

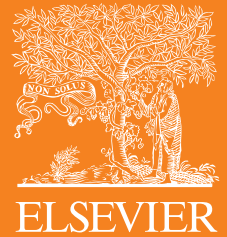
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Dec. 1 - Dec. 10, 2020
Bangkok/Virtual



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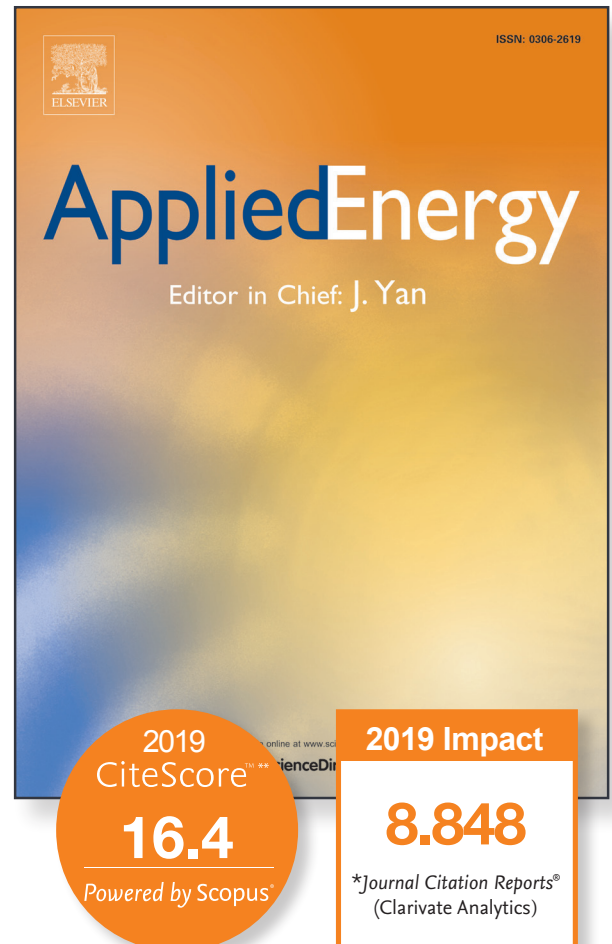
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Time Zone Converter					
City Location & Time Zone	Time				
Stockholm, GMT+1 , Conf. Time	12:00	13:00	14:00	15:00	16:00
London, GMT+0	11:00	12:00	13:00	14:00	15:00
Johannesburg, GMT+2	13:00	14:00	15:00	16:00	17:00
New Delhi, GMT+5:30	16:30	17:30	18:30	19:30	20:30
Beijing, GMT+8	19:00	20:00	21:00	22:00	23:00
Tokyo, GMT+9	20:00	21:00	22:00	23:00	0:00
San Paulo, GMT-3	8:00	9:00	10:00	11:00	12:00
New York, Toronto, GMT-5	6:00	7:00	8:00	9:00	10:00
San Francisco, GMT-8	3:00	4:00	5:00	6:00	7:00

Welcome to ICAE2020

icae
International Conference on Applied Energy

ICAE 2020
BANGKOK/VIRTUAL
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Welcome to ICAE2020-12th International Conference on Applied Energy

The 12th International Conference on Applied Energy (ICAE2020) was originally planned to be held during Nov. 29 – Dec. 2, 2020 in Bangkok, Thailand, with the theme of “Sustainable energy solutions for changing the world.” The venue of ICAE2020 was to be at the United Nations Conference Centre (UNCC). However, due to the COVID-19 pandemic, the event will be held instead in the form of a virtual conference on the new dates of Dec. 1-10, 2020.

ICAE2020 will include keynotes and invited speeches, plenary sessions, dedicated workshops, and oral and video presentations on various topics:

- » Renewable Energy
- » Clean Energy Conversion Technologies
- » Mitigation Technologies
- » Intelligent Energy Systems
- » Energy Storage
- » Energy Sciences
- » Energy Management, Policy, Economics & Sustainability
- » Geoenergy

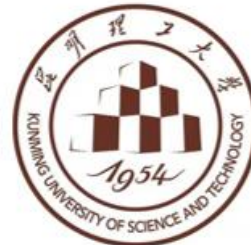
In addition, a special workshop/symposium will be organized in cooperation with Asian Development Bank (ADB) on the impact of COVID-19 on energy and the environment.

All papers will be peer-reviewed, and accepted papers are required to be presented orally at the Conference. Selected papers from ICAE2020 will be recommended by the Scientific Committee for further consideration of publication in prestigious journals including Applied Energy and Advances in Applied Energy.

I look forward to meeting you online at ICAE2020.

Prof. Jinyue Yan
Chair of ICAE2020 and
Editor in Chief of Applied Energy, Advances in Applied Energy

Acknowledgements



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Keynote Speakers

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Neutrality Goal
Prof. Xiliang Zhang Dec. 1st 13:30-14:15 (GMT+1)
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Prof. Phil Taylor
University of Bristol

Potential Technical, Economic and Environmental Benefits of Multi Energy Systems Planning and Operation

December 1st 12:30-13:15 (GMT+1)

The Zoom details

Room ID: 815 4584 0940

Room PW: 885561

Abstract:

Energy systems are vitally important for UK industry and society. The energy trilemma (energy security, environmental impact and social cost) presents many complex interconnected challenges which have huge relevance internationally. As technology and society changes so do these challenges, and therefore the planning, design and operation of energy systems needs to be revisited and optimised. Current energy systems research does not fully embrace a whole systems approach and is therefore not developing a deep enough understanding of the interconnected and interdependent nature of energy infrastructure. The global energy systems research community would strongly benefit from a more diverse, open, supportive community with representation from many disciplines beyond traditional engineering to help implement a whole systems approach. A deeper level of understanding, through a whole systems approach, is necessary in order to consider how best to plan, design, integrate, regulate and operate energy systems and their associated markets in the future.

Internationally there is a drive towards providing low carbon energy through new build energy systems and to decarbonise existing energy systems. Crucial to low carbon energy systems is flexibility, this flexibility can come from the energy system assets themselves such as the network components, demand response and generator control. A potentially game changing source of flexibility could come from greater levels of multi energy integration where for example a gas grid could be seen as a large scale storage system to support a rapidly decarbonising electricity grid. In addition, the electricity grid could drive the decarbonisation of the gas grid through the production of green hydrogen which can be blended into the gas grid.

Energy storage, more generally, can be used to provide improved resilience and black start capabilities, assist with maintaining stability in the presence of high penetrations of renewable energy, avoid or delay network reinforcement costs and provide a vast array of ancillary services. However, energy storage technologies are still relatively expensive, have complex and sometimes rapid degradation characteristics, raise safety and recycling questions. This means that the use of energy storage needs to be carefully undertaken. Analytical tools are required to understand which services the storage systems will provide and therefore the duty cycles they will experience. This can then be used to inform how to optimally size the storage devices, which technologies to use and where to locate them for maximum revenue and effectiveness. Professor Taylor will discuss these issues in his talk and refer to full scale demonstration of these ideas in the UK.

Short Bio:

Professor Taylor, Pro Vice-Chancellor for Research and Enterprise at University of Bristol, is an internationally leading researcher and industrial expert in energy systems, who has worked in industry and academia for over 25 years. He joined Newcastle University in 2013 as Dean and Director of the multidisciplinary Institute for Sustainability, and later, became the Head of the School of Engineering. Professor Taylor is Co-Director of the £20m EPSRC National Centre for Energy Systems Integration (CESI) and the Director of the £10m EPSRC Supergen Energy Networks Hub. He is a member of the Board of Trustees for fuel poverty charity National Energy Action, Visiting Professor at Nanyang Technological University in Singapore and non-executive director of Northern Powergrid, UK.



Prof. Xiliang Zhang

Tsinghua University

The Pathway of China's Energy System Transformation to Achieve The 2060 Carbon Neutrality Goal

December 1st 13:30-14:15 (GMT+1)

[The Zoom details](#)

[Room ID: 815 4584 0940](#)

[Room PW: 885561](#)

Abstract:

President Xi Jinping announced China's new climate pledge of achieving carbon neutrality before 2060 in his speech to the United Nations on September 22. The presentation will provide some results of an analysis of the climate goal conducted by Professor Zhang's group using CGEM model, showing how China might become carbon neutral by 2060 in terms of economic restructuring, improvement in energy efficiency, electrification of the final energy uses, deployment of renewable and nuclear energy, and other breaking carbon technologies, and public policy. The speech will also give an overview of China's national carbon emissions trading system development which would play a critical role in accelerating the low carbon energy economy transformation for next decade.

Short Bio:

Dr. Zhang is Professor of Management Science and Engineering and Director of the Institute of Energy, Environment, and Economy at Tsinghua University. His current research interests include low-carbon energy economy transformation, integrated assessment of energy and climate policies, renewable energy and automotive energy. Since 2015, Professor Zhang has been heading the expert group on China's national carbon market design, which is a taskforce of the Climate Change Department in the Ministry of Ecology and Environment. He also served as the co-leader of the expert group for drafting China's Renewable Energy Law from 2004 to 2005, which was organized by the Environmental Protection and Resource Conservation Committee of the National People's Congress, and as a lead author of the 4th and 5th IPCC Climate Change Assessment Report. Dr. Zhang is the current Chair of the Energy Systems Engineering Committee of the China Energy Research Society and a member of the board of directors of Chinese Society of Sustainable Development. He holds a PhD in Systems Engineering from Tsinghua University.



Prof. Reinhard Madlener

RWTH Aachen University

Power Generation from Variable Renewables and Flexibility Needs

Implied

December 2nd 14:00-14:45 (GMT+1)

[The Zoom details](#)

[Room ID: 815 4584 0940](#)

[Room PW: 885561](#)

Abstract:

The ongoing transformation of the energy system towards sustainability, characterized by decarbonization, decentralization, digitalization and democratization, requires a sufficient amount of flexibility to accommodate rising shares of variable renewables. In this talk, an overview of the most relevant flexibility options in the electricity sector is provided, and also of the main actors and issues and important economic and policy considerations. Moreover, the policy and regulatory needs are discussed that are necessary for a smooth and efficient transition to energy system integration. Finally, some reflections are offered regarding the need for sustainable regulation, industrial organization, business economics, system-friendly citizen energy and prosumer engagement, and technology.

Short Bio:

Prof. Madlener 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. His 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; the adoption, temporal & spatial diffusion of innovation; and investment in (optimal mixes of) innovative energy technologies under uncertainty. 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 Public Choice. He acts as Senior Editor of the Energy Policy journal and serves on the Editorial Boards of a number of international scientific journals, including Applied Energy; Energy Efficiency; Energy Systems; Energy, Sustainability & Society; International Journal of Energy Sector Management; and the Journal of Energy Storage, amongst others.



Prof. Ju Li

Massachusetts Institute of
Technology

Challenges for Battery Energy Storage Systems

December 2rd 15:00-15:45 (GMT+1)

The Zoom details

Room ID: 815 4584 0940

Room PW: 885561

Abstract:

The market price of Li-ion battery cells dropped by a factor of $\sim 6\times$ since 2010. This epic cost-down is on par with the development of solar photovoltaics and is the best news for Renewable Energies and Climate Grand Challenges in the last decade. With LIB cell cost at $\sim \$90/\text{kWh}$ today, battery chemistries well validated in the electrical vehicles industry at 500GWh scale with cycle life up to 10,000 cycles are ready to “move the needle” in a big way. Grid-scale LIB offers one possible way to keep human beings on track in the near-term to meet the IPCC goal of halving global CO₂ emission by 2040-2050, that demands Terawatts and 100s of TWh. However, there are still key technical challenges in fire safety and recycling. There were >20 fire accidents amongst ~ 500 battery energy storage stations in South Korea within 3 years. Interestingly, some of these fires did not start from the battery, but from the power electronics and accessories. Better fire extinguishers, sensors, software, electrical systems, and safer electrolytes/electrodes are needed. In terms of recycling, waste LIB contains toxic chemicals and heavy metals. Currently, less than $\sim 10\%$ of LIBs are recycled. Without state-of-the-art recycling technologies, scaling up would be environmentally disastrous. Tremendous materials and chemical engineering work remain in order to fully close the loop in Li, Co/Ni, F, P, Cu. Further reducing the cost and integration with software are also essential. To scale up the current LIB industry by another factor of $100\times$ - $1000\times$ is a civilization-scale endeavor. It must be done “Right”.

Short Bio:

Prof. Li has held faculty positions at the Ohio State University, the University of Pennsylvania, and is presently a chaired professor at MIT. His group (<http://Li.mit.edu>) investigates the mechanical, electrochemical and transport behaviors of materials as well as novel means of energy storage and conversion. Ju is a recipient of the 2005 Presidential Early Career Award for Scientists and Engineers, the 2006 Materials Research Society Outstanding Young Investigator Award, and the TR35 award from Technological Review. Ju was elected Fellow of the American Physical Society in 2014 and a Fellow of the Materials Research Society in 2017. In 2016 Ju Li co-founded one of the MIT Energy Initiative (MITEI) Low-Carbon Energy Centers, the Center for Materials in Energy and Extreme Environments (CME). Li is the chief organizer of MIT A+B Applied Energy Symposia that aim to develop solutions to global climate change challenges with “A-Action before 2040” and “B-Beyond 2040 technologies.”



Prof. Daniel Kammen

University of California,
Berkeley

Have We Reached 'Peak Carbon' Emissions?

December 3rd 15:15-16:00 (GMT+1)

[The Zoom details](#)

[Room ID: 815 4584 0940](#)

[Room PW: 885561](#)

Abstract:

Have we reached peak carbon emissions—that long hoped-for moment when the global emissions of greenhouse gases into the atmosphere, such as carbon dioxide, stop increasing and start to decline? The answer is “quite possibly, yes.” Solar and wind power are now the cheapest forms of new energy technology across most of the United States. The costs of solar energy projects have fallen by close to 90 percent over the past decade, and wind by 70 percent. Batteries and other forms of energy storage are now falling in cost as fast as solar and wind energy ever have, due to a series of new innovations. Transition to clean energy, however, is no longer a function of technology costs and market forces, but of politics and the entrenched, massively-subsidized, fossil fuels legacies. The global costs of fossil fuel subsidies – estimated to be \$0.5 – 5 trillion per year are on par with the total investments in clean energy over the past decade (Kammen, 2020). Fossil-fuel damages are global, but the most immediate impacts are on the poorest citizens in every nation through local air pollution, health damages from work in the fossil-fuel sector, and the impacts on the areas with the poorest infrastructure. Climate protection can only proceed if social justice is at the forefront.

Short Bio:

Dr. Daniel M. Kammen is a Professor at the University of California, Berkeley, with parallel appointments in the Energy and Resources Group where he serves as Chair, the Goldman School of Public Policy where he directs the Center for Environmental Policy, and the department of Nuclear Engineering. Kammen is the founding director of the Renewable and Appropriate Energy Laboratory (RAEL; <http://rael.berkeley.edu>), and was director of the Transportation Sustainability Research Center from 2007 – 2015. In 2020 Kammen was elected to the American Academy of Arts & Sciences.



Prof. Xiaohua Xia

University of Pretoria

The State of Research, Development and Innovation of Electrical Energy Efficiency in South Africa

December 4rd 15:15-16:00 (GMT+1)

[The Zoom details](#)

[Room ID: 815 4584 0940](#)

[Room PW: 885561](#)

Abstract:

An overview of South African research productivity in various energy efficiency fields using the Scopus data base, is given for the 30-year period, 1986 to 2016. The study, coordinated by the Academy of Science of South Africa, aims to inform the Department of Science and Technology (DST) of opportunities for further development in terms of human capital development, intellectual property output and technology development and innovation, in order to promote the adoption of energy efficiency technologies in South Africa. A methodology consisting of a number of agreed steps was established to identify 10 areas and four categories of South African interests, and their performances are compared to see the research strength, weakness and strength. To benchmark, 10 other countries are selected for the same 10 areas and over the same 30-year period. South Africa scores fairly well internationally in terms of research outputs. Relatively strong areas such as industrial energy systems in MMM and M&V are reflections of South African established research strengths. South Africa follows more or less the broad international trends in terms of restructuring and consolidation of cross-disciplinary fields for micro-grids, which consists of traditionally strong South African research areas in renewable energy, power systems, integrated building energy systems and energy storage. There is accelerated growth in SSL, and a slight decline in batch chemical processes, while emerging research areas such as tribology, smart grids and M&V show rapid growth. Some research, as well as some more recent research on supercapacitors and the South Africa climate change targets, snapshots are shown, as later influenced by the ASSAf study.

Short Bio:

Prof. Xia is a professor in the Electrical, Electronic and Computer Engineering Department, University of Pretoria, director of the Centre of New Energy Systems, and the director of the National Hub for the Postgraduate Programme in Energy Efficiency and Demand-side Management. He obtained his PhD degree at the Beijing University of Aeronautics and Astronautics in 1989. He was academically affiliated with the University of Stuttgart, Germany, the Ecole Centrale de Nantes, France, and the National University of Singapore before joining the University of Pretoria in 1998. His current research interests are industrial energy systems and building energy systems. He is an IEEE fellow and an NRF A-rated scientist. He was elected a fellow of the South African Academy of Engineering in 2005, and a member of the Academy of Science of South Africa in 2011. He has been an associate editor of *Automatica*, *IEEE Transactions on Circuits and Systems II*, *IEEE Transactions on Automatic Control*, and specialist editor (control) of the *SAIEE Africa Research Journal*, and currently sits at the editorial board of *Applied Energy*, *Advances in Applied Energy*, and *Annual Reviews in Control*. He is a registered professional engineering by the Engineering Council of South Africa, and a certified measurement and verification professional by the American Association of Energy Engineers. He is an elected board member of measurement and verification council of South Africa (MVCSA) since 2014. He is the founding director of Onga Energy Efficiency and Management Pty Ltd – the first SANAS accredited M&V Company against ISO 17020 and he is invited as a technical assessor for the South African National Accreditation Systems (SANAS) for M&V inspection bodies in South Africa. He is a scientific advisor to two ministers of the South African government – the Department of Energy and the Department of Science and Technology, and he is also an advisor to Chinese State Council Overseas Office as a member of the Scientific Committee.



Prof. Denise Mauzerall

Princeton University

Evaluating Opportunities to Simultaneously Address Air Pollution and Greenhouse Gas Mitigation in China

December 6th 15:15-16:00 (GMT+1)

[The Zoom details](#)

[Room ID: 815 4584 0940](#)

[Room PW: 885561](#)

Abstract:

The Chinese government has declared a war on air pollution while also pledging to be carbon neutral by 2060. This talk will provide a comparative analysis of synergies and trade-offs for air quality and greenhouse gas mitigation among a variety of energy technology interventions that displace the use of coal. Key findings include that economy wide electrification, particularly of the residential and transport sectors with heat pumps and electric vehicles have clear co-benefits for both air quality and climate. Conversely, the use of synthetic natural gas results in substantial trade-offs with air quality improvements accompanied by substantial climate disbenefits. Furthermore, improvements in air quality increases the efficiency of solar PV electricity generation which leads to further displacement of coal and air quality improvements thus creating a virtuous cycle for air quality, health and climate.

Short Bio:

Prof. Denise Mauzerall's research examines opportunities to simultaneously reduce air pollutant and greenhouse gas emissions while improving public health and food security. Current research is examining the potential air quality, health and climate benefits of increased electrification in China, air quality and climate co-benefits of various substitutes for residential coal stoves in China, China's role in overseas development financing of electric power generation, evaluation of upstream methane leakage from on and off-shore oil and gas wells, evaluation of the effect of air pollution on the ability to generate solar electricity, and evaluation of the potential to increase nitrogen use efficiency in agriculture. Her group has published over 85 papers on environmental/energy topics in top research journals. She served on the U.S. Environmental Protection Agency's chartered Science Advisory Board from 2014-2017, is on the executive advisory board for the Institute of Advanced Sustainability Studies in Potsdam, Germany, spoke at the World Economic Forum in Davos, Switzerland on opportunities to simultaneously address air pollution and greenhouse gas mitigation, and has been a contributing author to the Intergovernmental Panel on Climate Change which shared the Nobel Peace Prize with Vice President Al Gore. She sits on the executive editorial boards of the Atmospheric Environment and Advances in Applied Energy journals. At Princeton she is on the executive committees of the Andlinger Center for Energy and Environment, the Global India Center and the Program in Technology and Society: Energy track. She directs the PhD program in the Princeton School of Public and International Affairs where she is a core professor in the Center for Policy Research on Energy and Environment.



Prof. Eric Masanet

University of California,
Santa Barbara

Technology Prospects for Decarbonizing Global Cement and Concrete Cycles

December 9th 15:15-16:00 (GMT+1)

[The Zoom details](#)

[Room ID: 815 4584 0940](#)

[Room PW: 885561](#)

Abstract:

The cement and concrete cycle accounts for 6-9% of global energy-related CO₂ emissions. Reaching the goals of the Paris Agreement will require reducing these emissions to near zero by mid-century—a goal that has heretofore appeared elusive due to growing demand, energy- and carbon-intensive production processes, long-lived process technologies, and lack of rapidly-scalable material substitutes. However, a number of emerging innovations in materials science, process heating technologies, carbon capture and utilization, and materials efficiency and substitution may offer new pathways for decarbonizing this “hard to abate” source of emissions. This presentation will review the innovation landscape across the cement and concrete cycle, present new decarbonization pathways these innovations may enable, and discuss stakeholder actions and policy options for accelerating their adoption.

Short Bio:

Eric Masanet is Professor and Mellichamp Chair in Sustainability Science for Emerging Technologies at the University of California, Santa Barbara. His research develops energy and materials systems models to identify technology and policy pathways for decarbonizing industrial systems. From 2015-2017, he led the Energy Demand Technology Unit at the International Energy Agency in Paris, where he oversaw energy analyses of the global industrial, transport, and buildings sectors. He is currently a Lead Author of Chapter 5 (Demand) for Working Group III of the IPCC's Sixth Assessment Report and a member of the Research Advisory Board at the American Council for an Energy Efficient Economy (ACEEE). He is also the former Editor in Chief of Resources, Conservation, and Recycling, the leading peer-reviewed journal on sustainable resource systems. He holds a PhD in mechanical engineering from the University of California, Berkeley.



Future Energy Center

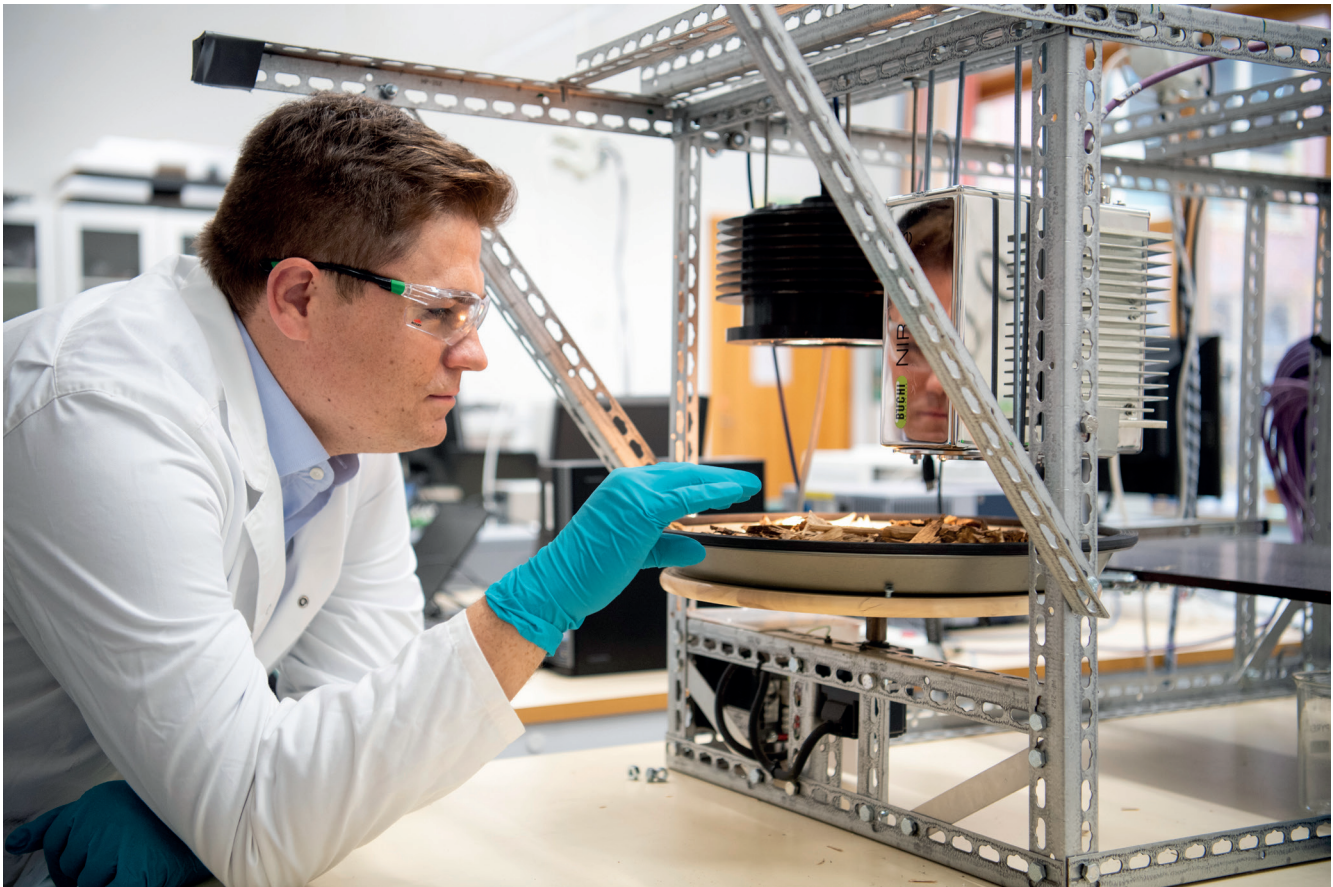
The Future Energy Center (FEC) is an internationally competitive research environment at Mälardalen University (MDH), Sweden. FEC focus on renewable energy, resource efficiency and digitalisation – towards a sustainable future, in co-production with industry and society.

FEC meets the future challenges in energy and environmental systems by investigating and developing processes and systems for increased resource efficiency and digitalisation in the transition towards a renewable energy system. A core area is enhancing the flexibility, to accommodate intermittent renewable energies such as solar and wind, and to meet the growing need of capacity. Resource efficiency includes utilizing bioenergy sources and at the same time enabling recovery of other resources, as for example nutrients. Another important area is investigating possible process integrations for both increased flexibility and resource efficiency. Further, digitalisation concerns developing new mathematical methods for model based diagnostics, decision support, optimization and control. Different simulation tools and soft sensors built on e.g. spectral measurement techniques are

used in combination to develop new systems for optimization and control. Interdisciplinary work and the integration of research approaches from engineering and natural sciences with those in social sciences and humanities perspectives, as for example markets, big data handling and behaviour, are important to consider.

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

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



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

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





Applied Energy

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- Designing microgrid energy markets: A case study: The Brooklyn Microgrids
Mengelkamp E., Gärttner J., Rock K., Kessler S., Orsini L., Weinhardt C.
- Peer-to-Peer energy trading in a Microgrid
Zhang C., Wu J., Zhou Y., Cheng M., Long C.
- Robust sliding-mode control of wind energy conversion systems for optimal power extraction via nonlinear perturbation observers
Yang B., Yu T., Shu H., Dong J., Jiang L.
- Reinforcement learning-based real-time power management for hybrid energy storage system in the plug-in hybrid electric vehicle
Xiong R., Cao J., Yu Q.
- Micro electrostatic energy harvester with both broad bandwidth and high normalized power density
Zhang Y., Wang T., Luo A., Hu Y., Li X., Wang F.
- Predicting electricity consumption for commercial and residential buildings using deep recurrent neural networks
Rahman A., Srikumar V., Smith A.D.
- Forecasting spot electricity prices: Deep learning approaches and empirical comparison of traditional algorithms
Lago J., De Ridder F., De Schutter B.
- A realistic and integrated model for evaluating oil sands development with Steam Assisted Gravity Drainage technology in Canada
Rui Z., Wang X., Zhang Z., Lu J., Chen G., Zhou X., Patil S.
- Total cost of ownership and market share for hybrid and electric vehicles in the UK, US and Japan
Palmer K., Tate J.E., Wadud Z., Nellthorp J.
- Optimization of unit commitment and economic dispatch in microgrids based on genetic algorithm and mixed integer linear programming
Nemati M., Braun M., Tenbohlen S.
- Water-energy nexus: A review of methods and tools for macro-assessment
Dai J., Wu S., Han G., Weinberg J., Xie X., Wu X., Song X., Jia B., Xue W., Yang Q.
- Optimal distributed generation planning in active distribution networks considering integration of energy storage
Li Y., Feng B., Li G., Qi J., Zhao D., Mu Y.
- Optimal design of multi-energy systems with seasonal storage
Gabielli P., Gazzani M., Martelli E., Mazzotti M.

- Optimal residential community demand response scheduling in smart grid
Nan S., Zhou M., Li G.
- Global energy flows embodied in international trade: A combination of environmentally extended input–output analysis and complex network analysis
Chen B., Li J.S., Wu X.F., Han M.Y., Zeng L., Li Z., Chen G.Q.
- Optimal coordinated energy dispatch of a multi-energy microgrid in grid-connected and islanded modes
Li Z., Xu Y.
- Optimal operation of an energy management system for a grid-connected smart building considering photovoltaics' uncertainty and stochastic electric vehicles' driving schedule
Thomas D., Deblecker O., Ioakimidis C.S.
- The Water-Energy-Food Nexus in East Asia: A tele-connected value chain analysis using inter-regional input-output analysis
White D.J., Hubacek K., Feng K., Sun L., Meng B.
- Effect of organic type and moisture on CO₂/CH₄ competitive adsorption in kerogen with implications for CO₂ sequestration and enhanced CH₄ recovery
Huang L., Ning Z., Wang Q., Zhang W., Cheng Z., Wu X., Qin H.
- Energy storage capacity optimization for autonomy microgrid considering CHP and EV scheduling
Liu Z., Chen Y., Zhuo R., Jia H.
- Numerical simulation of heat extraction performance in enhanced geothermal system with multilateral wells
Song X., Shi Y., Li G., Yang R., Wang G., Zheng R., Li J., Lyu Z.
- Teaching–learning–based artificial bee colony for solar photovoltaic parameter estimation
Chen X., Xu B., Mei C., Ding Y., Li K.
- Energy Demand Side Management within micro-grid networks enhanced by blockchain
Noor S., Yang W., Guo M., van Dam K.H., Wang X.
- Characterizing the energy flexibility of buildings and districts
Junker R.G., Azar A.G., Lopes R.A., Lindberg K.B., Reynders G., Relan R., Madsen H.
- Incorporating seller/buyer reputation-based system in blockchain-enabled emission trading application
Khaqqi K.N., Sikorski J.J., Hadinoto K., Kraft M.
- Environmental benefits of bike sharing: A big data-based analysis
Zhang Y., Mi Z.
- Evaluation of peer-to-peer energy sharing mechanisms based on a multiagent simulation framework
Zhou Y., Wu J., Long C.
- Solidification enhancement of PCM in a triplex-tube thermal energy storage system with nanoparticles and fins
Mahdi J.M., Nsofor E.C.
- Mixed-integer linear programming-based optimal configuration planning for energy hub: Starting from scratch. Wang Y., Zhang N., Zhuo Z., Kang C., Kirschen D.
- Short term load forecasting based on phase space reconstruction algorithm and bi-square kernel regression model. Fan G.-F., Peng L.-L., Hong W.-C.



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- Microgrids energy management systems: A critical review on methods, solutions, and prospects

Zia M.F., Elbouchikhi E., Benbouzid M.

- A review of the applications of phase change materials in cooling, heating and power generation in different temperature ranges

Du K., Calautit J., Wang Z., Wu Y., Liu H.

- Optimal integration and planning of renewable distributed generation in the power distribution networks: A review of analytical techniques

Ehsan A., Yang Q.

- Is it really the end of internal combustion engines and petroleum in transport?

Kalghatgi G.

- Waste heat recovery from diesel engines based on Organic Rankine Cycle

Hoang A.T.

- A review of solidified natural gas (SNG) technology for gas storage via clathrate hydrates

Veluswamy H.P., Kumar A., Seo Y., Lee J.D., Linga P.

- Energy harvesting technologies in roadway and bridge for different applications – A comprehensive review

Wang H., Jasim A., Chen X.

- Power-to-heat for renewable energy integration: A review of technologies, modeling approaches, and flexibility potentials

Bloess A., Schill W.-P., Zerrahn A.

- A review of automotive proton exchange membrane fuel cell degradation under start-stop operating condition

Zhang T., Wang P., Chen H., Pei P.

- Review on improvement for air source heat pump units during frosting and defrosting

Song M., Deng S., Dang C., Mao N., Wang Z.

- Vibration energy harvesting in automotive suspension system: A detailed review

Abdelkareem M.A.A., Xu L., Ali M.K.A., Elagouz A., Mi J., Guo S., Liu Y., Zuo L.

- Progress and prospects in reverse electrodialysis for salinity gradient energy conversion and storage

Tufa R.A., Pawlowski S., Veerman J., Bouzek K., Fontananova E., di Profio G., Velizarov S., Goulão Crespo J., Nijmeijer K., Curcio E.

- A survey of artificial neural network in wind energy systems

Marugán A.P., Márquez F.P.G., Perez J.M.P., Ruiz-Hernández D.

- State-of-the-art generation expansion planning: A review
Koltsaklis N.E., Dagoumas A.S.
- Optimization of energy management system for fuel-cell hybrid electric vehicles: Issues and recommendations
Sulaiman N., Hannan M.A., Mohamed A., Ker P.J., Majlan E.H., Wan Daud W.R.
- Modeling, simulation and performance analysis of parabolic trough solar collectors: A comprehensive review
Yilmaz İ.H., Mwesigye A.
- Progress in solid oxide fuel cell-gas turbine hybrid power systems: System design and analysis, transient operation, controls and optimization
Azizi M.A., Brouwer J.
- Review of applications and developments of ultra-thin micro heat pipes for electronic cooling
Tang H., Tang Y., Wan Z., Li J., Yuan W., Lu L., Li Y., Tang K.
- A review of durability test protocols of the proton exchange membrane fuel cells for vehicle
Chen H., Song Z., Zhao X., Zhang T., Pei P., Liang C.
- A review on pulsating heat pipes: From solar to cryogenic applications
Alhuyi Nazari M., Ahmadi M.H., Ghasempour R., Shafii M.B., Mahian O., Kalogirou S., Wongwises S.



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- Is a 100% renewable European power system feasible by 2050?
Zappa W., Junginger M., van den Broek M.
- Reliability, economic and environmental analysis of a microgrid system in the presence of renewable energy resources
Adefarati T., Bansal R.C.
- Thermal conductivity enhancement of phase change materials with 3D porous diamond foam for thermal energy storage
Zhang L., Zhou K., Wei Q., Ma L., Ye W., Li H., Zhou B., Yu Z., Lin C.-T., Luo J., Gan X.
- A performance-guided JAYA algorithm for parameters identification of photovoltaic cell and module
Yu K., Qu B., Yue C., Ge S., Chen X., Liang J.
- A novel two-stage forecasting model based on error factor and ensemble method for multi-step wind power forecasting
Hao Y., Tian C.
- Day-ahead building-level load forecasts using deep learning vs. traditional time-series techniques
Cai M., Pipattanasomporn M., Rahman S.
- Role of porous metal foam on the heat transfer enhancement for a thermal energy storage tube
Yang X., Yu J., Guo Z., Jin L., He Y.-L.
- Pontryagin's Minimum Principle based model predictive control of energy management for a plug-in hybrid electric bus
Xie S., Hu X., Xin Z., Brighton J.
- Carbon emissions of cities from a consumption-based perspective
Mi Z., Zheng J., Meng J., Zheng H., Li X., Coffman D.M., Woltjer J., Wang S., Guan D.
- Ag-graphene/PEG composite phase change materials for enhancing solar-thermal energy conversion and storage capacity
Zhang Y., Wang J., Qiu J., Jin X., Umair M.M., Lu R., Zhang S., Tang B.
- Flow regime aspects in determining environmental flows and maximising energy production at run-of-river hydropower plants
Kuriqi A., Pinheiro A.N., Sordo-Ward A., Garrote L.
- A hybrid forecasting system based on a dual decomposition strategy and multi-objective optimization for electricity price forecasting
Yang W., Wang J., Niu T., Du P.

- Deep learning framework to forecast electricity demand
Bedi J., Toshniwal D.
- Form-stable and thermally induced flexible composite phase change material for thermal energy storage and thermal management applications
Wu W., Wu W., Wang S.
- A hybrid forecasting system based on fuzzy time series and multi-objective optimization for wind speed forecasting
Jiang P., Yang H., Heng J.
- A combined model based on data preprocessing strategy and multi-objective optimization algorithm for short-term wind speed forecasting
Niu X., Wang J.
- Probabilistic individual load forecasting using pinball loss guided LSTM
Wang Y., Gan D., Sun M., Zhang N., Lu Z., Kang C.
- Catalytic effects of potassium on biomass pyrolysis, combustion and torrefaction
Safar M., Lin B.-J., Chen W.-H., Langauer D., Chang J.-S., Raclavska H., Pétrissans A., Rousset P., Pétrissans M.
- Assessment of deep recurrent neural network-based strategies for short-term building energy predictions
Fan C., Wang J., Gang W., Li S.
- Thermal response of annuli filled with metal foam for thermal energy storage: An experimental study
Yang X., Wei P., Cui X., Jin L., He Y.-L.
- Investigating the thermal runaway mechanisms of lithium-ion batteries based on thermal analysis database
Feng X., Zheng S., Ren D., He X., Wang L., Cui H., Liu X., Jin C., Zhang F., Xu C., Hsu H., Gao S., Chen T., Li Y., Wang T., Wang H., Li M., Ouyang M.
- A hierarchical interdigitated flow field design for scale-up of high-performance redox flow batteries
Zeng Y., Li F., Lu F., Zhou X., Yuan Y., Cao X., Xiang B.
- Effect of inclination on the thermal response of composite phase change materials for thermal energy storage
Yang X., Guo Z., Liu Y., Jin L., He Y.-L.
- Examining the spatial variations of determinants of energy-related CO₂ emissions in China at the city level using Geographically Weighted Regression Model
Wang S., Shi C., Fang C., Feng K.
- Incentive-based demand response for smart grid with reinforcement learning and deep neural network
Lu R., Hong S.H.
- Feasibility study of CO₂ huff 'n' puff process to enhance heavy oil recovery via long core experiments
Zhou X., Yuan Q., Rui Z., Wang H., Feng J., Zhang L., Zeng F.
- A novel deep learning method for the classification of power quality disturbances using deep convolutional neural network
Wang S., Chen H.

- Optimal energy management strategies for energy Internet via deep reinforcement learning approach

Hua H., Qin Y., Hao C., Cao J.

- Carbon dioxide absorption in aqueous alkanolamine blends for biphasic solvents screening and evaluation

Liu F., Fang M., Dong W., Wang T., Xia Z., Wang Q., Luo Z.

- Achieving the carbon intensity target of China: A least squares support vector machine with mixture kernel function approach

Zhu B., Ye S., Jiang M., Wang P., Wu Z., Xie R., Chevallier J., Wei Y.-M.



