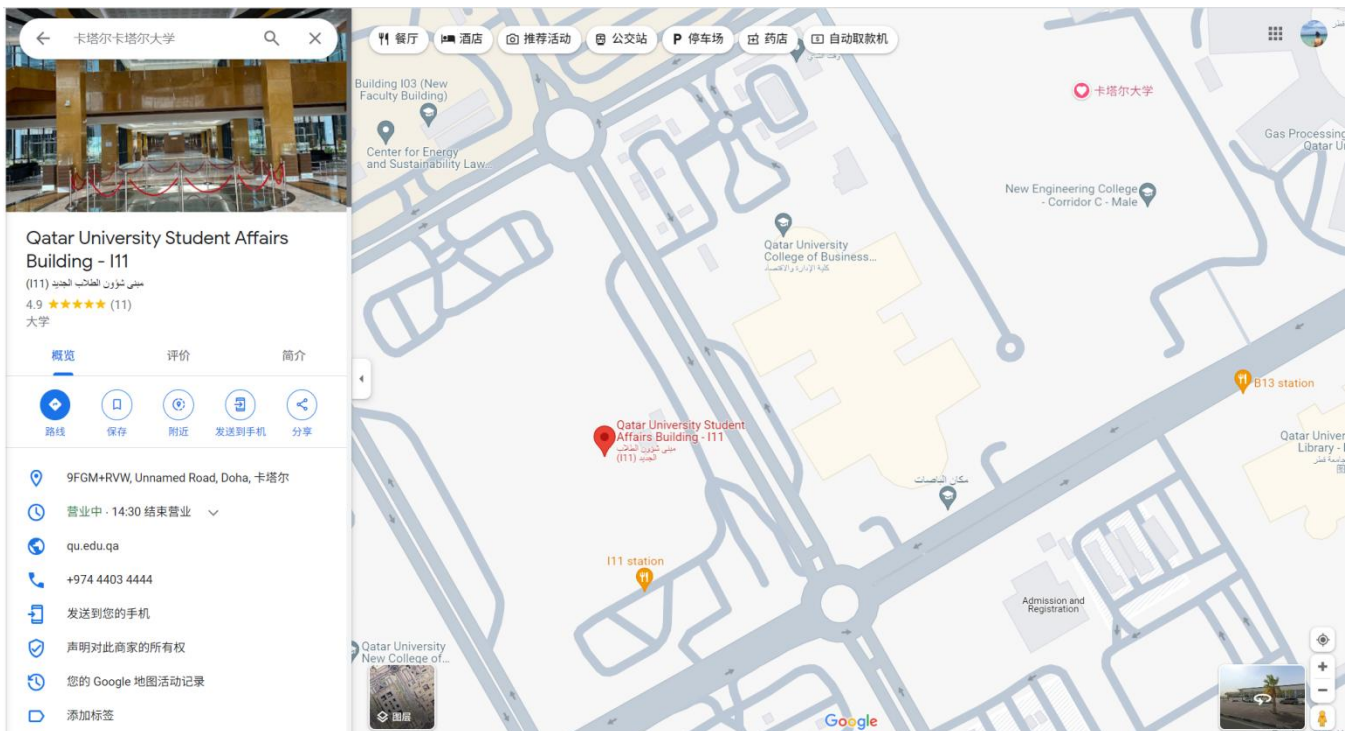
## Registration

### Official Registration Time

Date	Registration Venue	Doha Time
Dec 2, 2023 (Saturday)	Ground Floor (surround A1)	14:00 ~ 18:00
Dec 3, 2023 (Sunday)	Ground Floor (surround A1)	9:00 ~ 18:00

\*Note that the registration is always open during the conference. The above is the official centralized registration time. Please contact WeChat (doing\_do)/ Email (icae2023@applied-energy.org) for registration outside of the official registration time.

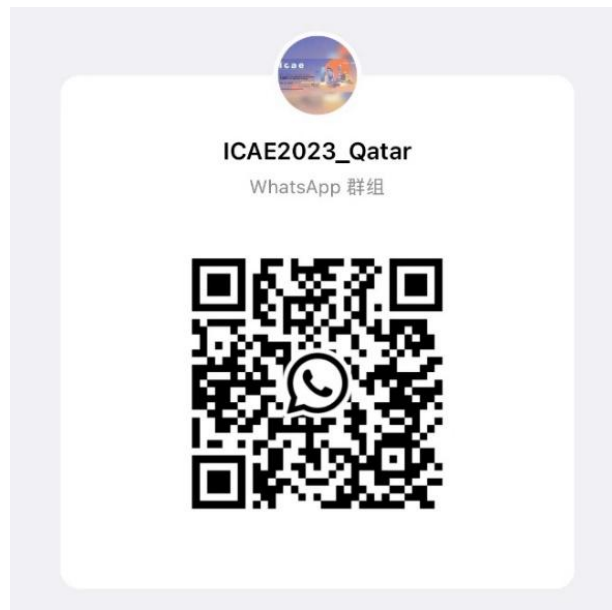
\* The conference will be held in **Student Affairs Building Complex (Building I11) at Qatar University**.



# Useful Information - Registration

## **WhatsApp/WeChat Group (important info)**

Please scan and join our ICAE2023 WhatsApp group chat or WeChat group chat for the latest updates and announcements.



<https://chat.whatsapp.com/GNifrRqHo9K9NkgtZUVxjY>

## **WhatsApp Group Chat**

群聊: ICAE 2023 WG

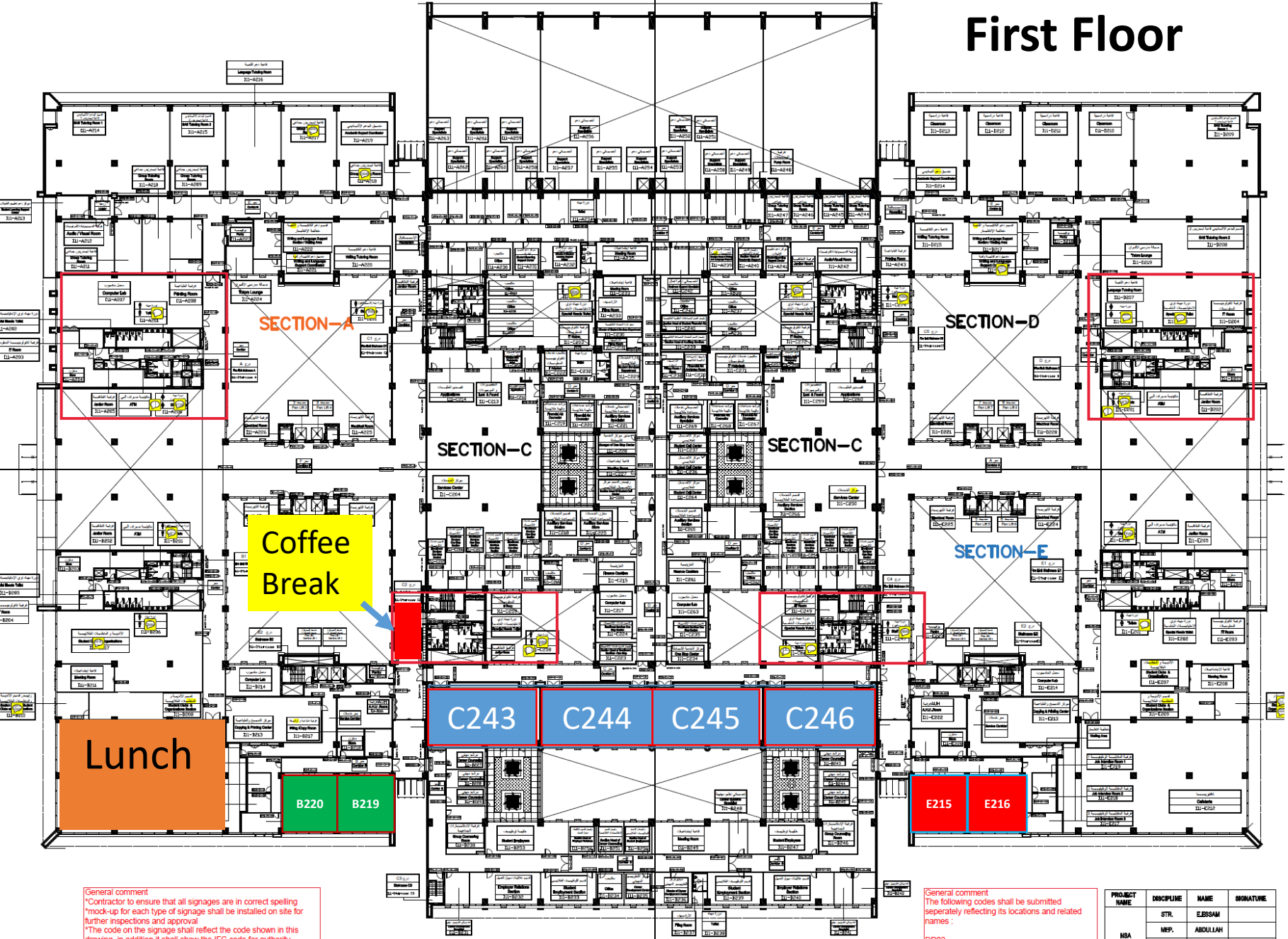


该二维码7天内 (12月1日前)有效, 重新进入将更新

## **WeChat Group Chat**

please add the WeChat ID of the ICAE2023 volunteer: Qu-est-ce-que-tu-es0 or doing\_do

# First Floor

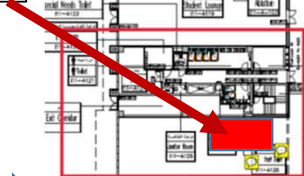


General comment  
 \*Contractor to ensure that all signages are in correct spelling  
 \*mock-up for each type of signage shall be installed on site for further inspections and approval  
 \*The code on the signage shall reflect the code shown in this drawing, in addition it shall show the IFC code for authority