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- Novel strategies and supporting materials applied to shape-stabilize organic phase change materials for thermal energy storage—A review
Umair M.M., Zhang Y., Iqbal K., Zhang S., Tang B.
- Enhancement of methane production in anaerobic digestion process: A review
Li Y., Chen Y., Wu J.
- Radiative cooling: A review of fundamentals, materials, applications, and prospects
Zhao B., Hu M., Ao X., Chen N., Pei G.
- Reinforcement learning for demand response: A review of algorithms and modeling techniques
Vázquez-Canteli J.R., Nagy Z.
- Recent development of membrane for vanadium redox flow battery applications: A review
Shi Y., Eze C., Xiong B., He W., Zhang H., Lim T.M., Ukil A., Zhao J.
- Phase change solvents for post-combustion CO₂ capture: Principle, advances, and challenges
Zhang S., Shen Y., Wang L., Chen J., Lu Y.
- Potentials of porous materials for energy management in heat exchangers – A comprehensive review
Rashidi S., Kashefi M.H., Kim K.C., Samimi-Abianeh O.
- Enhanced oil recovery techniques for heavy oil and oilsands reservoirs after steam injection
Dong X., Liu H., Chen Z., Wu K., Lu N., Zhang Q.
- Smart energy systems for sustainable smart cities: Current developments, trends and future directions
O'Dwyer E., Pan I., Acha S., Shah N.
- Enhancing the optical and thermal efficiency of a parabolic trough collector – A review
Manikandan G.K., Iniyar S., Goic R.
- A comprehensive review of ejector design, performance, and applications
Tashtoush B.M., Al-Nimr M.A., Khasawneh M.A.
- A review and discussion of decomposition-based hybrid models for wind energy forecasting applications
Qian Z., Pei Y., Zareipour H., Chen N.
- Strategies for optimizing the power output of microbial fuel cells: Transitioning from fundamental studies to practical implementation
Chen S., Patil S.A., Brown R.K., Schröder U.
- Review of models for integrating renewable energy in the generation expansion planning
Dagoumas A.S., Koltsaklis N.E.

- Microgrids as a resilience resource and strategies used by microgrids for enhancing resilience
Hussain A., Bui V.-H., Kim H.-M.

- Human-in-the-loop HVAC operations: A quantitative review on occupancy, comfort, and energy-efficiency dimensions

Jung W., Jazizadeh F.

- Advances in seasonal thermal energy storage for solar district heating applications: A critical review on large-scale hot-water tank and pit thermal energy storage systems

Dahash A., Ochs F., Janetti M.B., Streicher W.

- Mechanical modulations for enhancing energy harvesting: Principles, methods and applications

Zou H.-X., Zhao L.-C., Gao Q.-H., Zuo L., Liu F.-R., Tan T., Wei K.-X., Zhang W.-M.

- A review on various temperature-indication methods for Li-ion batteries

Raijmakers L.H.J., Danilov D.L., Eichel R.-A., Notten P.H.L.

- Recent advances in fuel cells based propulsion systems for unmanned aerial vehicles

Pan Z.F., An L., Wen C.Y.

Program at a Glance

Time	Day 1: Dec 1			
12:00-12:30	Opening			
12:30-13:15	keynote 1 (Phil Taylor)			
13:30-14:15	keynote 2 (Xiliang Zhang)			
14:15-14:30	Tea/Coffee Break			
	1-A1	1-B1	1-C1	1-D1
14:30-14:40	446	416	115	415
14:40-14:50	81	495	185	266
14:50-15:00	432	499	232	249
15:00-15:10	510	484	308	70
15:10-15:20	178	475	260	609
15:20-15:30	476	599	433	652
15:30-15:40	632	7	457	660
15:40-15:50	618	683	187	338
15:50-16:00	4	692	269	342

Time	Day 2: Dec 2			
	2-A1	2-B1	2-C1	Room P
12:00-12:10	212	233	559	Energy System and Climate Governance in the Post COVID-19 Pandemic Era (08:00-11:00)
12:10-12:20	386	448	235	
12:20-12:30	258	567	501	
12:30-12:40	565	411	460	
12:40-12:50	558	517	500	
12:50-13:00	194	602	483	
13:00-13:10	102	452	274	
13:10-13:20	291	385	394	
13:20-13:30	52	144	170	
13:30-13:40	554		293	
13:40-14:00	Tea/Coffee Break			
14:00-14:45	keynote 3 (Reinhard Madlener)			
15:00-15:45	keynote 4 (Ju Li)			

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Program at a Glance

Time	Day 3: Dec 3			
	3-A1	3-B1	3-C1	Room P
11:50-12:00	72	413	571	Energy and COVID-19 (12:00-15:30)
12:00-12:10	128	201	283	
12:10-12:20	124	455	657	
12:20-12:30	75	387	498	
12:30-12:40	88	620	474	
12:40-12:50	427	285	133	
12:50-13:00	406	261	490	
13:00-13:10	357	140	82	
13:10-13:20	55	173	531	
13:20-13:30	Tea/Coffee Break			
	3-A2	3-B2	3-C2	3-D2
13:30-13:40	43	392	176	541
13:40-13:50	306	529	463	41
13:50-14:00	465	62	444	698
14:00-14:10	16	396	156	122
14:10-14:20	204	205	245	576
14:20-14:30	248	479	604	508
14:30-14:40	165	699	560	89
14:40-14:50	155	412	653	591
14:50-15:00	242	581	307	270
15:00-15:15	Tea/Coffee Break			
15:15-16:00	keynote 5 (Kammen Daniel)			

Program at a Glance

Time	Day 4: Dec 4			
	4-A1	4-B1	Room S	Room P
11:50-12:00	229	221	Energy and COVID-19	Accelerated climate change and the Food-Energy-Water-Nexus (12:00-14:00)
12:00-12:10	151	164		
12:10-12:20	345	217		
12:20-12:30	149	252		
12:30-12:40	661	190		
12:40-12:50	468	519		
12:50-13:00	154	419		
13:00-13:10	481	220		
13:10-13:20		295		
13:20-13:30	Tea/Coffee Break			
	4-A2	4-B2	Room S	4-D2
13:30-13:40	679	207	Energy and COVID-19	247
13:40-13:50	135	514		237
13:50-14:00	180	66		100
14:00-14:10	79	148		563
14:10-14:20	132	552		443
14:20-14:30	244	347		98
14:30-14:40	172	163		337
14:40-14:50	145	302		454
14:50-15:00	401	227		
15:00-15:15	Tea/Coffee Break			
15:15-16:00	keynote 6 (Xiaohua Xia)			

Program at a Glance

Time	Day 5: Dec 5			
	5-A1	5-B1	5-C1	Room P
12:00-12:10	181	512	214	P2P Energy Management and Trading (12:00-14:00)
12:10-12:20	215	196	450	
12:20-12:30	575	189	80	
12:30-12:40	234	251	569	
12:40-12:50	213	375	276	
12:50-13:00	162	147	67	
13:00-13:10	574	533	592	
13:10-13:20	614	530	425	
13:20-13:30	491	83	424	
13:30-13:40	152	360	286	
13:40-13:50	537	677		
13:50-14:00	Tea/Coffee Break			
	5-A2	5-B2	5-C2	5-D2
14:00-14:10	405	9	668	126
14:10-14:20	546	42	598	314
14:20-14:30	282	158	99	310
14:30-14:40	435	507	381	288
14:40-14:50	104	236	142	619
14:50-15:00	350	257	114	290
15:00-15:10	358	45	594	430
15:10-15:20	551	106	379	239
15:20-15:30	93	663	595	59
15:30-15:40	417	568	597	63
15:40-15:50	548	58	168	209

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Program at a Glance

Time	Day 6: Dec 6			
	6-A1	6-B1	6-C1	Room P
11:50-12:00	561	734	143	Scholarly Publication (12:00-14:00)
12:00-12:10	256	250	573	
12:10-12:20	332	486	488	
12:20-12:30	195	174	664	
12:30-12:40	434	61	482	
12:40-12:50	685	665	649	
12:50-13:00	193	361	603	
13:00-13:10	691	32	659	
13:10-13:20	456		688	
13:20-13:30	Tea/Coffee Break			
	6-A2	6-B2	6-C2	6-E2
13:30-13:40	681	197	610	169
13:40-13:50	428	272	210	449
13:50-14:00	121	109	391	509
14:00-14:10	300	389	384	90
14:10-14:20	587	369	378	64
14:20-14:30	374	673	505	494
14:30-14:40	625	129	639	278
14:40-14:50	626	191	183	53
14:50-15:00	473	623		224
15:00-15:15	Tea/Coffee Break			
15:15-16:00	Keynote 7 (Denise Mauzerall)			

Program at a Glance

Time	Day 7: Dec 7			
	7-A1	7-B1	7-C1	Room P
11:50-12:00	466	373	518	Women in Applied Energy (12:00-13:30)
12:00-12:10	351	459	263	
12:10-12:20	496	684	216	
12:20-12:30	421	48	120	
12:30-12:40	368	708	6	
12:40-12:50	123	707	331	
12:50-13:00	636	656	520	
13:00-13:10	638	471	564	
13:10-13:20	71	725	328	
13:20-13:30	Tea/Coffee Break	157	Tea/Coffee Break	
	7-A2	7-B2	7-C2	7-E2
13:30-13:40	348		534	645
13:40-13:50	621		426	616
13:50-14:00	199		54	97
14:00-14:10	353		134	137
14:10-14:20	615		549	150
14:20-14:30	339		50	318
14:30-14:40	336		262	487
14:40-14:50	477		273	47
14:50-15:00	198			77
15:00-15:15	Tea/Coffee Break			

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Program at a Glance

Time	Day 8: Dec 8				
	8-A1	8-B1	8-C1	Room P	
12:00-12:10	439	206	646	12:00-12:20	600
12:10-12:20	502	478	469	12:20-12:40	608
12:20-12:30	624	613	255	12:40-13:00	654
12:30-12:40	407	225	112	13:10-13:30	577
12:40-12:50	253	87	410	13:30-13:50	630
12:50-13:00	377	65	704	13:50-14:10	667
13:00-13:10	125	228	313	14:10-14:20	453
13:10-13:20	131	472	317	14:20-14:30	238
13:20-13:30	693	271	480	14:30-14:40	362
13:30-13:40	68	298	706	14:40-15:00	DISCUSSION
13:40-13:50	414	10	662		
13:50-14:00	Tea/Coffee Break				
	8-A2	8-B2	8-C2	8-E2	
14:00-14:10	107	586	629	91	
14:10-14:20	516	380	640	467	
14:20-14:30	139	497	136	111	
14:30-14:40	402	85	167	127	
14:40-14:50	315	393	153	544	
14:50-15:00	192	279	464	141	
15:00-15:10	184	550	265	470	
15:10-15:20	8	60	171	436	
15:20-15:30	329	420	511	84	
15:30-15:40	335	588	513	334	
15:40-15:50	538	589	535	292	
15:50-16:00	695	712	161	711	

Time	Day 9: Dec 9			
	9-A1	9-B1	9-C1	Room P
12:00-12:10	103	211	687	Big Data Analytics for Smart Energy Systems (12:00-14:00)
12:10-12:20	422	343	208	
12:20-12:30	689	735	138	
12:30-12:40	321	703	372	
12:40-12:50	259	596	528	
12:50-13:00	95	301	526	
13:00-13:10	705	524	296	
13:10-13:20	643	226	146	
13:20-13:30	231	319	557	
13:30-13:40	686	637	540	
13:40-13:50	525	651	175	
15:15-16:00	Keynote 8 (Eric Masanet)			

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Program at a Glance

Time	Day 10: Dec 10			
	10-A1	10-B1	10-C1	Panel
12:00-12:10	398	304	200	From AR to AI in the Energy Industry (13:00-14:30)
12:10-12:20	390	493	543	
12:20-12:30	222	264	46	
12:30-12:40	545	352	309	
12:40-12:50	130	275	119	
12:50-13:00	92	284	320	
13:00-13:10	188	365	404	
13:10-13:20	462	294	527	
13:20-13:30	371	438	322	
13:30-13:40	650	605	642	
13:40-13:50	622	696	330	
13:50-14:00	Tea/Coffee Break			
	10-A2	10-B2	10-C2	10-E2
14:00-14:10	281	408	268	442
14:10-14:20	539	578	395	305
14:20-14:30	590	562	312	323
14:30-14:40	44	182	246	118
14:40-14:50	612	56	732	694
14:50-15:00	287	409	447	326
15:00-15:10	721	593	366	96
15:10-15:20	223	627	355	700
15:20-15:30	607	451	346	277
15:30-15:40	678	397	635	327
15:40-15:50	289	311	333	324
15:50-16:00	344	340	671	325
16:00-17:00	Panel: Negative Emissions Technologies			

Note: We follow GMT+1 time zone; Please join in ICAE 2020 by ZOOM (<https://zoom.us/>); We will send the password of ZOOM meetings to the attendees through Email.

Speaker's Guide

Presentation

As ICAE2020 will be a virtual conference, the poster session has been cancelled and all papers will be oral presentations.

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

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

Prepare a short bio, around 50words, and share it in chat of Zoom

Your presentation should be in accordance with your allocated time. It is 10mins for each paper, including Q&A. Please always refer to the latest conference program, which can be downloaded from the conference website 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 icae2020@applied-energy.org.

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

Zoom ID and Password

Room P ID: 815 4584 0940 PW: 885561 (OPEN)

Room S ID: 856 8629 1439 PW: 121889 (OPEN)

Room A ID: 834 2004 1773

Room B ID: 858 6672 7312

Room C ID: 870 9438 9054

Room D ID: 876 3940 8616

Room E ID: 893 5462 6543

The passwords of conference rooms will be sent by email every day before the opening

Speaker's Guide

Time Zone Converter

City Location & Time Zone	Time				
Stockholm, GMT+1, Conf. Time	12:00	13:00	14:00	15:00	16:00
London, GMT+0	11:00	12:00	13:00	14:00	15:00
Johannesburg, GMT+2	13:00	14:00	15:00	16:00	17:00
New Delhi, GMT+5:30	16:30	17:30	18:30	19:30	20:30
Beijing, GMT+8	19:00	20:00	21:00	22:00	23:00
Tokyo, GMT+9	20:00	21:00	22:00	23:00	0:00
San Paulo, GMT-3	8:00	9:00	10:00	11:00	12:00
New York, Toronto, GMT-5	6:00	7:00	8:00	9:00	10:00
San Francisco, GMT-8	3:00	4:00	5:00	6:00	7:00

Panel Sessions

Overview

- Energy System and Climate Governance in the Post COVID-19 Pandemic Era
Dec. 2nd 08:00-11:00 (GMT+1)
- Energy and COVID-19
Part I Panel Discussion: Dec. 3rd 12:00-15:30 (GMT+1)
Part II Paper Session: Dec. 4th 12:00-15:30 (GMT+1)
- Accelerated climate change and the Food-Energy-Water-Nexus
Dec. 4th 12:00-14:00 (GMT+1)
- P2P Energy Management and Trading
Dec. 5th 12:00-14:00 (GMT+1)
- Scholarly Publication
Dec. 6th 12:00-14:00 (GMT+1)
- Women in Applied Energy
Dec. 7th 12:00-13:30 (GMT+1)
- Energy Efficient Freight Transport and Logistics
Dec. 8th 12:00-14:30 (GMT+1)
- Big Data Analytics for Smart Energy Systems
Dec. 9th 12:00-14:00 (GMT+1)
- From AR to AI in the Energy Industry
Dec. 10th 13:00-14:30 (GMT+1)
- Negative Emissions Technologies
Dec. 10th 16:00-17:00 (GMT+1)

Workshop

Energy and COVID-19

Part I Panel Discussion: Dec. 3rd 12:00-15:30 (GMT+1)

Part II Paper Session: Dec. 4th 12:00-15:30 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

Room S ID: 856 8629 1439 PW: 121889

Workshop

Energy and COVID-19

Part I Panel Discussion: Dec. 3rd 12:00–15:30 (GMT+1)

(Zoom room ID: 815 4584 0940 Passcode: 885561)

Part II Paper Session: Dec. 4th 12:00–15:30 (GMT+1)

(Zoom room ID: 856 8629 1439 Passcode: 121889)

Governments' responses to COVID-19 indicate a clear willingness to respond with funding at scale to counter immediate public health impacts. Control of conventional or priority pollutants (especially PM2.5, which is linked to higher risk of susceptibility to COVID-19) is attracting increased scale of investment which has not been forthcoming for carbon mitigation pathways envisioned under the Paris Agreement. As there is not sufficient time to address Covid19 and climate change independently, increased financial stimulus to support economic recovery from the pandemic should be crafted to include "no regrets" investments in conventional pollution control which also deliver quantifiable climate change benefits.

Recovering from Covid19 has implications for energy supply chains; industrial production; urban transport and energy services; and social infrastructure including retrofit and new designs for public buildings, schools, hospitals, etc.

The workshop will discuss how the Covid19 has impacted energy supply chains with a focus on Asia and the Pacific, with presentations from multiple stakeholders including public and private sector, multilateral development banks, and academia.

Panel Discussion (Dec. 3rd) (Zoom room ID: 815 4584 0940 Passcode: 885561)

Moderator



Dr. Yongping Zhai
Asian Development
Bank

Dr. Yongping Zhai has been working on energy development in Asia and Africa for more than 30 years. He is currently Chief of Energy Sector Group of the Asian Development Bank, in charge of overall energy policy coordination and technical support to ADB energy sector operations. He is also in charge of developing energy sector knowledge work for ADB and interacts with worldwide energy sector partners. Prior to his current position, Dr. Zhai was ADB's Director of South Asia Energy Division (2010-2015), covering energy sector operations in Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka. In this capacity, he led ADB's support to renewable energy, energy efficiency and power trade in South Asia. He also served as ADB's Lead Energy Specialist (2008-2010), in charge of energy sector in Southeast Asia. From 1993 to 2000, Dr. Zhai was a Principal Program Coordinator/Public Utilities Economist at the African Development Bank (AfDB).

Speakers



David Elzinga
Asian Development
Bank

ADB energy sector response to Covid19 GMT+1 12:00-12:20

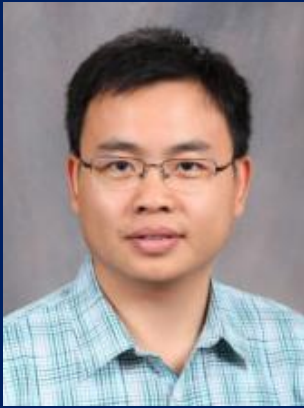
David engages across a range of energy system technologies to support ADB's investments in the energy sector. Previously at the UN Economic Commission for Europe, David's focus was on the role of gas and electricity in sustainable energy systems. At the International Energy Agency (IEA), David was the lead author for Energy Technology Perspectives publication. He also led the IEA's work on electricity system technologies, such as smart grids. Over the course of his career, David has worked in the energy and climate fields for over 20 years, with focus areas of technology, policy, and analysis in both private and public sectors. In these roles he developed markets, deployed renewable and energy efficiency technology and has advised various governments at the local and national levels on energy policy. Speaking at numerous events globally, he carries the message of appropriate technology use and deployment.



Yoshiki Yamagata
National Institute for
Environmental
Studies, Japan

Urban Carbon Mapping of Roads under The COVID-19 Situation GMT+1 12:20-12:40

Prof. YOSHIKI YAMAGATA graduated from the University of Tokyo (PhD in System Science) in 1985. Since 1991, he works at the National Institute for Environmental Studies (NIES). He is also afflicted as a visiting scholar at International Institute for Applied Systems Analysis (IIASA, Vienna) and Institute of Statistical Mathematics (ISM, Tokyo). His recent research topics include: Land use scenario analysis, Urban resilience modeling, Urban systems design for smart communities.



Prof. Le Xie

Professor and
Chancellor EDGES
Fellow, Assistant
Director-Energy
Digitization, Texas
A&M Energy Institute

A Cross-Domain Data-driven Approach to Analyzing the Short-Run Impact of COVID-19 on the U.S. Electricity Sector

GMT+1 12:40-13:00

Dr. Le Xie is a Professor and Chancellor EDGES Fellow in the Department of Electrical and Computer Engineering at Texas A&M University, and the Assistant Director-Energy Digitization at Texas A&M Energy Institute. He received B.E. in Electrical Engineering from Tsinghua University in 2004, S.M. in Engineering Sciences from Harvard in 2005, and Ph.D. in Electrical and Computer Engineering from Carnegie Mellon in 2009. His industry experience includes ISO-New England and Edison Mission Energy Marketing and Trading. His research interest includes modeling and control in data-rich large-scale systems, grid integration of clean energy resources, and electricity markets.

Dr. Xie received the U.S. National Science Foundation CAREER Award, and DOE Oak Ridge Ralph E. Powe Junior Faculty Enhancement Award. He was awarded the 2017 IEEE PES Outstanding Young Engineer Award. He was recipient of Texas A&M Dean of Engineering Excellence Award, ECE Outstanding Professor Award, and TEES Select Young Fellow. He serves or have served on the Editorial Board of IEEE Transactions on Smart Grid, IET Transaction on Smart Grid, and Foundations and Trends in Electric Energy Systems. He is the founding chair of IEEE PES Subcommittee on Big Data & Analytics for Grid Operations. His team received the Best Paper awards at North American Power Symposium 2012, IEEE SmartGridComm 2013, HICSS 2019, IEEE Sustainable Power & Energy Conference 2019, and IEEE PES General Meeting 2020.



Dr Xiaonan Wang

National University of
Singapore

Energy and environment resilience facing COVID-19

GMT+1 13:00-13:20

Dr Xiaonan Wang is an assistant professor in the Department of Chemical and Biomolecular Engineering at the National University of Singapore (NUS). She received her BEng from Tsinghua University in 2011 and PhD from University of California, Davis in 2015. After working as a postdoctoral research associate at Imperial College London, she joined NUS as an assistant professor since 2017. Her research focuses on the development of intelligent computational methods including multi-scale modelling, optimization, data analytics and machine learning for applications in advanced energy, environmental and manufacturing systems to support smart and sustainable development. She is leading a Smart Systems Engineering research group at NUS of more than 20 team members as PI and also the deputy director of the Accelerated Materials Development programme in Singapore. She has published more than 50 peer-reviewed papers, organized and chaired several international conferences, and delivered more than 40 presentations and invited talks at conferences and universities on five continents. She was recognized as an IChemE Global Awards Young Researcher finalist and selected for Royal Society International Exchanges Award, as well as several best paper awards at IEEE and Applied Energy conferences and journals.

Coffee Break

GMT+1 13:20-13:30



Jinmiao Xu

Energy Specialist
Energy Sector Group,
Sustainable
Development and
Climate Department,
Asian Development
Bank

Disease resilient and energy efficient centralized air-conditioning system in public buildings

GMT+1 13:50-14:10

Mr Jinmiao Xu is an energy specialist with more than 15 years of experience in energy field. He works in energy sector group of sustainable development and climate change of ADB and responsible for (i) contribute to ADB's energy sector quality-at-entry and innovations, focusing on renewable energy and conventional clean energy power generation including cutting edge technology, system integration technologies and energy policy; (ii) provide technical advice and support to lending and non-lending operations in the regional departments; (iii) process and administer regional technical assistance; (iv) contribute to the formulation and implementation for regional cooperation and integration; (v) conduct knowledge work.

Prior to ADB, he had abundant working experience on leading R&D projects, designing and managing thermal power plant mechanical engineering. His expertise includes domestic and global energy and environmental technologies, policies, and programs.

Mr. Xu received BS (2005) in Environmental Engineering from North China Electric Power University, and MS (2011) in Thermal Engineering from the Tsinghua University. He has more than 14 published academic papers, 2 authorized patents and 2 ministerial awards.



Prof. Fengqi You

Cornell University

Energy and Resource Recovery under the COVID-19 Pandemic to Alleviate Health and Environmental Concerns

GMT+1 14:10-14:30

Prof. Fengqi You is Roxanne E. and Michael J. Zak Professor at Cornell University and Associate Director of Cornell Energy Institute. His recent awards include NSF CAREER Award (2016), AIChE Sustainable Engineering Research Excellence Award (2017), Computing and Systems Technology (CAST) Outstanding Young Researcher Award (2018), Cornell Engineering Research Excellence Award (2018), ACS Sustainable Chemistry & Engineering Lectureship Award (2018), AIChE Excellence in Process Development Research Award (2019), Award for Innovations in Green Process Engineering (2020), Mr. & Mrs. Richard F. Tucker Excellence in Teaching Award (2020), ASEE Curtis W. McGraw Research Award (2020), and American Automatic Control Council O. Hugo Schuck Award (2020). He is currently an Editor of Computers & Chemical Engineering, an associate editor of Science Advances and IEEE Transactions on Control Systems Technology, and an editorial board member of AIChE Journal, ACS Sustainable Chemistry & Engineering and Industrial & Engineering Chemistry Research. His research group website is www.peese.org

Discussion

GMT+1 14:50-15::30

S1-COVID-19 Impacts on Power Systems **Chair: Guangchun Ruan**

1. Analysis of Electricity Demand of Pakistan During the COVID-19 Pandemic (ID: 606)
Presenter: Ahmad Nadeem (GMT+1 12:00-12:10)
 2. Impact of COVID-19 on the Indian Power Sector (ID: 267)
Presenter: Manu Shivanand Suvarna (GMT+1 12:10-12:20)
 3. A robust and sustainable microgrid to resist energy disruption during a pandemic (ID: 395)
Presenter: Abhishek Kumar (GMT+1 12:20-12:30)
 4. Effect of the COVID-19 pandemic at secondary power distribution (ID: 676)
Presenter: Sebastián García Caro (GMT+1 12:30-12:40)
 5. How the German and other European electricity systems behaved during the COVID-19 pandemic
Presenter: Martin Weibelzahl (GMT+1 12:40-13:00)
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-

S2-COVID-19 Impacts on Emissions **Chair: Guangchun Ruan**

1. Urban Carbon Mapping of Roads under The COVID-19 Situation: The Case of Tokyo 23 Wards (ID: 580)
Presenter: Yoshiki Yamagata (GMT+1 13:00-13:10)
 2. Change of CO2 Emissions in Tokyo under The COVID-19 Situation: Urban Carbon Mapping Approach (ID: 579)
Presenter: Takahiro Yoshida (GMT+1 13:10-13:20)
 3. The Effect of Covid-19 Pandemic on Energy Demand, Carbon Emission and Household Budget of Households in England due to Working from Home (ID: 522)
Presenter: Arijit Sen (GMT+1 13:20-13:30)
 4. Impacts of fuel export and efficiency on carbon emission in Beijing: readiness for environmental transition before COVID 19 (ID: 159)
Presenter: Xiaoting Sun (GMT+1 13:30-13:40)
-
-

Coffee Break
GMT+1 13:40-13:50

S3-COVID-19 Impacts on Pollutions **Chair: Dan Millison**

1. Heterogeneous Effects of COVID-19 Lockdown Measures on Air Quality in Northern China (ID: 536)
Presenter: Junfeng Wang (GMT+1 13:50-14:00)
 2. Economic Growth, Pollution, and COVID-19 Deaths in Hubei Area. A Deep Learning Imaging Evidence (ID: 671)
Presenter: Cosimo Magazzino (GMT+1 14:00-14:10)
 3. Novel Energy Systems Design for Treating Waste Personal Protective Equipment (ID: 179)
Presenter: Xiang Zhao (GMT+1 14:10-14:20)
-
-

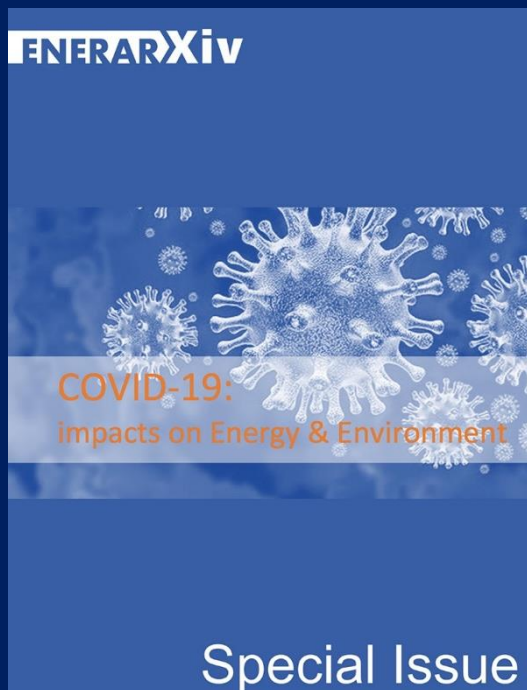
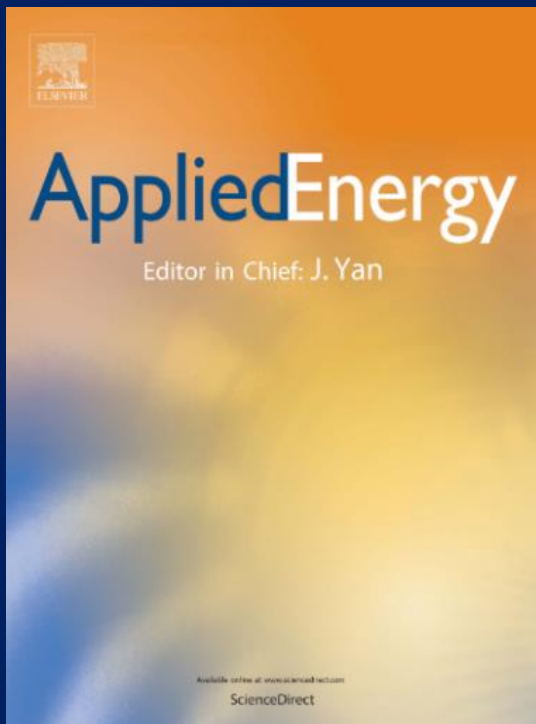
-
4. A Fresh (Air) Look at Ventilation for Covid-19: Estimating the Global Energy Savings Potential of Coupling Natural Ventilation with Novel Radiant Cooling Strategies (ID: 672)
Presenter: Dorit Aviv (GMT+1 14:20-14:30)
-
-

S4-COVID-19 Impacts on Markets

Chair: Dan Millison

-
1. Understanding cold-chain challenges for COVID-19 vaccination (ID: 716)
Presenter: Bing Xu and Toby Peters (GMT+1 14:30-14:40)
2. Green investments in buildings after the COVID-19 pandemic: the case of Italy (ID: 506)
Presenter: Fabrizio Ascione (GMT+1 14:40-14:50)
3. Impact of COVID-19 Lockdown Measures on Energy Supply Chain (ID: 675)
Presenter: Ammar Bahman (GMT+1 14:50-15:00)
4. The Covid-19 Crisis as a Metric for Triggering Energy Transition: Elements for Scenarios (ID: 356)
Presenter: Claire Caumel (GMT+1 15:00-15:10)
5. Energy, environmental, and economic performances of N95 respirators treatment methods (ID: 458)
Presenter: Yanqiu Tao (GMT+1 15:10-15:20)
6. Equilibrium Oil Market Share under the COVID-19 Pandemic (ID: 670)
Presenter: Xiaojun Chen (GMT+1 15:20-15:30)
-
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Special Issue & Preprints



Special Issue on "COVID-19 impacts on Energy & Environment"

Topics of interest include, but are not limited to, the following:

- Impacts on Energy Production and Consumption
- Impacts on Energy Supply Chain
- Impacts on User Behaviors
- Energy Resilience Assessment under COVID-19
- National Energy Security under COVID-19
- Emergency Preparedness and Management on Energy Systems under COVID-19
- Future Energy Market after COVID-19
- Challenges and Opportunities for Energy Transformation after COVID-19
- Impacts on the Environment including Climate Changes
- Artificial Intelligence and Digitalisation in Energy

We welcome papers in some specific topics such as:

- Energy systems under lockdown and work resumption
- Climate change emissions by COVID-19
- Challenges in social resilience thrown up by the crisis and their impacts on energy systems
- Far-reaching influences on user-side consumption behaviors

For more information, please see:

- <https://www.journals.elsevier.com/applied-energy/call-for-papers/special-issue-on-covid-19-impacts-on-energy-and-environment>
- <https://www.enerarxiv.org/page/category.html?id=7>

Panel Discussion

Energy System and Climate Governance in the Post COVID-19 Pandemic Era

Dec. 2nd 08:00-11:00 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

International Conference on Applied Energy

December 1-10, 2020

Panel Discussion

Energy System and Climate Governance in the Post

COVID-19 Pandemic Era

Dec. 2nd 08:00–11:00 (GMT+1)

The COVID-19 Pandemic has been heavily damaging the world economy and significantly influencing the issues of climate change and energy both from supply side and consumption side. Studies show that during the lockdown and quarantine period, due to the worldwide economic slowdown, global energy consumption and CO₂ emissions decreased temporarily. However, as the economy reopens, energy use and carbon emissions are increasing rapidly. Though the COVID-19 Pandemic is predicted as a New Normal and the world economy will experience a stagnation, we still concern that the large-scale stimulating policies may induce a black and high carbon economic recovery. In particular, we concern that fossil fuel consumption might be rebounded and causes more CO₂ emissions and environment pollutions. Hopefully, many countries like the UK, Germany, Japan, China, etc. announced their roadmap and timetable of carbon neutrality by 2050 or 2060 and promised to increase renewable energy as well as to decrease fossil energy largely. Consequently, we acknowledged that climate mitigation is still a priority of global governance and needs to pay even more efforts to apply the Paris Agreement and the United Nation's SDGs. Under this background, we organized this special panel to discuss the impacts of the COVID-19 on the world economy and energy consumption, and the issues of climate change, energy policy and international cooperation. We are pleased to invite some world well-known scholars in these fields to give keynote speeches and explore how to design a Low-carbon Energy System aims at a Zero-emission Sustainable Society in the post-COVID-19 Pandemic Era.

Panel Discussion Part I (Dec. 2nd)

Chair



Prof. Jinjun XUE

Mälardalen University,
Nagoya University

GMT+1 08:00-08:05

Stockholm 08:02-08:05

Opening Address: Energy System and Climate Governance in a Post COVID-19 Pandemic Era

Short Bio

Dr. Jinjun Xue is a Professor of Nagoya University, Japan; Co-Director of China Institute of Global Low-Carbon Economy, Visiting Researcher at Energy Research Institute of National Development and Reform Commission (NDRC). Currently he is a guest Professor at Future Energy Center of Mälardalen University, Sweden. He is also a visiting researcher at Institute of Energy Economics at Tsinghua University, Institute of Science and Technology Strategy Studies of Chinese Academy of Sciences, Chief Scientist of Hubei Collaborative Innovation Center for Carbon Emission Trading System etc. He published many papers in journals such as Science, Nature Communications, Nature Food, Nature Communications, Applied Energy, Energy Economics etc.

Moderator



Ms. Qian SUN

Southwest Petrol
University

Short Bio

Qian Sun is a project manager of energy economy at China Petrol Industrial Publisher. She served as a newscaster of Macau TV Station, chaired many large events for UNDP, China high-end network conference, Seno-US relationship and information governance, China open tennis live broadcast, China National Forum of Nature Gas Global Supply Chains, China National Exhibition of Scientific and Technological Innovations, etc. She also has some publications on Energy Economics. Currently she is an energy economics major Ph.D. candidate at Southwest Petrol University of China.

Speakers



Dr. Hongpeng LIU

United Nations ESCAP

GMT+1 08:05-08:20

Bangkok 14:05-14:20

Enhancing energy security for a greener, more resilient and inclusive energy future

Short Bio

Mr. Hongpeng Liu, Director, Energy Division, United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). He is leading the energy team in ESCAP to promote regional energy cooperation with focus on implementation of the Sustainable Development Goal 7 in achieving the 2030 Agenda for Sustainable Development and energy connectivity for regional economic cooperation and integration. His work ranges from conducting policy studies, organizing intergovernmental meetings & policy dialogues and providing advisory services to facilitating regional cooperation on sustainable energy development in Asia and the Pacific. He has over 30 years' experience on sustainable energy. Prior to joining the UN, he served as government official at different Ministries and Commissions of China.



Prof. Xunpeng SHI

University of Technology
Sydney

GMT+1 08:20-08:35

Melbourne 18:20-18:35

Economic and emission impact of supply chain destruction: a case study of Australia-China trade

Short Bio

Xunpeng (Roc) Shi is Principal Research Fellow at the Australia-China Relations Institute and Adjunct Fellow at the Institute for Sustainable Futures, University of Technology Sydney and Dean & Chief Economist of the Australian Energy Transition Institute. His research interests cover the full spectrum of energy issues, including fossil fuels, renewable and climate change. His areas of expertise include environmental and energy economics and policy, sustainable development and the Chinese economy, with sectoral focuses on coal, natural gas and renewables and regional focuses on Australia, China, ASEAN, and Northeast Asia.



Prof. Shaozhou QI

Wuhan University
Hubei University of
Economics

GMT+1 08:35-08:50

Beijing 15:35-15:50

Multi-dimensional assessment of the ETS pilot effect of China

Short Bio

Shaozhou QI is a professor in Economics and Management School, director of Climate Change and Energy Economics Study Center (CCEE) and director of the Center for European Studies, Wuhan University, China. He also serves as chief editor of Journal of Environment Economics Research, director of the Center of Hubei Cooperative innovation for Emissions Trading System and so on. He published more than 100 papers in academic journals and 6 books. He proposed more than 20 advisory reports and policy plans for the NDRC of China, Ministry of Science and Technology, Ministry of Commerce, and local governments. He is a Reviewer of IPCC AR5 and a major author of the 4th National Assessment Report on Climate Change of China and presiding over the project of the National key RESEARCH and Development Programs in terms of the national ETS and the Collaborative Project on Climate Change Risk Assessment between China and the UK.



Prof. Shunsuke MANAGI

Kyushu University

GMT+1 08:50-09:05

Tokyo 16:50-17:05

Energy and environment resilience facing COVID-19

Short Bio

Shunsuke Managi is the Distinguished Professor & Director of Urban Institute at the Kyushu University, Japan. He has served as an expert on energy and environmental policy. He is a lead author for the Intergovernmental Panel on Climate Change (IPCC), a coordinating lead author for the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), a director for Inclusive Wealth Report 2018 (IWR 2018), an editor of "Economics of Disasters and Climate Change", "Environmental Economics and Policy Studies", and "Resource and Energy Economics, and is the author of "Technology, Natural Resources and Economic Growth: Improving the Environment for a Greener Future" and editor of "The Routledge Handbook of Environmental Economics in Asia.

Discussion GMT+1 09:05-09:30

Stockholm 9:05-09:30; Bangkok 15:05-15:30; Beijing 16:05-16:30; Tokyo 17:05-17:30; Melbourne 19:05-19:30

Panel Discussion Part II (Dec. 2nd)

Moderator

Qian SUN

Chair



Prof. Eva THORIN

Mälardalen University
(MDH)

GMT+1 09:30-09:35

Stockholm 09:30-09:35

Short Bio

Dr. Eva Thorin is a Professor in Energy Engineering and Research director for Future Energy Center, one of six research specializations at MDH. She is Vice-Dean of School of Business, Society and Engineering. She is involved in research both as a project leader, supervisor for PhD students and as a researcher. Her research concerns measurements, modeling and simulation of processes and systems for energy conversion with special emphasis on thermal and biological conversion of biomass to power, heat and biogas. She is leading the projects of SYDPOL-System Development for Power Plant Production Planning and Optimal Operations and the EU regional funds project, REMOWE, on waste-to-energy solutions and so on.



Prof. D'Maris

COFFMAN

University College London

GMT+1 09:35-09:50

London 08:35-08:50

UK Economy and Coronavirus

Short Bio

Prof. Hoffman is the Director (Head of Department) of BSCPM. She is the Professor in Economics and Finance of the Built Environment at the Bartlett. She joined UCL in September 2014 as a Senior Lecturer. In February 2017, she was appointed Interim Director of BSCPM. In late January 2018, she was appointed to my professorial chair.

She is an Editor-in-Chief of Elsevier's Structural Change and Economic Dynamics and on the honorary editorial boards of The Journal of Cleaner Production, Economia Politica, and the Chinese Journal of Population, Resources and Environment.



Prof. Klaus HUBACEK

University of Groningen

GMT+1 09:50-10:05

Amsterdam time

09:50-10:05

Long-term impacts of COVID-19 on climate targets

Short Bio

Klaus Hubacek is a Professor in Science, Technology and Society at the University of Groningen, the Netherlands. He is chair of Integrated Research on Energy, Environment and Society. His research focus is on conceptualizing and modeling the interactions between human and environmental systems. Klaus has published over 200 research articles and is recognized as highly cited researcher with multiple papers in the top 1% by citations. Klaus conducted studies for a number of national agencies in Europe, China, Japan, and the U.S., and international institutions such as the World Bank. Klaus is a lead author of the forthcoming assessment UN Intergovernmental Panel on Climate Change.



**Prof. Erick
DAHLQUIST**

Mälardalen University

GMT+1 10:05-10:20

Stockholm 10:05-10:20

How to speed renewable increases up

Short Bio

Started work at ASEA Research Sept 1975 in Nuclear power. Technical PM for development of Cross Flow Membrane filter and ABBs Black Liquor Gasification project. 1992- 1995 Department manager at ABB Corporate Research. 1996-2002 General Manger for the Product Responsible Unit "Advanced Control, Diagnostics, Optimization, Process Simulation in Pulp and paper" globally within ABB. Adjunct professor KTH. Chair professor at Mälardalen University since 2000. Dean 2004-2007. Member of editorial board for Journal of Applied Energy since 2007. Member of Swedish Royal Academy of Engineering, since 2011. Coordinator EU Horizon 2020 project FUDIPO. 20+ patents and 300+ Scientific publications.



Prof. Boqiang LIN

Xiamen University

GMT+1 10:20-10:35

Beijing 17:20-17:35

Energy Reform and Carbon Neutrality in China

Short Bio

Boqiang Lin is a "Chang Jiang Scholar" Distinguished Professor, and Dean of China Institute for Studies in Energy Policy, Xiamen University, and Editor: Energy Economics. He is a member of National Energy Consultation Committee under National Energy Commission; Member of National Energy Price Consultation Committee under National Development and Reform Commission; Guest Commentator for China Central TV and China National Radio. He is currently a member of the executive committee of Board of Stewards on Future of Energy of the World Economic Forum based in Davos Switzerland, He is also in the advisory boards of several world-level projects initiated by the World Economic Forum.

Discussion

GMT+1 10:35-10:55 Stockholm 10:35-10:55 Beijing 17:35-17:55

Conclusion Remarks by Jerry YAN

Chairman of the Organizing Committee of the 12th International Conference on Applied Energy (ICAE2020), editor-in-chief of Applied Energy

GMT+1 10:55-11:00 Stockholm 10:55-11:00 Beijing 17:55-18:00

All Time Zones:

London Time: 07:00-10:00.

Amsterdam Time: 08:00-11:00.

Beijing Time: 15:00-18:00.

Melbourne Time: 18:00-21:00.

Stockholm Time: 08:00-11:00.

Bangkok Time: 14:00-17:00.

Tokyo Time: 16:00-19:00

Panel Discussion

Accelerated climate change and the Food-Energy-Water-Nexus

Dec. 4th 12:00-14:00 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

**International Conference
on Applied Energy**

December 1-10, 2020

Panel Discussion

Accelerated climate change and the Food-Energy-Water-Nexus

Dec. 4th 12:00–14:00 (GMT+1)

The term 'anthropocene' refers to the epoch of global developments caused by the human impact on geology and the earth's ecosystem. It is currently characterized by an accumulation of extreme weather events, including the hottest summer on record in the Northern Hemisphere causing the second lowest Arctic sea ice minimum on record, a very destructive wildfire season in California and a persistent severe drought in Central and Eastern Europe as measured by NASA. The food-energy-water nexus (FEW-Nexus) represents key sectors of the Anthropocene increasingly and centrally impacted by the accelerating climate change.

In this panel, the interlinkages between the FEW nexus sectors and their embeddedness in the socio-economic-ecological system (SEES) will be considered and elaborated against the context of the accelerated climate change.

Panel Discussion (Dec. 4th)

Moderator



Dr. Holger Schlör
Forschungszentrum
Jülich

Holger Schlör studied economics at the University of Heidelberg and went on to complete his PhD in economics in Berlin. He received a scholarship from the German Marshall Fund and the Alfred Krupp von Bohlen und Halbach Foundation. He has conducted research at several scientific institutions and the German Parliament. He is currently working at Forschungszentrum Jülich in the Institute of Energy and Climate Research – Systems Analysis and Technology Evaluation (IEK-STE). His research here focuses on the fields of Sustainable Development, Food-Energy-Water-Nexus, Energy and Resource Economics and Energy Systems Analysis. The “Applied Energy 2017 Outstanding ICAE Paper” price was awarded to his paper: “The energy mineral society nexus – A social LCA model.” He is subject assistant editor of the Journal Applied Energy.



Dr. Sandra Venghaus
Forschungszentrum
Jülich

Sandra Venghaus received her B.A. in Environmental Science and Public Policy from Harvard University in 2004 and her PhD in Economics from the Leibniz University of Hannover, before she became a senior scientist at the Potsdam Institute for Climate Impact Research from 2009 until 2014. Her current research focuses on the dynamic modelling of complex socio-ecological systems with specific interest in evaluating the impacts of different political courses of action on social, economic, and environmental parameters embedded in the broader concept of sustainable development and, specifically, the nexus among food, energy and water resources. She is coordinator of the BioSC Competence Platform “Transform2Bio: Integrated Transformation Processes and their Regional Implementations: Structural Change from Fossil Economy to Bioeconomy.”

Speakers



Prof. Peter Palensky
Technische Universiteit
Delft

GMT+1 12:00-12:20

Multi-System Modeling and Digital Twins

Abstract

Systems of systems are hard to deal with. Complex dynamics, inter-dependent mechanisms, highly non-linear behavior, and its usual “glue” – the digital transformation – make such systems inaccessible to traditional, analytic methods. A way out is numerical modeling, especially via co-simulation. It allows the dynamic combination of several – potentially completely incompatible – numerical models in order to investigate their joint properties. Reality – i.e. markets, supply chains, weather, power systems, people, etc. – is coupled, and so should be our models.

This talk will introduce you into the field of co-simulation, how it can be used to describe systems of systems such as multi-domain smart grids, and explain what digital twins are and how they can be used to optimize such complex systems in design and operations.

Short Bio

Peter Palensky is Professor for intelligent electric power grids at TU Delft, Netherlands. Before that he was Principal Scientist for Complex Energy Systems at the Austrian Institute of Technology, associate Professor at the University of Pretoria, South Africa, Department of Electrical, Electronic and Computer Engineering, University Assistant at the Vienna University of Technology, Austria, and researcher at the Lawrence Berkeley National Laboratory, California. He is active in international committees such as IEEE and is Editor in Chief of the IEEE Industrial Electronics Magazine and associate editor for the IEEE Transactions on Industrial Informatics. His main research field is complex and integrated energy systems.



Prof. Nicola Cantore

UNIDO

GMT+1 12:20-12:40

Switching It Up: The Effect of Energy Price Reforms in Oman Abstract

For the most part the public debate on fossil fuel energy subsidies has been governed by two arguments. The economic one has gravitated towards the rationale of cost-competitiveness: The reduction of emissions requires a cutback of energy consumption which, when operating through the pricing mechanism, drives up the cost of inputs; increases in fossil fuel prices may therefore harm competitiveness. On the other hand, the environmental argument stresses the importance of cost transparency and externalities. However, there has also emerged a body of research which introduces a second layer to the economic argument and shows that an increase in energy prices may not necessarily be detrimental to economic performance. This study adds to this strand by providing unique insights into the effect of a change in fossil fuel subsidies on the manufacturing industry of an oil-rich Middle Eastern economy. Using a novel firm-level micro data set on Omani manufacturing enterprises, our work shows that increases in fossil fuel energy factor prices lead to improvements in productivity as well as efficiency and notable business upgrading. The findings in this paper indicate that subsidy reforms may not only be used to achieve environmental goals but may also drive upgrading and modernization processes of firms that can, ultimately, also improve economic performance.

Short Bio

Nicola Cantore holds a Ph.D in environmental economics and management at the University of York and a Ph.D in economics at the Università Cattolica del Sacro Cuore in Milan. He worked as a junior researcher at the FEEM (Fondazione ENI Enrico Mattei) in Milan, as a senior researcher at the Department of Agricultural Economics and Engineering of the University of Bologna and as a research fellow at the Overseas Development Institute in London. He served as a consultant for many organizations such as UNEP, UNDP and DFID. He is currently a researcher at the Department of Policy Research and Statistics of UNIDO where he was the coordinator of the Industrial Development Report 2016. His work covers capacity building activities, policy advice and publications in peer reviewed journals. His research interests include environment, development and structural change.



**Prof. Raimund
Bleischwitz**

University of Edinburgh

GMT+1 12:40-13:00

Climate change and the nexus – how can nexus analysis inform assessments of risks and opportunities

Abstract

The contribution proposes nexus analysis as a necessary complement for climate action. Nexus analysis adds useful risk criteria on using resources for the energy transition and their criticality; in addition, nexus analysis helps to transform the 'hard to abate sectors' and gives rise to re-using materials. The presentation will share findings on the macro-economics of scrap steel and delve into nexus planning for large-scale hydro-dams. It thus contributes to SDG delivery and a more circular economy.

Short Bio

Raimund Bleischwitz is Director of the Bartlett School of Environment, Energy and Resources (BSEER) and Chair in Sustainable Global Resources at the UCL Institute for Sustainable Resources. Raimund has been PI of an international collaboration project on the circular economy and resource efficiency with a special focus on China ('SINCERE'), and involved in projects on eco-innovation (Inno4SD, RECREATE) and on minerals (Minatura, Mica). He is a Global Fellow at the Smart Prosperity Institute (SPI), Canada, and Affiliate Professor at the Chinese SJTU. An economist by training, he did his PhD on resource productivity in 1997 and his Habilitation on knowledge-creating institutions in 2005, both pioneering research on those topics; the Habilitation was done in collaboration with the Max Planck Institute on Collective Goods in Bonn. In his twenty+ years of research he has made contributions on sustainability concepts, national strategies, innovation-inducing policy-mixes, drivers and institutions of transformative changes, and raw material conflicts. He is often invited as a speaker, acknowledged as a thought leader and influential policy adviser and cooperates with a variety of stakeholders. He was member of the European Commission's expert group on circular economy and systemic eco-innovation.



Prof. Bin Chen

Beijing Normal University

GMT+1 13:00-13:20

Land–water–energy nexus in agricultural management for greenhouse gas mitigation

Abstract

Agriculture plays an important role in global climate change. The interaction and efficiency of use of land, water, and energy in agricultural activities are the principal factors affecting greenhouse gas (GHG) emissions and food production. However, comprehensive analysis exploring the mechanism of the land–water–energy system in agricultural production remains lacking. This study developed such a framework based on regional agricultural GHG emissions by combining top-down analysis that considered cross-sectoral interactions with bottom-up analysis that addressed the context-specific conditions of resources and technology. We employed the proposed framework to analyze the interaction of land–water–energy and factors influencing agricultural GHG emissions and to explore mitigation measures based on a case study of the Sanjiang Plain (China). Results showed that if integrated technology improvements were adopted, e.g., advanced crop–soil nutrition management, groundwater protection measures, water-saving irrigation technology, and low-carbon energy technology, GHG emissions could be reduced without sacrificing food production.

Short Bio

Prof Bin Chen is a distinguished professor of environmental system modelling at Beijing Normal University. Dr. Chen has published over 200 peer-reviewed papers in international journals such as Science Advances, Nature Communications, Nature Climate Change, PNAS, etc. He is serving as Editor-in-Chief of Energy, Ecology and Environment, Executive Editor of Journal of Cleaner Production, Associate Editor of Frontiers of Earth Science, Subject Editor of Applied Energy, etc.

Discussion

GMT+1 13:20-14:00

Panel Discussion

P2P Energy Management and Trading

Dec. 5th 12:00-14:00 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

International Conference
on Applied Energy

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Panel Discussion

P2P Energy Management and Trading

Dec. 5th 12:00–14:00 (GMT+1)

Over the last few years, there has been extensive growth in small-scale distributed energy resources (DERs), which encompass behind-the-meter generation, energy storage, inverters, electric vehicles, and controllable loads at the household level. These small-scale resources can be utilized not only to manage the energy demand more efficiently but also to enable a significant mix of clean energy into the grid. However, to do so, it is important for the owners of these assets to actively participate in the energy market. As a consequence, peer-to-peer trading has emerged as a next-generation energy management technique for the smart grid that can enable the owners of small scale DERs - also known as prosumers - to actively participate in the energy market. With the prosumers in control of setting the terms of transactions and the delivery of goods and services, it is expected that the gain that the prosumers can reap from participating in peer-to-peer trading would be substantial. At the same time, the grid — consisting of generators, retailers, and distribution network system providers — can also obtain a significant benefit in terms of reducing peak demand, lowering investment and operational costs, minimizing reserve requirements, and improving power system reliability.

The workshop will discuss some recent results and advancement in peer-to-peer trading in electricity networks in recent years. There are five presentations by researchers from different regions including USA, UK, Australia, and Singapore.



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA



THE UNIVERSITY
of EDINBURGH

SWTAD
SINGAPORE UNIVERSITY OF
TECHNOLOGY AND DESIGN



AppliedEnergy
Editor in Chief: J. Yan

Panel Discussion (Dec. 5th)

Moderator



Dr. Wayes Tushar

The University of
Queensland

Dr Wayes Tushar is an Advanced Queensland Research Fellow at the School of Information Technology and Electrical Engineering of the University of Queensland (UQ). His fellowship is jointly sponsored by the State of Queensland through the Department of Science, Information Technology and Innovation, UQ, and Redback Technologies Ltd, Australia. Prior joining UQ, He was at SUTD as a Research Scientist of SUTD-MIT International Design Centre (IDC) from March 2015 to July 2017, and as a Postdoctoral Research Fellow of Engineering Product Development Pillar from September 2013 to February 2015. His previous employment also includes Visiting Researcher at NICTA, Australia (January 2013 - June 2013), Visiting Student Research Collaborator at Princeton University, USA (Summer 2011), and Lecturer at Presidency University, Dhaka (June 2007 - March 2009).

He received his B.Sc. degree in Electrical and Electronic Engineering from Bangladesh University of Engineering and Technology (BUET) in 2007, and the Ph.D. degree in Engineering from the Australian National University (ANU) in 2013.

Speakers



Dr Jan Alam

Pacific Northwest National
Laboratory

GMT+1 12:00-12:20

Challenges of Transitioning towards Decentralised Energy Management

Abstract

While the benefits of decentralised energy management systems and their importance for P2P-like energy trading platforms are being discussed within the research community, the associated challenges of transitioning also needs to be considered as well as the approach for addressing those. This presentation will summarise a few key challenges based on some utility interaction experience in the USA.

Short Bio

Dr Jan E Alam is a project manager and senior power systems engineer at Pacific Northwest National Laboratory (PNNL) where he has been working since October 2016. He manages a thrust area under Energy Storage Industry Acceptance program at PNNL, sponsored by the US DOE Office of Electricity. He also serves as the project manager and principal investigator in various PNNL efforts under multiple technical domains including grid integration of emerging resources and technologies. Before joining PNNL, he was engaged in solar PV and energy storage research in Australia and collaborated with multiple Australian utilities. Dr Alam also worked as an electric power industry professional in Bangladesh (2005-2010) and provided consulting services to the government agencies responsible for power sector development. He obtained Bachelor (2005) and Master (2009) degrees from Bangladesh University of Engineering and Technology, and PhD (2014) from University of Wollongong, Australia, all in electrical engineering. Dr. Alam is a senior member of IEEE.



Dr Sarmad Hanif

Pacific Northwest National
Laboratory

GMT+1 12:20-12:40

Engaging Consumers in Electricity Markets

Abstract

As power grids are transitioning from central to decentralized operations, electricity consumers are envisioned to be proactive in their energy procurement activities. This talk presents new methodologies to facilitate higher consumer engagement in power markets. Some existing literature from this field of study is presented along with real-life demonstrations.

Short Bio

Dr Sarmad Hanif is a power system engineer working primarily focusing on electricity distribution systems. His current work is towards developing contemporary technologies and methodologies to aid grid modernization efforts. His general interests include flexible demand modeling, demand response schemes, distribution grid analysis, power system steady state operation, energy markets and optimization theory.



Dr Thomas Morstyn

University of Edinburgh

GMT+1 12:40-13:00

Managing Distribution Network Constraints and Uncertainty Within Peer-to-peer Energy Trading Platforms

Abstract

Distribution locational marginal pricing and peer-to-peer (P2P) energy trading have each been proposed as alternatives to traditional retail pricing, with the aim of improving coordination between prosumers with distributed energy resources. Unidirectional locational pricing provides a scalable approach for coordinating demand, considering constraints and losses; while P2P trading allows prosumers to negotiate mutually beneficial bilateral transactions that increase the utilisation of their flexible resources. We present a new local energy market design which combines these two approaches and show it can create value, not just for prosumers, but also for the system as a whole.

Short Bio

Dr. Thomas Morstyn is a Lecturer in Power Electronics and Smart Grids with the School of Engineering at the University of Edinburgh. He leads the EPSRC project "A Networked Market Platform for Electric Vehicle Smart Charging", and he co-leads the EPSRC project "EnergyREV - Market Design for Scaling Up Local Clean Energy Systems". He is also an Associate with the Oxford Martin School at the University of Oxford. Thomas received the BEng (Hon.) degree from the University of Melbourne in 2011, and a PhD from the University of New South Wales in 2016, both in electrical engineering. Before undertaking his PhD, he spent two years working in Rio Tinto's Technology and Innovation Group. After completing his PhD he spent four years with the Energy and Power Group at the University of Oxford. His research interests include multi-agent control and market design for integrating distributed energy resources into power system operations.

Coffee Break

GMT+1 13:00-13:10



Dr Archie Chapman

The University of
Queensland

GMT+1 13:10-13:30

Transactive energy frameworks: From optimal power flow to peer-to-peer trading

Abstract

This talk will explore three different approaches to integrating small-scale distributed energy resources (DER) into low- and medium-voltage networks within a general transactive energy framework, namely: (i) uncoordinated approaches that only consider energy management of an individual user; (ii) coordinated approaches that orchestrate the response of several users by casting the energy management problem as an optimisation problem; and (iii) peer-to-peer energy trading that aims to better utilise the DER by establishing decentralised energy markets. Using these categories, we systematically classify proposed DER integration approaches and analyse their impact on network operation, taking account of the available levels of network awareness and goals of addressing system or consumer interests.

Short Bio

Dr Archie Chapman is a Senior Lecturer in Computer Science in the School of IT and Electrical Engineering at the University of Queensland. Archie develops and applies principled artificial intelligence, optimisation and machine learning methods to solve large-scale and dynamic allocation and scheduling problems. His applied research focuses on problems in future power systems, such as aggregating distributed energy resources to provide power network and system services, and market design for new network and system services. Prior to joining UQ, Archie was Research Fellow in Smart Grids at the University of Sydney, and a postdoc fellow at the University of Southampton, where he completed his PhD.



Dr Chau Yuen

Singapore University of
Technology and Design

GMT+1 12:30-12:50

Challenges and Prospects for Negawatt Trading in Light of Recent Technological Developments

Abstract

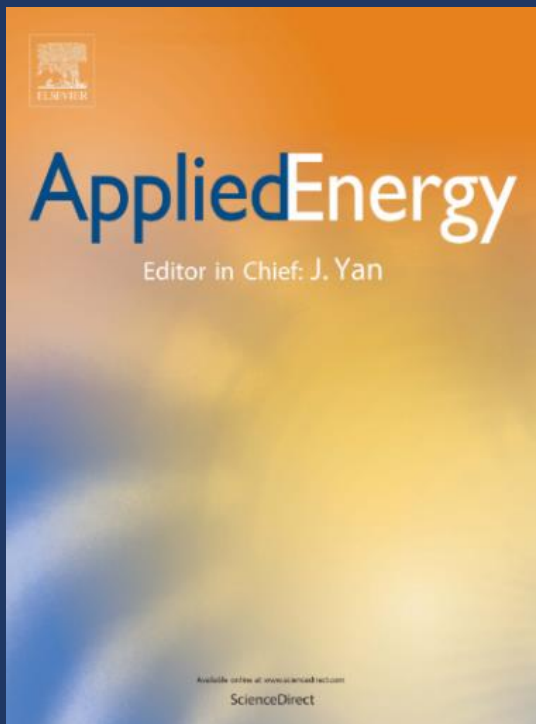
With the advancement of the smart grid and peer-to-peer trading, the current energy system is moving towards a future where people can buy what they need, sell when they have excess, and can trade the right of buying to other proactive consumers (prosumers). While the first two schemes already exist in the market, selling the right of buying - also known as negawatt trading - is something that is yet to be implemented. Despite being introduced in the mid-eighties as an idea with significant economic and environmental benefits, no serious developments have taken place over the past three decades. Here, we review the challenges and prospects of negawatt trading in light of recent technological advancements. Through reviewing a number of emerging technologies, we show that the necessary methodologies that are needed to establish negawatt trading as a feasible energy management scheme in the smart grid are already available.

Short Bio

Dr Chau Yuen received the BEng and PhD degree from Nanyang Technological University (NTU), Singapore, in 2000 and 2004 respectively. Dr Yuen was a Post Doc Fellow in Lucent Technologies Bell Labs, Murray Hill during 2005. During the period of 2006 - 2010, he worked at the Institute for Infocomm Research (I2R, Singapore) as a Senior Research Engineer. He joined the Singapore University of Technology and Design as an assistant professor from June 2010. He received IEEE Asia-Pacific Outstanding Young Researcher Award on 2012.

Discussion GMT+1 13:50-14:00

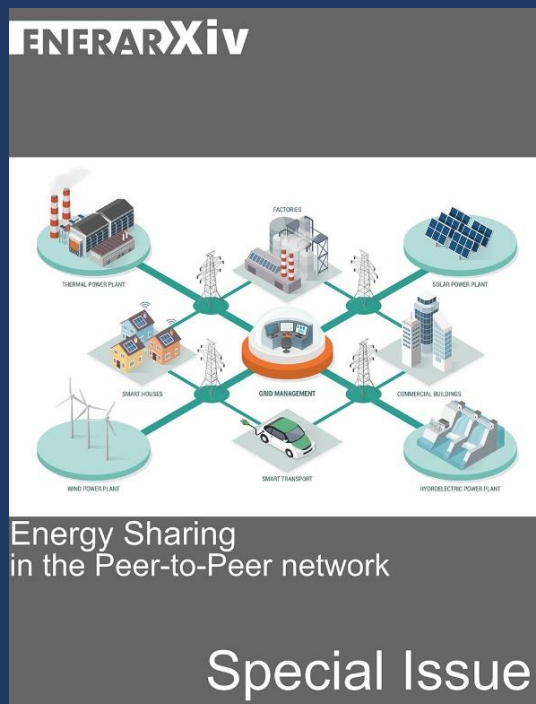
Special Issue & Preprints



Special Issue on "Energy Sharing in the Peer-to-Peer Network – Moving towards Real Implementation"

The targeted audience includes both academic researchers and industrial practitioners. The purpose of the special issue is to provide a platform to enhance interdisciplinary research and share the most recent ideas in the above-related fields. In particular, the published article would cover, but not limited to, the following topics of energy system via designing new peer-to-peer energy trading mechanisms:

- Electricity market regulation
- Sharing of energy storage
- Providing demand flexibility to the grid
- Trading of renewable energy in microgrid
- Designing prosumer engagement plans
- Modelling flexibility of distributed energy resources
- Providing voltage and frequency regulation service
- Pricing model
- Minimizing of network loss



For more information, please see:

- <https://www.journals.elsevier.com/applied-energy/call-for-papers/energy-sharing-in-the-peer-to-peer-network>
- <https://www.enerarxiv.org/page/category.html?id=8>

Panel Discussion

Scholarly Publication

Dec. 6th 12:00-14:00 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

**International Conference
on Applied Energy**

December 1-10, 2020

Panel Discussion

Scholarly Publication

Dec. 6th 12:00–14:00 (GMT+1)

Moderator



Prof. Jinyue Yan

Mälardalen University

Prof. Yan is chair professor of Energy Engineering at Mälardalen University & Royal Institute of Technology, Sweden. He is director of Future Energy Profile. Prof. Yan's research interests include advanced energy systems, renewable energy, advanced power generation, climate change mitigation technologies and related environment and policy etc. He is the Chair of International Conferences on Applied Energy. He is an academician of European Academy of Sciences and Arts, and serves as the advisory expert to the UN, EU, & ADB etc. Founder of ICAE, AEii, UNILAB, iCET.

Speakers



Prof. Jianzhong Wu

Cardiff University

Working towards High Impact Publications

Prof Jianzhong Wu is Head of School of Engineering at Cardiff University, Co-Chair of INCOSE UK Energy Systems Interest Group, Co-Director of the UK Energy Research Centre and the EPSRC SuperGen Energy Networks Hub, and Associate Editor of Applied Energy. His research focuses on Smart Grid and Multi-Vector Energy Systems. He has contributed to more than 50 EC, EPSRC and industry funded projects as a Principal Investigator or a Co-Investigator. He has published more than 260 peer-reviewed papers, including 1 ESI Hot Paper, 7 ESI Highly Cited Papers (@July 2020) and paper published in Nature Energy.

GMT+1 12:00-12:10



Prof. Bin Chen
Beijing Normal
University

GMT+1 12:10-12:20

Switch on academic publishing in China

Bin Chen is a distinguished professor of energy system modelling at Beijing Normal University. He obtained B.E. degree in electrical engineering from Zhejiang University, and Ph.D. degree in environmental science from Peking University. Dr. Chen has published over 200 peer-reviewed papers in prestigious international journals such as Science Advances, Nature Communications, Nature Climate Change, PNAS, etc. He is serving as Editor-in-Chief of Energy, Ecology and Environment, Executive Editor of Journal of Cleaner Production, Associate Editor of Frontiers of Earth Science, and an editorial board member of Applied Energy, Energy, Ecological Modelling, Journal of Environmental Management, Journal of Hydrodynamics and Ecological Informatics, etc. He was also among the organizers and keynote speakers for various international conferences.



Prof. Yutao Wang
Fudan University

GMT+1 12:20-12:30

Forget about Impact Factors and find true value beyond

Professor Yutao Wang is the Executive Director of Fudan Tyndall Centre at Fudan University. He has published over 70 research papers in environmental system engineering and management on the journals such as Nature Communications, Environmental Science & Technology, Renewable and Sustainable Energy Reviews, Applied Energy, Resources, Conservation and Recycling, Journal of Cleaner Production, Science of Total Environment, Journal of Environmental Management. He has been awarded the Outstanding Young Scholar Grant by NSFC and the Newton Advanced Fellow by the British Academy. He has been the chief scientist for National Key R&D project of China. He serves as the Co-EiC of the Journal of Cleaner Production and the president of Chinese Society of Industrial Ecology.

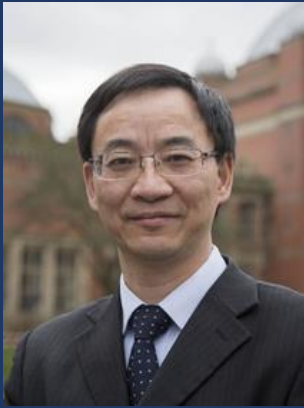


Prof Vladimir Terzija
Humboldt Fellow,
Fellow IEEE, EiC
ELSEVIER IJEPES

GMT+1 12:30-12:40

Why Publications and how to write Them?

Vladimir Terzija was born in Donji Baraci (former Yugoslavia). He received the Dipl.-Ing., M.Sc., and Ph.D. degrees in electrical engineering from the University of Belgrade, Belgrade, Serbia, in 1988, 1993, and 1997, respectively. He is Distinguished Professor at the Shandong University, Jinan, China, where he has been since 2013. From 1997 to 1999, he was an Assistant Professor at the University of Belgrade, Belgrade, Serbia. From 2000 to 2006, he was a senior specialist for switchgear and distribution automation with ABB, Ratingen, Germany. From 2006 to 2020 he was the EPSRC Chair Professor in Power System Engineering with the School of Electrical and Electronic Engineering, The University of Manchester, Manchester, U.K. His current research interests include smart grid applications; wide-area monitoring, protection, and control; multi-energy systems; switchgear and transient processes; ICT, data analytics and digital signal processing applications in power systems. Prof. Terzija is Editor in Chief of the International Journal of Electrical Power and Energy Systems, Alexander von Humboldt Fellow, Fellow of IEEE, as well as a DAAD and Taishan Scholar. He is the recipient of the National Friendship Award, China (2019). Since 2018, he is the National Thousand Talents at the Shandong University, China.



Prof. Hongming Xu

University of
Birmingham

GMT+1 12:40-12:50

Response to referees in review of paper manuscripts

Professor Hongming Xu is Head of the Vehicle Research Centre at the University of Birmingham and a 'Distinguished Visiting Professor' at Tsinghua University. With BEng and MEng degrees from Hefei University of Technology obtained in 1982 and 1984 respectively, he received his PhD from Imperial College in 1995. He was a Technical Specialist at JLR prior to joining UoB in 2005 and becoming professor in 2009. He has over 200 SCI journal papers and 200 conference publications including 90 SAE Papers in powertrain research added by some 40 invited talks and keynotes. He is a Fellow of SAE International, IMechE, and an associate editor of Applied Energy.



Prof. Dabo Guan

Tsinghua University,
University College
London

GMT+1 12:50-13:00

Stories behind the paper

Professor Dabo Guan is a Distinguished Professor at Tsinghua University, China, and Chair of Climate Change Economics at the University College London, UK. He is the Fellow of Academy of Social Sciences, UK. He specialises in environmental economics for international climate change mitigation, climate change adaptation, scenario analysis on environmental impacts, water resources accounting and management, input-output modelling and their applications in both developed and developing countries. He was a Lead Author for the IPCC AR5. He was the Highly Cited Researcher for 2018-2020. He has authored over 190 publications, including 60+ articles published Science, Nature, Nature Research Journals, and PNAS. He received the PNAS Cozzarelli Prize 2014, the Leontief Prize 3 times and the Philip Leverhulme Prize. His paper about climate change impact on beer consumption received the 2018 Altmetric Top 100 award.



Prof. Xianguo Li

University of
Waterloo, Ontario,
Canada

GMT+1 13:00-13:10

Writing and Publication: An Essential Part of a Sound Research

Xianguo Li is a Professor and a University Research Chair at the University of Waterloo, Canada. He obtained Master (1986) and PhD (1989) degree from Northwestern University, USA, and BEng from Tianjin University, China. He is the editor in chief for the International Journal of Green Energy; President of Fuel Cell Division, International Association for Hydrogen Energy (IAHE); Vice President, Technical Program, Canadian Society for Mechanical Engineering (CSME). He is a Fellow of Canadian Academy of Engineering (FCAE), Fellow of the Canadian Institute of Engineering (FEIC), and Fellow of CSME. His field of research interest includes green energy systems, thermodynamics, fluid flow, heat and mass transfer, propulsion and power generation systems and devices, including hydrogen fuel cells, combustion engines, liquid atomization and sprays. He is the Chair of World Fuel Cell Conference and founding Chair of International Green Energy Conference.



Yan Sun

Executive Publisher at
Elsevier

GMT+1 13:10-13:20

Trends of Scientific Publishing — from a publisher's perspective

Yan Sun is an Executive Publisher at Elsevier. With more than 10 years' experience in STM publishing industry, Yan has taken various positions including Publisher for Environmental Sciences journals, Health and Medical Sciences journals as well as Senior Manager of Elsevier's Publishing Content Department.

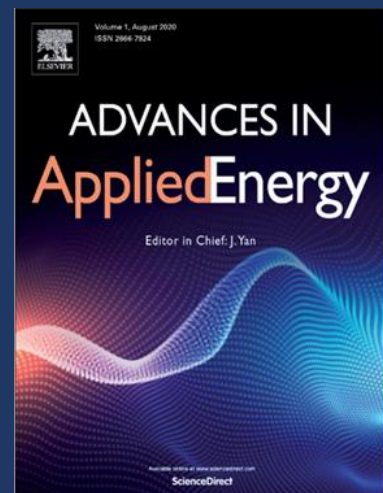
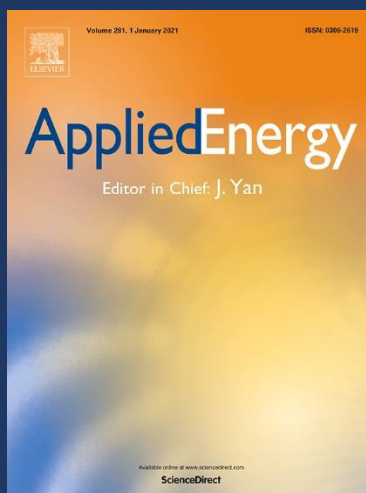
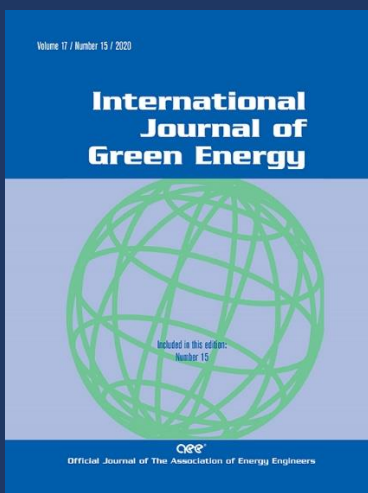
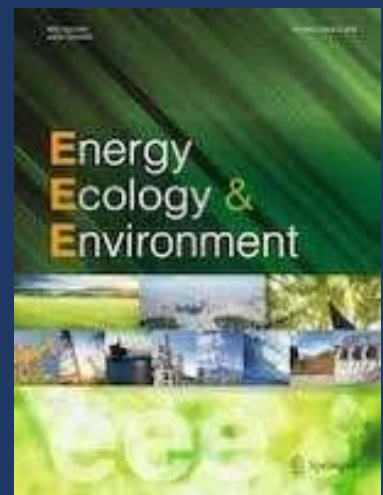
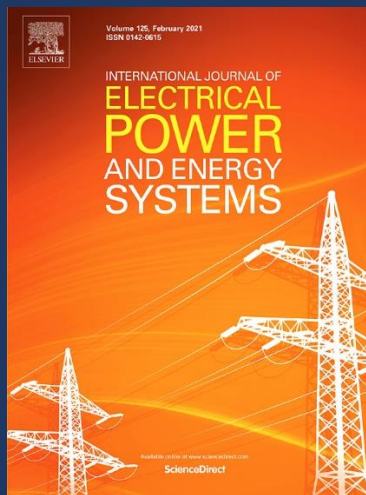
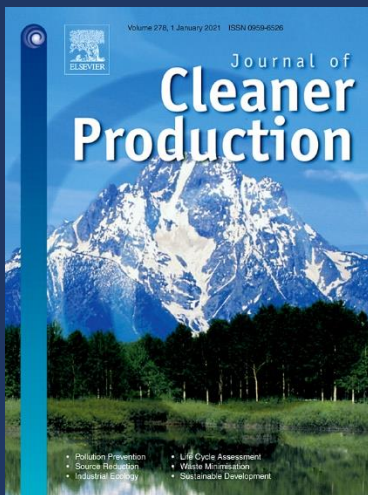
Currently Yan is responsible for a portfolio of international energy journals with over 30,000 yearly submissions, including global leading journals such as Applied Energy, Energy, Energy Conversion and Management, and also newly launched journals like eTransportation, Energy and AI, Advances in Applied Energy, etc.

Yan graduated from School of Environment of Tsinghua University, China, and has also studied in UK, Sweden, the Netherlands and Poland.

Discussion

GMT+1 13:20-14:00

Cooperation Journals:



Panel Discussion

Women in Applied Energy

Dec. 7th 12:00-13:30 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

International Conference
on Applied Energy

December 1-10, 2020

Panel Discussion

Women in Applied Energy



Dec. 7th 12:00–13:30 (GMT+1)

“Women in Applied Energy” was established in 2019. It’s a platform with added value for women lean in and the missions include: empower women researchers in the Applied Energy’s community to obtain career achievements; create a supportive platform for addressing gender-related issues with mentorship; advance gender equality and “Women Power” in energy science, technology, and engineering.

The panel is organized by “Women in Applied Energy” and panelists from different areas will share valuable experience about women development and further discussion is also arranged.

Moderator



Dr. Yanli Liu
Tianjin University

She is the associate professor of the school of electrical and information engineering, head of the department of electrical engineering and executive deputy director of integrated energy power system intellectual centre in Tianjin University. Her research area includes power system stability and security, cyber physical power system, and data-driven method applications in Smart Grid. She is now the “Smart Grid and Energy Internet” Subject Associate Editor of the journal Engineering (published by Chinese Academy of Engineering) and Associate Editor of the journal International Journal of Electrical Power & Energy Systems. She is vice-chair of the IEEE Task Force “Application of Big Data Analytic on Transmission System Dynamic Security Assessment” and secretary of the IEEE Task Force “Cyber-Physical Interdependence for Power System Operation and Control”.

Speakers



Dr. Jessica Bian

President-Elect of the IEEE Power & Energy Society (PES)

GMT+1 12:10-12:20

Becoming a leader

Dr. Jessica Bian is the President-Elect of the IEEE Power & Energy Society (PES). She is a visionary leader and architect, has spearheaded electric industry's reliability metrics and grid risk assessment. Currently she is the Vice President of Grid Services at Grid-X Partners. Before that, she was with the Federal Energy Regulatory Commission (FERC), Washington, DC. Previously, she was the Director of Performance Analysis at North American Electric Reliability Corporation (NERC) in Atlanta, Georgia. Under her leadership, a total of 18 industry-wide reliability indicators were established to determine grid reliability, adequacy, and associated risks. She is widely recognized as a pioneer and trusted world leader in the field. Before joining NERC, Dr. Bian was with PJM, ERCOT and Westinghouse Electric. She earned her Bachelor degree in Electrical Engineering from the Taiyuan University of Technology, China; Master of Science from the Electric Power Research Institute, Beijing, China; and Ph.D. from Tulane University, New Orleans, Louisiana, USA. She was the PES Secretary from 2016 to 2019.



Dr. Hailian Xie

Hitachi ABB Power Grids in China.

GMT+1 12:20-12:30

Women development in enterprise

Dr. Hailian Xie received her masters and doctoral degree (Ph.D.) in Electrical Systems from the Royal Institute of Technology (KTH), Stockholm, Sweden in 2004 and 2009 respectively. In 2009, she joined ABB Corporate Research Center in China. Her research experience covers the fields of FACTS, renewable power, HVDC, microgrids, active distribution networks, energy storage, EV charging. She has held several technology management positions since 2014 including Department Manager of Power and Control in ABB Corporate Research China, Research center manager of Hitachi ABB Power Grids in China. Currently, she is Head of Smart Grids, Digital and Power Consulting in Hitachi ABB Power Grids in China.



Eva Thorin

Mälardalen University

GMT+1 12:30-12:40

Women in Energy Engineering- status and challenges, some examples from Sweden

Eva Thorin is Professor in Energy Engineering and Director of Research for Future Energy Center, one of six research specializations at MDH. She is also Vice-Dean of one of the four Schools at MDH, School of Business, Society and Engineering. She is involved in research both as a project leader, supervisor for PhD students and as a researcher. Her research concerns measurements, modeling and simulation of processes and systems for energy conversion with special emphasis on thermal and biological conversion of biomass to power, heat and biogas. Two examples of projects she has been leading are SYDPOL- System Development for Power Plant Production Planning and Optimal Operations and the EU regional funds project, REMOWE, on waste-to-energy solutions. Both projects have been done in close collaboration with industry. She is now leader for MDH part of the interdisciplinary industrial research school Future Proof Cities and project leader for the JPI Water project Control4Reuse.



Dr. Nan Zhou

The International
Energy Analysis
Department

GMT+1 12:40-12:50

A Journey of Unthinkables

Dr. Nan Zhou is a Senior Scientist, Department Head of the International Energy Analysis Department, and the Group Leader of the China Energy Group of Lawrence Berkeley National Laboratory. In addition, Dr. Zhou is also the director of the presidential program U.S.-China Clean Energy Center-Building Energy Efficiency (CERC-BEE). She is an Advisory Board Member of Asia Pacific Energy Research Centre under APEC, as well as for APEC Sustainable Energy Center. She is also selected to serve as a Lead Author for the chapter on Mitigation and Development Pathways in the Near- to Mid-Term of the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report. She received the 2017 R&D100 Award for the BEST City tool, 2020 R&D100 Award for the BETTER tool, and is also the finalist for 2016 C3E Awards for mid-career women's leadership and achievement.