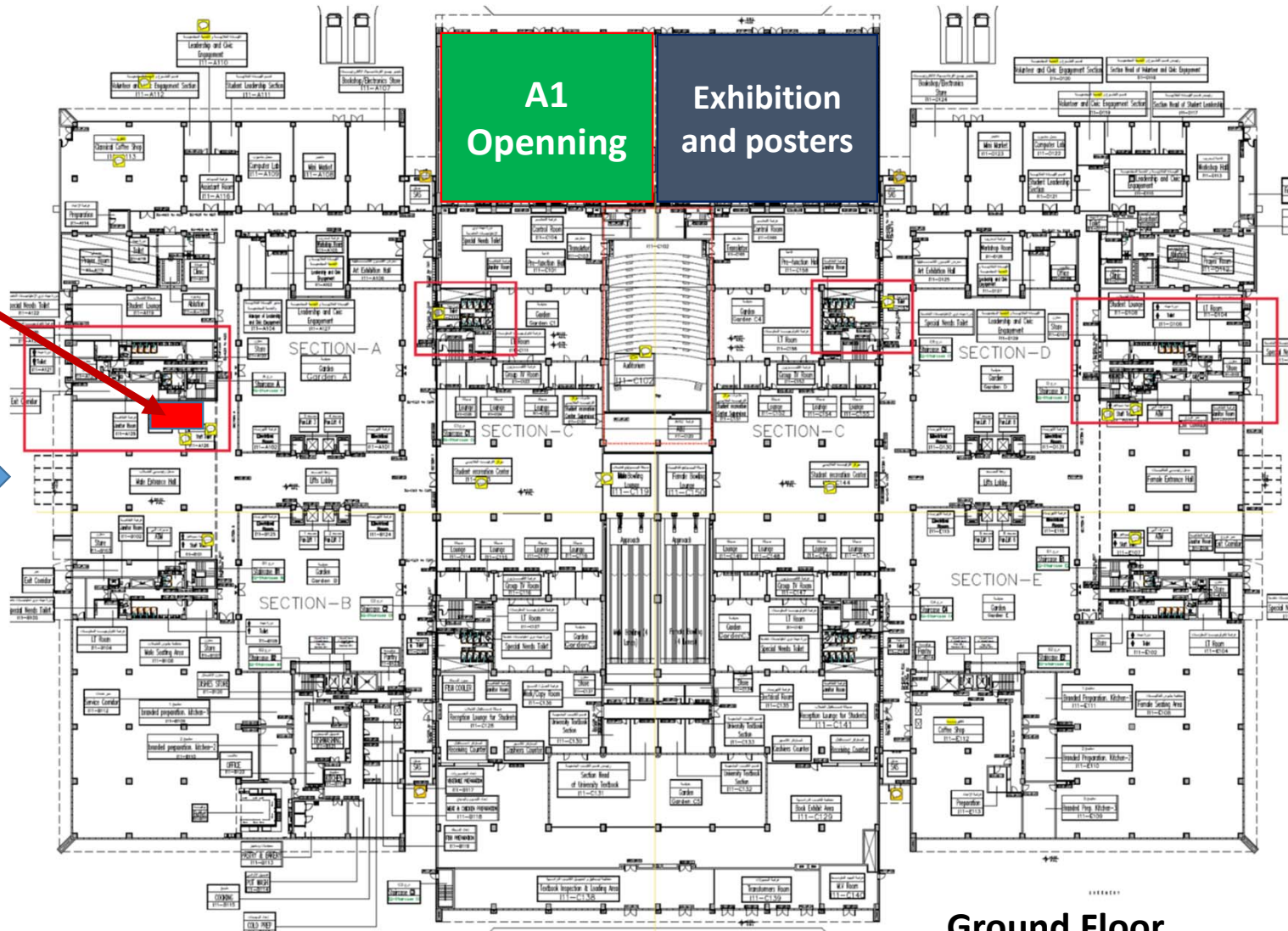
General comment  
 The following codes shall be submitted separately reflecting its locations and related names :  
 ١٠٠٠٠

PROJECT NAME	DISCIPLINE	NAME	SIGNATURE
NSA	STR.	EBSAM	
	MFP.	ABDULLAH	

Registration desk for ICAE2023



I11 Main Entrance



Ground Floor

# Useful Information - ICET

## **The introduction of ICET**

Dear ICAE Participants,

We are pleased to inform you that the Third International Congress on Engineering and Technology (ICET) will commence with its opening session on the morning of December 3rd, coinciding with the first day of the ICAE. ICET is hosted by Qatar University's College of Engineering in scheduled to take place from 3 to 7 March 2023.

ICET will serve as a pivotal platform for the exchange of technical knowledge, the publication of high-quality research findings, and the presentation of groundbreaking policies and scientific advancements across these domains. The congress will feature plenary sessions and keynote lectures covering energy applications, social robotics, mobility, and logistics, aiming to set new milestones in these domains. The landmark event promises to be a beacon of innovation, scientific advancement, and international collaboration.

Key focuses of ICET include deliberating on sustainable energy's future, transitioning to clean and renewable sources like hydrogen energy, integrating intelligent robots in society and resilience in mobility and logistics. The conference aims to share best practices, offer insights from distinguished speakers, and promote collaboration between research and industry.

If these topics resonate with your interests, we warmly invite you to attend ICET for an enriching experience.

# Useful Information – Meal and Visits

## Meal, Banquet and Visit

### Meal and Banquet arrangement

	Dec 3	Dec 4	Dec 5
Tea Break	Ground Floor (surround A1)	First Floor (near C243)	First Floor (near C243)
Lunch	First Floor (near B220)	First Floor (near B220)	First Floor (near B220)
Banquet	N/A	Gala Dinner	N/A

### Visit

Technical Visit	Social Visit
The Energy Centre and Al-Bayt Stadium (Qatar 2022, world Cup Opening Venue).	Visit the Doha EXPO 2023
	Visit the Souq Waqif
	Visit Museum of Islamic Art / Qatar National Museum (subject to further confirmation)

### Doha EXPO 2023



Doha Expo 2023 will be held from 2 October 2023 to 28 March 2024 in Doha, Qatar! Officially recognised by the Bureau International des Expositions (BIE) as a Category A1 World Horticultural Expo, Doha Expo will undoubtedly be Qatar's most anticipated event of 2023!

With the success of the 2022 Football World Cup, Qatar has gained the attention of the world, hosting 1.2 million visitors from around the globe and winning worldwide acclaim for the excellence of its transport, accommodation, restaurants, amusements, cultural attractions and many other facilities. Here are the world's top modern city, there are beautiful cultural venues, there is the desert and the sea coexist Middle East style, where people from all over the world can fully feel the exotic cultural charm of Qatar!

# Useful Information – Meal and Visits

## Souq Waqif

Built on the site of Doha's centuries-old trading bazaar, on the banks of Wadi Musheireb, it feels dislocated, especially against Doha's striking, modern skyline. The market's mud buildings evoke memories of a bygone era, but today it remains a hub of activity where commerce and life collide. The winding lanes of Souq Waqif are a vivid reminder of traditional street life.

<https://visitqatar.cn/highlights/iconic-places/12-things-to-do-in-souq-waqif>



## Qatar National Museum

<https://qm.org.qa/en/>

**WELCOME TO QATAR MUSEUMS**

**Qatar's home for arts and culture.**  
Stop by one of our world-famous museums, explore a heritage site, or check out some public art. [Plan your visit today!](#)

**Current Exhibitions**

<p>EXHIBITION <b>THE PRESENT: THE FUTURE OF THE PAST</b> Until 16 December 2023 Fire Station: Artist in Residence</p>	<p>EXHIBITION <b>MASTERPIECES OF FURNITURE DESIGN</b> Until 9 December 2023 M7</p>	<p>EXHIBITION <b>DAN FLAVIN / DONALD JUDD: DOHA</b> Until 24 February 2024 Qatar Museums</p>	<p>EXHIBITION <b>DISTILLED LESSONS: ABSTRACTION IN ARAB MODERNISM</b> Until 5 March 2024 Mashaf: Arab Museum of Modern Art</p>
---	--	--	--



## Technical Visit: 4<sup>th</sup> December

The first **100 registrants** will be taken for a technical visit to the Energy Centre and Al-Bayt Stadium (Qatar 2022, World Cup Opening Venue). After the visit, the participants will join the Gala dinner at the Stadium.

Registration Link: [here](#)

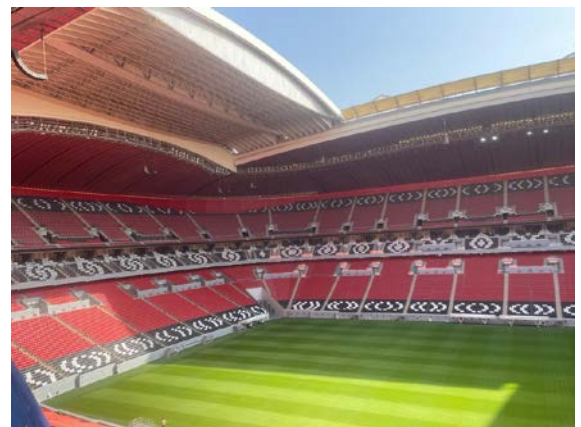
**Buses will depart at 4:00 pm from Student Affairs Building (I11) – in front of the Main Lobby**



### **Gathering point for pick up for:**

- 1. Technical visit**
- 2. Gala Dinner**
- 3. Social visit**

Scan QR code for location on the Google map. There are also maps showing the pickup point at the end of this document.



## Gala Dinner:4<sup>th</sup> December

It is our privilege to welcome all registered conference participants to the Gala Dinner which is arranged at Al-Bayt Stadium.

**Departure from Student Affairs Building (I11) – in front of the Main Lobby are scheduled as following:**

- **The first batch of buses will depart starting at 05:00 pm**
- **The second batch of buses will start at 06:00 pm**

Please note that around 100 people are requested to travel early at 5:00 pm so that we can manage with the available buses.

**Return transportation at 9:00 pm from Al-Bayt Stadium to Qatar University Metro station**

**Gathering point for pick up for:**

- 1. Technical visit**
- 2. Gala Dinner**
- 3. Social visit**

Scan QR code for location on Google map. There are also maps showing the pickup point at the end of this document.



## Social Visits: 6<sup>th</sup> December

In total, **200 registrants** will be taken for social visits, which are arranged to **EXPO 2023** or **Qatar National Museum**. All participants will be given a tour of **Souq Waqif**.

For more details, please refer to the below tables and note that:

- The registration will be on a first-come-first-serve basis.
- The visits will involve some bit of walking. Please wear comfortable footwear.
- The pick up point will be from Student Affairs Building (I11) – in front of the Main Lobby, please refer to the location QR code (same QR code for Gala dinner and technical visit)
- The return destination will be Qatar University metro station.