Yan Sun

Executive Publisher at
Elsevier

GMT+1 12:50-13:00

Addressing Gender Balance in Scientific Publishing

Yan Sun is an Executive Publisher at Elsevier. With more than 10 years' experience in STM publishing industry, Yan has taken various positions including Publisher for Environmental Sciences journals, Health and Medical Sciences journals as well as Senior Manager of Elsevier's Publishing Content Department.

Currently Yan is responsible for a portfolio of international energy journals with over 30,000 yearly submissions, including global leading journals such as Applied Energy, Energy, Energy Conversion and Management, and also newly launched journals like eTransportation, Energy and AI, Advances in Applied Energy, etc.

Yan graduated from School of Environment of Tsinghua University, China, and has also studied in UK, Sweden, the Netherlands and Poland.

Discussion

GMT+1 13:00-13:30

Dedicated Paper Session

Energy Efficient Freight Transport and Logistics

Dec. 8th 12:00-14:30 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

International Conference on Applied Energy

December 1-10, 2020

Dedicated Paper Session

Energy Efficient Freight Transport and Logistics

Dec. 8th 12:00–14:30 (GMT+1)

The global market of transport and logistics is expected to reach USD 15.5 Trillion by 2023 according to the Transparency Market Research, which is a main impetus of global economic growth and plays a significant role in improving the overall competitiveness of industry. Meanwhile, world delivered energy consumption in the transportation sector increases at an annual average rate of 1.4% and is projected to consume 130 quadrillion Btu in 2030 according to the International Energy Outlook. With an increased demand of logistics, transportation tools such as vehicles, ships and aircrafts also produce numerous emissions of pollutant and greenhouse gases nowadays. In order to solve such concerns, energy efficient and green logistics has become one of the important directions of the sustainable development under the environment of vigorously developing low-carbon economy.

Both the original research papers and review studies about the energy consideration in this area are invited, including but not limited to the following fields: Green transportation planning focusing on reducing energy consumption and GHG emissions such as electric vehicle routing problem and charging station deployment problem; Sharing economy such as logistics under crowdsourcing mode, on-demand ride-sharing services, and self-service express cabinet; Reverse logistics and closed-loop supply chain; Operation management of green ports and shipping networks; The role of energy consideration in road traffic management and network design with traffic flow model; New technology application in green logistics such as unmanned drone, 3D printing, Internet of Things, robotized warehouse system, and big data; Energy management problem arisen from the intra-logistics and external-logistics of industrial plants; Other issues such as intermodal transportation and renewable energy resources.



WCTRS

World Conference on Transport Research Society



Panel Discussion (Dec. 8th)

Moderator



Prof. Xiaobo Qu

Chalmers University
of Technology

Xiaobo Qu is a Chair Professor in the Department of Architecture and Civil Engineering, Chalmers University of Technology in Sweden. His research is focused on large, complex and interrelated urban mobility systems. More specifically, his research has been applied to improvement of emergency services, operations of electric vehicles and connected automated vehicles, and management of vulnerable road users. He has authored or co-authored over 110 journal articles published at top tier journals, many of which are appeared at journals with broader impact than his own research community. He is a Member of Academia Europaea - the Academy of Europe.



Prof. Lu Zhen

Shanghai University

Lu Zhen is a Professor and Dean in the School of Management at Shanghai University. He got his B.S. and Ph.D. degrees from Shanghai Jiao Tong University in 2003 and 2008, respectively. He worked at National University of Singapore as a postdoctoral scholar before joining Shanghai University in 2011. His research interests include logistics and supply chain management, operations research, optimization in port and shipping management, and knowledge management. He has published 75 SCI and SSCI journals including Transportation Science, Transportation Research Part B, Naval Research Logistics, and IISE Transactions. He is the PI of 15 projects including four at the national level. He has served as an associate editor/editorial board member of four SCI/SSC journals such as Transportation Research Part B (ABS 4), Journal of the Operational Research (ABS 3), Computers & Operations Research (ABS 3); and he is also the Fellow of the Operational Research Society (U.K.). He has been awarded Changjiang Young Scholar in China.

Speakers**Topic & Short Bio**

**Prof. Yiming Bie**

Jilin University

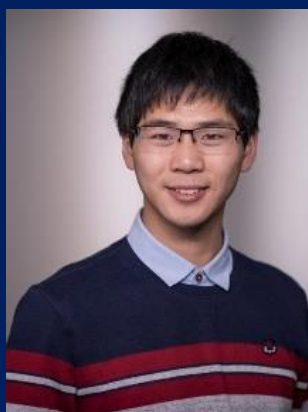
GMT+1 12:00-12:20

Optimal Daily Air Conditioner Usage of an Electric Bus considering Stochastic Travel Times**Abstract**

The electric bus (EB) has been widely recognized by the public in recent years because of low noise, high driving stability and zero emission. However, EB still has short driving range due to the on-board battery technology. In such condition, the drivers have the driving range anxiety and they dare not turn on the air conditioner (AC) during the operation. To solve this problem, a model is developed to optimize the AC usage of each trip for a given EB. The impact of environmental temperature and AC usage on the coach temperature is quantified. The energy consumption of each trip is estimated based on filed collected data. A chance constrained programming model is then developed considering the stochastic travel times. Maximizing total travel time of the trips that can provide comfortable temperature for passengers is taken as the objective function. Finally, a real bus route is used to validate the proposed method. Results show that the method can provide reliable AC usage scheme under the impacts of stochastic travel times.

Short Bio

Dr. Yiming Bie is an Associate Professor in the Department of Traffic Engineering, Jilin University, China. He obtained the PhD degree at Jilin University in June, 2012. His research interests include public transportation operations, traffic control and intersection design. He has authored or co-authored over 70 journal articles. The algorithms developed by him were adopted by the most popular Adaptive Traffic Control System in China and has been implemented to more than 20 cities. Recently, his research is focused on electric bus operations in cold regions.

**Aoyong Li**

ETH Zurich

GMT+1 12:20-12:40

An empirical analysis of trip-level recovery energy ratio of electric vehicles in urban contexts based on field trajectory data**Abstract**

One crucial merit of electric vehicles (EVs) is the energy recovery process of recapturing kinetics energy from wheels during braking for charging the battery to make the best of energy. The recovery energy ratio (RER, namely the recovery energy divided by the overall energy consumption for a trip using EVs) is influenced by the regenerative braking control strategies and speed profile of EVs during running periods. This study investigates the RER of EVs in urban contexts taking advantage of passively collected trajectories and battery data (discharging and charging voltage and current) during running from EVs in Shanghai, China. Results indicate that the average RER of a trip using EVs is about 16.96%, with a standard deviation of 10.57%. Large variances exist across different trips in the RER. The RERs also show differences in temporal and spatial dimensions. The RERs in the daytime are higher than those at night time. The RERs of trips in central urban areas are comparatively large as compared to those in suburban areas.

Short Bio

Aoyong Li is currently a PhD Student in the Institute for Transport Planning and Systems, Swiss Federal Institute of Technology in Zurich in Switzerland. His research interests include shared transport system, urban mobility and spatio-temporal data mining.



Prof. Chaoru Lu

Oslo Metropolitan
University

GMT+1 12:40-13:00

An insight into the transition period of public transport electrification in Europe from a lifecycle perspective

Abstract

In alignment with climate change, the European Union endeavours to accelerate the electrification progress of the public transit system. In particular, Copenhagen in Denmark and Oslo in Norway develop a blueprint to have 100% public transit electrification by 2030 and 2028, respectively. In this study, the lifecycle approach is applied to gain deeper insight into the role of electric buses in the electrification progress of the public transport system in different European countries. To better model the energy/fuel consumption, we integrate the theoretical model of human thermal comfortable temperature into our proposed framework. We take into account the effects of weather, the daily operation characteristics, and the energy mix of different European countries, and evaluate the lifecycle environmental and economical performance of electric buses. The result shows that the public transportation system with both hybrid and electric buses can be good compensation between financial and environmental needs instead of using electric buses to replace all the conventional buses. Moreover, the operational plan of the public transportation system mixed with electric and hybrid buses may be adjusted according to seasonal temperature variation so as to maximize the environmental benefits.

Short Bio

Dr. Chaoru Lu is currently an associate professor in the Department of Civil Engineering and Energy Technology at the Oslo Metropolitan University. He received his PhD degree from Iowa State University. His research interests include traffic flow theory, intelligent transportation system, and transportation energy.

Coffee Break

GMT+1 13:00-13:10



Prof. Xiaopeng Li

University of South
Florida

GMT+1 13:10-13:30

An Empirical Study on Fuel Consumption and Emissions of Commercial Automated Vehicles with Different Headway Settings

Abstract

Increasing commercial vehicles are equipped with automated driving features. Adaptive cruise control, a critical longitudinal control system of commercial automated vehicles (AVs), may have significant impacts on fuel consumption and emissions with different headway settings. To investigate the impacts, this paper collects high resolution trajectory data of a commercial AV with different headway settings. Then the AV's fuel consumption and emissions are calculated by the classical VT-micro vehicle fuel consumption and emissions model. From empirical analyses, we find that as the AV headway increases, the corresponding fuel consumption and emissions decrease. It indicates that AV energy efficiency could be enhanced with less pursuit of AV mobility. One possible explanation to the tradeoff is that a longer headway may cause more stable AV following behavior and thus yield less fuel consumption and emissions. Also, we find that as the speed of AV traffic decreases, the impacts of AV speed variation settings on the fuel consumption and emissions decrease while the impacts of AV headway settings remain significant. Following these findings, a set of managerial insights are provided into the relevant stakeholders for future AV traffic.

Short Bio

Dr. Xiaopeng (Shaw) Li is currently an associate professor in the Department of Civil and Environmental Engineering at the University of South Florida (USF). He is the director for one USDOT national university transportation center, National Institute for Congestion Reduction (NICR). He established the Connected and Automated Transportation Systems Lab. He is the first holder of Susan A. Bracken Faculty Fellowship at USF and is a recipient of a National Science Foundation (NSF) CAREER award. His major research interests include automated vehicle traffic control and connected & interdependent infrastructure systems. He has served as a member on the Transportation Network Modeling Committee (ADB30) and the Traffic Flow Theory and Characteristics (AHB45) of the Transportation Research Board (TRB) and an Associate Editor for IIE Transactions and have also served on the editorial boards for Transportation Research Part B, Part C, Part E, the ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, etc.



Prof. Zhigang Xu

Chang'an University

GMT+1 13:30-13:50

FuelNet: A precise deep network for predicting fuel consumption using long short-term memory

Abstract

It has been well recognized that driving behaviors significantly impact fuel consumptions of vehicles. In this paper, we propose a FuelNet model based on Long Short-term Memory Neural Network (LSTM NN), which can predict vehicle fuel consumption in a very accurate manner. First, we take the kinetic vehicle parameters and the corresponding fuel consumption parameters to build the FuelNet model, and analyze the correlations between the prediction accuracy and different combinations of input parameters. In addition, our model exhibits the superior capability for fuel consumption prediction (FCP) at different speed, and the comparison with different deep learning models as well as other physics model and data-driven methods suggests that FuelNet can achieve the best prediction performance in terms of both accuracy and stability. Finally, the application of FCP in distinct driving trajectories performs well, which demonstrates the FuelNet also can provide guidance for eco-driving strategies.

Short Bio

Zhigang Xu is currently the vice dean and full professor of School of Information Engineering, and the director of the Lab of Traffic information Sensing and Control at Chang'an University in China. He had worked in University of California, Davis as a visiting scholar during 2015. He is the chair of CAVs Committee of World Transportation Convention and a member of IEEE ITS society and ASCE. His research focuses on connected and autonomous vehicles, traffic flow analysis, transportation optimization, and intelligent transportation systems.



Prof. Yu Wu

Northwestern
Polytechnical
University

GMT+1 13:50-14:10

Smart charging infrastructures for electric vehicles: A survey from hierarchical operation perspective

Abstract

EV charging stations are essentially DC or AC micro grid infrastructures, which offer EVs charging service. With the fast development of the electrification of vehicles, EV charging stations are booming in coming years. In the meanwhile, the growing demand of charging power, and the uncertain patterns of charging behaviors and renewable energy are serious challenges for charging infrastructures and the local grid. This paper presents an overview of the latest research of EV charging station and highlights some important issues and challenges in power architectures design, energy storage technique, and energy management optimization. Particularly, hierarchical control system is highlighted, which offers decoupled control objectives in different layers of micro grid systems. Various coordinative control techniques and energy management strategies aiming to achieve the optimum performance are investigated. Further, some future research directions are extensively discussed.

Short Bio

Dr. Yu Wu currently is an associate professor with Northwestern Polytechnical University, China. He received the B.S. degree in electrical engineering and automation from Northwestern Polytechnical University (NPU), Xi'an, China, in 2013; the M.S. degree in electrical engineering from Chongqing University (CQU), Chongqing, China, in 2016; the Ph.D. degree in electrical engineering from FEMTO-ST Institute (CNRS UMR6174) & FCLAB (CNRS FR3539), UTBM, University of Bourgogne Franche-Comte, France in Dec. 2019. His research interests include energy management of micro-grids, the reliability of power electronic systems, and the robust control of power converters.

Discussion

GMT+1 14:10-14:30

Panel Discussion

Big Data Analytics for Smart Energy Systems

Dec. 9th 12:00-14:00 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

International Conference
on Applied Energy

December 1-10, 2020

Panel Discussion

Big Data Analytics for Smart Energy Systems

Dec. 9th 12:00–14:00 (GMT+1)

The comprehensive digitization, informatization, and intelligence of the energy system have made the amount of relevant data increase exponentially, and it has the remarkable characteristics of massive, multi-source, heterogeneous, and so on. By combining massive data with collected information from different links of the energy system, various entities, such as power utilities, customers, energy investment, society, etc., can use big data analytics technology to deepen the understanding of the energy system and its relevant links and create new value. This panel will discuss big data analytics application in the smart energy systems.

Moderator



Dr. Yanli Liu
Tianjin University

She is the associate professor of the school of electrical and information engineering, head of the department of electrical engineering and executive deputy director of integrated energy power system intellectual centre in Tianjin University. Her research area includes power system stability and security, cyber physical power system, and data-driven method applications in Smart Grid. She is now the “Smart Grid and Energy Internet” Subject Associate Editor of the journal Engineering (published by Chinese Academy of Engineering) and Associate Editor of the journal International Journal of Electrical Power & Energy Systems. She is vice-chair of the IEEE Task Force “Application of Big Data Analytic on Transmission System Dynamic Security Assessment” and secretary of the IEEE Task Force “Cyber-Physical Interdependence for Power System Operation and Control”.



Prof Vladimir Terzija

Humboldt Fellow,
Fellow IEEE, EiC
ELSEVIER IJEPES

GMT+1 12:00-12:25

Challenges in Integration of Massive Quantity of Data in Multi-Energy Networks

Abstract

Energy networks are vitally important enablers for the World energy sector and therefore World industry, economy and society. The energy trilemma (energy security, environmental impact and social cost) presents many complex interconnected challenges and have huge general relevance. These challenges vary considerably from region to region due to historical, geographic, political, economic and cultural reasons. Energy networks exist primarily a) to exploit and facilitate temporal and spatial diversity in energy production and use and b) to exploit economies of scale where they exist. As technology and society changes so do these factors and therefore the planning, design and operation of energy networks needs to be revisited and optimised.

An integrated multi energy network infrastructure will continuously generate data with large volume, high velocity and diverse variety and veracity (4V). There is a need for new big data applications suitable for the whole energy system with analysis of offline data sets for planning as well real time data analysis for control (identified as priority by the Industrial community). A greater understanding of the quality, robustness, architecture and cyber security of the applied ICT network, as well as approaches for data driven modelling, could significantly contribute to multi-vector energy network characterisation, resilience and flexibility. Last but not least, there is also a need for practical demonstration and validation of approaches for integration of data from different energy networks and their usage in specific applications.

The presentation has the ambition to address some of the above-mentioned challenges and to demonstrate some of existing achievements in applying novel sensor and ICT technology for monitoring key energy system attributes, supporting by this its optimal operation. Examples given will be selected from practical power systems related large-scale industrial projects.

Short Bio

Vladimir Terzija was born in Donji Baraci (former Yugoslavia). He received the Dipl-Ing., M.Sc., and Ph.D. degrees in electrical engineering from the University of Belgrade, Belgrade, Serbia, in 1988, 1993, and 1997, respectively.

He is Distinguished Professor at the Shandong University, Jinan, China, where he has been since 2013. From 1997 to 1999, he was an Assistant Professor at the University of Belgrade, Belgrade, Serbia. From 2000 to 2006, he was a senior specialist for switchgear and distribution automation with ABB, Ratingen, Germany. From 2006 to 2020 he was the EPSRC Chair Professor in Power System Engineering with the School of Electrical and Electronic Engineering, The University of Manchester, Manchester, U.K. His current research interests include smart grid applications; wide-area monitoring, protection, and control; multi-energy systems; switchgear and transient processes; ICT, data analytics and digital signal processing applications in power systems.

Prof. Terzija is Editor in Chief of the International Journal of Electrical Power and Energy Systems, Alexander von Humboldt Fellow, Fellow of IEEE, as well as a DAAD and Taishan Scholar. He is the recipient of the National Friendship Award, China (2019). Since 2018, he is the National Thousand Talents at the Shandong University, China.



Prof. Junhua Zhao

The Chinese
University of Hong
Kong, Shenzhen
Director of Energy
Markets and Finance
Lab

GMT+1 12:25-12:50

Data Driven Approaches to Lower Carbon Energy Economics

Abstract

Controlling carbon emissions and delaying climate change are major issues related to the destiny of mankind. The energy industry is the single largest source of greenhouse gas emissions. How to use economic means to realize the low-carbon transformation of the energy industry is an important research topic. This talk will preliminarily discuss how to solve several key issues in the energy system's low-carbon transition based on data analytics technology, including user behavior understanding, enterprise real-time emission assessment, and market behavior simulation.

Short Bio

Professor Junhua Zhao is an Associate Professor in CUHK(SZ), the Director of Energy Markets and Finance Lab, Shenzhen Finance Institute, and a Scientist at Shenzhen Institute of Artificial Intelligence and Robotics for Society (AIRS). He joined CUHKSZ in 2015. Before joining CUHKSZ, He was a Senior Lecturer and also acted as the Principal Research Scientist of Centre for Intelligent Electricity Networks, the University of Newcastle, Australia. He has 11 years of experience in the power industry in Australia. His research area includes smart grid, electricity market, energy economics, data mining and artificial intelligence. He published more than 200 research papers, including more than 100 papers in SCI, and 60 papers in IEEE Transactions. His published papers have been cited more than 7800 times, with an H-index of 45 (based on Google Scholar statistics).

Professor Zhao is the external experts of 'Australian National Outlook', the co-chair of the IEEE Special Interest Group (SiG) on Active Distribution Grids and Microgrids as well as the Secretary of the Asia Pacific Working Group of the IEEE PES SBLC (Smart Building, Load and Customer). He is the vice-chair of the Shenzhen AI industry society's expert committee. He is the editorial board members of ENERGY CONVERSION AND ECONOMICS, JOURNAL OF MODERN POWER SYSTEM AND CLEAN ENERGY, ELECTRIC POWER COMPONENTS AND SYSTEMS and POWER SYSTEM PROTECTION AND CONTROL. And he is the expert reviewer of Australian Research Council (ARC), National Natural Science Foundation of China Reviewer and Hong Kong Research Grants Committee (RGC).



Dr Yan Xu

Nanyang
Technological
University (NTU)

GMT+1 12:50-13:15

Data-Driven Health Monitoring of Li-Ion Battery Energy Storage System

Abstract

Li-Ion battery energy storage systems (BESS) have been widely applied in the industry such as electric vehicles and power grids. Since the BESS is still very expensive, it is critical to accurately estimate its operating cost, which mainly stems from the battery degradation. During the charging and discharging process, the health of the battery unit will degrade in the form of capacity loss.

The battery health degradation process is highly nonlinear and depends on multiple factors such as the depth-of-discharge, discharging rate, and ambient temperature, etc. This seminar will present a data-driven methodology developed at Nanyang Technological University for online and accurate health monitoring of Li-Ion BESS. Firstly, several new health indicators (HIs) are extracted from the charging or discharging process. Then, a set of advanced machine learning models are designed to fit the mapping relationship between the HI and the battery health. For online application, as long as the HI is measured, the state-of-health (SOH) and remaining-useful-life (RUL) of the battery can be real-time estimated by the machine learning model. The developed methods have been widely tested on

several battery aging datasets, and our technology disclosure has been licensed to the industry.

Short Bio

Dr Yan Xu obtained his B.E. and M.E. degrees from South China University of Technology, Guangzhou, China, and PhD degree from University of Newcastle, Australia, in 2008, 2011, and 2013, respectively. He did postdoctoral research at University of Sydney with the University Fellowship. He is now the Nanyang Assistant Professor and a Cluster Director at Energy Research Institute @ NTU (ERI@N), Singapore. Dr Xu is now leading the SODA (Stability, Optimization & Data-Analytics) group which consists of 14 PhD students and 6 Post-doctoral Fellows, focusing on power system stability, microgrid, and smart grid data-analytics research. His research outcomes have been licensed to the industry and practically applied. As the first/corresponding author, Dr Xu has published 1 book, 82 IEEE Transactions papers and 27 IET journal papers. He has 8 "Web-of-Science highly cited papers" and received 10 IEEE/IET paper contest and conference best paper awards. Dr Xu is a senior member of the IEEE, and an Editor for IEEE Transactions on Smart Grid, IEEE Transactions on Power Systems, IEEE Power Engineering Letters, CSEE Journal of Power and Energy Systems, and IET Generation, Transmission & Distribution.



Dr. Rafael Segundo

The Zurich University
of Applied Sciences

GMT+1 13:15-13:40

Coherency identification based on dynamic reduction of frequency measurements

Abstract

This presentation introduces a data analytic tool for clustering analysis based on Dimensionality Reduction (DR) of power system measurements. The proposed method is applied to frequency measurements of the ENTSO-E dynamic model of continental Europe and the results are compared with other conventional DR approaches. After considerable reduction of the raw measurements, a phasor metric for identification of coherency groups of generators is proposed. Finally, to illustrate the effectiveness of the proposed approach and the coherency of the metrics, a particular study case following the outage of a representative generation unit in France is presented.

Short Bio

Rafael Segundo is an electrical engineer and Master of Science from the University Autonomous of Nuevo Leon, Mexico in 2004 and 2007, respectively. Then he spent one year at ABB corporate research centre in Switzerland where he was awarded a scholarship by the same institution to carry out his doctoral studies at Imperial College London, in the city of London, England, where he graduated in 2012. The, he was a postdoctoral fellow at the Royal Institute of Technology (KTH) in Stockholm, Sweden and since summer 2014 he has been a Research Associate at the Zurich University of Applied Sciences in Switzerland.

Dr. Segundo is Senior Member of the IEEE, chair of the annual international workshop DynPOWER and chair of the IEEE task force " Application of Big Data Analytic on Transmission System Dynamic Security Assessment". He is leader of working groups in different power system programmes in Switzerland. Some of his areas of interest include control, dynamics, stability and quantification of the impact of renewable energies in large transmission networks, as well as data analysis techniques in advanced metering infrastructure.

Discussion GMT+1 13:40-14:00

Panel Discussion

From AR to AI in the Energy Industry

Dec. 10th 13:00-14:30 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

**International Conference
on Applied Energy**

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Panel Discussion

From AR to AI in the Energy Industry

Dec. 10th 13:00–14:30 (GMT+1)

Moderator



Prof. Erik Dahlquist
Mälardalen University
GMT+1 13:00-13:10

Possibilities of energy savings by decreasing travels

Erik Dahlquist is Senior professor in Energy Technology, School of Business, society and engineering, Mälardalen University (MDH), Västerås, Sweden. He started work at ASEA Research Sept 1975 in Nuclear power. Technical PM for development of Cross Flow Membrane filter and ABBs Black Liquor Gasification project. 1992- 1995 Department Manager at ABB Corporate Research. 1996-2002 General Manger for the Product Responsible Unit “Advanced Control, Diagnostics, Optimization, Process Simulation in Pulp and paper” globally within ABB. Adjunct professor KTH. Chair professor at MDH since 2000. Dean 2004- 2007. Member of editorial board for Journal of Applied Energy since 2007. Member of Swedish Royal Academy of Engineering, since 2011. Coordinator EU Horizon 2020 project FUDIPO. 20+ patents and 300+ Scientific publications.

Speakers



Prof. Xuan Song

Southern University
of Science and
Technology

GMT+1 13:10-13:20

Next-Generation Urban Management: When Human Mobility Modeling Meets AI and Big Data

Prof. Xuan Song received the Ph.D. degree in signal and information processing from Peking University in 2010. In 2017, he was selected as Excellent Young Researcher of Japan MEXT. In the past ten years, he led and participated in many important projects as principal investigator or primary actor in Japan, such as DIAS/GRENE Grant of MEXT, Japan; Japan/US Big Data and Disaster Project of JST, Japan; Young Scientists Grant and Scientific Research Grant of MEXT, Japan; Research Grant of MLIT, Japan; CORE Project of Microsoft; Grant of JR EAST Company and Hitachi Company, Japan. He served as Associate Editor, Guest Editor, Program Chair, Area Chair, Program Committee Member or reviewer for many famous journals and top-tier conferences, such as IMWUT, IEEE Transactions on Multimedia, WWW Journal, Big Data Journal, ISTC, MIPR, ACM TIST, IEEE TKDE, UbiComp, ICCV, CVPR, ICRA and etc.

Prof. Xuan Song's main research interest are AI and its related research areas, such as data mining, intelligent system, especially on intelligent surveillance and information system design, mobility and spatio-temporal data mining. By now, he have published more than 100 technical publications in journals, book chapter, and international conference proceedings, including more than 40 high-impact papers in top-tier publications for computer science and robotics, such as ACM TOIS, ACM TIST, IEEE TPAMI, Applied Energy, IEEE Intelligent System, KDD, UbiComp, IJCAI, AAI, ICCV, CVPR, ECCV, ICRA and etc. His research was featured in many Japanese and international media, including United Nations, the Discovery Channel, and Fast Company Magazine. He received Honorable Mention Award in UbiComp 2015.



**Madeleine
Martinsen**

Mälardalen University

GMT+1 13:20-13:30

Utilizing AR and thus decreasing trips and CO₂

Madeleine Martinsen is the head of Automation within the Future Energy Center, Academy EST at MDH, ABB Industrial PhD candidate at Mälardalens Högskola (MDH). She holds a Master of Science in Engineering & Management from Linköping University in Sweden. 31 years of experiences within the power and automation industry, abroad assignments in Germany, Ecuador, USA and Denmark. Competences from several roles from engineering, internal auditing, controlling to management and R&D positions. Is today conducting research in IoT development for the mining businesses regarding Virtual, Augmented, Mixed and Extended Reality, Drone with AI applications within the subject Energy & Safety Diagnostic for Underground facilities.



Prof. Zhou Wu

Chongqing University

GMT+1 13:30-13:40

Energy issues in smart building and energy informatic intelligence

Zhou Wu is a full professor in Chongqing University (CQU), China. Before joining in CQU, he worked as a Senior Research Fellow in University of Pretoria, South Africa, from 2012 to 2015. He has been focusing on multidisciplinary areas, energy/building information modeling, intelligent optimization/control, and game theory. He published more than 80 peer-reviewed papers on Science Advances, IEEE Transaction on Industrial Informatics, Applied Energy, and other journals and conferences. He is a senior member of IEEE society. He serves editorial memberships on several journals, e.g., Complex Intelligent & Systems, Acta Automatica Sinica since 2018. Furthermore, he has engineering experiences on Measurement & Verification (MV) energy efficiency projects, and holds several relative patents.



Sam Davis

Insight Media

GMT+1 13:40-13:50

Company insight with respect to scientific research

Sam Davis is a communications director at Insight Media. His previous company, Insight Publishers, was initially formed as a publishing and media company that worked predominantly within the European research community, providing expert dissemination and communication services to European and nationally funded research projects. He helped researchers, universities, science parks and Industry involved in science and innovation target audiences outside of the direct academic fields they work within. This helped to foster further innovation and funding, whilst at the same time engaging with the general public and mass media. Insight publishers did this through the production and delivery of the Projects Magazine. He then began to work with research projects on other aspects of communication and dissemination and soon became a trusted partner to projects all over Europe, providing a whole suite of dissemination services, such as video, PR and media campaigns, web development and all print and digital requirements.

Discussion

GMT+1 13:50-14:30

Panel Discussion

Negative Emissions Technologies

Dec. 10th 16:00-17:00 (GMT+1)

ZOOM

Room P ID: 815 4584 0940 PW: 885561

12th

International Conference
on Applied Energy

December 1-10, 2020

Panel Discussion

Negative Emissions Technologies

Dec. 10th 16:00–17:00 (GMT+1)

Even as the deployment of carbon free energy and industrial technologies accelerates, it seems increasingly likely that the world will overshoot allowable carbon dioxide emissions required to keep global warming below the 2C target. This panel will discuss some of the possibilities around the deployment of negative emissions technologies (NETs), which might provide a path to mitigate carbon emissions from sectors that prove hardest to decarbonize, while also helping to restore atmospheric CO2 levels to more manageable levels. Panelists will address several promising technologies for net zero or negative emissions in the energy generation, shipping, and industrial materials sectors, as well as discuss the interaction between negative emissions technologies and various carbon pricing schemes.

Moderator



Neil Fromer

Executive Director for Programs, Resnick Sustainability Institute at Caltech

Neil Fromer works with researchers across the Caltech campus and around the world to develop new ideas meant to create a sustainable future, and to translate those ideas quickly from the lab to the marketplace. He has 20 years of experience at the forefront of technology development for energy and sustainability. He has worked on the development of new solar energy technologies and conducted research on energy storage, clean-fuel generation and use, smarter energy and water distribution systems, and energy efficiency.

Fromer has been with the Resnick Sustainability Institute at Caltech since 2010. He received a PhD in physics from UC Berkeley and a bachelor's degree in engineering and physics from Brown University. His recent edited volume, *Scarcity in the Modern World*, is available from Bloomsbury Academic Press.

Speakers



Dr Fabian Levihn Palensky

GMT+1 16:00-16:10

Dr Levihn is Head of R&D and part of the management team of the business development department at Stockholm Exergi. He is also part time research fellow at the department of Industrial Economics and Management at the Royal Institute of Technology (KTH). Stockholm Exergi is the largest energy utility in Stockholm and operates one of the most advanced urban multi energy systems in the world. Stockholm Exergi operates a biochar plant and are in an advanced planning stage of investing in a full-scale BECCS plant which would remove approximately 800 million tonnes CO₂ per year when commissioned.

Dr Levihn has a background in mechanical engineering (MSc) and a PhD in Industrial Economics and Management. His areas of expertise cover least cost integrated planning models in an energy/climate change context, techno-economic systems, in particular how increased renewables affect energy markets, and the conditions for BECCS.



Hanna-Mari Ahonen

GMT+1 16:10-16:20

Ms Ahonen holds a M.Sc. in Environmental and Natural Resource Economics. She has worked with international, EU and Nordic climate policy and carbon markets since 2002, and participated in international climate negotiations since 2006. At Perspectives, she focuses on means to promote ambitious climate action internationally and in the Nordic context, by both public and private actors, including through international carbon markets and negative emission technologies (NETs). She is engaged in the NET-Rapido research project which explores opportunities, challenges and risks of NETs to provide objective and pragmatic recommendations for promoting NETs in climate policy, including through finance and robust accounting. Prior to joining Perspectives, Ms Ahonen worked for the Finnish Ministry for Foreign Affairs, the Swedish Energy Agency and the Nordic Environment Finance Corporation, focusing on international carbon markets, in the broader context of sustainable development.



**Professor Jess F.
Adkins**

GMT+1 16:20-16:30

Jess F. Adkins is a chemical oceanographer who uses trace metals to study environmental processes. Most of his current work centers on the geochemical investigation of past climates. As an oceanographer, he monitors the deep ocean's behavior in order to understand how the ocean and atmosphere act as a coupled system during climactic shifts. He also has developed an archive of deep-sea corals that has the potential to transform the types of information scientists can obtain about oceanographic climate change. Adkins has received numerous honors, including the Nicholas Shackleton Science Innovation Award in 2018. Jess has been using his knowledge of ocean chemistry to investigate mechanisms for CO₂ sequestration in seawater.

Adkins is a member of the Linde Center for Global Environmental Sciences and on the faculty of Caltech's Department of Engineering and Applied Science. He started at Caltech in 2000 after receiving a BS in Chemistry from Haverford College and a PhD in Chemical Oceanography from the MIT/WHOI Joint Program in 1998.



Cody Finke

GMT+1 16:30-16:40

Dr. Cody Finke is the co-founder and CEO of Brimstone Energy, a company which is oriented towards industrial decarbonization of cement and other commodities. Finke received his PhD in environmental science and engineering in 2020 at Caltech under Professor Michael Hoffmann where he studied catalysts for the electrochemical production of various commodities including hydrogen, sulfuric acid, cement, and chlorine. After his PhD, Cody joined Lawrence Berkeley National Lab as a Cyclotron Road Entrepreneurial Post-doctoral Scholar, where he continues to develop Brimstone's technology.

Discussion

GMT+1 16:40-17:00

ROOM P

12:00-12:30	OPENING
12:30-13:15	KEYNOTE: POTENTIAL TECHNICAL, ECONOMIC AND ENVIRONMENTAL BENEFITS OF MULTI ENERGY SYSTEMS PLANNING AND OPERATION (PHIL TAYLOR)
13:30-14:15	KEYNOTE: THE PATHWAY OF CHINA'S ENERGY SYSTEM TRANSFORMATION TO ACHIEVE THE 2060 CARBON NEUTRALITY GOAL (XILIANG ZHANG)
14:15-14:30	TEA/COFFEE BREAK

ROOM A

RENEWABLE ENERGY

SESSION CHAIR: XI JIANG, JEEHOON HAN

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:30-14:40	446	JEEHOON HAN	TECHNO-ECONOMIC ANALYSIS FOR ETHANOLYSIS OF CELLULOSE TO ETHYL LEVULINATE
14:40-14:50	81	HUIRU YANG, XIANGZE DU, DAN LI, CHANGWEI HU	THE ONE-STEP CONVERSION OF JATROPHA OIL INTO AVIATION FUEL ON COMPOSTED CARRIER SUPPORTED NI AND PT CATALYSTS
14:50-15:00	432	KRISTELLE L. QUIJOTE, ALCHRIS W. GO, RAMELITO C. AGAPAY, YI-HSU JU, ARTIK ELISA ANGKAWIJAYA	LIPID-DENSE POST- HYDROLYZED SPENT COFFEE GROUNDS AS FEEDSTOCK FOR IN-SITU (TRANS)ESTERIFICATION TO PRODUCE FATTY ACID METHYL ESTERS
15:00-15:10	510	XINHAI XU, KAIPENG SHUAI, BEN XU	NUMERICAL INVESTIGATION AND PARAMETER OPTIMIZATION OF AN ALGAE POND WITH SERPENTINE PATH
15:10-15:20	178	JINGJING CHEN, XIAOHUA LU, XIAOYAN JI	HEAT-TRANSFER ENHANCEMENT WITH PULSATING FLOW IN TWISTED HEXAGONAL TUBE FOR MANURE SLURRY FROM BIOGAS PLANTS
15:20-15:30	476	OSEOK KWON, JAEWON BYUN, JEEHOON HAN	SUPPLY CHAIN MODEL FOR LOCATING ACETIC ACID-BASED ETHANOL BIOREFINERY
15:30-15:40	632	JIALIANG ZHOU, YUANHUI ZHANG, NA DUAN	HIGH CONCENTRATION ANAEROBIC CO-DIGESTION BASED ON MODEL COMPOUNDS: METHANE PRODUCTION CHARACTERISTICS AND DEGRADATION PROCESS
15:40-15:50	618	SHAZIA REHMAN, MD KHAIROL ISLAM, HUAIMIN WANG, SHAO-YUAN LEU	ORGANOSOLV-PRETREATED OIL PALM EMPTY FRUIT BUNCHES FOR 2,3-BUTANEDIOL PRODUCTION: AN INTEGRATED BIOREFINERY APPROACH
15:50-16:00	4	XINFENG WANG, TAILI DONG ,BAOMING LI	NUTRIENTS RECOVERY AND BIOFUEL PRODUCTION BY CHLORELLA SP. CULTIVATED WITH POULTRY WASTEWATER IN BENCH-SCALE PONDS

ROOM B

CLEAN ENERGY CONVERSION TECHNOLOGY

SESSION CHAIR: ZAOXIAO ZHANG, XIAONAN WANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:30-14:40	416	XU YANG, HUIMIN ZHANG, BINBIN YU, YAN LIU, WU ZUCHENG	IN SITU TECHNIQUES FOR THE CHARACTERIZATION OF ALKALINE UREA OXIDATION REACTION
14:40-14:50	495	CHI-MYONG JON, YING KANG, XU YANG, WU ZUCHENG	CLEAN PROCESS FOR CATALYTICALLY CONVERTING WASTE NITROGEN-CONTAINING ORGANICS TO A SYNGAS
14:50-15:00	499	YONG-HYOK KWON, XU YANG, ZHENG FAN, WU ZUCHENG, CHI-MYONG JON	DIRECT LIQUID FUEL CELLS: A RESEARCH PROGRESS AND THE STATE OF THE ART
15:00-15:10	484	JAYRANJAN MAURYA, ESKINDER GEMECHU, AMIT KUMAR	THE ENVIRONMENTAL PERFORMANCES OF ALTERNATIVE MATERIALS FOR HYDROGEN PRODUCTION VIA PHOTOCATALYTIC WATER SPLITTING
15:10-15:20	475	DONGSEONG KANG, JAEWON BYUN. JEEHOON HAN	ENVIRONMENTAL ASSESSMENT OF FORMIC ACID PRODUCTION BY ELECTROCHEMICAL REDUCTION OF CARBON DIOXIDE
15:20-15:30	599	XIN WANG, JINGYUAN XU, ZHANGHUA WU, ERCANG LUO	A MULTI-STAGE THERMOACOUSTIC REFRIGERATOR FOR CASCADE NATURAL GAS LIQUEFACTION
15:30-15:40	7	ZHONG WU; HONGGUANG ZHANG; ZHONGLIANG LIU;	EXPERIMENTAL STUDY ON THE OPERATION PERFORMANCE OF FREE PISTON EXPANDER - LINEAR GENERATOR IN SINGLE-CYCLE
15:40-15:50	683	JIHONG ZHANG, SI CHENG, SHAOZHOU QI	CARBON ALLOWANCES ALLOCATION, SECTORAL COVERAGE CHOICE OF CARBON MARKET AND THE NATIONALLY DETERMINED CONTRIBUTIONS (NDCS): A CASE STUDY IN CHINA
15:50-16:00	692	KEYING WANG	HOUSEHOLD CARBON FOOTPRINT INEQUALITY IN CHINA: DRIVERS, COMPONENTS AND DYNAMICS

Dec.1

Oral Presentations

ROOM C

ENERGY SCIENCES

SESSION CHAIR: HUI HONG, RAZA NAQVI

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:30-14:40	115	YUZHANG WANG, QING ZHANG	RESEARCH ON THE EFFECTIVENESS OF KEY COMPONENTS FOR HAT CYCLE
14:40-14:50	185	HAONAN XI, ZHIGUANG HE, ZHEN LI	AN ENERGY EFFICIENCY MEASUREMENT AND CALCULATION METHOD AND ITS APPLICATION IN DATA CENTER
14:50-15:00	232	XIAO LIU , LUANFANG DUAN, DONGREN LIU	EXPERIMENTAL STUDY ON FLOW AND HEAT TRANSFER CHARACTERISTICS OF CONTACT CONDENSATION IN RECTANGULAR MICROCHANNELS
15:00-15:10	308	WEICHAO YAN, XIN CUI, YUE CAI, CHENGCHENG TIAN, LIWEN JIN	NUMERICAL INVESTIGATION ON A TUBULAR DEW-POINT INDIRECT EVAPORATIVE COOLER
15:10-15:20	260	HAO-NAN JIA, SHANG ZHANG, XING TIAN, XIAO-YU JIA, QIU-WANG WANG, JIAN YANG	NUMERICAL STUDY OF FLOW AND HEAT TRANSFER AROUND SINGLE SMOOTH OR DIMPLED SPHERE IN THE SQUARE CHANNEL
15:20-15:30	433	LIANG YAO, QIFAN WANG, DANDAN SU, RUITAO SONG, PENGWEI QIN, XUETAO LIU, PAI WANG, HAOMIAO ZHAN, LIWEI DONG	EFFECT OF LUBRICATING OIL ON REFRIGERANT DISTRIBUTION IN MICROCHANNEL HEAT EXCHANGERS: A REVIEW
15:30-15:40	457	SHUTING YAO, JIANSHENG WANG	EFFECT OF ROUGH MORPHOLOGY ON THE FLOW AND HEAT TRANSFER IN NANOCHANNEL
15:40-15:50	187	SHUANG YE, LI ZHANG, DONG-MING MO, YOU-RONG LI	EXPERIMENTAL STUDY ON SESSILE DROPLET EVAPORATION ON A HEATED SUBSTRATE
15:50-16:00	269	R. DEEPAK SELVAKUMAR, LIU QIANG AND JIAN WU	MELTING OF A PHASE CHANGE MATERIAL (PCM) ASSISTED BY AN EXTERNAL ELECTRIC FIELD

ROOM D

ENERGY MANAGEMENT, POLICY AND ECONOMICS

SESSION CHAIR: YINGRU ZHAO, JAKUB JURASZ

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:30-14:40	415	YAN CAO; YUNFEI MU; HONGJIE JIA	OPTIMAL RETROFIT AND EVALUATION METHOD OF PARK INTEGRATED ENERGY SYSTEM
14:40-14:50	266	HYUN MI CHO, BEOM YEOL YUN, SUNGWOONG YANG, HYEONSEONG YUK, YOUNG UK KIM, SEUNGHWAN WI, SUMIN KIM	ENERGY RETROFIT PACKAGE PLANS OF HISTORIC BUILDING FOR CONSERVATION AND SUSTAINABILITY
14:50-15:00	249	FUMI HARAHAP	THE ROLE OF ENERGY SYSTEMS' PLANNING IN MEETING THE CLIMATE TARGETS: THE CASE OF INDONESIA, THAILAND AND VIETNAM
15:00-15:10	70	PHILSEO KIM, SO-BIN CHO, MAN-SUNG YIM	EXAMINATION OF EXCESS ELECTRICITY GENERATION BASED ON THE 8TH BASIC PLAN FOR LONG-TERM ELECTRICITY SUPPLY AND DEMAND IN SOUTH KOREA
15:10-15:20	609	YUFEI LIU, DANXING ZHENG, XIAOHUI CHEN, YUN LI, WEIJIA HUANG	AN EXERGY LOSS BASED ENVIRONMENT IMPACT ASSESSMENT METHOD AND APPLICATION
15:20-15:30	652	STEVEN JIGE QUAN, KYUNGDO KIM	ELECTRICITY USE IN SEOUL APARTMENTS: EVIDENCE FROM MULTISOURCE BIG DATA AND URBAN GEOSPATIAL DATA
15:30-15:40	660	JINGBO WANG, CE SHANG	DISTRIBUTED EXPANSION PLANNING OF POWER AND GAS NETWORKS AND SITING OF ENERGY HUB WITH ADMM
15:40-15:50	338	ATIT TIPPICHAJ	DECOMPOSITION OF SECTORAL ENERGY USE IN THAILAND
15:50-16:00	342	R. DEEPAK SELVAKUMAR, LIU QIANG AND JIAN WU	CONSIDERATIONS FOR MAKING STEEL PLANTS CCS-READY IN CHINA

Note: We follow GMT+1 time zone; Please join in ICAE 2020 by ZOOM (<https://zoom.us/>); We will send the password of ZOOM meetings to the attendees through Email.

ROOM P

PANEL: ENERGY SYSTEM AND CLIMATE GOVERNANCE IN THE POST COVID-19 PANDEMIC ERA

8:00-11:00

ENERGY SYSTEM AND CLIMATE GOVERNANCE IN THE POST COVID-19 PANDEMIC ERA

ROOM A

CLEAN ENERGY CONVERSION TECHNOLOGY

SESSION CHAIR: QIBIN LIU, CHAUDHARY AWAIS SALMAN

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	212	BORIS BRIGLJEVIC, DONGJUN LIM, BOREUM LEE, MANHEE BYUN, AYEON KIM, IN-BEUM LEE, AND HANKWON LIM	DESIGN OF A FEASIBLE GREEN AMMONIA PRODUCTION THROUGH AN ALLAM CYCLE-SUPPORTED ,RENEWABLE HABER-BOSCH PROCESS
12:10-12:20	386	SHUANG GAO, JAKUB JURASZ, HAILONG LI, JINYUE YAN	OPTIMIZING CHP PLANT FLEXIBILITY IN ENERGY AND ANCILLARY SERVICE MARKETS
12:20-12:30	258	JUN YONG KIM, LUCA MASTROPASQUA, JACK BROUWER	A TRI-GENERATING RESIDENTIAL-SCALE SOFC WITH A PALLADIUM MEMBRANE SEPARATOR FOR HYDROGEN PRODUCTION
12:30-12:40	565	GODFREY UDEH, LIN MA, KEVIN HUGHES, DEREK INGHAM, MOHAMED POURKASHANIAN, STAVROS MICHAÏLOS	MULTI-OBJECTIVE OPTIMAL SIZING OF A BIOMASS FUELED HYBRID STIRLING ENGINE COUPLED WITH AN ORC DECENTRALISED MICRO-CCHP SYSTEM
12:40-12:50	558	RUI WANG, XUAN WANG , GEQUN SHU, HUA TIAN, XIANGYU YU, ZHIMIN LIN, JINWEN CAI, XINGYAN BIAN	THE INVENTORY CONTROL RANGE OF SCO ₂ RECOMPRESSION CLOSED BRAYTON CYCLE
12:50-13:00	194	YUZHU CHEN, HUILIAN HUA, SONG YANG, JUN WANG	MODIFIED THERMO-ECOLOGICAL COST ASSESSMENT OF A COMBINED COOLING HEATING AND POWER SYSTEM COUPLED WITH PHOTOVOLTAIC/THERMAL COLLECTOR
13:00-13:10	102	JIANGJIANG WANG, WENBIAO GE	OPTIMAL DESIGN OF HYBRID COMBINED COOLING, HEATING AND POWER SYSTEMS CONSIDERING OPERATIONAL FLEXIBILITY IN MICROGRIDS
13:10-13:20	291	ZHANG BAI	THERMODYNAMIC PERFORMANCES OF THERMOCHEMICAL RECUPERATION IN APPLICATION FOR COMBINED COOLING, HEATING AND POWER (CCHP) GENERATION
13:20-13:30	52	PEITING WANG, DAN WANG, YANG LEI, JIAXI LI, YI SONG, KAI YUAN	RESEARCH ON MULTI-OBJECTIVE SITE SELECTION PLANNING OF ENERGY STATIONS CONSIDERING INTERCONNECTION AND COOPERATION
13:30-13:40	554	GUANGYA ZHU, T.T. CHOW	EXERGY ANALYSIS OF A BIOGAS-FUELED MAISOSENKO COMBUSTION TURBINE CYCLE

ROOM B

INTELLIGENT ENERGY SYSTEM

SESSION CHAIR: WANDONG ZHENG, CHAOQUN ZHUANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	233	IBRAHIM ALHINDAWI, CARLOS JIMENEZ-BESCO	COMPARATIVE EVALUATION OF THERMAL COMFORT LEVELS IN PASSIVHAUS UNDER THE IMPACT OF CLIMATE CHANGE
12:10-12:20	448	JIA LIU, HONGXING YANG	COMPARISON OF RENEWABLE ENERGY SYSTEMS WITH BATTERY VEHICLES AND HYDROGEN VEHICLES FOR APPLICATION IN A ZERO-ENERGY COMMUNITY IN HONG KONG
12:20-12:30	567	AMIN AMIN, OUDOM KEM, PABLO GALLEGOS, BPHILIPP CHERVET, NFEIROUZ KSONTINI, NMONJUR MOURSHED	AN INTELLIGENT INFRASTRUCTURE FOR ENABLING DEMAND-RESPONSE READY BUILDINGS
12:30-12:40	411	ROBERTO CASTELLO, JEAN-LOUIS SCARTEZZINI, DASARADEN MAUREE, DAN ASSOULINE, NICOLAS ZWAHLEN	A WEAKLY SUPERVISED MACHINE LEARNING APPROACH FOR ANOMALY DETECTION IN BUILDINGS ELECTRICITY CONSUMPTION PROFILES
12:40-12:50	517	FABRIZIO ASCIONE, ROSA FRANCESCA DE MASI, MARGHERITA MASTELLONE, GERARDO MARIA MAURO, SILVIA RUGGIERO.	ENERGY EFFICIENCY MEASURES FOR AN EXISTING RESIDENTIAL BUILDING IN ITALY. IMPROVEMENT OF ENERGY CERTIFICATION AND FULFILLING OF THE NZEB STANDARD
12:50-13:00	602	VIKRANT DUHAN, DINESH R. GAWADE, TUSHAR JAIN, SATVASHEEL POWAR	DESIGN OF A NOVEL POWER MANAGEMENT UNIT FOR PHOTOVOLTAIC POWERED INDOOR WSN NODE
13:00-13:10	452	SHUNIAN QIU, ZHENHAI LI, ZHENGWEI LI	USER-FRIENDLY FAULT DETECTION METHOD FOR BUILDING CHILLED WATER FLOWMETERS
13:10-13:20	385	DAVIDE ROLANDO, MARCO MOLINARI	DEVELOPMENT OF A COMFORT PLATFORM FOR USER FEEDBACK: THE EXPERIENCE OF THE KTH LIVE-IN LAB
13:20-13:30	144	CHAOQUN ZHUANG, HUILONG WANG, SHENGWEI WANG, KUI SHAN	144: ONSITE TESTS OF CONTROLLING A LARGE CONSTANT SPEED CENTRIFUGAL CHILLER FOR GRID FREQUENCY REGULATION

ROOM C

MITIGATION TECHNOLOGY AND ENERGY STORAGE
SESSION CHAIR: OTTORINO VENERI, CLEMENTE CAPASSO

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	559	CAIXING CHEN, HUICHANG NIU, ZHAO LI, LEI LI, YI ZHU, XI JIANG	AN INVESTIGATION ON MITIGATION OF THERMAL RUNAWAY OF LITHIUM-ION BATTERIES USING THERMAL BARRIER
12:10-12:20	235	FARAJI NIRI M, LIU K, APACHITEI G, ROMAN RAMIREZ L, WIDANAGE D, MARCO J	DATA MINING FOR QUALITY PREDICTION OF BATTERY IN MANUFACTURING PROCESS: CATHODE COATING PROCESS
12:20-12:30	501	PURNIMA P, RAVENDRA GUNDLAPALLI, SREENIVAS JAYANTI	BATTERY SIZING CONSIDERATIONS IN VANADIUM REDOX FLOW BATTERY – PHOTOVOLTAIC - LOAD INTEGRATION: AN EXPERIMENTAL STUDY
12:30-12:40	460	M.W. SITI, N.T. NSILULU, D.H. TUNGADIO, R.C. BANSAL, R. NAIDOO, R. TIAKO, T. RATAU	OPTIMAL SWITCH MODEL FOR LOAD FREQUENCY CONTROL APPLIED TO A MULTI-MICROGRID USING ENERGY STORAGE SYSTEM
12:40-12:50	500	QING LI, YUTING HE, QIAN FU, ZHUO LI, JUN LI, LIANG ZHANG, QIANG LIAO, XUN ZHU.	COUPLING GRAPHENE FOAM WITH HOLLOW STAINLESS-STEEL ELECTRODE FOR EFFECTIVE SUPPLY AND REDUCTION OF CO ₂ IN MICROBIAL ELECTROSYNTHESIS
12:50-13:00	483	MD. MUSTAFIZUR RAHMAN, ESKINDER GEMECHU, ABAYOMI OLUFEMI ONI, AMIT KUMAR	TECHNO-ECONOMIC ASSESSMENT OF UTILITY-SCALE ELECTRO-CHEMICAL ENERGY STORAGE SYSTEMS
13:00-13:10	274	JING SHI, SHUJIAN LI , DENGQUAN LIN, ZHAOFANG SONG , ZEXU CHEN , ZITONG ZHANG , WANGWANG YANG	NEW DC/DC CHOPPER FOR SMES SYSTEM TO ELIMINATE THE PWM PULSE VOLTAGE ON THE MAGNET
13:10-13:20	394	CHENG XU, E ZHANG, KAI JIANG, KANGLI WANG	ONLINE STATE OF CHARGE ESTIMATION OF LIQUID METAL BATTERY USING DUAL ADAPTIVE EXTENDED KALMAN FILTER
13:20-13:30	170	LIANG ZHANG, TING TAN, YUANYUAN LIU, ZHIMIAO YAN	FOUR-LEAF-CLOVER PHONONIC CRYSTALS FOR ELASTIC WAVE ENERGY HARVESTING
13:30-13:40	293	LIKE ZHONG, ERREN YAO, HANSEN ZOU, GUANG XI	A DETAILED DISTRIBUTED PARAMETER MODEL FOR ACCURATE PERFORMANCE ASSESSMENT OF POWER TO METHANE SYSTEM
13:40-14:00	TEA/COFFEE BREAK		

ROOM P

14:00-14:45	KEYNOTE: POWER GENERATION FROM VARIABLE RENEWABLES AND FLEXIBILITY NEEDS IMPLIED (REINHARD MADLENER)		
15:00-15:45	KEYNOTE: CHALLENGES FOR BATTERY ENERGY STORAGE SYSTEMS (JU LI)		

ROOM P

WORKSHOP: ENERGY AND COVID-19

11:50-13:30

ENERGY AND COVID-19

ROOM A

RENEWABLE ENERGY

SESSION CHAIR: PIETRO CAMPANA, TAO MA

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	72	XIN MENG, DAN WANG, YANBIN ZHU	OPERATION STRATEGY OF MULTI-MICROGRID SYSTEM FOR ELECTRICITY TRADING
12:00-12:10	128	LOUIS POLLEUX, THIERRY SCHUHLER, GILLES GUERASSIMOFF, JEAN-PAUL MARMORAT, JOHN SANDOVAL MORENO	INCREASING ACCURACY OF PV PLANTS AND POWER SYSTEMS DYNAMIC MODELS: A COMPARISON OF BENEFITS FOR BATTERY CAPACITY SIZING
12:10-12:20	124	CHANGYU QIU, HONGXING YANG	DAYLIGHTING ASSESSMENT OF TWO TYPES OF VACUUM PV GLAZING UNDER DIFFERENT CLIMATE CONDITIONS
12:20-12:30	75	LI QIYUAN, WEI YANG, HANZE YU	ANALYZING THE LIFE CYCLE PERFORMANCES OF THE DESIGN SOLUTIONS FOR PHOTOVOLTAIC SYSTEMS APPLIED ON SMALL HOUSES
12:30-12:40	88	MANIT SEAPAN, YOSHIHIRO HISHIKAWA, MASAHIRO YOSHITA, AND KEIICHI OKAJIMA	DETECTION OF CELL CRACKS AND INCREASED SERIES RESISTANCE OF CRYSTALLINE SILICON PHOTOVOLTAIC MODULES BY USING VOLTAGE AND CURRENT AT MAXIMUM POWER POINT
12:40-12:50	427	MIAO SUN, SHAN JIANG, JICHAO WANG, XIAOLIN SONG, XUERUI GAO, XINING ZHAO, RUHAO JIA	FEASIBILITY ASSESSMENT OF PHOTOVOLTAIC-PUMP-IRRIGATION SYSTEM FOR APPLE PLANTATIONS IN TYPICAL SEMI-ARID AREAS OF CHINA
12:50-13:00	406	MARIJA KORICAN, MAJA PERCIC, NIKOLA VLADIMIR, VLADIMIR SOLDO	INTEGRATION OF RENEWABLE ENERGY SOURCES INTO THE AQUACULTURE SYSTEMS CONSIDERING ENVIRONMENTAL AND ECONOMIC ASPECTS
13:00-13:10	357	JIEHUI YUAN, WENLI YUAN, XUNMIN OU	EFFECT OF THE USE OF DISTRIBUTED SOLAR PV IN CHINA'S TOURISM INDUSTRY
13:10-13:20	55	LIKAI ZHENG, YIMIN XUAN	PERFORMANCE ESTIMATION OF A V-SHAPE PEROVSKITE-SILICON TANDEM DEVICE COMPOSED OF A BIFACIAL HETEROJUNCTION SILICON CELL

ROOM B

INTELLIGENT ENERGY SYSTEM

SESSION CHAIR: FREDDIE CUI, WANDONG ZHENG

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	413	HODGSON CHARLOTTE, CALAUTIT JOHN, SHAHZAD SALLY, TIEN PAIGE, WEI SHUANGYU, XU WEIJIE, YONG LING	INVESTIGATION OF THE EFFECT OF SPATIAL DEPLOYMENT OF TREES ON THE WIND BREAK EFFECT AND BUILDING ENERGY CONSUMPTION
12:00-12:10	201	BING SU, SHENGWEI WANG, CHAOQUN ZHUANG	IMPACTS OF INFORMATION DELAY ON DISTRIBUTED OPTIMAL CONTROL FOR BUILDING HVAC SYSTEMS DEPLOYED ON IOT PLATFORMS
12:10-12:20	455	HAN LI, ZHENG FU, CHANG XI, NANA LI, XIANGFEI KONG	RESEARCH ABOUT THE IMPACT OF PARALLEL JET SPACING ON THE PERFORMANCE OF STRATUM VENTILATION FOR ENERGY EFFICIENCY AND THERMAL COMFORT
12:20-12:30	387	QI LIN, YUANHAO JIAO, XIAODONG XU, WEI WANG	URBAN BUILDING NETWORK CREATION WITH ENERGY AND BUILDING FORM DATA FOR BUILDING ENERGY PREDICTION MODEL
12:30-12:40	620	JINGYU LU, MINGYUE JIAO, XINMEI YUAN	A HIERARCHICAL GMM-BASED METHOD FOR NON-INTRUSIVE LOAD MONITORING (NILM)
12:40-12:50	285	XU PENG, MU XIN, MA XU-XIAN	PERFORMANCE TESTING OF COOLMAX MATERIALS FOR EVAPORATIVE COOLING
12:50-13:00	261	XUXIAN MA, PENG XU, YAXUAN XIONG, ZE MIN HAN	ANALYSIS ON EXERGY EFFICIENCY OF A DEW POINT EVAPORATIVE COOLER
13:00-13:10	140	SHUANGYU WEI, PAIGE WENBIN TIEN, YUPENG WU, JOHN KAISER CALAUTIT	INVESTIGATION OF THE IMPACT OF ILLUMINATION ON DEEP LEARNING-BASED EQUIPMENT LOAD DETECTION FOR ENERGY DEMAND ESTIMATION
13:10-13:20	173	CHAOQUN ZHUANG, KUI SHAN, BING SU AND SHENGWEI WANG	COORDINATED DEMAND-CONTROLLED VENTILATION STRATEGY FOR MULTI-ZONE CLEANROOM AIR-CONDITIONING SYSTEMS AND ITS PERFORMANCE EVALUATION

ROOM C**ENERGY SCIENCES****SESSION CHAIR: XIAOYAN JI, YANJUN SUN**

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	571	CARLOS ANDRADE, SANDRINE SELOSSE	MODELING THE ENERGY TRANSITION OF THE SOUTH-EAST REGION OF FRANCE: THE ROLE OF HYDROGEN FOR THE INTEGRATION OF VARIABLE RENEWABLES
12:00-12:10	283	SOMCHART CHANTASIRIWAN	INTEGRATION OF PARABOLIC TROUGH COLLECTOR AND STEAM DRYER IN COGENERATION SYSTEM OF SUGAR INDUSTRY
12:10-12:20	657	FEI XU, LING HAO, LEI CHEN, RAN TIAN, MINSHAN WEI, QUN CHEN, YONG MIN	A REVIEW OF THE CURRENT ACCOMMODATION STATUS OF RENEWABLE ENERGY IN CHINA AND ITS METHODS OF IMPROVEMENT IN POWER AND THERMAL SYSTEMS
12:20-12:30	498	PENGTAO YUE, ZHONGYIN KANG, QIAN FU, JUN LI, XUN ZHU, QIANG LIAO	LIFE-CYCLE AND ECONOMIC ASSESSMENTS OF CARBON-BASED FUELS PRODUCTION VIA ELECTROLYTIC CONVERSION FROM (BI)CARBONATE AND CO ₂
12:30-12:40	474	JAEWON BYUN, JEEHOON HAN	TECHNO-ECONOMIC ASSESSMENT OF GREEN METHANE PRODUCTION FROM FOOD WASTE
12:40-12:50	133	TOMONORI MIYAGAWA AND MIKA GOTO	HISTORICAL TREND OF HYDROGEN PRODUCTION COST FORECAST (1977-2050) AND IMPLICATIONS TO TECHNOLOGICAL DEVELOPMENT
12:50-13:00	490	BINGZHENG WANG, XIAOLI YU, JINWEI CHANG, ZHI LI, HONGSHENG WANG	THERMODYNAMIC AND ECONOMIC ANALYSES OF A HYBRID SOLAR-WIND-BIOETHANOL HYDROGEN GENERATION SYSTEM VIA MEMBRANE REACTOR
13:00-13:10	82	SERGEY KLYAPOVSKIY; YI ZHENG; SHI YOU; HENRIK W. BINDNER	ECONOMY VS SUSTAINABILITY: COMPARISON OF THE TWO OPERATIONAL SCHEDULES FOR THE HYDROGEN-BASED ENERGY MANAGEMENT SYSTEM WITH P2X DEMAND RESPONSE
13:10-13:20	531	DANIEL SCHARRER, PETER BAZAN, REINHARD GERMAN	DYNAMIC SIMULATION OF AN HP-ORC-HEAT STORAGE PILOT PLANT FOR AN ECONOMIC EVALUATION AND NECESSARY COST REDUCTION
13:20-13:30	TEA/COFFEE BREAK		

ROOM A**MITIGATION TECHNOLOGIES AND ENERGY STORAGE****SESSION CHAIR: DAN LI, QIANG LU**

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	43	ZHIJUN LI, YU MENG, ZHENGUO LI, ZHIYAO LI, YUANKAI SHAO, XIAONING REN	A SIMULATION STUDY ON DPF WITH INHOMOGENEOUS WALL STRUCTURE BASED ON MICROCOSMIC CHANNEL MODEL
13:40-13:50	306	ARASH NEMATI, JIUN CAI ONG, JENS HONORE WALTHER	EFFECTS OF THE INJECTION DIRECTION OF PILOT FUEL ON COMBUSTION AND EMISSIONS UNDER TWO-STROKE HPDI DUAL FUEL MARINE ENGINE-LIKE CONDITIONS
13:50-14:00	465	PIYUSH VERMA, ZHIWEI YANG, RICHARD AXELBAUM	A PROCESS TO SIMULTANEOUSLY RECOVER LATENT HEAT AND REMOVE SO _x AND NO _x FROM PRESSURIZED FLUE GAS
14:00-14:10	16	JJARUI WANG, SIMIN WANG, CHEN SONG, AND ZAOXIAO ZHANG	OPTIMIZATION INVESTIGATION ON THE GEOMETRICAL PARAMETERS OF A SCRUBBER USING GENETIC ALGORITHM
14:10-14:20	204	TAO ZHU, YEZHU SUN, CHUNLI TANG, XING NING, LIMIN WANG, DEFU CHE	EXPERIMENTAL STUDY ON NO _x GENERATION CHARACTERISTICS OF ZHUNDONG COAL IN CYCLONE AIR-STAGING COMBUSTION
14:20-14:30	248	XIAOQU HAN, YANBING DAI, TIANRUN YUAN, DAN ZHANG, JIPING LIU, JUNJIE YAN	THERMODYNAMIC AND TECHNO-ECONOMIC ANALYSIS OF SOLAR-STEAM HYBRID DRIVEN FLUE GAS DESULFURIZATION WASTEWATER ZERO LIQUID DISCHARGE SYSTEM
14:30-14:40	165	TENG-GE MI, YANG-WEN WU, MING-XIN XU, XIN-YUE ZHOU, QIANG LU	CATALYTIC OXIDATION MECHANISM OF CO OVER THE MN/TIO ₂ CATALYST: A DFT STUDY
14:40-14:50	155	LEI SHI, ZHIMING JIANG, YUNQUAN LI, RUIYU LI, GUANGPU JI, ZHENGRONG ZHU, LEI DENG	RESEARCH ON THE CO-PROCESSING OF MIXED ELECTROLYTIC ALUMINUM WASTE IN CIRCULATING FLUIDIZED BED BOILER
14:50-15:00	242	CHUNLI TANG	EFFECT OF NA ON THE NO _x FORMATION CHARACTERISTIC AT HIGH TEMPERATURE

ROOM B**ENERGY MANAGEMENT, POLICY, ECONOMICS AND SUSTAINABILITY****SESSION CHAIR: ZHIFU MI, YI DING**

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	392	YI OU, BO CHEN, HE GENG, LIJING ZHU	HOW GOVERNMENT PURCHASE SUBSIDY IMPROVES EV DRIVING RANGE: AN EMPIRICAL STUDY IN CHINA
13:40-13:50	529	NOKUTHULA DANISA, DR GEORGE THOPII	ANALYSIS OF THE SOUTH AFRICAN INDUSTRIAL SECTOR'S ENERGY CONSUMPTION PROFILE
13:50-14:00	62	KUMAR BISWAJIT DEBNATH	EFFECT OF COOKING FUEL TRANSITION ON ENERGY DEMAND AND GHG EMISSIONS IN RURAL HOUSEHOLDS OF NEPAL BY 2050
14:00-14:10	396	ABHISHEK KUMAR, YAN DENG, XIANGNING HE, PRAVEEN KUMAR, RAMESH RAYUDU, R.C. BANSAL	AN INTEGRATED DESIGN APPROACH FOR RURAL ELECTRIFICATION BASED ON COMMUNITY MICROGRIDS
14:10-14:20	205	YUANCHENG LIN, LINWEI MA, ZHENG LI	UNDERSTANDING THE EVOLUTION AND DRIVING FACTORS OF ENERGY SERVICE EFFICIENCY: FROM ENERGY SOURCE TO FINAL SERVICE
14:20-14:30	479	XUE LIU AND YONG DING	INVESTIGATING DRIVERS OF ANNUAL ENERGY CONSUMPTION IN EDUCATION BUILDINGS: A NOVEL APPROACH BASED ON REGULARIZATION AND QUANTILE REGRESSION METHOD
14:30-14:40	699	MATTHEW SHUPLER	PAY-AS-YOU-GO LPG SUPPORTS SUSTAINABLE CLEAN COOKING IN KENYAN INFORMAL URBAN SETTLEMENT, INCLUDING DURING THE PERIOD OF A COVID-19 LOCKDOWN
14:40-14:50	412	QIAN SUN, JINJUN XUE	COOPERATE FRAUD PROFIEL OF JAPANESE FIRM: AN ABSERVATION FROM PERSPECTIVE OF CLIMATE CHAHNGE
14:50-15:00	581	BOQIANG LIN, PENGHU ZHU	MEASUREMENT OF DIRECT REBOUND EFFECT OF RESIDENTIAL ELECTRICITY CONSUMPTION: AN EMPIRICAL STUDY BASED ON THE CHINA FAMILY PANEL STUDIES

ROOM C**ENERGY SCIENCES****SESSION CHAIR: JIANFEI ZHANG, ERIK DAHLQUIST**

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	176	P. VIVEKH, K.J. CHUA, M.R. ISLAM	A COMPARISON BETWEEN THE REGENERATION PERFORMANCE OF SOLAR EVACUATED TUBE AND PHOTOVOLTAIC-THERMAL COLLECTORS INTEGRATED DESICCANT COATED HEAT EXCHANGERS
13:40-13:50	463	LU JIANG, JIANYI LIU	FRACTAL PREDICTION MODEL OF GAS-LIQUID SULFUR PHASE PERMEABILITY CURVE WITH BOUNDARY LAYER CONSIDERED
13:50-14:00	444	JIANYI LIU, ZHI-BIN LIU	A WELL TEST MODEL STUDY OF MULTI FRACTURE-VUG COMBINATION FOR FRACTURED VUGGY CARBONATE RESERVOIRS
14:00-14:10	156	HAO LIU, XIAOYUAN WANG, YUEZHAO ZHU	EXPERIMENTAL INVESTIGATION ON TEMPERATURE RESPONSE AND HEAT TRANSFER CHARACTERISTICS OF SUPER-LONG FLEXIBLE HEAT PIPE FOR GEOTHERMAL UTILIZATION
14:10-14:20	245	XUETAO LIU1, MINXIA LI, QIFAN WANG, LIANG YAO1, HAOMIAO ZHAN, PENGWEI QIN	NUMERICAL SIMULATION ON EFFECT OF GRAVITY ON CONDENSATION HEAT TRANSFER IN MINI-CHANNEL
14:20-14:30	604	PATTANAPOL MEENA	HEAT TRANSFER OF HEAT PIPE USING NICKEL OXIDE AT OPERATING LOW TEMPERATURE
14:30-14:40	560	CHENCHEN PEI, WEI HE	STRUCTURE OPTIMIZATION OF FINNED WATER-COOLED HEAT SINKS FOR HIGH HEAT FLUX CHIP
14:40-14:50	653	GE CHEN, LIANG ZHOU, ZHIGUO QU	NUMERICAL STUDY ON THE PERFORMANCE DEGRADATION CAUSED BY IMPURITIES IN THE CRYOGENIC LOOP HEAT PIPE (CLHP)
14:50-15:00	307	XIAOYUE ZHANG, ZHEN LI	IDEAL COEFFICIENT OF PERFORMANCE OF ABSORPTION CHILLERS AND IDEAL HEAT-MOISTURE CYCLE

Dec.3

Oral Presentations

ROOM D

ENERGY MANAGEMENT, POLICY, ECONOMICS AND SUSTAINABILITY
SESSION CHAIR: LIZ VARGA, NIKOLA VLADIMIR

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	541	JIQIANG ZHANG	UNCERTAINTY ANALYSIS OF PEAK COOLING LOAD AT THE PLANNING PHASE
13:40-13:50	41	LINGXIONG GUO, XUDONG ZHANG, YUAN ZOU, NINGYUAN GUO, JIANWEI LI, GUODONG DU	ENERGY MANAGEMENT STRATEGY FOR PLUG-IN HYBRID ELECTRIC VEHICLE BASED ON MULTI-MODE SPEED PREDICTOR
13:50-14:00	698	MINGLEI BAO, KEXIN WANG, YI DING, ZIYANG LIANG	RESILIENCE-CONSTRAINED LONG-TERM RESERVE PLANNING OF INTEGRATED GAS AND POWER SYSTEMS
14:00-14:10	122	DARARAT KHAMCHIANGTA, PERAPHAN JITTRAPIROM, PENWADEE CHEEWAPHONGPHAN, AGAPOL JUNPEN, YOSHIKI YAMAGATA	ESTIMATING AND MAPPING CARBON EMISSION OF THE BUILDING AND TRANSPORT SECTORS IN BANGKOK METROPOLITAN AREA.
14:10-14:20	576	RUI JING, JIAHUI LIU, JIANYI LIN	UNLOCK THE POTENTIAL OF EMERGING URBAN ROOFTOP ENERGY-FOOD-NEXUS
14:20-14:30	508	AAMIR MEHMOOD SHAH	URBAN GREEN-BLUE INFRASTRUCTURE SYSTEM ECOLOGICAL EFFECT: FROM THE PERSPECTIVE OF FOOD-ENERGY-WATER NEXUS
14:30-14:40	89	AYYOOB SHARIFI, MASOUD JAVADPOOR	SPATIAL ANALYSIS OF BUILDING-RELATED URBAN CO2 EMISSIONS BASED ON THE LOCAL CLIMATE ZONES CLASSIFICATION SYSTEM
14:40-14:50	591	HUANYU JIA, BOQIANG LIN	A STUDY OF RESIDENTS'WTP FOR DISTRICT HEATING: EVIDENCE FROM SOUTH CHINA
14:50-15:00	270	NINGWEN XU, JUN ZHAO, MEIQUAN LI, CHEN MA, HAIYU MENG, ZHIQIANG WU, SHUZHONG WANG	APPLICATION OF PINCH ANALYSIS IN WASTE HEAT RECOVERY SYSTEM OF SLAG DRY CENTRIFUGAL GRANULATION
15:20-15:15	TEA/COFFEE BREAK		
ROOM P			
15:15-16:00	KEYNOTE: HAVE WE REACHED 'PEAK CARBON' EMISSIONS? (KAMMEN DANIEL)		

Note: We follow GMT+1 time zone; Please join in ICAE 2020 by ZOOM (<https://zoom.us/>); We will send the password of ZOOM meetings to the attendees through Email.

ROOM P

PANEL: ACCELERATED CLIMATE CHANGE AND THE FOOD-ENERGY-WATER-NEXUS

12:00-14:00

ACCELERATED CLIMATE CHANGE AND THE FOOD-ENERGY-WATER-NEXUS

ROOM A

RENEWABLE ENERGY

SESSION CHAIR: DAVID CHIARAMONTI, EVA THORIN

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	229	YUNCHAO LI, YAN DING, XINHONG HAN, BO XING, SHURONG WANG	PREPARATION OF AN ECO-FRIENDLY BIO-CARBON FOR SUPERCAPACITORS VIA IN-SITU ACTIVATED PYROLYSIS OF SOYBEAN MEAL UNDER CO ₂ ATMOSPHERE COUPLED WITH NANO-MNO ₂ COATING
12:00-12:10	151	GUANGCAI ZHANG, SHIHAO MA, YIKUN WANG, YUAN TIE, LEI DENG, DEFU CHE	RELEASE AND TRANSFORMATION OF POTASSIUM DURING GASIFICATION OF BIOMASS
12:10-12:20	345	YU-YING LIN, WEI-HSIN CHEN, BAPTISTE COLIN, ANÉLIE PÉTRISSANS, RAFAEL LOPES QUIRINO, MATHIEU PÉTRISSANS	THERMAL TRANSITION ZONE BETWEEN TORREFACTION AND PYROLYSIS FOR WOODY BIOMASS
12:20-12:30	149	YUAN TIE, YUHAO WU, SHIHAO MA, JIAHAO JIANG, LEI DENG, DEFU CHE	RESEARCH ON RELEASE AND TRANSFORMATION OF FUEL K DURING BIOMASS GASIFICATION
12:30-12:40	661	YUKUN HU, JAHEDUL ISLAM CHOWDHURY, GIANNIS KATSAROS, NAZMIYE BALTA-OZKAN, LIZ VARGA, KANG LI, SAVVAS TASSOU, AND CHUNSHENG WANG	SYSTEM INTEGRATION STUDY OF OXY-BIOSYNGAS COMBUSTION BASED METAL HEATING PROCESS USING ASPEN PLUS
12:40-12:50	468	ARJAY A. ARPIA, WEI-HSIN CHEN, MARK DANIEL G. DE LUNA, CHI-MING WANG	CATALYTIC MICROWAVE-ASSISTED TORREFACTION OF SUGARCANE BAGASSE VIA TAGUCHI APPROACH: FUEL PROPERTIES AND ENERGY ANALYSIS
12:50-13:00	154	ZHENGRONG ZHU, SHIHAO MA, WEIYE LU, RUIYU LI, YUNQUAN LI, RONGHONG XU, LEI DENG, DEFU CHE	A STUDY ON CATALYTIC CONVERSION OF TOLUENE BY MODIFIED OAK CHAR
13:00-13:10	481	PENGFEI CAO, STEPHEN ADEGBITE, EDWARD LESTER, TAO WU.	MICROWAVE CALCINATION-ENABLED CONTROL OF PARTICLES SIZE AND COKE RESISTANCE OF NiAl ₂ O ₃ FOR METHANE DRY REFORMING

ROOM B

CLEAN ENERGY CONVERSION TECHNOLOGY

SESSION CHAIR: VALENTINA ZACCARIA, YUHUA DUAN

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	221	WEI LUO	THE THERMAL HYDRAULIC PERFORMANCES OF A NOVEL WAVY-LOUVERED FIN-TUBE HEAT EXCHANGER USED IN PEMFC SYSTEMS
12:00-12:10	164	YUTA MINEI, KEIICHI OKAJIMA, MASAHIRO YASUDA, RYUJI UBE	PEMFC SYSTEM FOR UTILIZATION OF EXHAUST GAS FROM BRIGHT HEAT TREATMENT FURNACE
12:10-12:20	217	CHONGBIN MA, ZIRONG YANG, KUI JIAO, QING DU.	AI-BASED OPTIMIZATION OF PROTON EXCHANGE MEMBRANE FUEL CELL CENTRIFUGAL COMPRESSOR VIA THREE-DIMENSIONAL COMPUTATIONAL FLUID DYNAMICS MODEL AND DATA-DRIVEN SURROGATE MODEL
12:20-12:30	252	SUHUI MA, YUWEN LIU, QIAOYU GUO, YANZHOU QIN	DELAMINATION EVOLUTION OF POLYMER ELECTROLYTE MEMBRANE FUEL CELL MEMBRANE/ CATALYST LAYER INTERFACE UNDER ASYMMETRIC HUMIDITY CYCLING
12:30-12:40	190	TINGTING SUN	NUMERICAL INVESTIGATION OF GDL COMPRESSION RATE ON AIR-BREATHING PROTON EXCHANGE MEMBRANE FUEL CELL
12:40-12:50	519	JUNG-SIK KIM, ERDOGAN GUK, SHUMAILA BABAR, VIJAY VENKATESAN	THERMAL ARRAY SENSOR FOR DETAILED INVESTIGATION OF ANODE REDUCTION PROCESS OF A FLAT-TUBULAR SOLID OXIDE FUEL CELL
12:50-13:00	419	PENGFEI ZHU, JING YAO, JIANWEI REN, MEHMET FAZ?L KAPÇ?, BURAK BAL, ZHEN WU, ZAOXIAO ZHANG	PARAMETER ANALYSIS OF A BIOMASS BASED SOFC-ENGINE POLYGENERATION SYSTEM FOR COOLING, HEATING AND POWER PRODUCTION
13:00-13:10	220	YAHAN XU, ZIRONG YANG, YAN YIN, QING DU, KUI JIAO	AN AUTOMOTIVE FUEL CELL-LITHIUM BATTERY HYBRID SYSTEM MODEL CONSIDERING DETAILED HEAT AND MASS TRANSPORT PROCESSES
13:10-13:20	295	JIAPEI YANG, LINLIN FEI, XIAOQING ZHANG, XIAO MA, KAI H. LUO, SHIJIN SHUAI	INVESTIGATION INTO LIQUID WATER TRANSPORT BEHAVIOR INSIDE GAS DIFFUSION LAYER WITH INERTIAL EFFECT THROUGH LATTICE BOLTZMANN METHOD