6th December Morning Session	
Group 1 (3 Buses) (50 PERSONS)	
TIMINGS	DESCRIPTION
9:00	PICK UP FROM QATAR UNIVERSITY GOING TO NATIONAL MUSEUM
9:00 - 9:15	Drive to NATIONAL MUSEUM
9:15 - 10:30	NATIONAL MUSEUM
10:30 -10:45	Drive to SOUQ WAQIF
10:45 - 12:00	SOUQ WAQIF
12:00 - 12:15	DRIVE BACK TO QATAR UNIVERSITY



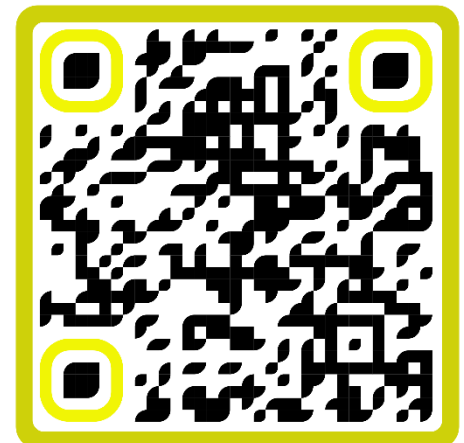
6th December Morning Session	
Group 2 (3 Buses) (50 PERSONS)	
TIMINGS	DESCRIPTION
9:00	PICK UP FROM QATAR UNIVERSITY GOING TO EXPO QATAR
9:00 - 9:15	Drive to EXPO QATAR
9:15 - 10:30	EXPO QATAR
10:30 -10:45	Drive to SOUQ WAQIF
10:45 - 12:00	SOUQ WAQIF
12:00 - 12:15	DRIVE BACK TO QATAR UNIVERSITY



6th December Afternoon Session	
Group 3 (3 Buses) (50 PERSONS)	
TIMINGS	DESCRIPTION
2:00 PM	PICK UP FROM QATAR UNIVERSITY GOING TO NATIONAL MUSEUM
2:00 - 2:15 pm	Drive to NATIONAL MUSEUM
2:15 - 3:30 pm	NATIONAL MUSEUM
3:30 - 3:45	Drive to SOUQ WAQIF
3:45 - 5:00	SOUQ WAQIF
5:00 - 5:15	DRIVE BACK TO QATAR UNIVERSITY



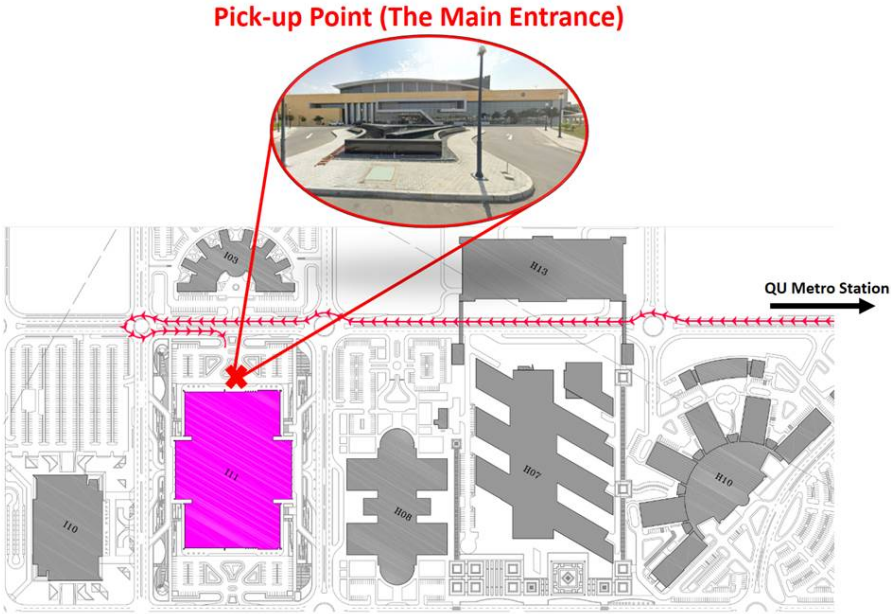
6th December Afternoon Session	
Group 4 (3 Buses) (50 PERSONS)	
TIMINGS	DESCRIPTION
2:00 PM	PICK UP FROM QATAR UNIVERSITY GOING TO EXPO QATAR
2:00 - 2:15 pm	Drive to EXPO QATAR
2:15 - 3:30 pm	EXPO QATAR
3:30 - 3:45	Drive to SOUQ WAQIF
3:45 - 5:00	SOUQ WAQIF
5:00 - 5:15	DRIVE BACK TO QATAR UNIVERSITY



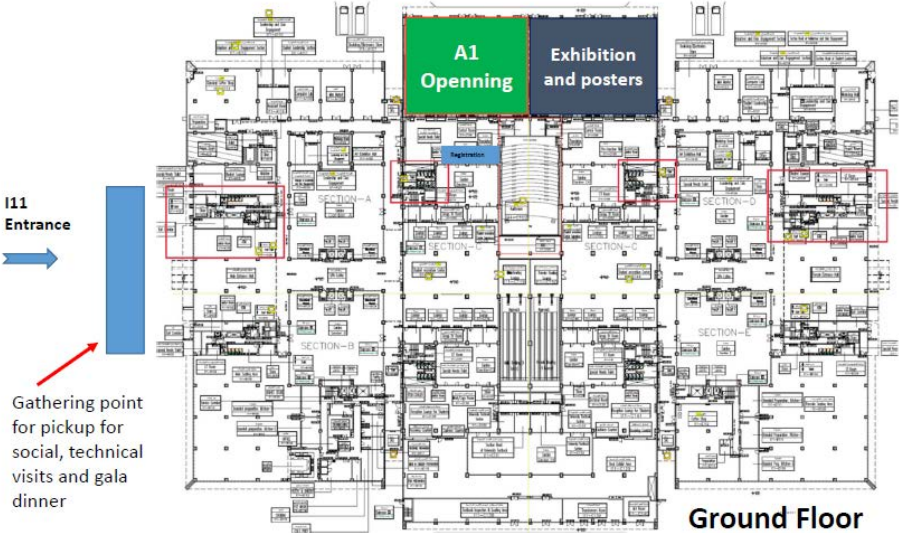
At the end of the tours, participants can choose to return to QU metro Station or to leave the tour and make their own onwards travel arrangements.



You can also refer to the following two maps for gathering point for pickup:



I11 is highlighted in pink



Plan for ground floor of I11

# Useful Information - Travel

## International travel

All air travelers from other countries will arrive at Doha's Hamad International Airport. For details on the options of ground transportations to and from the airport, please visit: <https://dohahamadairport.com/airport-guide/to-from-the-airport>.

## Public Transport in Doha

Getting around Qatar is relatively easy, thanks to the country's size and well-maintained roads. Travelling by car is the main way to get around but Qatar's public transport has seen a vast improvement in recent years, largely due to the expansion of its bus and metro services.

Most roads throughout Qatar lead to and from the capital city of Doha, where visitors will land at Hamad International Airport. Getting from one end of the country to another takes only a few hours by car. Many visitors opt for a taxi as it's a very convenient (but expensive) way to get around Qatar.

## Taxis

Taxis can be hired for short distances and trips. Karwa Taxi is operated by the state-run Mowasalat transport company. Besides having the biggest fleet of cars, it's the only taxi brand licensed to operate at Hamad International Airport. Other available services are the app-based Uber and Careem taxis.

Doha taxi fares are metered with a minimum tariff of 10 riyals, followed by 1.6 riyals per km during the day or 1.9 riyals per kilometer for trips at night. You can find taxis at roadside taxi ranks and almost every hotel and shopping mall. If you're not using a taxi app, call Karwa toll-free at [800-TAXI \(8294\)](tel:800-TAXI) or at [+974 4458 8888](tel:+97444588888) (extra charge of 4 riyals levied).



# Useful Information - Travel

## Metro

Doha Metro is one of the newest forms of public transport available in Qatar. There are currently three lines in operation, red, gold and green. All passengers need to buy a travel card to use the Doha Metro. Single trip costs 2 QAR.

The Red Line: runs for 40 km from Al Wakra north to Lusail, with 17 stations that include West Bay QIC, Katara and Qatar University. This line also connects Hamad International Airport at Terminal 1 with downtown Doha.

The Green Line: runs east to west from Al Mansoura to Al Riffa. The line has 11 stations with notable stops like Hamad Hospital, Al Shaqab and Qatar National Library.

The Gold Line: an east-west route with 11 stations extending from Ras Bu Abboud to Al Aziziyah. Qatar National Museum and Souq Waqif are among the key stops along the Gold Line.

The conference venue, Qatar University, is served by the Red Line of Doha Metro system. Travelling from Doha's Hamad International Airport (HIA) to Qatar University by metro takes approximately 40 minutes.



## Car hire

Car hire is a relatively affordable transport option in Qatar. Several operators can be found at the international airport in Doha, or you could arrange for a car by calling ahead or making an online reservation. Car rental service is available from international brands like Hertz and AVIS, as well as local rental operators.

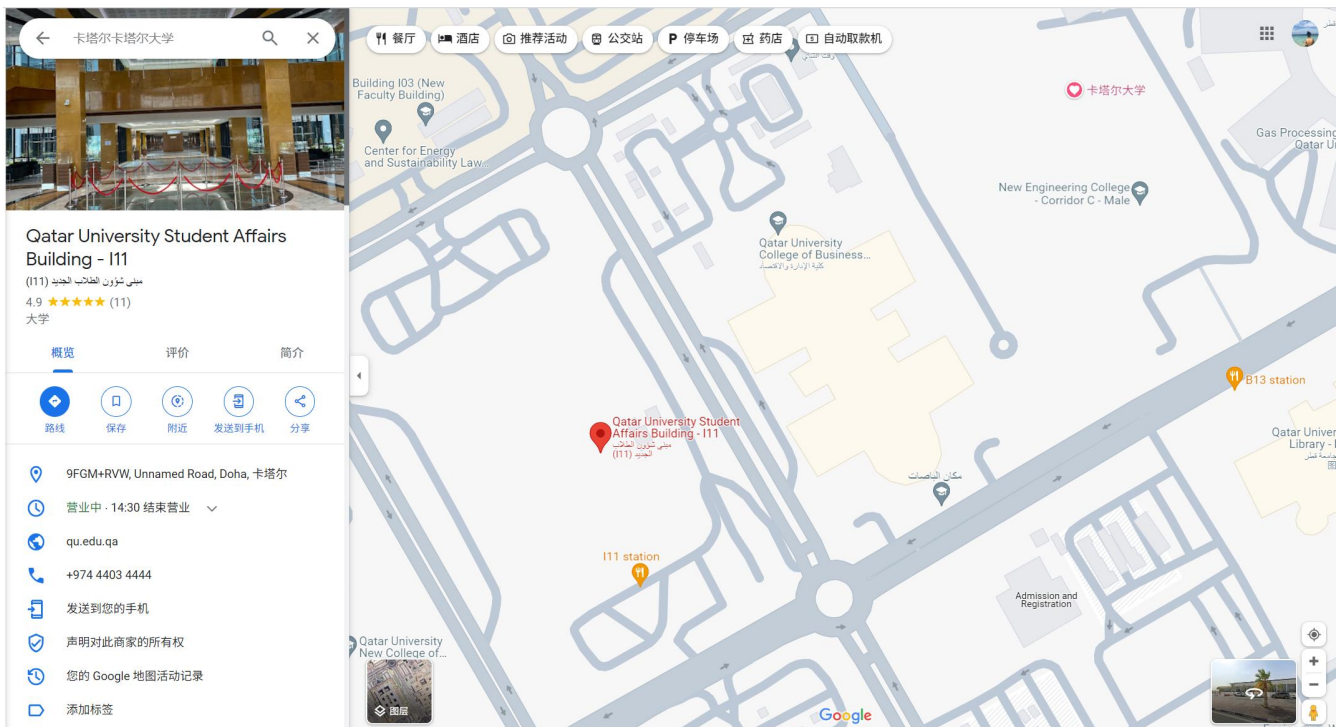
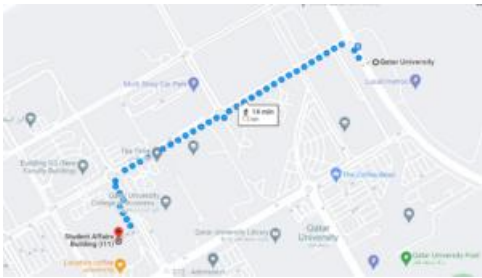
When renting a car in Qatar, foreign drivers need to show their passport and carry either an international driving license or a license issued from a GCC (Gulf Cooperation Council) country.

# Useful Information - Travel



## Travel within the campus of Qatar University

The conference will be held in **Student Affairs Building Complex (Building I11) at Qatar University**. It is within 15 minutes walking distance from the Qatar University metro station. Alternatively, campus bus services provide connection between the Metro station and a number of buildings within the university campus.

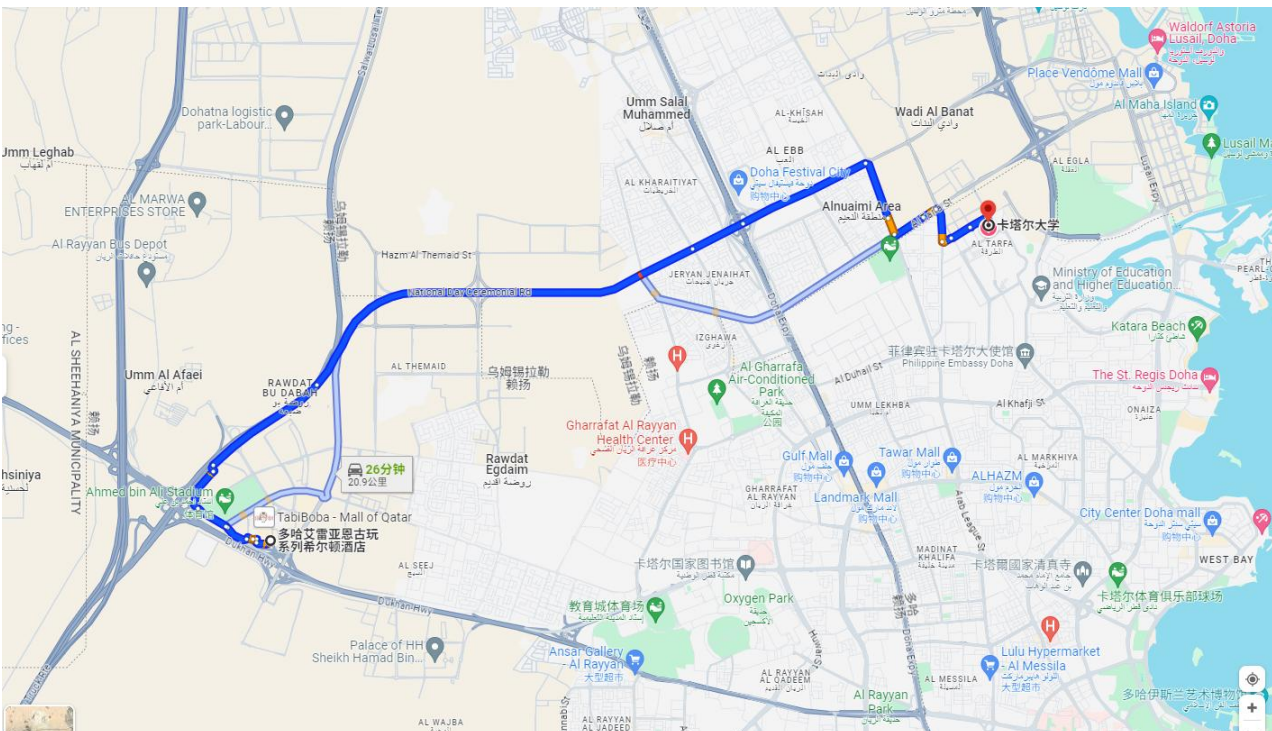




# Useful Information - Hotel

## Hotel reservations

### 1. AlRayyan Hotel Doha, Curio Collection by Hilton



# Useful Information - Hotel

## 2. Double Tree by Hilton Doha Downtown


[https://www.hilton.com/en/hotels/dohnodi-doubletree-doha-downtown/?SEO\\_id=GMB-EMEA-DI-DOHNODI](https://www.hilton.com/en/hotels/dohnodi-doubletree-doha-downtown/?SEO_id=GMB-EMEA-DI-DOHNODI)

Home Rooms Hotel Info Offers Gallery Location Dining Events

Google Translate Language English Join Sign In

### DoubleTree by Hilton Doha Downtown

22 NOV WED 23 NOV THU 1 Room, 1 Guest Special Rates Check Rooms & Rates



5.0 [5 Reviews](#)  
Based on 32 guest reviews

Call Us: +974 4446 8888

Address: C. Sula Road, Doha, Qatar

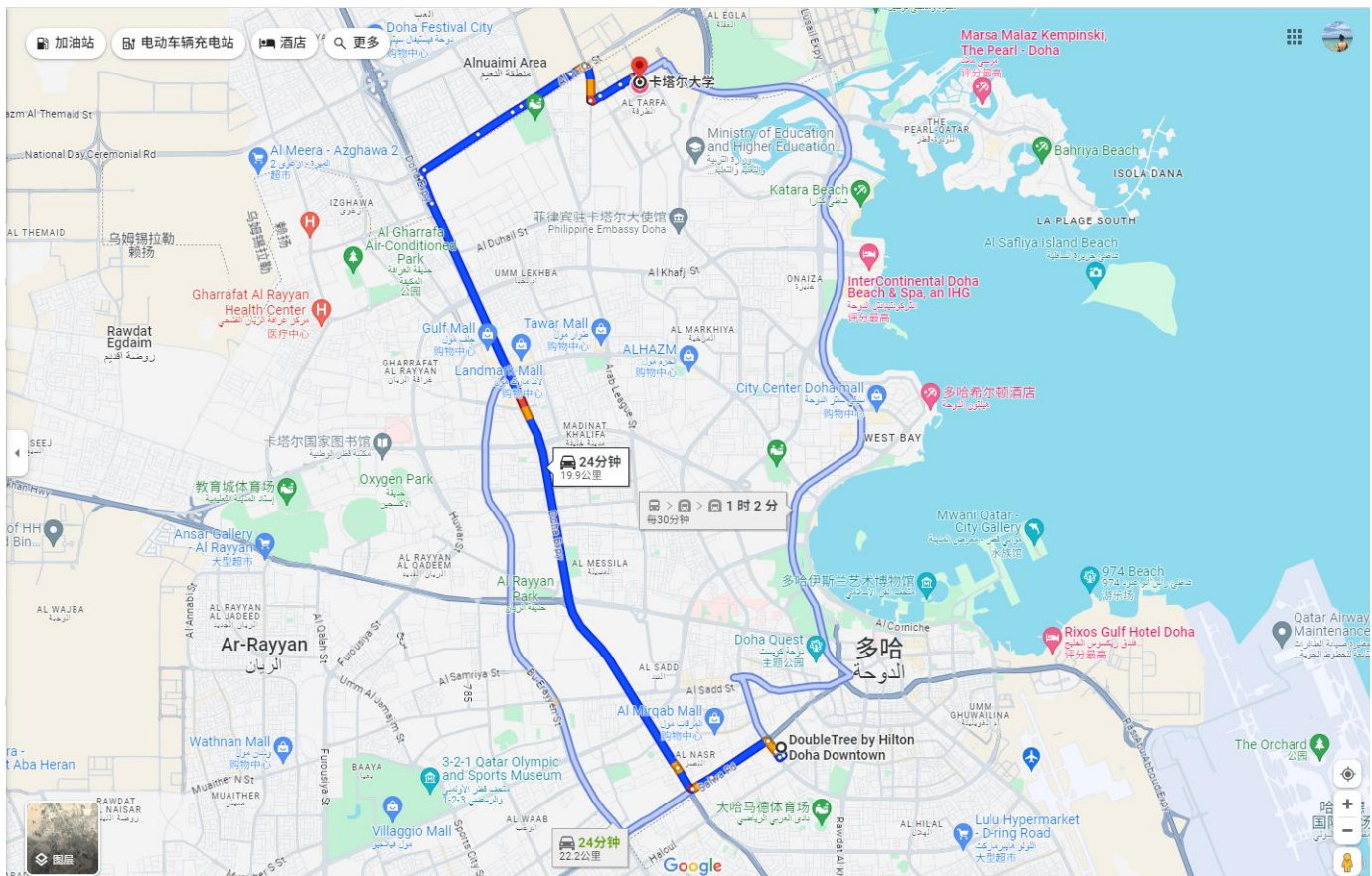
Arrival Time: Check-in 3 pm Check-out 12 pm

#### Contemporary style in central Doha

Just off Salwa Road, our hotel is 10 minutes from the city center, Mushreih Museum, Souq Waqif, and the National Museum of Qatar. Hamad International Airport and Qatar University are 20 minutes away. Enjoy the view from our pool deck, relax at the spa, and keep up your routine in the fitness center. We also have an on-site restaurant and lounge.