ROOM S

ENERGY AND COVID-19

12:00-13:40

ENERGY AND COVID-19

ROOM A

RENEWABLE ENERGY

SESSION CHAIR: WEI-HSIN CHEN, RAZA NAQVI

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	679	SONG HE, LIN GAO, SHENG LI	COMPARATIVE ANALYSIS OF EXTERNAL COMBUSTION SCHEMES IN THE THREE-STEP COAL GASIFICATION TECHNOLOGY WITH CO ₂ RECYCLING
13:40-13:50	135	RUIYU LI, YAN ZHANG, XIAOLE HUANG, YUESHENG LI, XIANGDONG ZENG, MENGQUAN YU, HU LIU, LEI DENG, DEFU CHE	NUMERICAL STUDY ON HEAT TRANSFER AND COMBUSTION CHARACTERISTICS OF GAS-FIRED BOILER UNDER DIFFERENT LOADS
13:50-14:00	180	QISEN MAO, CHANG'AN WANG, CHAOWEI WANG, XINYUE GAO, DEFU CHE	EFFECTS OF DEEP OXYGEN-STAGING ON NO _x FORMATION DURING OXY-FUEL CO-COMBUSTION OF COAL-BASED SOLID FUELS
14:00-14:10	79	JIUN CAI ONG; JENS HONORE WALTHER; XUE-SONG BAI; KAR MUN PANG	EVALUATION OF REDUCED N-HEPTANE MECHANISMS IN DUAL-FUEL COMBUSTION
14:10-14:20	132	YAN ZHANG, ZHIMING JIANG, RUIYU LI, GUANGPU JI, HU LIU, LEI DENG, DEFU CHE	THE INFLUENCE OF FLUE GAS RECIRCULATION ON THE COMBUSTION CHARACTERISTICS AND HEAT FLUX DISTRIBUTIONS UNDER 660 MW DOUBLE-REHEAT BOILER
14:20-14:30	244	CHAOWEI WANG, CHANG'AN WANG, ZHICHAO WANG, PENGQIAN WANG, CHENGCHANG LIU, QINQIN FENG, WEI YAO, AND DEFU CHE	EXPERIMENTAL INVESTIGATION ON CO-COMBUSTION CHARACTERISTICS OF BITUMINOUS COAL AND SEMI-COKE BLENDS IN A 660 MW UTILITY BOILER
14:30-14:40	172	DI WEI, LIANG ZENG	PROCESS SIMULATION AND ANALYSIS OF CALCIUM LOOPING GASIFICATION FOR COAL TO SYNTHETIC NATURAL GAS
14:40-14:50	145	YUHAO WU, YUAN TIE, YAN ZHANG, LEI DENG, DEFU CHE	EFFECT OF RECTIFIER GRID ON FLOW FIELD UPSTREAM OF AMMONIA INJECTION GRID
14:50-15:00	401	TAMER M. ISMAIL, KUNIO YOSHIKAWA, TAKAHIRO KOBORI, KIRYU KANAZAWA, FUMITAKE TAKAHASHI AND M. ABD EL-SALAM	ELECTRON INJECTED AIR IMPACTS ON GASIFICATION OF BIOMASS

ROOM B

CLEAN ENERGY CONVERSION TECHNOLOGY

SESSION CHAIR: KUI JIAO, LI CHEN

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	207	HUA XIAO, WENJING HE, SHINI LAI, AGUSTIN VALERA-MEDINA, SYED MASHRUK	AUTO-IGNITION STUDY ON METHANE AND AMMONIA FUEL BLENDS
13:40-13:50	514	LIBIN SHI, YIMING ZHOU, XIAO TAN, SUITAO QI	SYNTHESIS OF ALUMINIA WITH DIFFERENT MORPHOLOGY AND THE EFFECTS FOR REVERSIBLE HYDROGENATION AND DEHYDROGENATION OF DIBENZYL TOLUENE
13:50-14:00	66	YUNCHAO SONG, DAN WANG, BO LIU, YANG LEI, JIAXI LI	RESEARCH ON BILEVEL PROGRAMMING OF MICRO ENERGY NETWORK BASED ON DEEP UTILIZATION OF HYDROGEN ENERGY
14:00-14:10	148	LIZHEN WU	EFFECTS OF THE WETTABILITY OF THE POROUS TRANSPORT LAYER ON PEMEC CONSIDERING THE DETAILED CHANNEL TWO-PHASE FLOW
14:10-14:20	552	XIAOYAO WU, PEIYU CHEN, DONG LIU	MODELING OF A PHOTOELECTROCHEMICAL WATER SPLITTING DEVICE USING PLANAR HEMATITE PHOTOANODE
14:20-14:30	347	ZHENDONG ZHANG, YA-XIONG WANG, HONGWEN HE	MULTI-STEP AHEAD SHORT-TERM REMAINING USEFUL LIFE PROGNOSTICS OF PROTON EXCHANGE MEMBRANE FUEL CELL
14:30-14:40	163	XIAOQING ZHANG; JIAPEI YANG; XIAO MA; SHIJIN SHUAI	THE IMPACT OF MICRO-POROUS LAYER PENETRATING INTO GAS DIFFUSION LAYER ON THE PERFORMANCE OF PROTON EXCHANGE MEMBRANE FUEL CELLS
14:40-14:50	302	TONG ZHANG, CHUHE YU, XUN ZHU, DINGDING YE, YANG YANG, RONG CHEN, QIANG LIAO	A SEQUENCE-FLOW MICROFLUIDIC FUEL CELL WITH HIGH-CONCENTRATION FORMATE TOLERANT CATHODE
14:50-15:00	227	JIANAN WANG, CHASEN TONGSHI, TIANWEI MIAO, PENG CHENG, KUI JIAOIANAN WANG	EXPERIMENTAL STUDY OF THE MUTUAL HUMIDIFICATION SYSTEM OF PEMFC AND AEMFC
13:40-13:50	TEA/COFFEE BREAK		

Dec.4

Oral Presentations

ROOM S

ENERGY AND COVID-19

13:50-15:20

ENERGY AND COVID-19

ROOM D

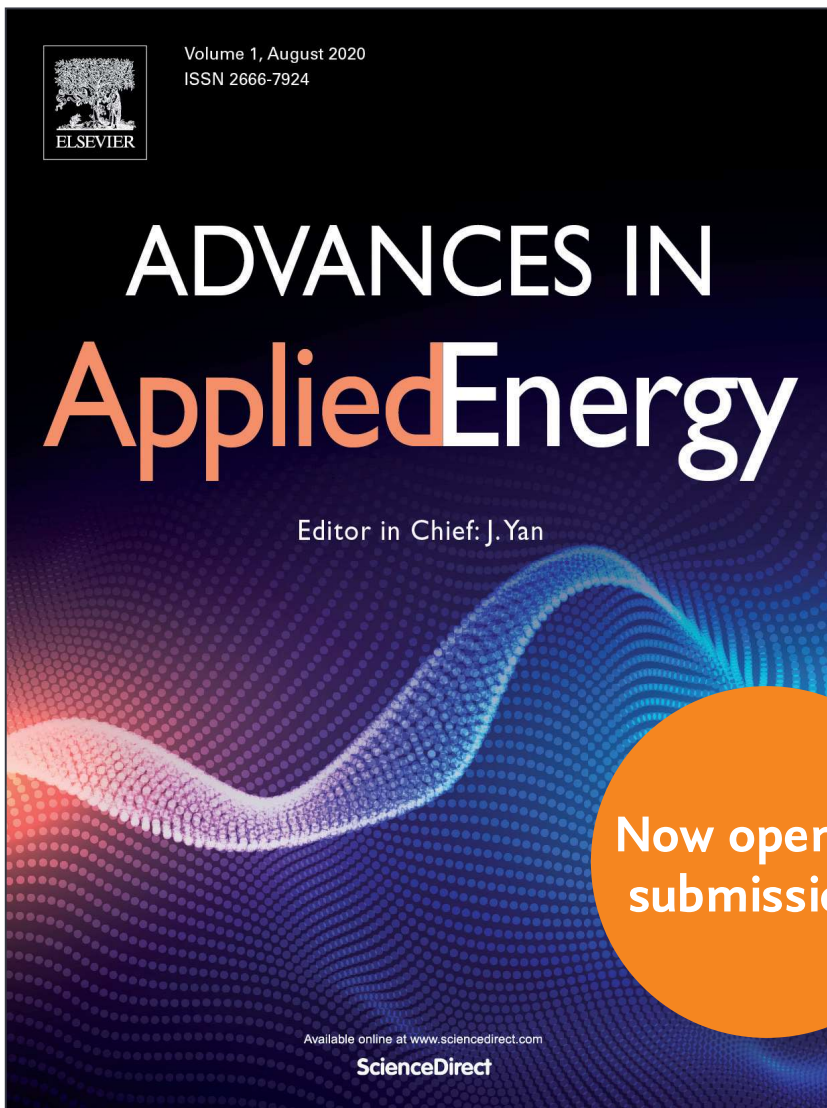
ENERGY SCIENCES

SESSION CHAIR: ERIK DAHLQUIST, XINYU WANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	247	ZHENG LI	THE HEAT TRANSFER OF DIFFERENT TYPES OF COOLING INFLOWS IN A VANELESS COUNTER-ROTATING GAS TURBINE UNDER THE VARIATION WORKING CONDITIONS
13:40-13:50	237	YI-WEN LV, XUN ZHU, HONG WANG, MAO-LIN DAI, QIANG LIAO, YU-DONG DING	PARTICLES IN A HYBRID COOLING GRANULATION CABIN
13:50-14:00	100	QIFAN WANG, DANDAN SU, MINXIA LI, XUETAO LIU, LIANG YAO, JINGXUAN LI, PAI WANG, NING ZHANG, YAO YAO	COMPARATIVE ANALYSIS OF THERMODYNAMIC PERFORMANCE OF THREE-STAGE CASCADE REFRIGERATION SYSTEM ASSISTED WITH INTERNAL HEAT EXCHANGER
14:00-14:10	563	HUICHANG NIU, DAN JI, YUHUAI ZENG	THERMAL DEGRADATION KINETICS AND FLAMMABILITY ASSESSMENT OF FOREST FUELS
14:10-14:20	443	ZHANG TIANLEI	FROSTING CHARACTERISTICS OF LATTICE SURFACE UNDER NATURAL CONVECTION
14:20-14:30	98	DEBO LI, MAOBO YUAN, HONGKAI LIAO, YING WU, YONG LIANG, YONGXIN FENG, JIELIAN ZHOU, HU LIU, LEI DENG AND DEFU CHE	EVALUATION OF THE UNIFORMITY OF HEAT FLUX DISTRIBUTION ON WATER WALL OF A 600 MW BOILER UNDER VARYING LOAD CONDITIONS
14:30-14:40	337	WEIDA ZENG, KEMING CHEN, YUN HUANG, AO XIA ,ZHU XUN , LIAO QIANG, XIANQIN ZHU	WHAT KIND OF SURFACE IS REQUIRED FOR ALGAL ADHESION: IMPACT OF SURFACE PROPERTIES ON MICROALGAL CELL-SOLID SUBSTRATE INTERACTIONS
14:40-14:50	454	JIE ZHAO, SHUAI DENG, LI ZHAO, ZHENYU DU	THERMODYNAMIC CONSIDERATIONS ON CO ₂ /H ₂ O COMPETITIVE ADSORPTION: A MOLECULAR SIMULATION STUDY
14:50-15:15	TEA/COFFEE BREAK		
ROOM P			
15:15-16:00	KEYNOTE: THE STATE OF RESEARCH, DEVELOPMENT AND INNOVATION OF ELECTRICAL ENERGY EFFICIENCY IN SOUTH AFRICA (XIAOHUA XIA)		

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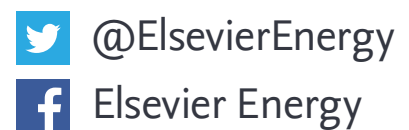
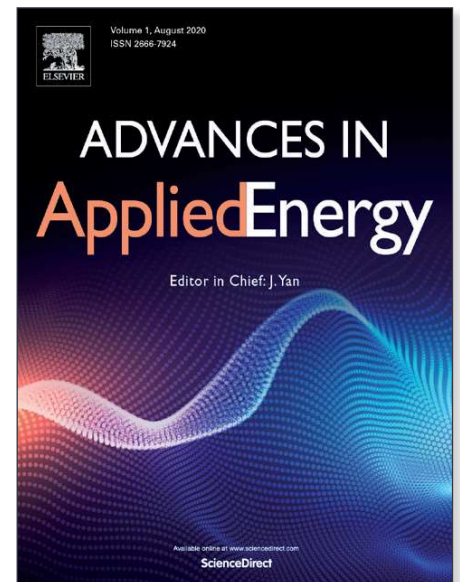
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ROOM P

PANEL: P2P ENERGY MANAGEMENT AND TRADING

12:00-14:00

P2P ENERGY MANAGEMENT AND TRADING

ROOM A1

RENEWABLE ENERGY

SESSION CHAIR: KUNIO YOSHIKAWA, SHURONG WANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	181	XINYUE GAO, CHANG'AN WANG, CHENGCHANG LIU, GAOFENG FAN, QISEN MAO, DEFU CHE	NUMERICAL SIMULATION STUDY ON CO-COMBUSTION CHARACTERISTICS OF BIOGAS AND ANTIBIOTIC FILTER RESIDUE IN A GRATE FURNACE
12:10-12:20	215	ZHIMING JIANG, JIAHAO JIANG, YUESHENG LI, YANFEI QIU, CHANGZHI SONG, LEI DENG, DEFU CHE	STUDY ON COMBUSTION CHARACTERISTICS OF CRYSTALLINE PRODUCT OF BIOMASS WATER WASHING LEACHATE
12:20-12:30	575	SUH-YOUNG LEE	MULTI-OBJECTIVE ELECTRIC ARC FURNACE STEELMAKING OPTIMIZATION CONSIDERING BIOMASS COGENERATION SYSTEM
12:30-12:40	234	BAODONG MA, CHAO CHEN, CHUNDE YAO, ANREN YAO, GUOFAN QU, JIAN GAO	NUMERICAL STUDY ON METHANOL AND FORMALDEHYDE EMISSIONS OF DIESEL METHANOL DUAL FUEL ENGINE WITH DIFFERENT VALVE OVERLAPS
12:40-12:50	213	JIAHAO JIANG, YUNQUAN LI, GUANGPU JI, RUIYU LI, KAI ZHANG, LEI DENG, DEFU CHE	INFLUENCE OF WATER WASHING PRETREATMENT ON ASH FUSION CHARACTERISTICS OF BIOMASS
12:50-13:00	162	ANIZA, RIA, WEI-HSIN CHEN, YU-YING LIN, JO SU CHANG, ANÉLIE PÉTRISSANS, MATHIEU PÉTRISSANS	PYROLYSIS KINETICS OF THREE MAJOR EXTRACTED COMPONENTS OF MICROALGAE USING INDEPENDENT PARALLEL REACTION MODEL
13:00-13:10	574	CHENG CHEN, ROBERTO VOLPE, XI JIANG	A REACTIVE MOLECULAR DYNAMICS SIMULATION OF CATALYST DEACTIVATION DURING BIOMASS THERMOCHEMICAL CONVERSION
13:10-13:20	614	JIE FAN, QIONGFEN YU, MING LI, SHAOXUAN JIN, YAOWEI HUANG, JIE CHEN, RONG ZHU	THE POTENTIAL OF LIGNIN EXTRACTS FROM ETHANOL-TREATED PALM FIBER: OPTIMIZATION OF EXTRACTION CONDITIONS
13:20-13:30	491	SOONHO HWANGBO, HOYOUNG PARK, JEEHOON HAN	ENHANCEMENT OF RENEWABLE ENERGY FLEXIBILITY BASED ON INTEGRATED BIOMASS GASIFICATION WITH BIOGAS NETWORK AND FUEL CELL SYSTEM: A CASE STUDY OF KOREA
13:30-13:40	152	SHIXIN ZHANG, RUIYU LI, YUESHENG LI, ZHIMING JIANG, YAN ZHANG, YUHAO WU, LEI SHI, LEI DENG, DEFU CHE	RESEARCH ON THE METHOD OF PREDICTING BOILER THERMAL EFFICIENCY USING NUMERICAL SIMULATION
13:40-13:50	537	MARK WORALL JO DARKWA EUNICE ADJEI JOHN CALAUTIT FRANCIS KEMAUSUOR JULIUS AHIEKPOR NII NELSON ROBERT MOKAYA	A SMALL-SCALE GASIFIER-GENERATOR FUELED BY COCOA POD HUSK FOR RURAL COMMUNITIES IN GHANA

ROOM B1

CLEAN ENERGY CONVERSION TECHNOLOGY

SESSION CHAIR: LI CHEN, HAILONG LI, RUI WU

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	512	LINA LIU, LINGYI GUO, RUIYUAN ZHANG, LI CHEN, WEN-QUAN TAO	EFFECTS OF TWO-PHASE FLOW ON DISTRIBUTION CHARACTERISTICS AND THE PERFORMANCE OF PROTON EXCHANGE MEMBRANE FUEL CELL
12:10-12:20	196	HUIJUI CHEN, HONGYANG LIAO, BIAO LIU, TONG ZHANG, PUCHENG PEI	ANALYSIS OF WATER CONTENT AFTER FUEL CELL SHUTDOWN AND EXPLORATION OF GAS PURGE PROCESS
12:20-12:30	189	CHAOCHAO CHENG, BIAO XIE, GUOBIN ZHANG, KUI JIAO	NUMERICAL STUDY ON APPLICABILITY OF METAL FOAM AS FLOW DISTRIBUTOR IN ALKALINE ANION EXCHANGE MEMBRANE FUEL CELL
12:30-12:40	251	QIAOYU GUO, MENGJIE LI, YANHONG LIU, YU LI, SUIHUI MA, YANZHOU QIN	NUMERICAL SIMULATION OF WATER DROPLET BEHAVIORS IN TWO NOVEL BLOCK CHANNELS OF PEMFC USING DYNAMIC WETTABILITY MODEL
12:40-12:50	375	YUTING HE, JIENAN YANG, QIAN FU, JUN LI, LIANG ZHANG, QIANG LIAO, XUN ZHU	OPTIMIZATION OF 3D-PRINTED ELECTRODE FOR HIGH-PERFORMANCE MICROBIAL FUEL CELLS: STRUCTURE AND INTERFACE
12:50-13:00	147	XIN SHI	IMPACT OF MICRO-POROUS LAYER CRACKS MORPHOLOGY ON TWO-PHASE BEHAVIORS IN PROTON EXCHANGE MEMBRANE FUEL CELL
13:00-13:10	533	YU LI, MENGJIE LI, QIAOYU GUO, YANZHOU QIN, YAN YIN	EX-SITU EXPERIMENTAL STUDY ON DYNAMIC CONTACT ANGLE EVOLUTION OF DROPLET IN PEMFC FLOW CHANNEL
13:10-13:20	530	YANHONG LIU, QIAOYU GUO, LIANCHENG SUN, YU LI, MENGJIE LI, YANZHOU QIN, TIANJIN UNIVERSITY, JUNFENG ZHANG, YAN YIN	SOLVENT EVAPORATION PROCESSES ON THE CATALYST INK MICROSTRUCTURES AND ELECTROCHEMICAL PERFORMANCE OF PROTON EXCHANGE MEMBRANE FUEL CELL
13:20-13:30	83	YUTARO AKIMOTO, KEIICHI OKAJIMA	STUDY OF CONTROL METHOD FOR PROTON EXCHANGE MEMBRANE FUEL CELL STACKS USING OVERPOTENTIAL CALCULATED FROM CURVE FITTING
13:30-13:40	360	XIAORUI LU, SHIXUE WANG	PERFORMANCE COMPARISON OF DIFFERENT MODES OF SOLID OXIDE FUEL CELL AND THERMOELECTRIC GENERATOR COGENERATION SYSTEM
13:40-13:50	677	YASH KHANNA, DAVID TUCKER, VALENTINA ZACCARIA	OPTIMIZATION UNDER UNCERTAINTY OF BIOGAS-FUELED SOLID OXIDE FUEL CELL SYSTEM

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ROOM C1**MITIGATION TECHNOLOGY AND ENERGY STORAGE**

SESSION CHAIR: YUNTING GE, JINGCHUN FENG

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	214	WEI CUI, XIANGXUAN LI, JIAN ZHANG, TING MA, QIUWANG WANG	INVESTIGATION OF MELTING PROCESS OF NANO-PCM INSIDE METAL FOAM UNDER ULTRASONIC FIELD
12:10-12:20	450	ZHIXIONG DING, WEI WU, MICHAEL LEUNG	OPTIMIZATION OF THE COMPRESSOR DISPLACEMENT FOR COMPRESSION-ASSISTED ABSORPTION THERMAL BATTERY
12:20-12:30	80	K.E. ELFEKY, A. G. MOHAMED, QIUWANG WANG	NUMERICAL STUDY TO INVESTIGATE THE THICKNESS OF THE PHASE CHANGE MATERIAL LAYER FOR THE THREE LAYERS TANK FOR THE CSP PLANTS
12:30-12:40	569	HUMBERT G, MADANI S H, IZADI A, HOSSEINI S V, SWANEPOEL J K, ROSENDAAL C, LE ROUX W G, SCIACOVELLI A	SELECTION AND PERFORMANCE OF TES OPTIONS FOR DECENTRALIZED GENERATION OF ELECTRICITY AND HEAT BY SMALL SCALE SOLAR AIR BRAYTON CYCLE
12:40-12:50	276	XINYI LI, TERRENCE SIMON, TIANHONG CUI, TING MA, QIUWANG WANG	PORE-SCALE ANALYSIS ON THE THERMOPHYSICAL PROPERTIES OF PHASE CHANGE MATERIALS FOR THERMAL MANAGEMENT
12:50-13:00	218	MEIQUAN LI, JUN ZHAO, NINGWEN XU, CHEN MA, SHUZHONG WANG, ZHIQIANG WU, HAIYU MENG	NUMERICAL INVESTIGATION ON PHASE TRANSFORMATION THERMAL CHARACTERISTICS OF HIGH TEMPERATURE SLAG PARTICLE
13:00-13:10	67	YANG LIU, IQRA AYUB, FUSHENG YANG, ZHEN WU, ZAOXIAO ZHANG	DESIGN OPTIMIZATION OF VARIABLE CROSS-SECTION ANNULAR FINS TYPE METAL HYDRIDE HEAT STORAGE REACTOR
13:10-13:20	592	GANG LIU, ZHAO DU, GAO SHU, XIAOHU YANG, YA-LING HE	EXPERIMENTAL STUDY ON THE MELTING PHASE CHANGE IN A PIN FIN-METAL FOAM HYBRID STRUCTURE
13:20-13:30	425	PENG XIA, GUOYING XU, LANXIONG OUYANG, QI CHEN, YING YANG	NUMERICAL SIMULATION ON NATURAL CONVECTIVE HEAT TRANSFER PERFORMANCES OF MPCM SLURRY
13:30-13:40	424	JING YAO, PENGFEI ZHU, JIANWEI REN, MEHMET FAZ?L KAPÇ?, BURAK BAL, ZHEN WU, ZAOXIAO ZHANG	NUMERICAL STUDY OF MAGNESIUM BASED METAL HYDRIDE REACTOR INCORPORATING MULTI-PHASE HEAT EXCHANGER FOR THERMAL ENERGY STORAGE SYSTEM
13:40-13:50	286	ZHENZHOU RONG, JING DING, WEILONG WANG, JIANFENG LU, XIAOLAN WEI	MECHANISM STUDY ON ENHANCED THERMAL CONDUCTIVITY OF MOLTEN CARBONATE SALT WITH DOPED MG PARTICLES FOR THERMAL ENERGY STORAGE APPLICATIONS
13:50-14:00	TEA/COFFEE BREAK		

ROOM A2**RENEWABLE ENERGY**

SESSION CHAIR: CHANGYU QIU, PIETRO CAMPANA

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	405	GIOVANNA ADINOLFI, VINCENZO GALDI, VITO CALDERARO, GIORGIO GRADITI, MARIA VALENTI	DC MICROGRID FOR GRID INSTABILITY MITIGATION AND VIRTUAL INERTIA ANCILLARY SERVICE IN 2030 SCENARIOS
14:10-14:20	546	BADER ALQAHTANI, MANOSH PAUL, XIAOLEI LIU, JIN YANG	INVESTIGATION OF THE INFLUENCES OF HYDRAULIC LOSS AND EVAPORATION RATE IN A PV-PUMPED STORAGE HYBRID SYSTEM
14:20-14:30	282	YOUNGHUN C, KOBASHI T, YAMAGATA Y	WATERFRONT REDEVELOPMENT METHODOLOGY FOR OPTIMAL ENERGY DEMAND AND SOLAR ENERGY PRODUCTION: SHINAGAWA RIVER SIDE IN TOKYO
14:30-14:40	435	JACKSON FERREIRA MORAES, GILTON FURTADO, ANDRÉ MESQUITA, MAYO ABEYO, PATRICK HENDRICK	HYBRID ENERGY SYSTEM WITH PUMPED HYDRO STORAGE FOR OFF-GRID APPLICATIONS - CASE STUDY OF TUCURUÍ LAKE ISLANDS
14:40-14:50	104	BO HU; P. ZHOU	A DIGITAL BUSINESS MODEL ACCELERATES RURAL ELECTRIFICATION: A PRACTICE OF DISTRIBUTED RENEWABLE ENERGY DIFFUSION IN CHINA
14:50-15:00	350	YANG HE, JIJIAN HE, YUSONG GUO, BIHUI WANG	A REVIEW ON SOLAR PHOTOVOLTAIC'S PARTICIPATION IN SOCIAL DEVELOPMENT PROCESS
15:00-15:10	358	GAN HUANG, CHRISTOS N. MARKIDES	ON THE POTENTIAL OF EMPLOYING SEMI-TRANSPARENT SOLAR CELLS AS OPTICAL FILTERS FOR SPECTRAL-SPLITTING HYBRID PV-THERMAL (PV-T) SOLAR COLLECTORS
15:10-15:20	551	YONGJI JI, DONG LIU	BUILDING INTEGRATION OF SEMITRANSPARENT SOLAR CELLS: A FAIR EVALUATION OF ENERGY PERFORMANCE
15:20-15:30	93	KOBASHI T, YOUNHUN C, HIRANO Y, YAMAGATA Y	TECHNO-ECONOMIC ASSESSMENT ON PV SYSTEMS INTEGRATED WITH BATTERIES AND ELECTRIC VEHICLES IN RESIDENTIAL AREA AND URBAN DISTRICT IN JAPAN
15:30-15:40	417	LAURA SOARES, HAO WANG, GIRI VENKITEELA	ENERGY HARVESTING PERFORMANCE OF HIGHWAY PHOTOVOLTAIC NOISE BARRIER
15:40-15:50	548	XIAOYAN ZHOU, MING LI, YING ZHANG, XUN MA, GUOLIANG LI, YUNFENG WANG, CHENGZHI HU	STUDY ON THE PERFORMANCE OF PV COLD STORAGE UNDER MPPT AND V/F COOPERATIVE CONTROL STRATEGY

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ROOM B2

CLEAN ENERGY CONVERSION TECHNOLOGY
SESSION CHAIR: DAWEI WU, JIUN CAI ONG

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	9	JIANXIOG HUA, LEI ZHOU, QIANG GAO, ZHONGHUI FENG, HAIQIAO WEI	EXPERIMENTAL INVESTIGATION ON PERFORMANCE, COMBUSTION AND KNOCK CHARACTERISTICS IN A TURBULENT JET IGNITION (TJI) ENGINE
14:10-14:20	42	QINJIE LIN, KUN LIN TAY, WENMING YANG	SOOT REDUCTION WITH THE ADDITION OF POLYOXYMETHYLENE DIMETHYL ETHER 3 (PODE3) IN A DIESEL-GASOLINE FUELED COMPRESSION IGNITION ENGINE: A NUMERICAL STUDY
14:20-14:30	158	JINLONG LIU, QIAO HUANG, CHRISTOPHER ULISHNEY, COSMIN EMIL DUMITRESCU	PREDICTION OF EXHAUST GAS TEMPERATURE OF A NATURAL GAS SPARK IGNITION ENGINE USING MACHINE LEARNING METHODS
14:30-14:40	507	SAMSON SHITTU, GUIQIANG LI, XUDONG ZHAO, XIAOLI MA	COMPARATIVE STUDY OF TWO-STAGE AND SEGMENTED THERMOELECTRIC GENERATORS
14:40-14:50	236	YIDI WEI, ZHENGXING ZUO, BORU JIA, HUIHUA FENG	PERFORMANCE ANALYSIS OF CONTROL STRATEGY ON THE COLD-START PROCESS IN A FREE PISTON ENGINE GENERATOR
14:50-15:00	257	DR DAWEI WU	DEVELOPMENT OF AN AMMONIA AND HYDROGEN CO-LINEAR JOULE ENGINE GENERATOR PROTOTYPE
15:00-15:10	45	ZHIYUAN ZHANG, HUIHUA FENG, BORU JIA, ZHENGXING ZUO	EFFECTS OF MOVER ASSEMBLY MASS ON THE PERFORMANCE OF A DUAL-PISTON TYPE FREE-PISTON ENGINE GENERATOR
15:10-15:20	106	QIREN ZHU, YICHEN ZONG, WENMING YANG, MARKUS KRAFT	PERFORMANCE OF DIESEL ENGINE FUELED WITH PODE3 ADDITIVE AT PARTIAL LOADS
15:20-15:30	663	XIANGYANG MAO	ADSORPTIVE REMOVAL OF DIMETHYL DISULFIDE WITH CU-BTC LOADED PHOSPHOTUNGSTIC ACID ADSORBENT
15:30-15:40	568	NIKITINA G. I., KOZLOV A. N.	THE STUDY OF ICE OPERATING PARAMETERS ON LOW-CALORIE PRODUCER GAS
15:40-15:50	58	MIN ZHANG, JIUN CAI ONG, KAR MUN PANG, XUE-SONG BAI, JENS HONOREWALTHER	EFFECTS OF EGR ON SOOT PROCESSES IN N-DODECANE SPRAY COMBUSTION AT HIGH AMBIENT TEMPERATURE

ROOM C2

ENERGY MANAGEMENT, POLICY AND ECONOMICS
SESSION CHAIR: VICTOR NIAN, LIJING ZHU

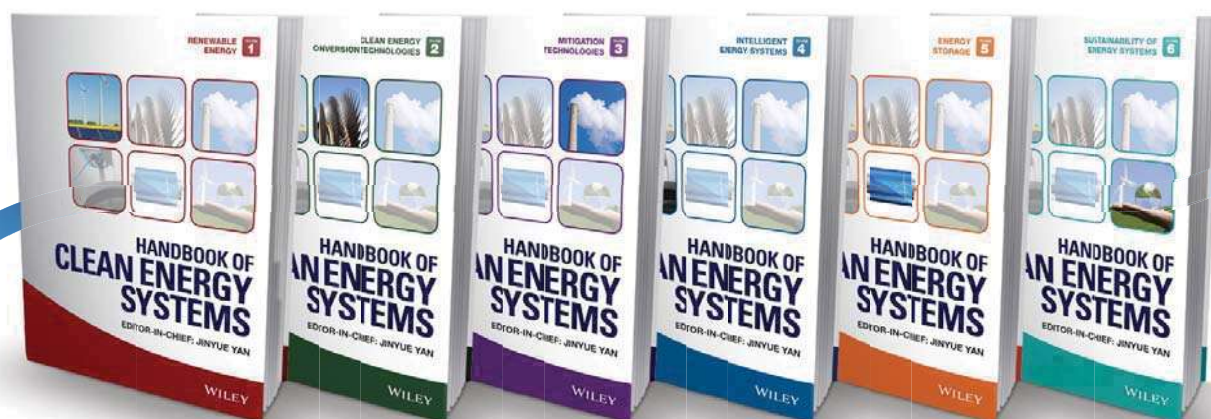
TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	668	KANGXIN AN, CAN WANG, SHIHUI ZHANG, WENJIA CAI	SOCIOECONOMIC IMPACTS OF HOUSEHOLD PARTICIPATION IN CARBON MARKET: A CGE-BASED CASE STUDY OF CHINA
14:10-14:20	598	BOQIANG LIN, XING CHEN	IS CARBON EMISSIONS TRADING SYSTEM AN EFFECTIVE POLICY TOOL TO ACHIEVE CARBON NEUTRALITY? EMPIRICAL EVIDENCE BASED ON SYNTHETIC CONTROL METHOD
14:20-14:30	99	ZHIFU MI	CHINA'S CARBON EMISSIONS IN THE NEW NORMAL
14:30-14:40	381	DONNA SIMIYU, XIANMING YE, XIAOHUA XIA	IMPACT OF CARBON TAX ON SOUTH AFRICAN COMPANIES
14:40-14:50	142	YINGLUN TENG, GBEMI OLULEYE	A COMPARATIVE ASSESSMENT OF POLICIES TO SUPPORT HEAT DECARBONISATION IN AN INDUSTRIAL SITE UTILITY SYSTEM
14:50-15:00	114	XIAOQI HUANG; WEI LIU; XIUJIE TAN	THE EFFECT OF CARBON MARKET POLICY ADJUSTMENTS ON THE SHARE PRICE OF COVERED FIRMS: EVIDENCE FROM CHINESE FIRM-LEVEL DATA
15:00-15:10	594	BOQIANG LIN; TONG SU	UNCERTAINTY DRIVE THE GREEN BONDS DANCE: TWO PIONEER MARKETS PERSPECTIVE
15:10-15:20	379	YUQING JIANG; XU TANG; XIAORONG ZHAO	EXAMINING THE EFFECTS OF ECONOMIC DEVELOPMENT ON PM2.5 EMISSION TRADING IN GLOBAL COUNTRIES
15:20-15:30	595	BOQIANG LIN, CHUNXU GUAN	DETERMINANTS OF HOUSEHOLD FOOD WASTE IN CHINA: THE ROLE OF PERCEIVED GOVERNMENT CONTROL
15:30-15:40	597	ZHIJIE JIA; BOQIANG LIN	HOW TO ACHIEVE THE FIRST STEP OF TARGET OF CARBON NEUTRAL 2060 IN CHINA? PERSPECTIVE OF COAL SUBSTITUTION
15:40-15:50	168	YIDA JIANG, TOMOHIKO IHARA	CAR OWNERSHIP AND HOUSEHOLD ACTIVITY EMISSIONS IN JAPAN – FROM THE TIME-USE PERSPECTIVE

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ROOM D2**INTELLIGENT ENERGY SYSTEM****SESSION CHAIR: JIANGFENG ZHANG, CHAO LONG**

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	126	ZHANG CHEN, JUN LIU, XINGLEI LIU	POWER FLOW ANALYSIS OF COGENERATION SYSTEM BASED ON IMPROVED MODELLING METHOD OF DISTRICT HEATING NETWORK
14:10-14:20	314	JINGRU ZHANG, BAINA HE, QIURUI ZHANG, XINGMIN HE, YANCHEN DONG, YUJIA LIU	FAST ISOLATION SCHEME FOR DC SIDE FAULTS OF FLEXIBLE DC GRID BASED ON VOLTAGE CHARACTERISTIC SIGNAL EXTRACTION
14:20-14:30	310	XINGMIN HE, BAINA HE, RONGXI CUI, JINGRU ZHANG, YANCHEN DONG, RENZHUO JIANG, YUJIA LIU	RESEARCH ON CONVERTER CONTROL STRATEGY IN ENERGY STORAGE SYSTEM OF COMMUNICATION BASE STATION
14:30-14:40	288	YONG SOON KIM, DONG SU LEE, SEUNG WAN KIM	SMART METER USE CASE FOR LOW VOLTAGE DISTRIBUTION SYSTEM OPERATION
14:40-14:50	619	JIAN LIN, XUETAO BAI, YUAN HUANG, NIANYUAN WU, LI LI, XUYUE ZHENG, SHAN XIE, YINGRU ZHAO	AN IMPROVED MULTI-OBJECTIVE OPTIMIZATION APPROACH OF URBAN ENERGY SYSTEM BASED ON RELATIVE OPTIMIZATION POTENTIAL
14:50-15:00	290	XU PENG, LIU WEI, PAN DAN-DAN, YUAN XUN	SIMULATION STUDY OF A HORIZONTAL GAS FILTER
15:00-15:10	430	MENG WANG, HANG YU, RUI JING	A HOLISTIC SUPPLY AND DEMAND CO-OPTIMIZATION FOR DISTRIBUTED ENERGY SYSTEM
15:10-15:20	239	HONGYI WEI, YUXIAO LIU, QINGCHUN HOU, MINGXUAN LI, FEI TENG, NING ZHANG, CHONGQING KANG	REAL-TIME DISTRIBUTION SYSTEM TOPOLOGY MONITORING WITH LIMITED COMMUNICATION
15:20-15:30	59	MENGLIN ZHANG, QIUWEI WU	COMPUTATIONAL EFFICIENCY IMPROVEMENT FOR TWO-STAGE STOCHASTIC OPTIMAL OPERATION OF INTEGRATED ELECTRICITY AND HEAT SYSTEM
15:30-15:40	63	YAN WU, TIANQI XIA, YUFEI WANG, XIAO FENG, HAORAN ZHANG, XUAN SONG, RYOSUKE SHIBASAKI	SITE SELECTION OF DISTRICT-SCALE DISTRIBUTED ENERGY SOURCE AND OPTIMIZATION OF PIPE NETWORK SYSTEM CONSIDERING RELIABILITY
15:40-15:50	209	HIDEYUKI CHISAKA, TSUGUHIKO NAKAGAWA	INNOVATIVE SOLAR POWER UTILIZATION SYSTEM USING ELECTRIC VEHICLES

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ROOM P

PANEL: SCHOLARLY PUBLICATION

12:00-14:00

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ROOM A1

RENEWABLE ENERGY

SESSION CHAIR: HUI HONG, JAKUB JURASZ

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	561	TIENING LIU, DONG LIU	EFFECTS OF HEAT TRANSFER MODELS ON THERMAL EFFICIENCY OF RETICULATED POROUS VOLUMETRIC SOLAR RECEIVER
12:00-12:10	256	ASHMORE MAWIRE, KATLEGO LENTSWE, PRINCE OWUSU, ADEDAMOLA SHOBO, JO DARKWA, JOHN CALAUTIT, MARK WORALL	STORAGE AND HEAT UTILISATION EFFICIENCIES OF TWO SOLAR STORAGE COOKING POTS USING DIFFERENT COOKING LOADS
12:10-12:20	332	CHAYMAE TEBAA	NUMERICAL OPTIMIZATION OF RETICULATED POROUS VOLUMETRIC SOLAR RECEIVER BY THE COMBINATION OF GEOMETRIC PARAMETERS: OPTICAL THICKNESS AND INTERFACIAL CONVECTIVE HEAT TRANSFER PERSPECTIVES
12:20-12:30	195	LIJUN WU, XIANZE AO, HONGLUN YANG, XIAO REN, KE GUO, BIN ZHAO, GANG PEI	PERFORMANCE INVESTIGATION OF SOLAR PHOTOVOLTAIC/THERMAL (PV/T) COLLECTOR BASED ON SILICA AEROGEL
12:30-12:40	434	QI XIAO	NUMERICAL INVESTIGATION ON MALDISTRIBUTION OF S-CO ₂ FLOW INSIDE PRINTED CIRCUIT HEAT EXCHANGER BY CFD SIMULATIONS
12:40-12:50	685	XUELI XING, YU XIN, FAN SUN, WANJUN QU, HUI HONG, HONGGUANG JIN	A SPECTRAL SPLITTING HYBRID PROTOTYPE FOR CASCADING SOLAR ENERGY UTILIZATION
12:50-13:00	193	WEIJIE XU, CARLOS JIMENEZ-BESCOS, CONRAD ALLAN JAY PANTUA, JOHN KAISER CALAUTIT, YUPENG WU	ANALYSIS OF THE IMPACT OF URBAN PAVEMENT SOLAR COLLECTOR ON URBAN AIR TEMPERATURE AND THERMAL COLLECTION: A COUPLED MODELLING APPROACH
13:00-13:10	691	ZHIHAO XU, JING DING, JIANFENG LU, XIAOLAN WEI, WEILONG WANG	PREDICTING THE CORROSION BEHAVIOR OF NI-BASED ALLOY IN TERNARY NaCl-KCl-ZnCl ₂ MOLTEN SALT BY TWO-DIMENSIONAL CELLULAR AUTOMATA MODEL
13:10-13:20	456	JIAN-FEI ZHANG, RUIXUE TANG, XIAOFAN ZHANG, ZHIGUO QU	A BIO-INSPIRED INSULATING LAYER WITH CIRCULAR TRUNCATED CONE STRUCTURE FOR INTERFACIAL SOLAR STEAM GENERATION