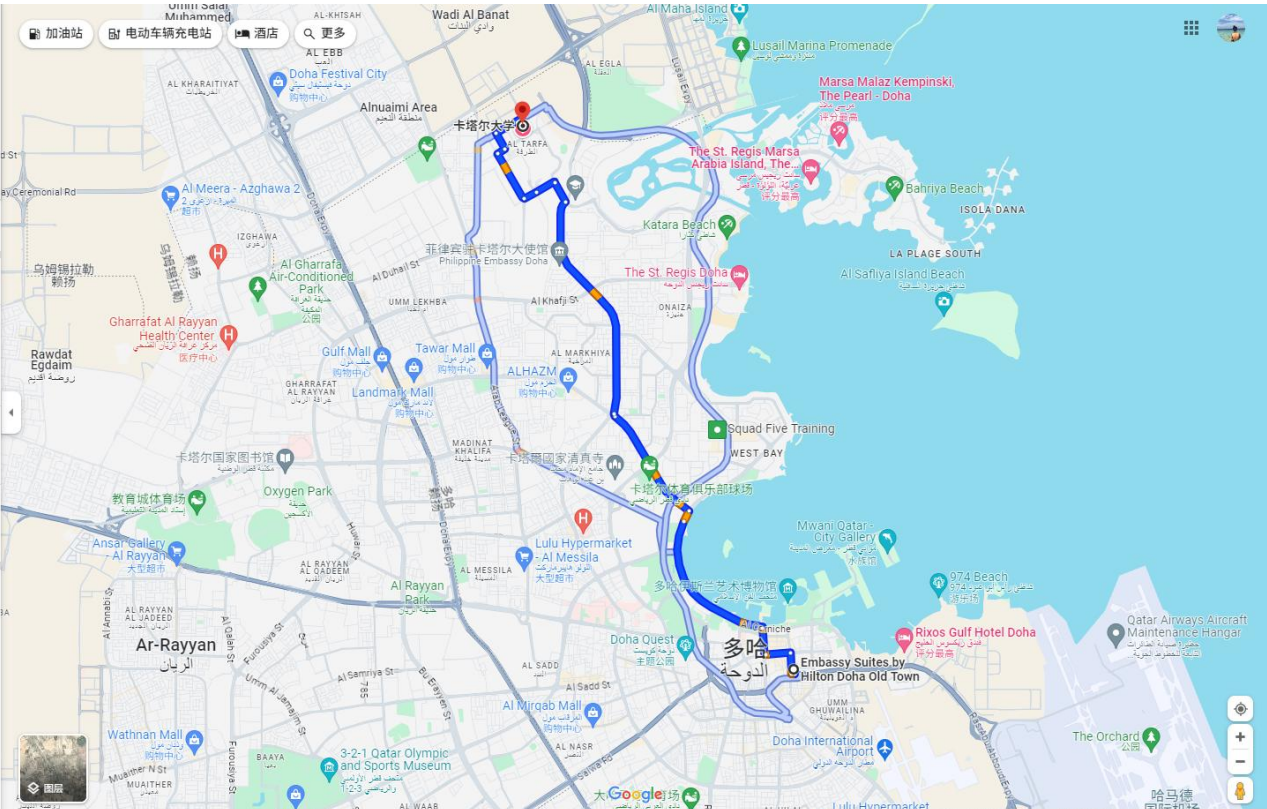
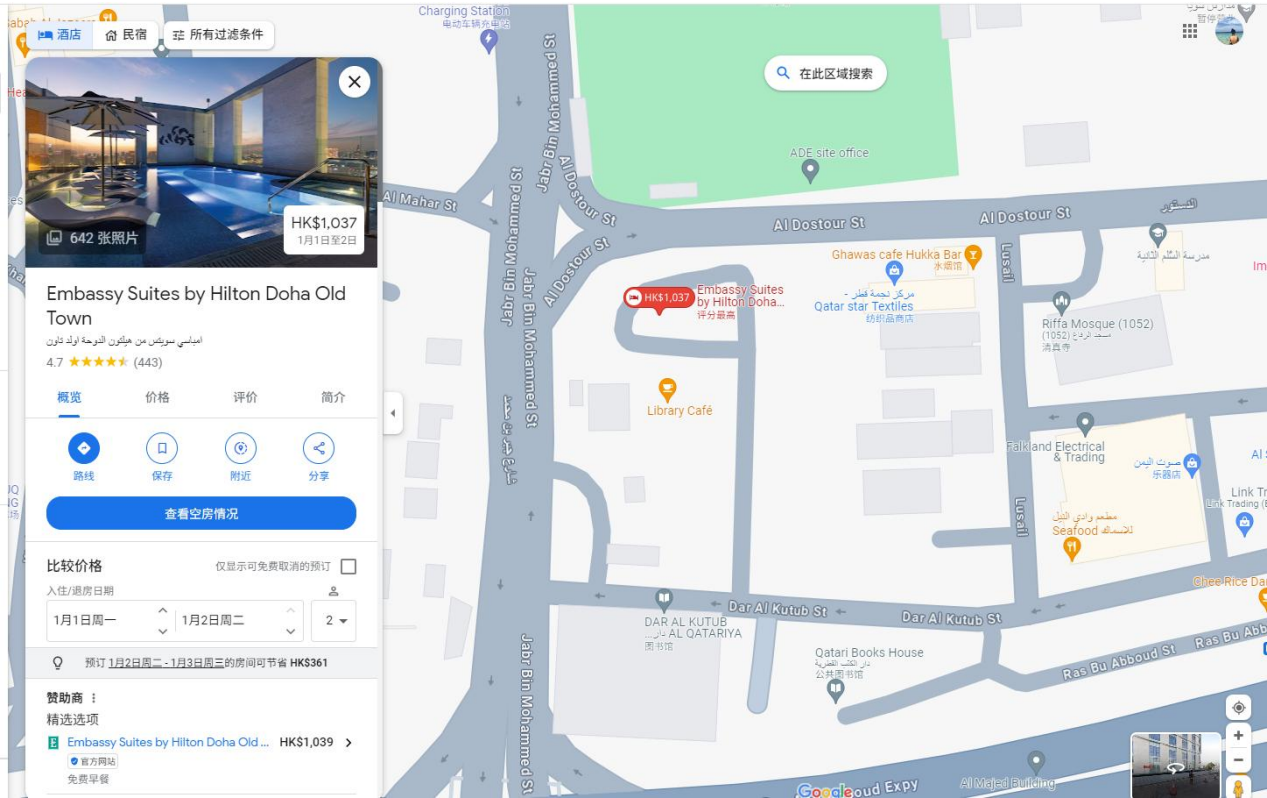
#### Our amenities

- Connecting Rooms
- Digital Key
- On-site restaurant
- Room service
- Free parking
- Concierge
- Outdoor pool
- Business center
- Free WiFi
- Spa
- Fitness center
- Pets not allowed



# Useful Information - Hotel

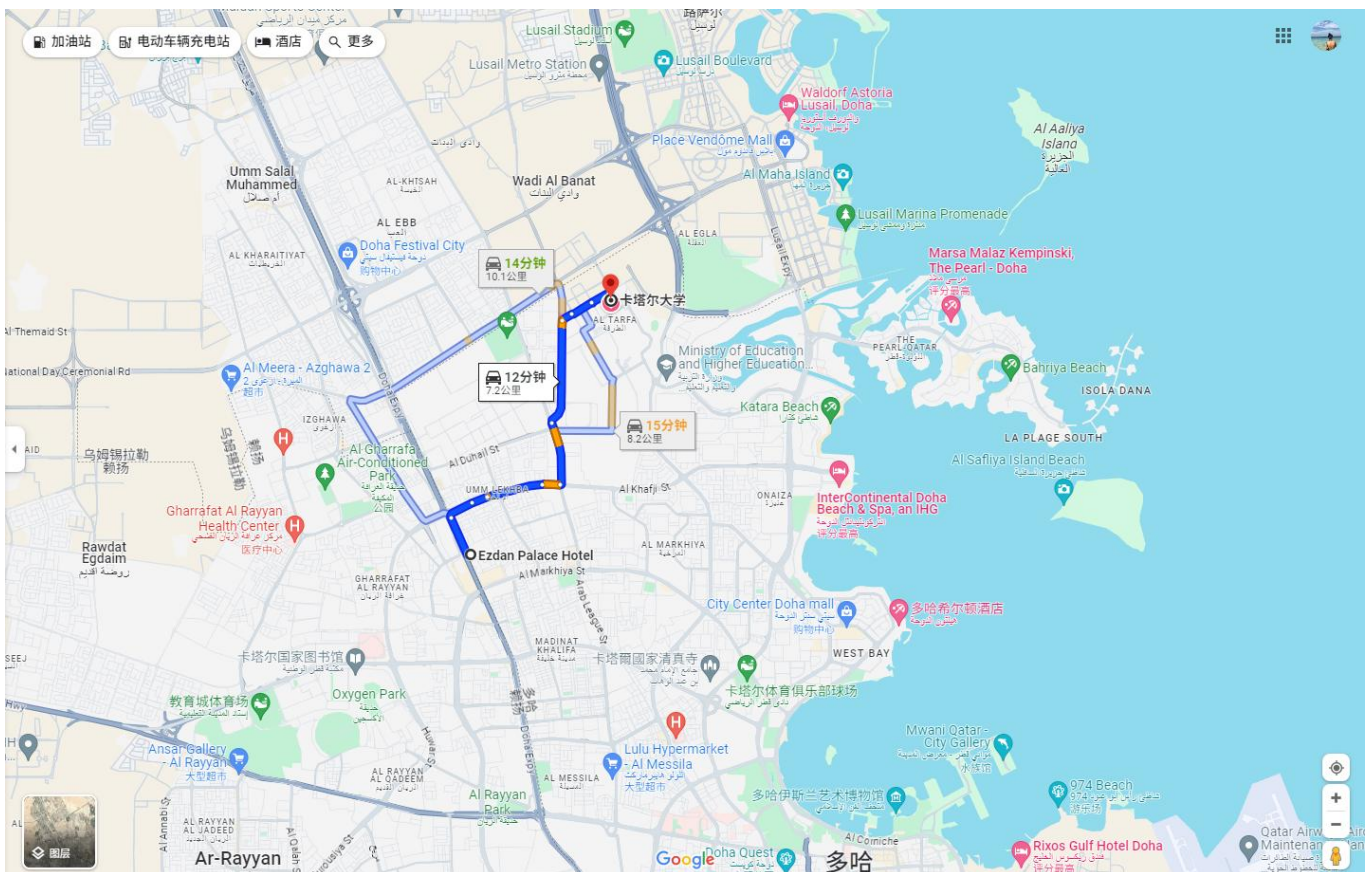
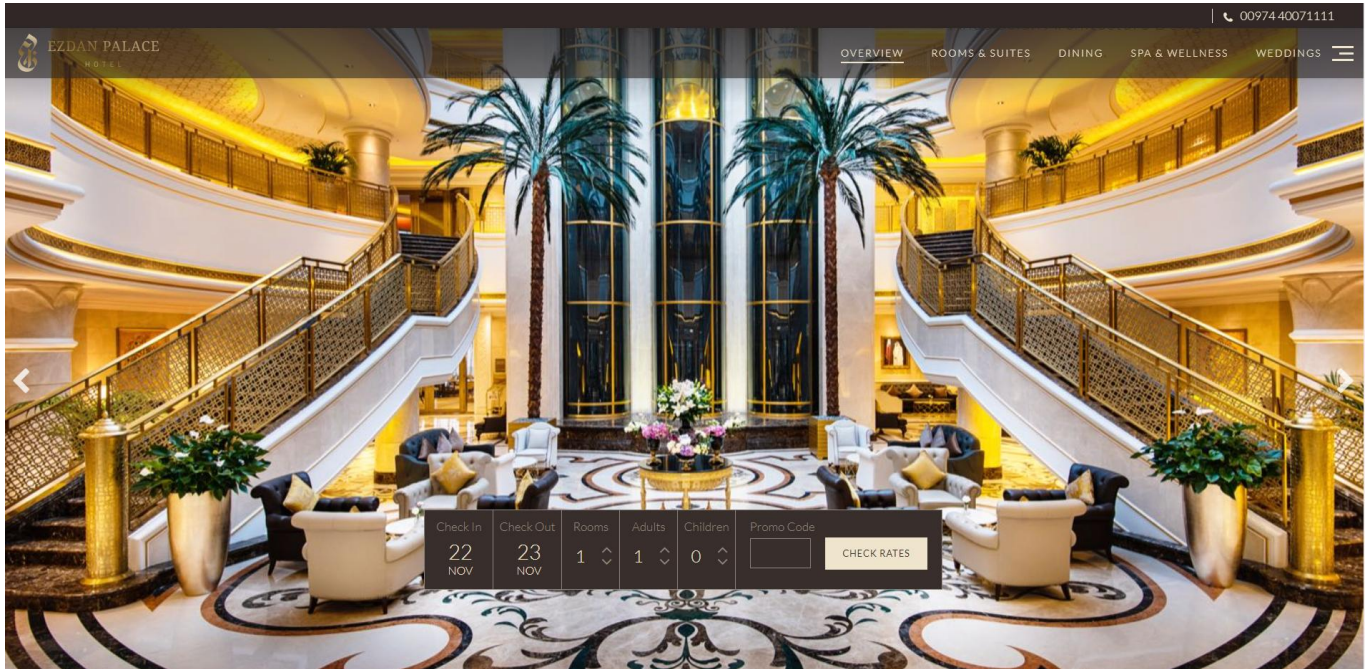
## 3. Embassy Suites by Hilton Doha Old Town



## 4. Ezdan Palace Hotel

# Useful Information - Hotel

<https://www.ezdanpalace.qa/>



## 5. JOURI, a Murwab Hotel

# Useful Information - Hotel

[https://bookings.travelclick.com/111834?adults=2&children=0&currency=HKD&datein=01/01/2024&domain=www.google.com&gclid=CjwKCAiAx\\_GqBhBQEiwAIDNAZthObk5HEOYM2SVF2ABiXAKBBj7KE20JpfyCYFiDDTVuYA76PRVghoCjWMQAvD\\_BwE&gdp=hotelfinder&hotelID=111834&languageid=5&nights=1&rateplanID=7120695&roomtypeID=498205&subchan=GOOGLE\\_HK\\_desktop\\_CPA&utm\\_campaign=ds\\_9090959734&utm\\_content=HPA\\_111834\\_mapresults\\_1\\_HK\\_desktop\\_2024-01-01\\_selected\\_9090959734\\_705144237\\_standard&utm\\_medium=meta&utm\\_source=googleha#/accommodation/room](https://bookings.travelclick.com/111834?adults=2&children=0&currency=HKD&datein=01/01/2024&domain=www.google.com&gclid=CjwKCAiAx_GqBhBQEiwAIDNAZthObk5HEOYM2SVF2ABiXAKBBj7KE20JpfyCYFiDDTVuYA76PRVghoCjWMQAvD_BwE&gdp=hotelfinder&hotelID=111834&languageid=5&nights=1&rateplanID=7120695&roomtypeID=498205&subchan=GOOGLE_HK_desktop_CPA&utm_campaign=ds_9090959734&utm_content=HPA_111834_mapresults_1_HK_desktop_2024-01-01_selected_9090959734_705144237_standard&utm_medium=meta&utm_source=googleha#/accommodation/room)

The screenshot shows the hotel booking interface. At the top, there are filters for 'ADULTS & CHILDREN 2/0', 'DATES OF STAY Jan 1-2', 'ACCOMMODATIONS Superior King', 'TOTAL \$ 0.00', and 'ENGLISH (HKD)'. Below these is a 'ROOMS' section with a search bar containing 'Unlock Private Offers (for exclusive discounts)'. A room card for 'Superior King' is displayed, featuring a photo of the room, a price of '\$ 712.62', and a 'BOOK' button. The room details include '2 People', '1 King Bed', and '32 m<sup>2</sup> / 344 ft<sup>2</sup>'. A 'View Room Details And Enhancements' link is also present.

## Superior King

Superior room with 32 sqm. Limited connecting rooms are subject to availability. No space to place an extra bed

### ROOM DETAILS

2 People

1 King Bed

32 m<sup>2</sup> / 344 ft<sup>2</sup>

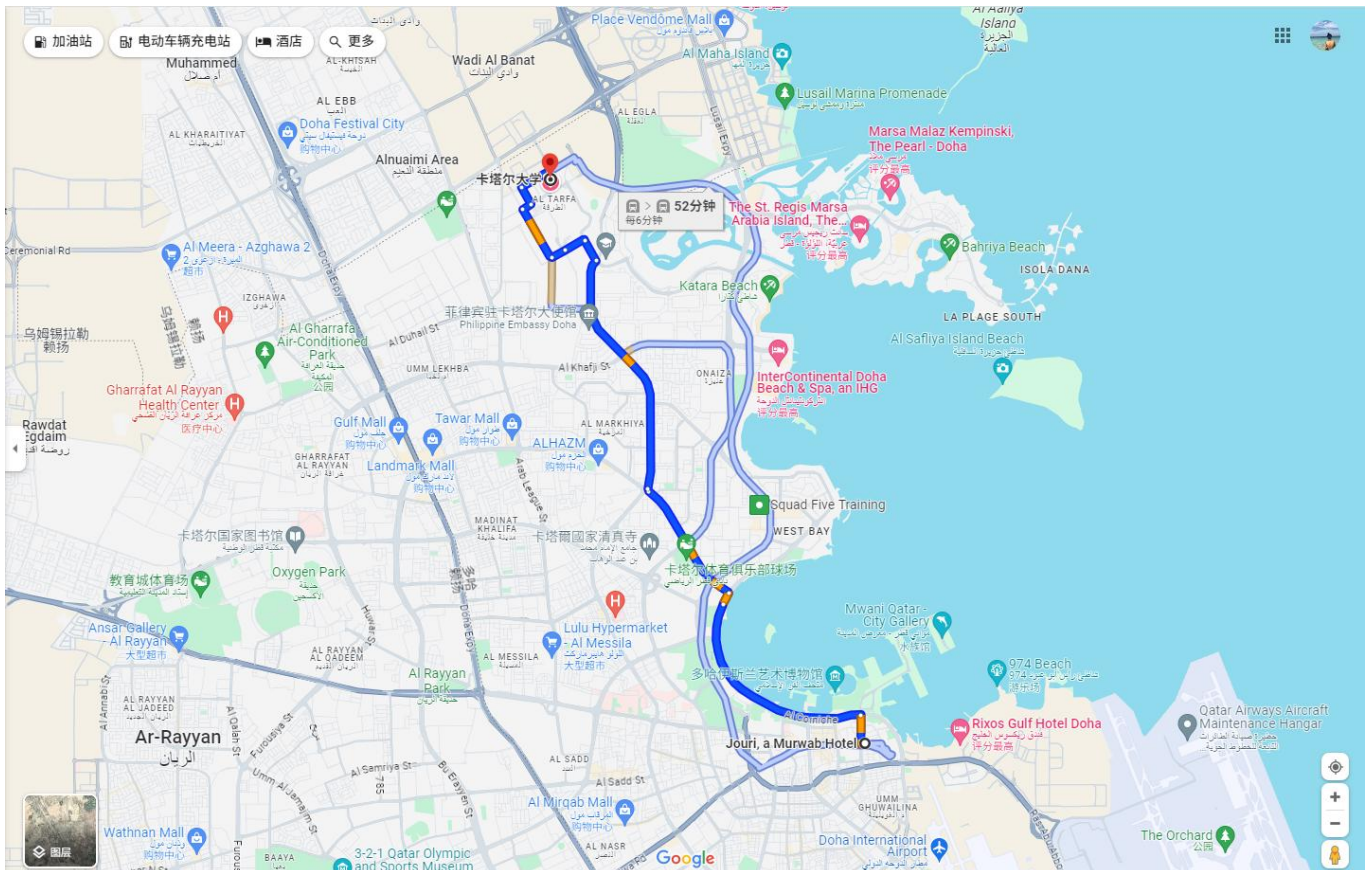
### Current Rate Selection

Advance Purchase - Breakfast [Details](#)