ROOM B1

CLEAN ENERGY CONVERSION TECHNOLOGY

SESSION CHAIR: WEI LIU, HAORAN ZHANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	734	FENGJUAN WANG, JIUPING XU, QIAN HUANG, LIN YUAN, JINYUE YAN	TECHNO-ECONO-ENVIRONMENTAL ANALYSIS OF HYBRID SYSTEM INTEGRATING PV-BATTERY SYSTEM WITH DRINKING WATER TREATMENT
12:00-12:10	250	XI CHEN, TIAN ZHAO, QUN CHEN	HEAT CURRENT-BASED ENERGY MANAGEMENT PLATFORM FOR ANALYSIS AND OPTIMIZATION OF GAS-STEAM COMBINED CYCLE-BASED COGENERATION SYSTEM
12:10-12:20	486	XI FANG, GUANGCAI GONG, FUYU ZHOU, XIWEN HUANG, BOLIN LI, YUNZHI ZHANG	INVESTIGATION OF THE PERFORMANCE OF AIR SOURCE HEAT PUMP WITH THE HOLISTIC PROCESS DISTRIBUTED PARAMETER MODEL BASED ON PID CONTROL ALGORITHM
12:20-12:30	174	ZHIGUANG HE, HAONAN XI, ZHEN LI, JIANMIN WANG	SYNERGY OPTIMIZATION ANALYSIS OF HEAT TRANSFER PROCESS AND ITS APPLICATION IN DATA CENTERS
12:30-12:40	61	YEE-TING LEE, PIN-HAN JIANG, CHIEN-EN YANG, YUN-CHIEH TSAI, YANG-CHENG SHIH, AN-SHIK YANG	EFFECT OF AIRFLOW RATE ON OPERATING PERFORMANCE FOR DATA CENTERS WITH COLD AISLE CONTAINMENT CONFIGURATION
12:40-12:50	665	WENLEI SONG	COOLING THE DRIVING SYSTEM FOR HIGH ALTITUDE AIRCRAFTS
12:50-13:00	361	BAI XIAO CHUN, WU DING CHEN, XU FEI, SONG PAN PAN, WEI MING SHAN, YANG BIN AND WANG LV	DISPATCHING OPERATION OPTIMIZATION OF AN ELECTROTHERMAL INTEGRATED ENERGY SYSTEM BASED ON BILEVEL PROGRAMMING
13:00-13:10	32	JIAN-WEI ZHAO, WEN-LONG CHENG	THE EFFECT OF THERMAL CONTACT RESISTANCE IN THERMAL MANAGEMENT OF MOBILE ELECTRONIC EQUIPMENT

ROOM C1**MITIGATION TECHNOLOGY AND ENERGY STORAGE**

SESSION CHAIR: JIANFENG LU, XIAOHU YANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	143	BENLI PENG ZHENGYU HE WENLONG SHENG FENGMIN SU HONG WANG	STRUCTURED METALLIC FINS INDUCE CHARGING/DISCHARGING PERFORMANCES ENHANCEMENT OF PHASE CHANGE MATERIALS-BASED THERMAL ENERGY STORAGE UNIT
12:00-12:10	573	CHRISTOPH REGENSBURGER, DANIEL STEGER, EBERHARD SCHLÜCKER	MODULAR TWO-PHASE HEAT STORAGE FOR CARNOT BATTERIES
12:10-12:20	488	KUNLUN CHEN, XIAOLAN WEI JING DING, WEILONG WANG, JIANFENG LU	MICROSTRUCTURE AND PROPERTIES OF BI-SN-IN ALLOY AS THERMAL STORAGE AND MANAGEMENT MATERIALS
12:20-12:30	664	XIYAO SUN, YUKUN HU	MODELLING AND STRUCTURE/PERFORMANCE CHARACTERISATION OF GEOPOLYMER CONCRETE CONTAINING ENCAPSULATED PHASE CHANGE MATERIALS
12:30-12:40	482	TIEN VIET TRAN, ESKINDER GEMECHU, ABAYOMI OLUFEMI ONI, YE CARRIER, HANDAN TEZEL, AMIT KUMAR	DEVELOPMENT OF TECHNO-ECONOMIC AND LIFE CYCLE ASSESSMENT MODELS FOR ZEOLITE 13X-BASED SPACE HEATING SYSTEM
12:40-12:50	649	MENGYI WANG LI CHEN WEN-QUAN TAO	NUMERICAL SIMULATION OF HYDRATION REACTION OF THE CALCIUM OXIDE/CALCIUM HYDROXIDE SYSTEM IN AN INDIRECT REACTOR
12:50-13:00	603	ZHAO DU, XINYI WANG, YUJIA SONG, XIAOHU YANG, YA-LING HE	COMPRESSION EFFECT OF METAL FOAM ON MELTING PHASE CHANGE IN A SHELL-AND-TUBE UNIT
13:00-13:10	659	CHUANG WEN	INTEGRATING COPPER NANOPARTICLES AND TRIANGULAR FINS TO ENHANCE THE MELTING PROCESS OF PHASE CHANGE MATERIALS AS A THERMAL ENERGY STORAGE MEDIUM IN SOLAR COLLECTOR SYSTEMS
13:10-13:20	688	YANG YE, WEILONG WANG, JIANFENG LU, JING DING, JINYUE YAN	PERFORMANCE IMPROVEMENT OF METAL HYDRIDE HYDROGEN STORAGE TANKS BY USING PHASE CHANGE MATERIALS
13:20-13:30	TEA/COFFEE BREAK		

ROOM A2**RENEWABLE ENERGY**

SESSION CHAIR: PIETRO CAMPANA, LEI WANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	681	YINGTANG LI	RESEARCH ON WIND POWER MAXIMUM POWER POINT TRACKING CONTROL TECHNOLOGY BASED ON PARTICLE SWARM OPTIMIZATION
13:40-13:50	428	WENLONG LIAO, BIRGITTE BAK-JENSEN, JAYAKRISHNAN RADHAKRISHNA PILLAI, RUIJIN ZHU, LIKE SONG	DATA-DRIVEN SCENARIOS GENERATION FOR WIND POWER PROFILES USING IMPLICIT MAXIMUM LIKELIHOOD ESTIMATION
13:50-14:00	121	HAIYING SUN, HONGXING YANG,	DEVELOPMENT OF AN ARTIFICIAL NEURAL NETWORK MODEL FOR WIND ENERGY
14:00-14:10	300	LEI WANG, LEI ZHANG	DESIGN OF NONLINEAR ADAPTIVE PID CONTROL SCHEME FOR FLOATING OFFSHORE WIND TURBINE'S PITCH SYSTEM UNDER ACTUATION FAULTS
14:10-14:20	587	BOQIANG LIN, CHONGCHONG ZHANG	A NOVEL COMPOUND WIND SPEED FORECASTING MODEL BASED ON THE EXTREME LEARNING MACHINE OPTIMIZED BY ADAPTIVE WHALE OPTIMIZATION ALGORITHM
14:20-14:30	374	RUNMIN ZHOU, CHANGUI DONG, JIAYING LI	THE IMPACT OF FEED-IN TARIFF ON WIND POWER DEVELOPMENT IN CHINA
14:30-14:40	625	LEI WANG, QILIN RAN, LONGGE JI	MAXIMUM POWER POINT TRACKING CONTROL OF WIND TURBINE BASED ON PRESCRIBED PERFORMANCE
14:40-14:50	626	LEI WANG, FANGJUN JIN, LONGGE JI	MAXIMUM POWER CONTROL OF WIND TURBINES WITH PRACTICAL PRESCRIBED TIME STABILITY
14:50-15:00	473	BASHAR SHBOUL, ISMAIL AL-ARFI, STAVROS MICHAÏLOS, DEREK INGHAM, LIN MA, KEVIN HUGHES, MOHAMED POURKASHANIAN	PERFORMANCE ANALYSIS OF A HYBRID SOLAR DISH/STIRLING ENGINE AND WIND POWER SYSTEM FOR STAND-ALONE MICROGRID POWER GENERATION

ROOM B2**INTELLIGENT ENERGY SYSTEM**

SESSION CHAIR: OTTORINO VENERI, CLEMENTE CAPASSO

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	197	YUJIE SHENG, QINGLAI GUO, TIANYU YANG, ZHE ZHOU	COORDINATED PRICING OF URBAN ELECTRIFIED TRANSPORTATION NETWORKS: A STACKELBERG GAME THEORETIC PERSPECTIVE
13:40-13:50	272	FEI LIB(EDIT) ZHITENG ZHU, HONGTAO LIAO, YONGJIE LIU, LISEN YAN, YUE WU, ZHIWU HUANG	AN ADABOOST-SUPPORT VECTOR REGRESSION METHOD FOR REMAINING USEFUL LIFE PREDICTION OF LITHIUM-ION BATTERIES
13:50-14:00	109	CHANG WANG, WEILING LUAN	REMAINING USEFUL LIFE PREDICTION OF LITHIUM-ION BATTERIES WITH LIMITED HISTORICAL DATA
14:00-14:10	389	YA-XIONG WANG; JINZHOU CHEN; ZHENHANG CHEN; HONGWEN HE	LITHIUM-ION BATTERY STATE-OF-CHARGE ESTIMATION BASED ON INTEGRATED GRU-BASED DEEP LEARNING AND TRANSFER LEARNING
14:10-14:20	369	ZHONGBAO WEI, JIAN HU, HONGWEN HE, XIAOFENG YANG	AN ONLINE STATE OF CHARGE AND INPUT CURRENT CO-ESTIMATION METHOD FOR CURRENT SENSOR-FREE INTELLIGENT CELLS
14:20-14:30	673	QUANQING YU, CHANGJIANG WAN, RUI XIONG	A SENSOR FAULT TOLERANT CONTROL STRATEGY FOR LITHIUM-ION BATTERY SYSTEMS IN ELECTRIC VEHICLES
14:30-14:40	129	DUO YANG, ZHENDONG SUN, ZONGHAI CHEN	A POWER SPLIT STRATEGY FOR FUEL CELL/BATTERY HYBRID VEHICLES BASED ON PARTICLE SWARM OPTIMIZATION
14:40-14:50	191	YIMING YE, JIANGFENG ZHANG, SRIKANTH PILLA, AND APPARAO M RAO	APPLICATION OF A NEW TYPE OF LITHIUM-SULFUR BATTERY IN PLUG-IN HYBRID ELECTRIC VEHICLE CRUISE CONTROL
14:50-15:00	623	ZHENYU SUN, ZHENPO WANG, YONG CHEN, HAO YIN, PENG LIU	ONLINE FAULT DIAGNOSIS METHOD OF BATTERY SYSTEM FOR ELECTRIC VEHICLE BASED ON CLUSTER ANALYSIS

ROOM C2**ENERGY MANAGEMENT, POLICY AND ECONOMICS**

SESSION CHAIR: HONGXING YANG, JOHN CALAUTIT

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	610	HU WEI, MA KUN, FANG BAOMIN, LI YANHE, SUN YUNCHAO	COORDINATION AND OPTIMAL SCHEDULING OF MULTI-ENERGY COMPLEMENTARY SYSTEM FOR NEW ENERGY CONSUMPTION
13:40-13:50	210	ZHEMIN WANG, YU DU, TIANRUN LI, JUNYI ZHANG, ZHIMIAO YAN, TING TAN	AN ACTIVE SELF-TUNING APPROACH FOR ENHANCING WORKING BANDWIDTH AND EFFICIENCY OF PIEZOELECTRIC ENERGY HARVESTING
13:50-14:00	391	JINGYUAN XU	A HYBRID PHOTOVOLTAIC-THERMAL (PV-T) BASED COMBINED COOLING, HEATING AND POWER SYSTEM FOR TOURISM SECTORS IN HOT CLIMATE ZONES
14:00-14:10	384	CHENG YANG JUN LI	USING NUMERICAL SIMULATION TO IMPROVE GEOTHERMAL UTILIZATION: BASED ON REAL COAL FIRE CASE
14:10-14:20	378	NINGFUNG WANG, GUO-YAN ZHOU	DESIGN OF PCM CONTAINERS FOR HIGH ENERGY EFFICIENCY : A REVIEW
14:20-14:30	505	JIANGYANG LIU, YALING WU, ZHONGBING LIU, YELIN ZHANG, XI CHEN, MINGHANG ZHANG, LING ZHANG	OPTIMIZATION OF BUILDING ENERGY HUB SYSTEM BASED ON TIME-OF-USE ELECTRICITY PRICE ENERGY STORAGE
14:30-14:40	639	YONGHUI HUANG	FEASIBILITY ASSESSMENT OF A HYBRID SYSTEM COMBINING THE WIND POWER AND HIGH-TEMPERATURE AQUIFER THERMAL STORAGE FOR REGIONAL HEATING
14:40-14:50	183	HAIJIAO WEI, YUANWEI LU, CANCAN ZHANG, YUTING WU, HAIYU PANG	RESEARCH ON LOAD FLEXIBILITY ADJUSTMENT OF COAL-FIRED POWER PLANT BASED ON THERMAL ENERGY STORAGE IN 50%THA

Dec.6

Oral Presentations

ROOM E2

CLEAN ENERGY CONVERSION TECHNOLOGY
SESSION CHAIR: CHAUDHARY AWAIS SALMAN, HAIYAN LEI

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	169	FLORIAN KAUFMANN, CHRISTOPH WIELAND, HARTMUT SPLIETHOFF	VALIDATION OF A SEMI-EMPIRIC MODEL FOR TWIN-SCREW COMPRESSORS WITH AN ADAPTABLE INTERNAL VOLUME RATIO
13:40-13:50	449	CHONG ZHAI, WEI WU, MICHAEL LEUNG	PERFORMANCE SIMULATION AND GEOMETRIES OPTIMIZATION OF MICROCHANNEL MEMBRANE-BASED ABSORPTION HEAT PUMP WORKING WITH IONIC LIQUIDS
13:50-14:00	509	ZI-YANG ZHANG, CHUN-LU ZHANG, LIANG-LIANG SHAO	ANALYSIS AND APPLICATION OF NONLINEARITY MEASURE FOR ENERGY-EFFICIENT OPERATION OF VAPOR COMPRESSION SYSTEMS
14:00-14:10	90	YUANYUAN ZHANG, HUAIXIN WANG	PARAMETRIC OPTIMIZATION AND PERFORMANCE COMPARISON OF ORGANIC RANKINE CYCLE, ORGANIC DUAL-PRESSURE CYCLE AND ORGANIC FLASH CYCLE
14:10-14:20	64	PENG QI, HUAIXIN WANG	PARAMETER OPTIMIZATION AND ECONOMIC PERFORMANCE COMPARISON OF SINGLE-PRESSURE STEAM CYCLE, STEAM FLASH CYCLE AND DUAL-PRESSURE STEAM CYCLE FOR WASTE HEAT RECOVERY
14:20-14:30	494	ZHENG LIANG, XIANGLONG LUO, YINGZONG LIANG, JIANYONG CHEN, ZHI YANG, YING CHEN	MODELLING AND OPTIMIZATION OF ORGANIC RANKINE CYCLE DRIVEN BY INDUSTRIAL WASTE HEAT AND SOLAR ENERGY
14:30-14:40	278	AMJAD RIAZ, MUHAMMAD ABDUL QYYUM, SEONGWOONG MIN, DONG YOUNG LEE, MOONYONG LEE	UTILIZING LNG COLD ENERGY FOR HYDROGEN LIQUEFACTION VIA THREE STAGE ORTHO TO PARA CONVERSION
14:40-14:50	53	F.S.CUI, E.S.M. NELISSEN, J.L.M. HENSEN	EXPERIMENTAL VALIDATION OF AN ISOTHERMAL DEHUMIDIFIER WITH STEPWISE SORPTION CHARACTERISTICS AT DIFFERENT HUMIDITY LOADS
14:50-15:00	224	ADEOLA AWOYOMI, KUMAR PATCHIGOLLA, BEN ANTHONY	PROCESS AND ECONOMIC ANALYSIS ON EMISSIONS CONTROL FOR HFO AND LNG POWERED SHIPS
15:00-15:15	TEA/COFFEE BREAK		
ROOM P			
15:00-16:00	KEYNOTE: EVALUATING OPPORTUNITIES TO SIMULTANEOUSLY ADDRESS AIR POLLUTION AND GREENHOUSE GAS MITIGATION IN CHINA (DENISE MAUZERALL)		

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ROOM P

PANEL: WOMEN IN APPLIED ENERGY

12:00-13:30

WOMEN IN APPLIED ENERGY

ROOM A

RENEWABLE ENERGY

SESSION CHAIR: LARA CARVALHO, QIANG LU

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	466	MEHRDAD AHMADINEJAD, K. GOUDARZI	THERMODYNAMIC ANALYSIS OF AN EFFICIENT RANKINE CYCLE POWERED BY JACKET WATER, OIL ENGINE AND EXHAUST GAS WASTE HEAT OF INTERNAL COMBUSTION ENGINE WITH THE APPROACH OF SELECTION OF APPROPRIATE WORKING FLUID
12:00-12:10	351	RAHATE AHMED, ZEESHAN, MUHAMMAD UZAIR MEHMOOD, SANG HOON LIM, WONGEE CHUN	COMBINED OPERATION OF ELECTROMAGNETIC AND TRIBOELECTRIC GENERATORS IN CONJUNCTION WITH A THERMOMAGNETIC ENGINE
12:10-12:20	496	XIAO FENG, XU YANG, BINBIN YU, ZUCHENG WU, WEN LIAO, QIONG REN	RETRIEVAL OF AMMONIA AS ENERGY SOURCE FROM MUNICIPAL WASTES BY ELECTROCHEMICAL DEIONIZING AND INGATHERING METHOD
12:20-12:30	421	KYLEE HARRIS, R. GARY GRIM, LING TAO	A COMPARATIVE TECHNO-ECONOMIC ANALYSIS OF SUSTAINABLE METHANOL SYNTHESIS PATHWAYS FROM BIOMASS AND CO ₂
12:30-12:40	368	XIN HE, HAILIN TIAN, YEN WAH TONG, CHI-HWA WANG	LIFE-CYCLE GREENHOUSE GAS EMISSION ANALYSIS FOR INTEGRATED SEWAGE SLUDGE AND FOOD WASTE MANAGEMENT STRATEGY
12:40-12:50	123	YU-FONG HUANG, SHANG-LIEN LO	THERMAL BEHAVIOR OF WASTE LIQUID CRYSTAL DISPLAYS AND WASTE PRINTED CIRCUIT BOARDS UNDER MICROWAVE IRRADIATION
12:50-13:00	636	MD KHAIRUL ISLAM, SHAZIA REHMAN, RABIA JALIL KHAN, CHI SHUN YEUNG ¹ , SHAO-YUAN LEU	PENTANOL-WATER BIPHASIC PRETREATMENT FACILITATE ENERGY-EFFICIENT FRACTIONATION OF LIGNOCELLULOSE
13:00-13:10	638	DILIP KHATIWADA, FARZIN GOLZAR	EXPLORING UNCERTAINTY IN THE ASSESSMENT OF ENERGY AND EMISSIONS FROM MUNICIPAL SOLID WASTE (MSW) IN CITIES – THE CASE OF CURITIBA
13:10-13:20	71	SONG WU, ZHIQIANG WU, BOLUN YANG	CHEMICAL LOOPING CONVERSION CHARACTERISTICS AND KINETIC BEHAVIOR OF THE MAIN COMPONENTS IN MICROALGAE

ROOM B

ENERGY MANAGEMENT, POLICY AND ECONOMICS

SESSION CHAIR: HAORAN JI, JAKUB JURASZ

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	373	ZHONGBAO WEI, HAOKAI RUAN, XIAOLEI BIAN, HONGWEN HE	STATE OF HEALTH ESTIMATION OF LITHIUM-ION BATTERY BASED ON EARLY-STAGE CONSTANT-VOLTAGE CHARGING
12:00-12:10	459	M.W. SITI, N.T. MBUNGU, K MEJE, R.M. NAIDOO, R.C. BANSAL, K. KUSAKANA	INDUSTRIAL LOAD DEMAND MANAGEMENT WITH PV-BATTERY SYSTEMS USING FUZZY LOGIC AND OPTIMIZATION-BASED IMPLEMENTATION
12:10-12:20	684	MAZIN MUHSSIN, ABDUALLAH AL-MASHHADANI, MAZIN N AJAWEER	THE ROLE OF ELECTRIC VEHICLES AGGREGATION IN THE PROVISION OF ANCILLARY SERVICES
12:20-12:30	48	YUNFEI MU, YANG JI	OPTIMAL COMBINATION MODEL OF DISTRIBUTION NETWORK LINES BASED ON K-MEANS CONSIDERING OPTIMAL DISTRIBUTION OF LINE LOSS ELECTRICITY
12:30-12:40	708	LINGFEI QI, MINGKUN JIANG, YUOXIA LV, ZUTAO ZHANG, JERRY YAN	POWERING WATER VILLAS BY STANDALONE PHOTOVOLTAIC GENERATION
12:40-12:50	707	MINGKUN JIANG, QI LINGFEI, XINHAI YU, WENDONG WEI, JINYUE YAN	THE AIRPORTS PHOTOVOLTAIC POTENTIAL IN CHINA
12:50-13:00	656	XIAWEI LIAO, SIYING WU, XIAOMING MA, JUNPING JI, ZHIBIN YI	LIFE CYCLE ENERGY, ENVIRONMENTAL, AND ECONOMIC IMPACT ASSESSMENT OF HYDROGEN FUEL CELL ELECTRIC VEHICLES: A CASE STUDY IN CHINA
13:00-13:10	471	WENTAO YANG, XIAONAN WANG	BLOCKCHAIN-BASED LIFE-CYCLE MANAGEMENT OF RENEWABLE ENERGY SYSTEMS
13:10-13:20	725	DAMINABO POKUBO, AMIN AL-HABAIBEH	AN INVESTIGATION INTO THE SUSTAINABILITY OF THE CURRENT FUELS USED FOR COOKING IN GHANA TO INFORM FUTURE ENERGY POLICIES
13:20-13:30	157	TAO JIANG ZHONGWEI SHEN XIAOLONG JIN XUE LI RUFENG ZHANG HOUHE CHEN	TRANSMISSION SYSTEM OPERATOR-DISTRIBUTION SYSTEM OPERATOR COORDINATION FOR INTEGRATED FLEXIBILITY MARKETS

Dec.7

Oral Presentations

ROOM C**MITIGATION TECHNOLOGY AND ENERGY STORAGE**

SESSION CHAIR: XIAOHU YANG, ZHANG BAI

TIME	PAPER ID	AUTHOR	PAPER TITLE
11:50-12:00	518	ELENA TOMÁS-APARICIO, ERIK DAHLQUIST	COMPARISON BETWEEN DIFFERENT RENEWABLE ENERGY SOLUTIONS FROM A MATERIALS AND CO2 PERSPECTIVE
12:00-12:10	263	XIUFEN HE, YUNONG LIU, LI WANG	A NOVEL AIR SEPARATION UNIT WITH ENERGY STORAGE AND GENERATION AND ITS OPTIMIZATION AND PERFORMANCE ANALYSIS
12:10-12:20	216	YUNLIN SHAO, YANGDA WAN, KHIN ZAW, M KUM JA, ALEX SOH, MD RAISUL ISLAM, CHUA KIAN JON ERNEST	MULTI-OBJECTIVE OPTIMIZATION OF A CRYOGENIC 'COLD' ENERGY RECOVERY SYSTEM FOR LNG REGASIFICATION
12:20-12:30	120	YANGDA WAN, ALEX SOH, YUNLIN SHAO, KUM JA M, KHIN ZAW, MD RAISUL ISLAM, KIAN JON CHUA	EXPERIMENTAL STUDY ON THE USE OF A SYNTHESIZED PARAFFIN-BASED PHASE CHANGE MATERIAL IN COMBINATION WITH A PACKED BED LATENT-HEAT THERMAL ENERGY STORAGE WITH SPHERES
12:30-12:40	6	CHEN WANG, XIAOSONG ZHANG, XIAOHUI SHE	LIQUID AIR ENERGY STORAGE FOR COMBINED HEAT AND POWER GENERATION: A REAL-WORLD EVALUATION
12:40-12:50	331	YOU WANG, ZILIANG ZHU, MEI LIN, QIUWANG WANG, YINING WU	NUMERICAL INVESTIGATION OF ICE SPIKE CAUSED BY WATER SOLIDIFICATION AND EXPANSION IN RECTANGULAR CAVITY WITH MICROGRAVITY ENVIRONMENT
12:50-13:00	520	TONGTONG ZHANG, XIAOHUI SHE, YULONG DING	FLEXIBLE INTEGRATION OF LIQUID AIR ENERGY STORAGE SYSTEM WITH AMMONIA SYNTHESIS SYSTEM FOR COST SAVING OF PRODUCING AMMONIA
13:00-13:10	564	YADONG ZHANG, HONGXIA LI, HONGTAO ZHANG, NAHLA AL AMOODI, TIEJUN ZHANG	CHARACTERIZATION OF CONFINED WATER EVAPORATION IN POROUS MEDIA
13:10-13:20	328	HYUNHO KIM, JUNJIE ZHENG, ZHENYUAN YIN, PRAVEEN LINGA	KINETIC STUDY OF TETRA-N-BUTYLAMMONIUM BROMIDE HYDRATE AS A COLD STORAGE AND TRANSPORT MATERIAL
13:20-13:30	TEA/COFFEE BREAK		

ROOM A**RENEWABLE ENERGY**

SESSION CHAIR: XIN HE, VALENTINA ZACCARIA

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	348	JU-HWAN KIM, DAE-WOON JEONG	CHARACTERISTICS AND PERFORMANCE COMPARISON IN CO-CEO ₂ CATALYST INTRODUCED BY DIFFERENT PROMOTERS FOR HIGH TEMPERATURE WATER GAS SHIFT REACTION
13:40-13:50	621	XIAN LI, CHIA WEI LIM, JIALING CHEN, YANJUN DAI, CHI-HWA WANG	EXPERIMENTAL STUDY ON HEAT TRANSFER OF A HIGH-TEMPERATURE SOLAR REACTOR FOR BIOMASS GASIFICATION APPLICATIONS
13:50-14:00	199	JIE LI, LANJIA PAN, MANU SUVARNA, YEN WAH TONG, XIAONAN WANG	MACHINE LEARNING PREDICTION OF SYNGAS COMPOSITION OF HYDROTHERMAL GASIFICATION FROM WET ORGANIC WASTES
14:00-14:10	353	YI LI, DAWEI WU, RAYA AL-DADAH, WENZHONG GAO	MIXTURES OF HYDROCARBON REFRIGERANT AND FIRE RETARDANT AS WORKING FLUIDS FOR AN ORGANIC RANKINE CYCLE SYSTEM ASSISTED WITH LNG CRYOGENIC ENERGY
14:10-14:20	615	JUIN YAU LIM; SOONHO HWANGBO; KIJON NAM; CHANGKYO YOO	GUIDANCE AND SUSTAINABLE PLATFORM TO DESIGN COMBINED MICROALGAE BIOREFINERY-BIOWATER-HYDROGEN NETWORKS TOWARDS NATIONWIDE GREEN ENERGY DEPLOYMENT
14:20-14:30	339	MIN-JU PARK, DAE-WOON JEONG	INTEGRATED PROCESS OF ANAEROBIC DIGESTION AND BIOGAS STEAM REFORMING FOR RENEWABLE HYDROGEN PRODUCTION FROM FOOD WASTE
14:30-14:40	336	HENGWEI WANG, MEIQIAN CHEN, KUN FU	MIGRATION AND TRANSFORMATION OF RADIONUCLIDES IN TYPICAL TECHNICAL WASTES DURING PYROLYSIS TREATMENT
14:40-14:50	477	HOYOUNG PARK, JAEWON BYUN, JEEHOON HAN	PROCESS SIMULATION AND ENERGY ANALYSIS FOR KENAF TO METHANOL
14:50-15:00	198	TAKAHIRO KOBORI, KUNIO YOSHIKAWA, KIRYU KANAZAWA, TAMER ISMAIL, FUMITAKE TAKAHASHI	A PRELIMINARY INVESTIGATION OF SYNGAS AND TAR PRODUCTION BY INCOMPLETE COMBUSTION OF POLYPROPYLENE WITH ELECTRON INJECTION

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Dec.7

Oral Presentations

ROOM C

ENERGY SCIENCES

SESSION CHAIR: XIAOSEN LI, YI WANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	534	BAOCAN DONG, JINGYU KAN, GUANGJIN CHEN	ANALYSIS ON COUPLING BETWEEN FLOW AND GEOMECHANICS IN HYDRATE-BEARING SEDIMENT BY DEPRESSURIZATION METHOD
13:40-13:50	426	JING-CHUN FENG, YI WANG	RESPONSE OF SEDIMENT DEFORMATION TO LAMELLAR METHANE HYDRATE DISSOCIATION BY DEPRESSURIZATION
13:50-14:00	54	XUAN KOU, YI WANG, XIAO-SEN LI	EXPERIMENTAL INVESTIGATION OF HYDRATE GROWTH HABIT UNDER MEMORY EFFECT IN SANDY SEDIMENTS
14:00-14:10	134	BO LI, LING-LING CHEN, QING-CUI WAN, WEN-NA WEI	ANALYSIS OF GAS RECOVERY AND HEAT TRANSFER PROPERTIES DURING METHANE HYDRATE DISSOCIATION IN FROZEN SANDY SEDIMENTS
14:10-14:20	549	RUI LI, TING HUANG, BOJIAN CAO, YINLONG LIU, HONGNAN CHEN, CHANGYU SUN, GUANGJIN CHEN	EXPERIMENTAL STUDY ON THE GAS PRODUCTION BEHAVIORS OF CLASS 1 HYDRATE RESERVOIR BY DEPRESSURIZATION
14:20-14:30	50	XIAOYAN LI, YI WANG, XIAO-SEN LI	THE HYDRATE FORMATION CHARACTERISTICS IN THE SEDIMENTS WITH DIFFERENT THERMAL CONDUCTIVITIES
14:30-14:40	262	QINGCUI WAN,, ZHENYUAN YIN, HU SI, PRAVEEN LINGA	FLUID PRODUCTION BEHAVIOR OF WATER-SATURATED HYDRATE-BEARING SEDIMENTS BELOW THE QUADRUPLE POINT OF CH ₄ +H ₂ O
14:40-14:50	273	BO ZHANG	THERMOCHEMICAL CONVERSION CHARACTERISTICS OF HIGH ENERGY HYDROCARBON FUEL JP-10

ROOM E

ENERGY MANAGEMENT, POLICY AND ECONOMICS

SESSION CHAIR: HOLGER SCHLÖR, CHI ZHANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
13:30-13:40	645	YULIZZA HENAO, NEDA MOHAMMADI, JOHN TAYLOR	MOBILE APPLICATION DRIVEN DIFFUSION OF ENERGY SAVING PRACTICES FROM NON-RESIDENTIAL TO RESIDENTIAL BUILDINGS
13:40-13:50	616	SHIYU LI, YUNSHENG BAI, JINGYI GONG, GENGYUAN LIU	EMERGY-BASED ECOLOGICAL BENEFITS EVALUATION OF BLUE-GREEN INFRASTRUCTURE IN SPONGE RESIDENTIAL COMMUNITY
13:50-14:00	97	HAOMIN LIU, ZAIXU ZHANG	EVALUATION OF GREEN AND EFFICIENT DEVELOPMENT OF SHALE GAS RESOURCES IN CHINA
14:00-14:10	137	LEI LEI, WEI CHEN, WEI LIU	PREDICTION OF BUILDING ENERGY CONSUMPTION BY ROUGH SET THEORY AND DEEP NEURAL NETWORK
14:10-14:20	150	HUAJING SHA, PENG XU	A FRAMEWORK OF HYBRID BUILDING ENERGY FORECASTING MODEL
14:20-14:30	318	AIDA SA, MAJID RAFIEE, SAMIRA FAZELI VEISARI	CERAMIC TILE PLANT AND ENERGY EFFICIENCY TREND- MULTIPLE CASE STUDIES FROM IRAN
14:30-14:40	487	XING SHI, GUANGCAI GONG, YONGCHAO LIU, PEI PENG	ONSITE INVESTIGATION OF A BALANCE CORRECTION TEST METHOD BASED ON DOUBLE-SIDED HEAT FLOW METER
14:40-14:50	47	NICOLA FRANZESE, MARCO SORRENTINO, ALENA TRIFIRÒ	DEVELOPMENT OF A MULTI-ANNUAL MONITORING TOOL FOR ENERGY INTELLIGENCE IN TELECOMMUNICATIONS
14:50-15:00	77	YACINE ALIMOU, NADIA MAÏZI	RELIABLE AND SECURE FUTURE POWER SYSTEM FOR FRANCE: A MULTI-SCALE, MULTI-CRITERIA FRAMEWORK

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ROOM P**SPECIAL SESSION: ENERGY EFFICIENT FREIGHT TRANSPORT AND LOGISTICS**

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:20	600	YAJUN LIU, YIMING BIE	OPTIMAL DAILY AIR CONDITIONER USAGE OF AN ELECTRIC BUS CONSIDERING STOCHASTIC TRAVEL TIMES
12:20-12:40	608	AOYONG LI, KUN GAO	AN EMPIRICAL ANALYSIS OF TRIP-LEVEL RECOVERY ENERGY RATIO OF ELECTRIC VEHICLES IN URBAN CONTEXTS BASED ON FIELD TRAJECTORY DATA
12:40-13:00	654	CHAORU LU, DONG-FAN XIE, XIAO-MEI ZHAO, AND XIAOBO	AN INSIGHT INTO THE TRANSITION PERIOD OF PUBLIC TRANSPORT ELECTRIFICATION IN EUROPE FROM A LIFECYCLE PERSPECTIVE
13:00-13:10	TEA/COFFEE BREAK		
13:10-13:30	577	XIAOWEI SHI, HANDONG YAO, XIAOPENG LI	AN EMPIRICAL STUDY ON FUEL CONSUMPTION AND EMISSIONS OF COMMERCIAL AUTOMATED VEHICLES WITH DIFFERENT HEADWAY SETTINGS
13:30-13:50	630	GUANQUN WANG, XIAOBO QU, ZHIGANG XU	FUELNET: A PRECISE FUEL CONSUMPTION PREDICTION MODEL USING LONG SHORT-TERM MEMORY DEEP NETWORK FOR ECO-DRIVING
13:50-14:10	667	YU WU, RUIYUAN WANG, JIAN ZHANG, YANG ZHOU	SMART CHARGING INFRASTRUCTURES FOR ELECTRIC VEHICLES: A SURVEY FROM HIERARCHICAL OPERATION PERSPECTIVE
14:10-14:20	453	MAJA PERCIC, NIKOLA VLADIMIR, AILONG FAN, YAPENG HE	REDUCTION OF CO2 EMISSIONS OF INLAND PASSENGER AND CARGO VESSELS BY ALTERNATIVE POWER SYSTEM CONFIGURATIONS
14:20-14:30	238	HONGWEN HE, MAN SHI, MO HAN	REAL-TIME TRAVEL PLANNING OF CONNECTED INTELLIGENT VEHICLES WITH LOCAL OBSTACLE AVOIDANCE
14:30-14:40	362	MO HAN, HONGWEN HE, JIANFEI CAO, MAN SHI	MPC-BASED LATERAL CONTROL ALGORITHM FOR BUS PATH FOLLOWING CONTROL
14:40-15:00	DISCUSSION		

ROOM A**RENEWABLE ENERGY****SESSION CHAIR: HONGXING YANG, JINQING PENG**

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	439	HAODONG HUANG, MENG LIN	GRADIENT POROUS SOLAR ABSORBER FOR ENHANCED SOLAR THERMAL CONVERSION EFFICIENCY: A MULTI-SCALE MODELING STUDY
12:10-12:20	502	ZHENG ZHUANG, XIAOWEI LUO	BUILDING THERMAL ENERGY STORAGE FOR VOLTAGE CONTROL UNDER HIGH PV PENETRATION CONDITION
12:20-12:30	624	WEI ZENG, MIN SUN, HAO HE, JUNJIE XIONG, HUAQIANG XIONG, CAIMAO XU, BO CHEN, WEI HE	HYBRID ROBUST ADAPTIVE VOLTAGE CONTROL METHOD FOR DISTRIBUTED PHOTOVOLTAIC SYSTEM CONSIDERING ENERGY STORAGE
12:30-12:40	407	T. ŽIŽAK, C. ARKAR, S. DOMJAN, S. MEDVED	PARAMETRIC STUDY ON THERMAL MANAGEMENT OF BIPV VENTILATED DOUBLE GLASS FAÇADE WITH PCM ELEMENTS
12:40-12:50	253	SAJJAN POKHREL, LEYLA AMIRI, AHMAD ZUETER, NAVID BAHRANI, FERRI HASSANI, AGUS SASMITO, SEYED ALI GHOREISHI-MADISEH	EVALUATION OF A NOVEL INTEGRATED SOLAR-BOREHOLE THERMAL ENERGY STORAGE SYSTEM FOR RESIDENTIAL HIGH-RISE BUILDING HEATING APPLICATIONS
12:50-13:00	377	SATYASEKHAR BHOGILLA, RAMA SREEKANTH	DRY COOLING OPTION FOR CSP PLANT IN COLD DESERT REGION
13:00-13:10	125	QI XIA, SHUAIMING FENG, MINGMIN KONG, CHEN CHEN	EXERGY ANALYSIS AND EFFICIENCY OPTIMIZATION OF A COMPLETE AMMONIA BASED SOLAR THERMOCHEMICAL ENERGY STORAGE SYSTEM
13:10-13:20	131	YI FAN, XUDONG ZHAO, JING LI	ECONOMIC AND ENVIRONMENTAL ANALYSIS OF A NOVEL SOLAR-ASSISTED HEAT RECOVERY HEAT PUMP SYSTEM FOR HEATING, COOLING AND DOMESTIC HOT WATER IN THREE DIFFERENT CITIES IN CHINA COLD AREA
13:20-13:30	693	DATONG GAO, TREVOR HOCKSUN KWAN, GANG PEI	THE ENERGY AND TECHNO-ECONOMIC ANALYSIS OF AN ENERGY MANAGEMENT STRATEGY FOR SOLAR SEASONAL RESIDUAL ENERGY UTILIZATION
13:30-13:40	68	AHMED ALAMMAR, AHMED REZK, ABED ALASWAD, STEPHANIE DECKER, JOSEPH RUHUMULIZA, QUENNAN GASANA GASABATO	MODELLING OF COLD STORE FOR AGRO-PRODUCTS USING SOLAR-DRIVEN ADSORPTION CHILLER UNDER RWANDAN ENVIRONMENTAL CONDITIONS
13:40-13:50	414	ZILIANG ZHU, YOU WANG, MEI LIN, LINJIE ZHANG, QIUWANG WANG	MECHANICAL CHARACTERISTICS ANALYSIS OF Y-JUNCTION IN PIPELINE SYSTEM CONSIDERING WELDING RESIDUAL STRESS AND THERMAL DEFORMATION