\$ 712.62 x 1 Night \$ 712.62

Subtotal \$ 712.62

[ADD ROOM & CHECKOUT](#)



## 6. MILLENNIUM PLAZA DOHA

# Useful Information - Hotel

[https://www.millenniumhotels.com/zh/bookings/?hotelcode=14695&checkin=2024-01-01&checkout=2024-01-02&rooms=1&adults=2&children=0&utm\\_source=googlehpa&utm\\_medium=metasearch&utm\\_campaign=&utm\\_content=mapresults&currency=HKD&subchan=GO&dsclid=57794377786331136&gclid=CKSihaT91olDFT5MwgUdyW4GzQ&gclsrc=ds&viewrates=all](https://www.millenniumhotels.com/zh/bookings/?hotelcode=14695&checkin=2024-01-01&checkout=2024-01-02&rooms=1&adults=2&children=0&utm_source=googlehpa&utm_medium=metasearch&utm_campaign=&utm_content=mapresults&currency=HKD&subchan=GO&dsclid=57794377786331136&gclid=CKSihaT91olDFT5MwgUdyW4GzQ&gclsrc=ds&viewrates=all)

多哈千禧广场酒店  
Suheim bin Hamad Street  
+974 40416999  
reservations.mdhq@millenniumhotels.com

预订概要

酒店: 多哈千禧广场酒店

登记入住 - 退房离店: 2024/1/01 - 2024/1/02

客房类型: 2成人, 0儿童

客房数目 (最大数目): 1客房

代码与选项:  显示无障碍客房

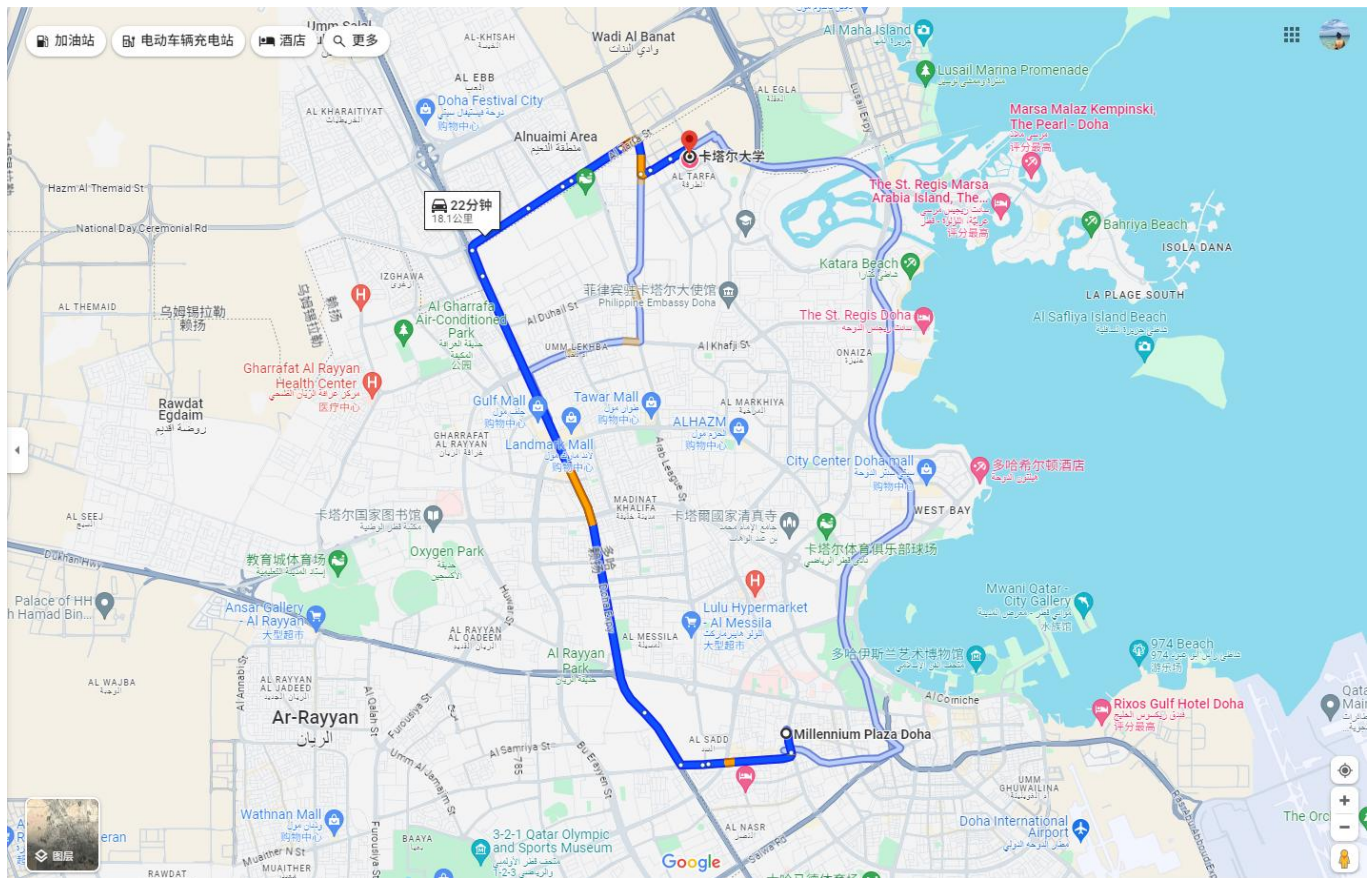
1客房数目  
高级客房

总计: HKD 1,285.26

结账

请放心, 预订时无需提前支付任何费用。您所提供的信用卡资料仅作担保预订之用。

This website uses cookies to offer you a personalised user experience. We also use cookies to enhance site navigation, analyse site usage and assist in our marketing efforts. You can manage these settings by selecting the "View Settings" button. For more information on our cookie policy, please visit: [Privacy & Cookie Policy](#)



## 7. Pullman Doha West Bay

<https://all.accor.com/ssr/app/accor/rates/8112/index.zh.shtml?dateIn=2024-01-01&nights=1&compositions>

# Useful Information - Hotel

=2&stayplus=false&snu=false&accessibleRooms=false&hideWDR=false&hideHotelDetails=false&gclid=CjwKCAiAx\_GqBhBQEiwAIDNAZqqvqnJ56crYmncxngO4SwniwmslQtzL\_E2odRozgNHAlmEH8wgKRocCDMQAvD\_BwE&utm\_campaign=8112-HK-cpa-desktop-selected-0--mapresults-20590336069-0-0-1&utm\_medium=partenariats&hmGUID=49b723ee-796a-49ae-109b-6b67c7d8bc63&utm\_source=Google%20Hotel%20Ads

**选择您的服务**  
2人1晚价格

15 您搜索的卧室

筛选： 免费取消  包括早餐  无障碍客房

**高级房，配备 1 张大床、宽敞的浴室和工作台**

1 特大床  
4 个人最多 | 40 m<sup>2</sup> | 位于城市边

请查阅 客房详情

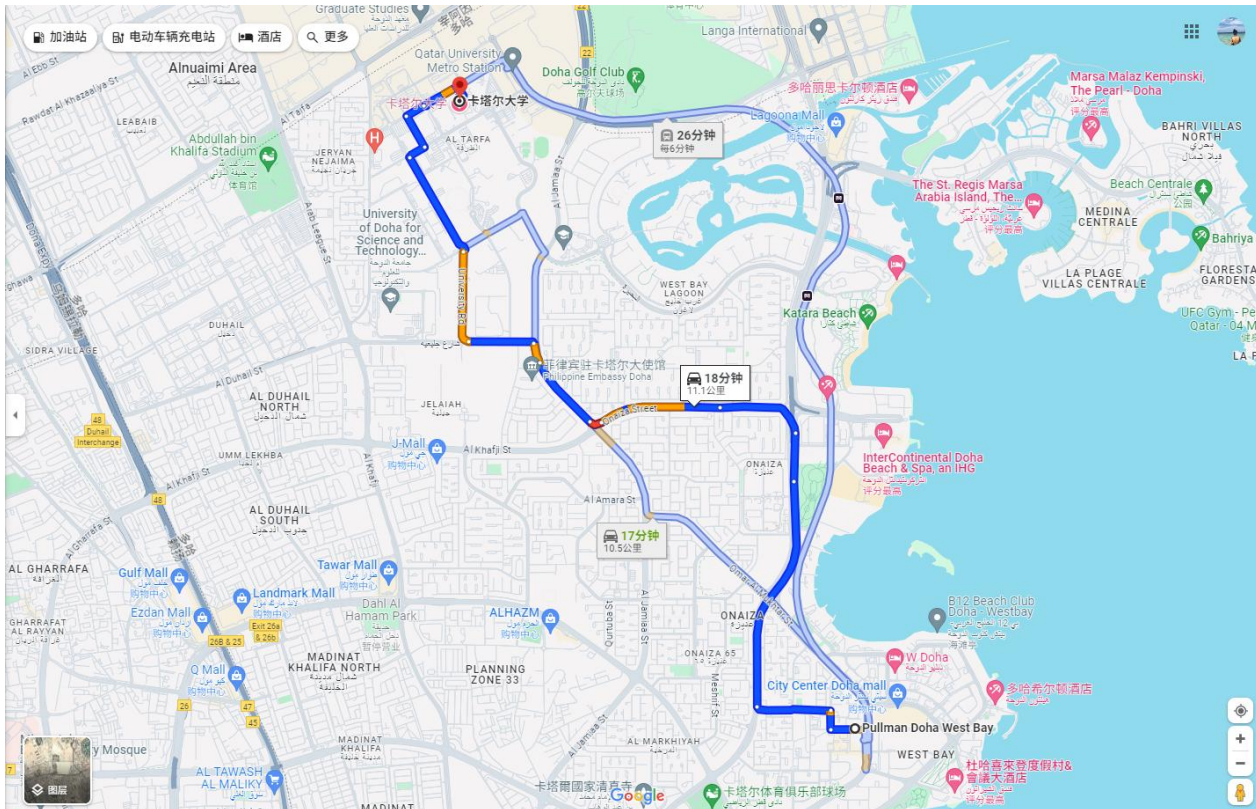
标准房价 (4) | 交易和/或套餐费率 (1)

提前预订优惠价格

- 不可退
- 在线付款
- 获赠 10%。填写详细联系方式加入会员，加入免费。

116,74 \$US  
105,07 \$US  
105,07 \$US 即 96,27 €

验证



## 8. Retaj Al Rayyan hotel

# Useful Information - Hotel

**艾尔瑞安瑞塔杰酒店**  
Retaj Al Rayyan Hotel  
4.1 ★★★★★ (2,939) · 4 星级酒店

概览 价格 评价 简介

路线 保存 附近 分享

查看空房情况

**比较价格** 仅显示可免费取消的预订

入住/退房日期  
1月1日周一 1月2日周二 2

赞助商：  
精选选项

- Retaj Al Rayyan Hotel HK\$1,071 >  
官方网站
- Booking.com HK\$564 >  
免费取消截止日期: 12月29日
- Agoda HK\$594 >

加油站 电动车辆充电站 酒店 更多

Alnuaimi Area 卡塔尔大学 多哈国际机场 多哈丽思卡尔顿酒店 多哈四季酒店

19分钟 11.8公里

20分钟 13.1公里

18分钟 11公里

艾尔瑞安瑞塔杰酒店

## 9. St Regis



# Useful Information - Hotel

**The St. Regis Doha**  
 5 星级酒店 (5,439) · 4.6 评分

HK\$2,196  
 1月1日至2日

比较价格  
 1月1日周一 1月2日周二 2 晚

赞助商：  
 The St. Regis Doha HK\$2,506 >  
 Trip.com HK\$2,503 >  
 Hotels.com HK\$2,503 >

32分钟 每6分钟  
 14分钟 8.9公里

The St. Regis Doha

10. voco Doha West Bay Suites

# Useful Information - Hotel

[https://www.ihg.com/voco/hotels/cn/zh/find-hotels/select-roomrate?fromRedirect=true&qSrt=sBR&glat=FR EE\\_hpa\\_free\\_HK\\_desktop\\_DOHVO\\_mapresults\\_1\\_QAR\\_2024-01-01\\_selected\\_\\_\\_FALSE\\_CXSGIDAP0&qSIH =DOHVO&qRms=1&qAdlt=2&qChld=0&qCiD=01&qCiMy=002024&qCoD=02&qCoMy=002024&qAAR=6CBA RC&qRtP=IDAP0&qrtPt=553.50&setPMCookies=true&qSIRc=CXSG&qSHBrC=VX&qDest=P.O.Box%205863,% 20Al%20Intisar%20Street,%20Doha,%20QA&cm\\_mmc=hpa\\_free\\_HK\\_desktop\\_DOHVO\\_mapresults\\_1\\_Q AR\\_2024-01-01\\_selected\\_\\_\\_FALSE\\_CXSGIDAP0&srb\\_u=1&qRmFitr=](https://www.ihg.com/voco/hotels/cn/zh/find-hotels/select-roomrate?fromRedirect=true&qSrt=sBR&glat=FR EE_hpa_free_HK_desktop_DOHVO_mapresults_1_QAR_2024-01-01_selected___FALSE_CXSGIDAP0&qSIH =DOHVO&qRms=1&qAdlt=2&qChld=0&qCiD=01&qCiMy=002024&qCoD=02&qCoMy=002024&qAAR=6CBA RC&qRtP=IDAP0&qrtPt=553.50&setPMCookies=true&qSIRc=CXSG&qSHBrC=VX&qDest=P.O.Box%205863,% 20Al%20Intisar%20Street,%20Doha,%20QA&cm_mmc=hpa_free_HK_desktop_DOHVO_mapresults_1_Q AR_2024-01-01_selected___FALSE_CXSGIDAP0&srb_u=1&qRmFitr=)

800 968 111 需要帮助? 简体中文 我的入住 加入 登录

**VOCO** 目的地 优惠 团体与活动 IHG® 优悦会

P.O.Box 5863, Al Intisar Street, Doha, QA 2024/01/01 - 2024/01/02 2 宾客 1 客房 更改搜索

首页 > 选择酒店 > 选择客房

**voco: Doha West Bay Suites**

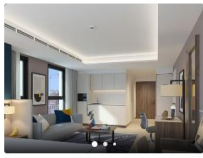
### 选择您的房间

房型 设施 QAR


现金 积分加现金 积分

找到 9 间房

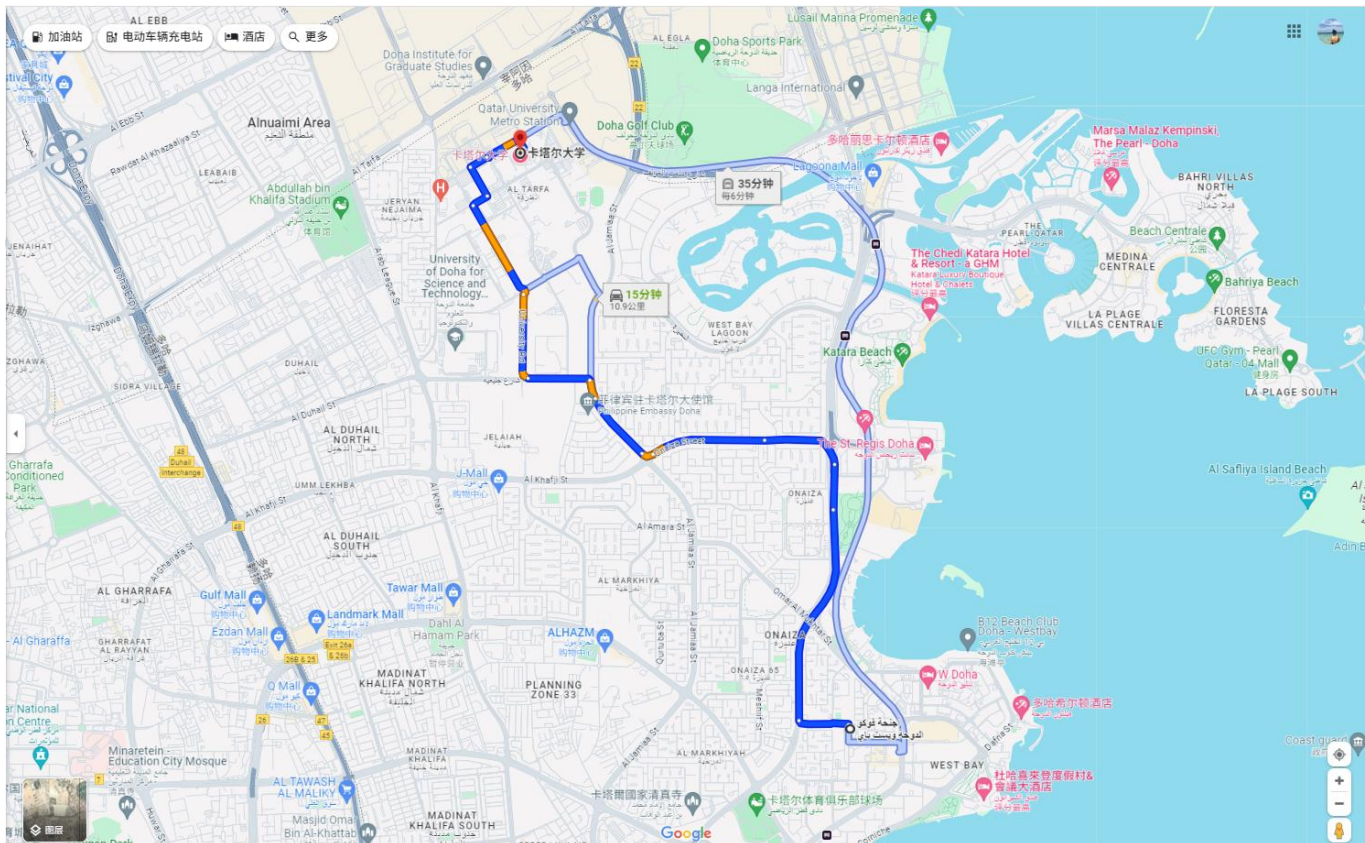
提前预订尊享优惠 这些房间可享受



**1 King Bed Studio Suite City View**  
2 成人  
[查看详细信息](#)  
提前预订尊享优惠可用  
554 QAR  
税费  
包含税金和额外费用  
[选择](#)  
[查看更多房价](#)



**Studio Suite**  
2 成人  
554



# About Doha



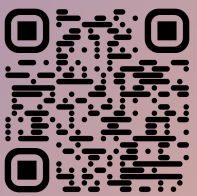
Doha is the capital city of Qatar, a vibrant and modern metropolis located on the Arabian Peninsula. With a rich history dating back centuries, Doha has transformed into a thriving destination that seamlessly blends tradition with innovation.

Historically, Doha was a small fishing and pearling village. However, the city experienced rapid development with the discovery of oil in the 1940s, propelling Qatar into prosperity. Today, Doha stands as a symbol of the country's remarkable growth and economic success.

From a tourist perspective, Doha offers a variety of attractions that showcase its cultural heritage and contemporary allure. Visitors can explore the historic Souq Waqif, a bustling market filled with traditional Qatari architecture, handicrafts, and spices. The Museum of Islamic Art is another must-visit, housing a remarkable collection of Islamic artifacts from around the world.

Doha is also known for its futuristic skyline, boasting iconic structures such as the impressive skyscrapers of West Bay and the ultramodern waterfront development called the Pearl-Qatar. The city's commitment to hosting major international events is evident with venues like the Aspire Zone, which hosted the 2006 Asian Games, and the state-of-the-art Education City.

With its blend of history, culture, and modernity, Doha offers a unique and captivating experience for travelers seeking to explore the Arabian Gulf's dynamic energy and Qatari hospitality. International Conference on Applied Energy (ICAE2023) hope you enjoy the mythology in Doha!



For more at  
[www.applied-energy.org/icae2023](http://www.applied-energy.org/icae2023)