ROOM B

CLEAN ENERGY CONVERSION TECHNOLOGY
SESSION CHAIR: DANIEL SCHARRER, ZHIGUO QU

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	206	AHMAD NAQUASH, MUHAMMAD ABDUL QYYUM, JUNAID HAIDER, HYUNHEE LEE AND MOONYONG LEE	CO2 PRECOOLED DUAL PHASE EXPANDER BASED OFFSHORE NATURAL GAS LIQUEFACTION PROCESS
12:10-12:20	478	LIWEI DONG, JINTAO NIU, KAIYONG HU	COUPLING PERFORMANCE ANALYSIS OF CO2 TRANSCRITICAL CYCLE AND ORGANIC RANKINE CYCLE
12:20-12:30	613	MIRIAM BENEDETTI, DANIELE DADI, VITO INTRONA, ANNALISA SANTOLAMAZZA	PROPOSAL OF A METHODOLOGY FOR THE PRELIMINARY ASSESSMENT OF LOW TEMPERATURE HEAT RECOVERY OPPORTUNITIES FOR INDUSTRIAL APPLICATIONS
12:30-12:40	225	XUELING LIU, JINTAO NIU, JIANGSHENG WANG, LIWEI DONG, WEIJUAN FU	RESEARCH ON COUPLING OF DOUBLE-STAGE ORC SYSTEM BASED ON EFFICIENT UTILIZATION OF HOT DRY ROCK ENERGY
12:40-12:50	87	GEGE SONG, XIANG LI, QINGZHI YAN YUTING WU	STUDY ON OPERATING PERFORMANCE OF ORGANIC RANKINE CYCLE(ORC) SYSTEM BASED ON GT-SUITE AND MACHINE LEARNING
12:50-13:00	65	DONG YAN, FUBIN YANG, FUFANG YANG, HONGGUANG ZHANG, ZHIYU GUO	EXPERIMENTAL INVESTIGATION OF THE PIPELINE PRESSURE LOSSES EFFECT ON ORC SYSTEM PERFORMANCE
13:00-13:10	228	XUELING LIU, JINTAO NIU, JIANGSHENG WANG, LIWEI DONG, JIANXIAO ZHU	INVESTIGATION ON THE COUPLING MECHANISM OF SERIAL ORGANIC RANKINE CYCLE BASED ON THE UTILIZATION OF HOT DRY ROCK
13:10-13:20	472	YANG CAI, BINGHUA HONG, WEIWEI WANG, WEIXIONG WU, WEILIANG WANG, FUYUN ZHAO	THEORETICAL AND EXPERIMENTAL INVESTIGATIONS OF THE COOLING CHARACTERISTICS OF THERMOELECTRIC SYSTEM
13:20-13:30	271	HANWEN CAO, TAO DING, ZHIGUANG HE, ZHEN LI	A NEW IDEA OF THE FLOW MODEL APPLIED TO A TWO-PHASE LOOP THERMOSYPHON
13:30-13:40	298	LINGSHI WANG, XIAOBING LIU, MING QU, LIANG SHI	EXPERIMENTAL INVESTIGATION ON THERMAL STORAGE PERFORMANCE OF A DUAL PURPOSE UNDERGROUND THERMAL BATTERY FOR SHAPING ELECTRIC DEMAND OF BUILDINGS
13:40-13:50	10	WUJIE ZHANG, FUBIN YANG, HONGGUANG ZHANG, XU PING	PERFORMANCE ANALYSIS AND MATCHING OF TUBE-FIN EVAPORATOR IN ORGANIC RANKINE CYCLE (ORC) SYSTEM FOR DIESEL ENGINE

ROOM C

MITIGATION TECHNOLOGY AND ENERGY STORAGE
SESSION CHAIR: XIAOYAN JI, XI JIANG

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	646	DURJOY BAIDYA, ERIC WYNANDS, SEYED ALI GHOREISHI-MADISEH, AND GREGORY DIPPLE	STUDY OF OUTFLOW FROM A CYLINDRICAL PIPE INTO A POROUS MEDIUM; FOR APPLICATION IN SEQUESTRATION OF DIESEL FLUE GAS CARBON INTO MINE WASTE
12:10-12:20	469	LIJIN CHEN, SHUAI DENG, RUIKAI ZHAO, LI ZHAO	NUMERICAL INVESTIGATION ON ADSORPTION CHAMBER WITH INTERNAL HEAT EXCHANGER FOR TEMPERATURE SWING CO2 ADSORPTION
12:20-12:30	255	ZHENGXING DAI, YIFENG CHEN, YUNHAO SUN, ZHIDA ZUO, XIAOHUA LU, XIAOYAN JI	SCREENING IONIC LIQUIDS FOR DEVELOPING ADVANCED IMMOBILIZATION TECHNOLOGY FOR CO2 CAPTURE
12:30-12:40	112	YUHUA DUAN	THEORETICAL SCREENING AND SYNTHESIZING SORBENT MATERIALS FOR CAPTURING CO2 AND OXIDIZING CO TO CO2
12:40-12:50	410	CHUNYAN MA, NAN WANG, XIAOYAN JI	TECHNO-ECONOMIC ANALYSIS OF A NEW HYBRID IONIC LIQUID-BASED SOLVENT FOR CO2 CAPTURE
12:50-13:00	704	KENNETH MÖLLERSTEN, RAZA NAQVI, JINYUE YAN	QUALITATIVE COMPARATIVE ASSESSMENT OF NEGATIVE EMISSION TECHNOLOGIES (NETS)
13:00-13:10	313	MAIMOONA SHARIF, XIAOMEI WU , YUNSONG YU , TINGTING ZHANG, ZAOXIAO ZHANG,	EVALUATION OF DIFFUSIVITY AND SOLVENT CONCENTRATION EFFECT ON INTERMOLECULAR INTERACTION OF SECONDARY AND TERTIARY AMINES FOR CO2 ABSORPTION PROCESS
13:10-13:20	317	XIAOMEI WU, GUANGXIN LIU, HUIFENG FAN, YUNSONG YU, ZAOXIAO ZHANG	CO2 CAPTURE VIA ELECTROCHEMICALLY-MEDIATED AMINE REGENERATION: SYSTEM DESIGN AND BENCH-SCALE DEMONSTRATION
13:20-13:30	480	YAWEN ZHENG, SONG HE, LIN GAO, SHENG LI	THE POSSIBILITY OF ENERGY SAVING IN CHEMICAL ABSORPTION TECHNOLOGY INTEGRATED WITH LOW CONCENTRATION EMISSION RESOURCES
13:30-13:40	706	CHANGZHENG HU	DYNAMIC SIMULATION OF CO2 CAPTURE FROM BIOMASS POWER PLANT BY MEA
13:40-13:50	662	CHUANG WEN	A NEW CONCEPT OF CARBON DIOXIDE (CO2) SEPARATION USING SUPERSONIC FLOWS: EFFECT OF NOZZLE CONVERGING PROFILES
13:50-14:00	TEA/COFFEE BREAK		

ROOM A**INTELLIGENT ENERGY SYSTEM****SESSION CHAIR: SERGEY KLYAPOVSKIY, YANLI LIU**

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	107	CONGRONG GUAN, YUE ZHANG, CHANGBIN HU, SHANNA LUO	MULTI-INVERTER RESIDUAL CAPACITY COMPENSATION CONTROL BASED ON RESIDUAL GENERATOR
14:10-14:20	516	CHAO LONG, YIMING XU	VEHICLE-TO-VEHICLE ENERGY TRADING PLATFORM USING DOUBLE AUCTION MECHANISM
14:20-14:30	139	XIANMING YE, LIJUN ZHANG, XIAOHUA XIA	AN OVERVIEW OF PEER-TO-PEER ENERGY TRADING FROM THE BUSINESS MODEL CANVAS PERSPECTIVE
14:30-14:40	402	ZEKUN GUO, XIN ZHANG, NAZMIYE BALTAOZKAN, PATRICK LUK	AVIATION TO GRID: AIRPORT CHARGING INFRASTRUCTURE FOR ELECTRIC AIRCRAFT
14:40-14:50	315	YULI ZHANG, HAOJIE YU, NINGWEI ZHANG, XIDONG LIANG, PENG LIU	A GREY RELATIONAL ANALYSIS BASED ENSEMBLE LEARNING ALGORITHM FOR EV SWAPPING DEMANDS PREDICTION
14:50-15:00	192	SAAD BIN ARSHAD, JIANGFENG ZHANG, AYALEW BESHAH, PIERLUIGI PISU	OPTIMAL POWER COMPONENT SIZING OF VEHICLE-BORNE MOBILE MICROGRIDS FOR MILITARY APPLICATIONS
15:00-15:10	184	MING GAN, HUI HOU, YANGYANG CHEN, KUN XIE, ZEYANG FAN, XIXIU WU	ENERGY MANAGEMENT STRATEGY OF MULTI-ENERGY SHIP BASED ON NEW GENERATOR SET STRUCTURE
15:10-15:20	8	XINCHEN LI, YIXIN LIU, XIALIN LI, LI GUO, ZONGZHENG ZHAO	IMPROVED MULTI-ELLIPTICAL UNCERTAINTY SET-BASED ROBUST OPTIMIZATION FOR MICROGRID WITH CORRELATED WIND POWER
15:20-15:30	329	JIANING (TOM) LUO, SHENGWEI WANG, HANGXIN LI	SENSITIVITY ANALYSIS OF THE PRICE FLUCTUATIONS BY THE TAGUCHI-ANOVA APPROACH IN MICROGRID OPTIMAL DESIGN
15:30-15:40	335	JERRY ZHANG, YUNFEI MU, WANQING CHEN, YAQING ZHANG, SHUPENG LI, XIANXU HUO	BI-LEVEL OPTIMAL PLANNING METHOD FOR REGENERATIVE ELECTRIC HEATING CONSIDERING INVESTOR COST AND RELIABLE HEATING
15:40-15:50	538	LUO WANG, XIA ZHAO, XINYI LI, HONG TAN, XINXIN FENG	DYNAMIC POWER FLOW ANALYSIS CONSIDERING THE PRIMARY FREQUENCY REGULATION BASED ON THE FAST AND FLEXIBLE HOLOMORPHIC EMBEDDING METHOD
15:50-16:00	695	MADELEINE MARTINSEN, ERIK DAHLQUIST, JERRY YAN	AUGMENTED REALITY REDUCING ENERGY USES AND CO ₂ EMISSIONS

ROOM B**ENERGY MANAGEMENT, POLICY AND ECONOMICS****SESSION CHAIR: ZHIFU MI, QIE SUN**

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	586	BOQIANG LIN; RUI BAI	GOVERNMENT SUBSIDIES AND FIRM-LEVEL RENEWABLE ENERGY INVESTMENT: NEW EVIDENCE FROM PARTIALLY LINEAR FUNCTIONAL-COEFFICIENT MODELS
14:10-14:20	380	WEI HE, SU DING	OPTIMIZATION OF SERVER WATER COOLING SYSTEM OPERATING CONDITIONS BASED ON MINIMUM ENERGY CONSUMPTION ANALYSIS
14:20-14:30	497	ELIN BORG, ILYA KITS, JUHA JUNTILLA, GAZI SALAH UDDIN	DEPENDENCY BETWEEN ENERGY MARKET FUTURES AND PRODUCER EQUITY MARKETS ACROSS VARYING MARKET CONDITIONS
14:30-14:40	85	HAKPYEONG KIM, TAEHOON HONG, HYUNA KANG	DEVELOPMENT OF DECISION-MAKING MODEL FOR ADOPTING RENEWABLE ENERGY BASED ON TRIPARTITE EVOLUTION GAME THEORY ANALYSIS
14:40-14:50	393	WILNA LESPERANCE, LAURENT LINGUET, JULES SADEFO KAMDEM	A ROOT MEAN SQUARE FUZZY PAY-OFF APPROACH FOR REAL OPTIONS VALUATION
14:50-15:00	279	LANYU LI, XIAONAN WANG, DR, NATIONAL UNIVERSITY OF SINGAPORE, JUN JIE YEOH	GLOBAL POTENTIAL FOR CARBON REDUCTION VIA RENEWABLE ENERGY AND NEGATIVE EMISSION TECHNOLOGIES
15:00-15:10	550	MUHAMMAD ABID, NEIL HEWITT, MING JUN HUANG, CHRISTOPHER WILSON, DONAL COTTER	HEAT SUPPLY TEMPERATURE IMPACT ON THE SEASONAL COST OF DOMESTIC HEAT PUMP SYSTEM
15:10-15:20	60	LIN WANG, JIAN ZENG	HOTSPOT AND TREND OF RURAL ENERGY RESEARCH IN CHINA: CITESPACE ANALYSIS BASED ON DATA FROM CNKI DATABASE
15:20-15:30	420	ZHENHUA XIA, GUOSHEN JIA, ZHENDI MA, JIAWEI WANG, YUPING ZHANG, LIWEN JIN	THERMAL ECONOMIC OPTIMIZATION OF GEOTHERMAL HEATING SYSTEM BASED ON MULTI-FACTOR ANALYSIS
15:30-15:40	588	WEI HU, QIUTING YU, QIUTING GUO, WEI WANG, DEGANG DENG, YAN MENG	ELECTRICAL ENERGY LOSS ANALYSIS FOR LOW-VOLTAGE DISTRIBUTION NETWORK BASED ON MEASURED DATA FEATURES
15:40-15:50	589	BOQIANG LIN, ZHIZHOU TAN	HOW MUCH IMPACT WILL LOW OIL PRICE AND CARBON TRADING MECHANISM HAVE ON THE VALUE OF CARBON CAPTURE UTILIZATION AND STORAGE (CCUS) PROJECT? ANALYSIS BASED ON REAL OPTION METHOD
15:50-16:00	712	CHI ZHANG, JINGYAO SHU	ASSESSMENT OF THE ENERGY-SAVING EFFECT OF URBANIZATION IN CHINA BASED ON STIRPAT MODEL

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ROOM C**ENERGY SCIENCES****SESSION CHAIR: JING DING, JINQING PENG**

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	629	AGUS P. SASMITO, AHMAD F. ZUETER, SEYED ALI GHOREISHI-MADISEH, JUNDIKA C. KURNIA, AGUS P. SASMITO	DEVELOPMENT OF A NOVEL DOUBLE-PIPE HEAT EXCHANGER WITH A CONTROLLED FRACTURED ZONE AT THE BOTTOM OF THE WELL: THERMAL AND HYDRAULIC ANALYSIS
14:10-14:20	640	MOHAMMED RIDHA JAWAD AL-TAMEEMI, THAMER KHALIF SALEM, ZHIBIN YU	NUMERICAL INVESTIGATION OF THE JUNCTION TEMPERATURE AT DIFFERENT COLD PLATE DESIGN CONFIGURATIONS WITH AND WITHOUT THERMAL INTERFACE MATERIAL
14:20-14:30	136	T.D. BUI, I. RAISUL, K.J. CHUA	HIGH AIR DEHUMIDIFICATION PERFORMANCE OF A COMPACT COMPOSITE HOLLOW MEMBRANE
14:30-14:40	167	XIAOXUAN CHEN, TAO DING, HAIBIN LI, ZHEN LI	EXPERIMENTAL RESEARCH ABOUT THE HEAT TRANSFER CHARACTERS ON THE TWO-STAGE LOOP THERMOSYPHON SYSTEM
14:40-14:50	153	JIE LU, HAIYAN LEI, CHUANSHAN DAI	SIMULATION OF HEAT TRANSFER IN GEOTHERMAL RESERVOIR USING LATTICE-BOLTZMANN METHOD
14:50-15:00	464	LU JIANG, JIANYI LIU, XUE-NI DAI	GENETIC ALGORITHM-BASED INTERPRETATION OF SHALE CORE MATRIX-NATURAL FRACTURE PARAMETERS
15:00-15:10	265	YECHENG YAO, YUANYUAN ZHANG, JING DING, WEILONG WANG, JIANFENG LU	THERMODYNAMIC PERFORMANCE OF PILLOW PLATE HEAT EXCHANGER WITH MOLTEN SALT/S-CO ₂
15:10-15:20	171	TAO DING, HANWEN CAO, XIAOXUAN CHEN, ZHEN LI	EXPERIMENTAL RESEARCH ABOUT THE BOILING HEAT TRANSFER MECHANISM IN A PUMP DRIVEN LOOP THERMOSYPHON SYSTEM
15:20-15:30	511	XINYU ZHANG, YUNTING GE	EFFECTS OF SPLIT FINS ON THE PERFORMANCE OF FINNED-TUBE CO ₂ GAS COOLERS
15:30-15:40	513	NA HE , XUEDONG CHEN , YONGDONG CHEN , SHURONG YU	IMPACT OF WINDING ANGLE ON FALLING FILM THICKNESS IN SPIRAL WOUND HEAT EXCHANGERS
15:40-15:50	535	SHAHRUDDIN MZ, ZIN RM, MOKHTAR S, RAHIMI, MN, ZUBIR MA, ZAHNAN MFI, IBRAHIM N, HAMID MKA	THE OPTIMUM VALUE OF MINIMUM TEMPERATURE GAP IN THE ENERGY TARGETING OF DISTILLATION COLUMNS SEQUENCE BY THERMAL PINCH ANALYSIS
15:50-16:00	161	WEI-HSIN CHEN	A COMPUTATIONAL FLUID DYNAMIC (CFD) APPROACH TO THERMOELECTRIC POWER GENERATION WITH PLATE FINS FOR RECOVERING LOW-TEMPERATURE WASTE HEAT

ROOM E**INTELLIGENT ENERGY SYSTEM****SESSION CHAIR: ROBERTO CASTELLO, YIMO LUO**

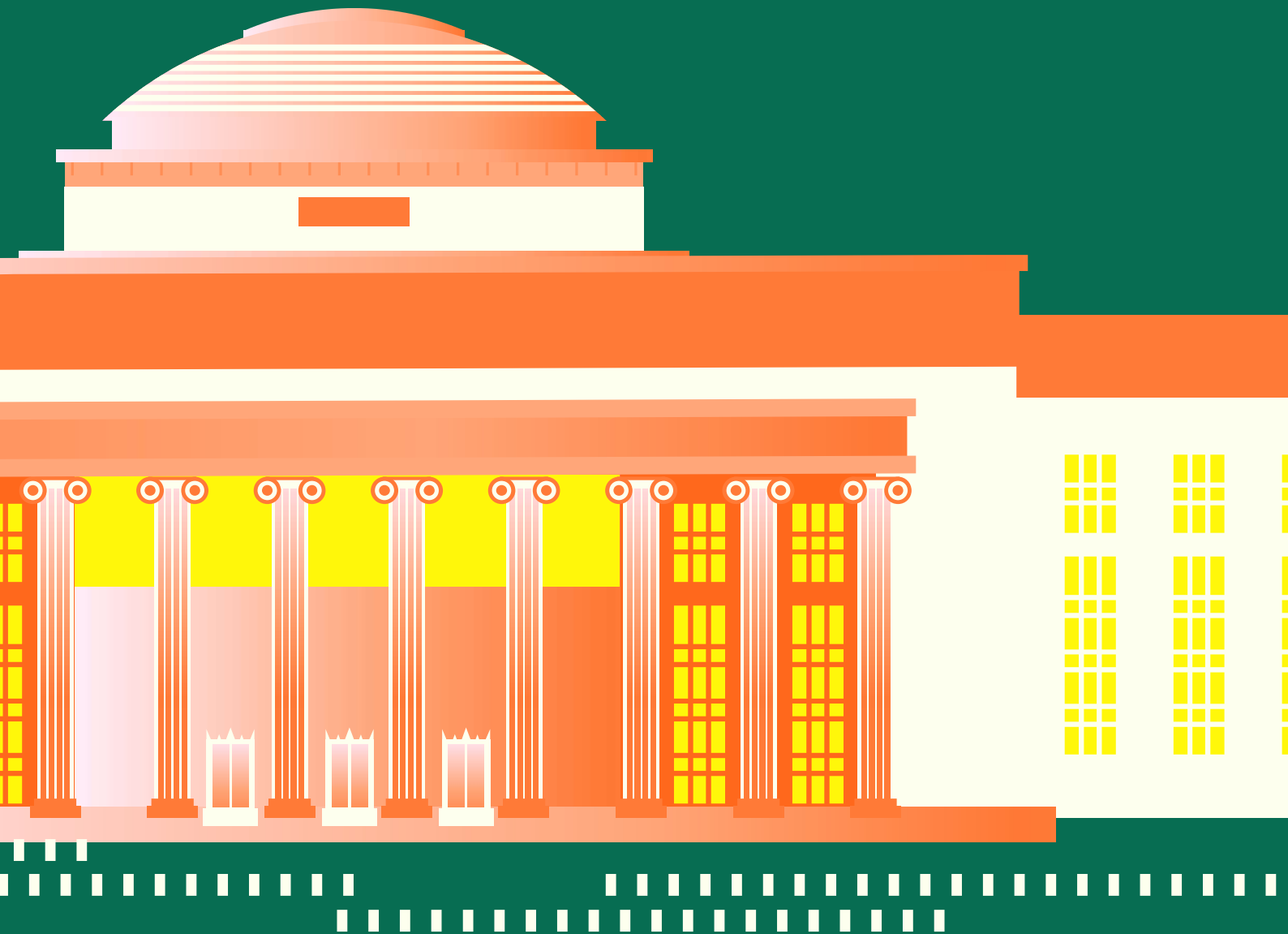
TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	91	PENG SHI, LIN-SHU WANG	INVESTIGATION OF THE UNDERLYING MECHANISM BEHIND ENERGY SAVINGS ACHIEVED BY BUILDING MODEL PREDICTIVE CONTROL
14:10-14:20	467	FABRIZIO ASCIONE, NICOLA BIANCO, TERESA IOVANE, GERARDO MARIA MAURO, GIACOMO MANNITI	TRANSPARENT PHOTOVOLTAIC INTEGRATED IN THE DOUBLE SKIN FAÇADE FOR THE ENERGY REQUALIFICATION OF THE ITALIAN TYPICAL BUILDINGS OF THE 60S AND 70S
14:20-14:30	111	HOANG PHUONG LIEN THAN, FENGJI LUO, ZY DONG	ACOUSTIC COMFORT-AWARE HOME ENERGY MANAGEMENT SYSTEM
14:30-14:40	127	PAIGE WENBIN TIEN, SHUANGYU WEI, JOHN KAISER CALAUTIT, JO DARKWA, CHRISTOPHER WOOD,	DEEP LEARNING OCCUPANCY ACTIVITY DETECTION APPROACH FOR OPTIMISING BUILDING ENERGY LOADS
14:40-14:50	544	YANG XU, JIYANG XIE, ZHANYU MA, HAILONG LI	TIME FREQUENCY-DOMAIN MEMORY FOR HEAT DEMAND PREDICTION
14:50-15:00	141	YAO ZHOU, YI ZHANG, YI ZHANG, ZHONGJUN REN, HE QI	PREDICTION OF SUB-ITEM BUILDING ENERGY CONSUMPTION WITH MACHINE LEARNING METHODS FOR LARGE-SCALE PUBLIC BUILDINGS
15:00-15:10	470	XINRUI REN	MAIN STEAM TEMPERATURE LOAD TRACKING CONTROL BASED ON IMPROVED SAILFISH OPTIMIZATION
15:10-15:20	436	MARK KYEREDEY ANSAH, XI CHEN, HONGXING YANG	AN INTEGRATED UNCERTAINTY ANALYSIS APPROACH FOR PREFABRICATED HIGH-RISE BUILDINGS
15:20-15:30	84	MINJIN KONG, CHANGYOON JI, HYUNA KANG, AND TAEHOON HONG	IMPACT OF RECYCLED MATERIAL ON BUILDING ENERGY REDUCTION AND CLEAN ENERGY TRANSITION: A CASE STUDY OF RESIDENTIAL BUILDINGS
15:30-15:40	334	ZHAOFANG SONG, JING SHI, SHUJIAN LI, ZEXU CHEN, WANGWANG YANG, ZITONG ZHANG	FACTOR ANALYSIS AND EVALUATION MODEL OF RESIDENTIAL CONSUMERS' WILLINGNESS TO PARTICIPATION IN DEMAND RESPONSE
15:40-15:50	292	WANGWANG YANG, SHUJIAN LI, JING SHI, ZITONG ZHANG, ZEXU CHEN, ZHAOFANG SONG, DENGQUAN LIN	A COMBINED DEEP LEARNING NEURAL NETWORK RESIDENTIAL SHORT-TERM LOAD FORECASTING MODEL CONSIDERING ERROR CORRECTION
15:50-16:00	711	XIAONAN WANG, YINAN LI, JINYUE YAN, MINGKUN JIANG, JIN YANG, DAN FANG, HAORAN ZHANG	CO ₂ EMISSIONS REDUCTION BY SWITCHING CONFERENCE ONLINE: UNCERTAINTY ANALYSIS OF GLOBAL AIR TRAVEL

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ROOM P

PANEL: BIG DATA ANALYTICS FOR SMART ENERGY SYSTEMS

12:00-14:00

BIG DATA ANALYTICS FOR SMART ENERGY SYSTEMS

ROOM A

ENERGY MANAGEMENT, POLICY AND ECONOMICS

SESSION CHAIR: YINGRU ZHAO, QIE SUN

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	103	QI YANG, DAN WANG, DEYU HUANG, BO LIU	A JOINT CLEARING STRATEGY MODEL FOR THE REGIONAL INTERCONNECTED ELECTRICITY-HEAT INTEGRATED ENERGY SYSTEM BASED ON GLOBAL SOCIAL CLEAN WELFARE MAXIMIZATION
12:10-12:20	422	LEI YANG	MODELING THE ENERGY TRANSITION OF CHINA UNDER DIFFERENT PEAKING TIME BASED ON GLOBAL-TIMES MODEL
12:20-12:30	689	PAOLA YANGUAS PARRA, CHRISTIAN HAUENSTEIN, PAO-YU OEI	THE DEATH VALLEY OF COAL - MODELING COVID-19 RECOVERY SCENARIOS FOR STEAM COAL MARKETS
12:30-12:40	321	QIANG ZHANG, WENYING CHEN	LOW CARBON TRANSITION IN BEIJING-TIANJIN-HEBEI REGION UNDER CARBON NEUTRALITY SCENARIO
12:40-12:50	259	SHU ZHANG, WENYING CHEN	MODELING THE RAPID DEVELOPMENT OF ELECTRIC VEHICLES AND ENERGY STORAGE TECHNOLOGY UNDER CHINA CARBON NEUTRAL SCENARIO BASED ON CHINA-TIMES MODEL
12:50-13:00	95	YANBIN ZHU , DAN WANG , SIYUAN LI , YING GUO	RESEARCH ON SECURITY REGION OF ELECTRICITY-HEAT COUPLED ENERGY SYSTEM CONSIDERING WIND POWER INTEGRATION
13:00-13:10	643	ENRICO CAGNO, DAVIDE ACCORDINI, ANDREA TRIANNI, FEDERICO GAMBARO, NICOLÒ FERRARI	REAL ADOPTION OF INDUSTRIAL ENERGY EFFICIENCY MEASURES: NEED FOR EMPIRICAL EVIDENCE AND AN ADOPTION FRAMEWORK
13:10-13:20	231	XIAOJING CHE, PENG ZHOU	EFFECTS OF CITY-LEVEL POLICIES ON PHOTOVOLTAIC TECHNOLOGY INNOVATION IN CHINA
13:20-13:30	686	XIAOYUAN CHENG, YUKUN HU, XIYAO SUN	VISUALISATION AND PREDICTION OF THE ENERGY CONSUMPTION OF FUTURE 5G NETWORKS IN THE UK USING AGENT-BASED MODELLING AND SIMULATIONS
13:30-13:40	525	HASSAN M. AL-FADHLI, AMIN AL-HABAIBE	SWOT ANALYSIS FOR THE CURRENT AND FUTURE UTILISATION OF SOLAR ENERGY TECHNOLOGIES IN KUWAIT

ROOM B

CLEAN ENERGY CONVERSION TECHNOLOGY

SESSION CHAIR: JUN LI, AJIT GODBOLE, YUTARO AKIMOTO

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	211	BOREUN LEE, HYUNJUN LEE, HEEHYANG KIM, CHANGGWON CHOE, IN-BEUM LEE, HANKWON LIM	TECHNICAL, ECONOMIC, AND ENVIRONMENTAL ASSESSMENT FOR PEM WATER ELECTROLYSIS
12:10-12:20	343	TAE-YEOL CHOI, DAE-WOON JEONG	OPTIMIZATION OF PRE-CALCINATION PARAMETERS ON PT/CEO ₂ (CHC) CATALYST FOR HYDROGEN PRODUCTION
12:20-12:30	735	AJIT GODBOLE, GUILLAUME MICHAL, XIONG LIU, CHENG LU	DISPERSION OF METHANE-HYDROGEN BLEND IN A VENTILATED ENCLOSURE
12:30-12:40	703	QIONGQIONG JIANG, HAO ZHANG, YUNFEI GAO, HUI HONG, FANXING LI, HONGGUANG JIN	SOLAR THERMOCHEMICAL FUEL PRODUCTION AND CO ₂ SPLITTING USING MIXED IONIC-ELECTRONIC CONDUCTIVE COMPOSITES
12:40-12:50	596	FAN JIAO; BUCHU LU; CHEN CHEN; QIBIN LIU	THERMODYNAMIC AND KINETIC INVESTIGATIONS IN A SOLAR THERMOCHEMICAL ENERGY STORAGE SYSTEM WITH THE COMBINED STEAM AND DRY METHANE REFORMING
12:50-13:00	301	ABDULRAHMAN JOUBI, YUTARO AKIMOTO, KEIICHI OKAJIMA	DEVELOPMENT OF A HYDROGEN PRODUCTION FROM SOLAR THERMAL ENERGY APPLICATION MODEL FOR THE UNITED ARAB EMIRATES
13:00-13:10	524	YING KANG, XU YANG, ZUCHENG WU	H ₂ -RICH SYNGAS INDUCED FROM A WASTE BY CORONA PLASMA DISCHARGE WITH WATER AS FREE RADICAL SOURCE
13:10-13:20	226	MUKESH UPADHYAY, SALAISARGUNAN S PARAMANANTHAM, AYEON KIM, HEEHYANG KIM, DONGJUN LIM, HANKWON LIM	INFLUENCE OF ANODE FLOW FIELD DESIGN ON THE PERFORMANCE OF NOVEL PEM WATER ELECTROLYSER
13:20-13:30	319	YANG YANG, JUN LI, YINGRUI YANG, QIAN FU, LIANG ZHANG, QIANG LIAO, XUN ZHU	A NICKEL BASED GRADIENT POROUS ELECTRODE FOR EFFICIENT HYDROGEN EVOLUTION REACTION
13:30-13:40	637	HUI KONG, HONGSHENG WANG, HONGFEI ZHENG, JIAN WANG, JUN ZHANG, ZHUFENG YU	TECHNICAL-ECONOMIC ANALYSIS OF A SOLAR THERMOCHEMICAL CYCLE-BASED DIRECT COAL LIQUEFACTION SYSTEM FOR OIL PRODUCTION
13:40-13:50	651	EDOARDO MILIOTTI, ANDREA MARIA RIZZO, GIULIA ZOPPI, GIUSEPPE PIPITONE, SAMIR BENSALD, RAFFAELE PIRONE, DAVID CHIARAMONTI	COUPLING HYDROTHERMAL LIQUEFACTION AND AQUEOUS PHASE REFORMING FOR BIOCRUDE AND RENEWABLE HYDROGEN IN A NEARLY ZERO-WASTE BIREFINERY

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Dec.9

Oral Presentations

ROOM C			
ENERGY SCIENCES			
SESSION CHAIR: XIAONAN WANG, JINGCHUN FENG			
TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	687	MAHSA DARAEI, PIETRO ELIA CAMPANA, ANDERS AVELIN, EVA THORIN	A MUTLI-CRITERIA ANALYSIS TO ASSESS THE OPTIMAL FLEXIBILITY PATHWAY FOR REGIONAL ENERGY SYSTEMS WITH HIGH SHARE OF RENEWABLES
12:10-12:20	208	QUNFENG ZOU, LIN DING, TIAN SONG, LI ZHANG	RESEARCH ON FLOW-INDUCED VIBRATION RESPONSE AND ENERGY CONVERSION PERFORMANCE OF FOUR-CYLINDER ACQUATIC CLEAN ENERGY HARVESTING DEVICE
12:20-12:30	138	VAHID TAMIMI, JIAN WU	FLOW INDUCE VIBRATION ENERGY HARVESTING OF CIRCULAR OSCILLATOR UNDER SQUARE WAKE
12:30-12:40	372	GUANGSEN YAO	COMPARISON OF DIFFERENT MODELS OF THERMOELECTRIC GENERATORS AND OPTIMIZATION OF THEIR GEOMETRIC STRUCTURES
12:40-12:50	528	YULONG ZHAO, MINGHUI GE, ZHENHUA LI	INFLUENCE OF MEDIA FLUID PARAMETERS ON EXHAUST THERMOELECTRIC SYSTEM
12:50-13:00	526	ZHIYU ZHANG, YOSHIO UTAKA, ZHIHAO CHEN	EFFECT OF VAPOR FLOW DIRECTION ON SPONTANEOUS MOVEMENT OF DROPS DURING CONDENSATION OF WATER-ETHANOL VAPOR MIXTURE
13:00-13:10	296	YU HAO, ZHUANG JIAOJIAO, MAO NING	AN EXPERIMENTAL AND NUMERICAL STUDY ON UNSTEADY PROPERTIES OF FLOW BOILING IN STRAIGHT MICROCHANNEL DURING DYNAMIC HEATING
13:10-13:20	146	YUNCHENG GU, XINLI LU, JIAQI ZHANG, JIALI LIU, ZHIWEI CUI, HAO YU, CHANGYOU GENG, YAPENG REN	NUMERICAL SIMULATION OF CLOSED-LOOP HEAT EXTRACTION FROM DEVIATED-GEOTHERMAL WELLS
13:20-13:30	557	SHAOWEI QING, CHANGCHENG CHEN, SHENGLI TANG, XIANKUI WEN, JINGLIANG ZHONG, XIAOLONG GOU	OPTIMIZATION OF THERMOELECTRIC GENERATOR WITH PARTICULAR EMPHASIS ON INNER CONNECTION AND CONTACT EFFECTS: COMPARISON BETWEEN 3D MULTI-PHYSICS MODEL AND CONSTANT-PROPERTIES THERMOELECTRIC THEORY
13:30-13:40	540	HONGJUN ZHANG, XIAOLI ZHAO	MUTI-OBJECTIVE OPTIMAL DESIGN OF DECARBONIZATION HEATING TECHNOLOGY PORTFOLIO CONSIDERING HEAT LOAD CHARACTERISTICS
13:40-13:50	175	HONGMEI YIN, JUN ZHAO, LING MA, CHAOFAN SONG, XUAN YANG	FEASIBILITY ANALYSIS OF A NEW SINGLE WELL PUMPING SYSTEM
13:50-15:15	TEA/COFFEE BREAK		
ROOM P			
15:15-16:00	KEYNOTE: TECHNOLOGY PROSPECTS FOR DECARBONIZING GLOBAL CEMENT AND CONCRETE CYCLES (ERIC MASANET)		

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Dec.10

Oral Presentations

ROOM P

PANEL: FROM AR TO AI IN THE ENERGY INDUSTRY

13:00-14:30

FROM AR TO AI IN THE ENERGY INDUSTRY

ROOM A

INTELLIGENT ENERGY SYSTEM

SESSION CHAIR: RUI XIONG, QUANQING YU

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	398	AL-MASRI A N, AL-OGAILI A S, AL-SHETWI A Q	OPTIMIZING THE ENERGY CONSUMPTION OF ELECTRIC BUSES BASED ON GEOGRAPHICAL INFORMATION SYSTEM
12:10-12:20	390	FLAVIO BALSAMO, CLEMENTE CAPASSO, DAVIDE LAURIA, OTTORINO VENERI	EXPERIMENTAL CHARACTERIZATION OF LITHIUM-ION CAPACITORS FOR APPLICATIONS ON HYBRID LEISURE BOATS
12:20-12:30	222	HANJIANG DONG, JIZHONG ZHU, SHENGLIN LI, CHEN ZIYU	MODEL-DRIVEN FORECASTING FOR THE NUMBER OF PRIVATE ELECTRIC VEHICLES CONSIDERING SOCIAL PROPAGANDA AND SUBSIDY POLICY
12:30-12:40	545	ZHECHEN GUO, JUN XU, ZIMING XU	EXPERIMENTAL AND NUMERICAL STUDY OF FLAT HEAT PIPE-LIQUID COOLING BATTERY THERMAL MANAGEMENT SYSTEM
12:40-12:50	130	JIAQIANG TIAN, RUILONG XU, ZONGHAI CHEN	MULTI-STAGE CHARGING STRATEGY OF LITHIUM-ION BATTERY CONSIDERING AGING EFFECT AND ENERGY LOSS
12:50-13:00	92	FELIX HEINRICH, MARCO PRUCKNER	DATA-DRIVEN APPROACH FOR BATTERY CAPACITY ESTIMATION BASED ON IN-VEHICLE DRIVING DATA AND INCREMENTAL CAPACITY ANALYSIS
13:00-13:10	188	ADITYA NAVIN JAIN, UMANG GUPTA, JIANGFENG ZHANG, SRIKANTH PILLA, APPARAO M RA	COMPARISON OF MULTIPLE BATTERY CHEMISTRIES IN THE COST MINIMIZATION OF A RESIDENTIAL VEHICLE-TO-GRID SYSTEM
13:10-13:20	462	XUNMING LI, YAOHENG LI, HUI SHENG, XIAOYU GAO, NAN ZHANG, BINGXIAN ZHU	REAL TIME ENERGY MANAGEMENT STRATEGY BASED ON POWER-SPLIT-FACTOR OPTIMIZATION FOR A PHEV
13:20-13:30	371	SHENGWEI QUAN, YA-XIONG WANG, HONGWEN HE	ENERGY MANAGEMENT FOR FUEL CELL ELECTRIC VEHICLE BY USING MODEL PREDICTIVE CONTROL WITH DISTURBANCE MARKOV MODEL-BASED PREDICTION
13:30-13:40	650	L. BARTOLUCCI, S. CORDINER, V. MULONE, M. SANTARELLI, F. ORTENZI, M. PASQUALI	ENERGY DEMAND ESTIMATION METHOD FOR ELECTRIC VEHICLES CHARGING STATION IN WORKPLACE PARKING LOTS
13:40-13:50	622	ZHAOSHENG YAO, MENGQI LI	OPTIMIZING THE ENERGY CONSUMPTION OF ELECTRIC BUSES BASED ON GEOGRAPHICAL INFORMATION SYSTEM

ROOM B

ENERGY SCIENCES

SESSION CHAIR: WEI-HSIN CHEN, KUNIO YOSHIKAWA

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	304	HUI-JU BYEON, DAE-WOON JEONG	OPTIMIZATION OF ACTIVE METALS AND PREPARATION METHOD OF Me-Nb-CeO ₂ (Me= Co, Cu, Fe, AND Zn) CATALYSTS FOR HIGH PURITY HYDROGEN PRODUCTION
12:10-12:20	493	MYUNGHO CHOI, JAEWON BYUN, KWANYOUNG JEONG, SOO MIN KIM, JEEHOON HAN	ENERGY EFFICIENT AND ENVIRONMENTALLY FRIENDLY TRANSFORMATION OF GAMMA-VALEROLACTONE TO DIMETHYL ADIPATE
12:20-12:30	264	TING XU, JIANAN SONG, WEICHEN LIN, BOYA FU, XINGGUO GUO, XIA HUANG, HUI WU, XIAOYUAN ZHANG	BLOW-SPUN FREESTANDING CARBON SUBMICRO FIBER SPONGE AS A HIGHLY EFFICIENT BIOELECTROCHEMICAL ANODE FOR ENERGY RECOVERY
12:30-12:40	352	YONG HEE LEE, DAE-WOON JEONG	A COMPARISON OF Cu/CeO ₂ CATALYSTS PREPARED BY VARIOUS PREPARATION METHODS FOR SINGLE STAGE WATER GAS SHIFT REACTION
12:40-12:50	275	JIANFENG LU, YIXUAN DONG, YARONG WANG, WEILONG WANG, JING DING	THERMOCHEMICAL STORAGE PERFORMANCE OF METHANE REFORMING IN CAVITY REACTOR WITH CONCENTRATED SUN SIMULATOR
12:50-13:00	284	XU PENG, MA XU-XIAN, MU XIN, XIONG YA-XUAN	NUMERIC STUDY OF HEAT AND MOISTURE TRANSFER PROCESS IN CHANNELS OF A DEW POINT EVAPORATIVE COOLER
13:00-13:10	365	SUN K, HUANG WF, TAO L	ADVANCED FLOW INTERACTION AROUND TWO-DIMENSIONAL BLOCK ARRAYS EMPLOYING LARGE-EDDY SIMULATION
13:10-13:20	294	CHANG-HOON JEONG, DAE-WOON JEONG	RENEWABLE HYDROGEN PRODUCTION FROM WASTE DERIVED SYNTHESIS GAS USING Nb-PROMOTED Co-CeO ₂ CATALYST FOR THE HIGH TEMPERATURE WATER GAS SHIFT REACTION
13:20-13:30	438	W. PANG, G. CHENG, T. BUIDUC	THERMODYNAMICS AND KINETICS ANALYSIS OF WATER ADSORPTION ON MIL-100(Fe) SYNTHESIZED BY AN ENVIRONMENTALLY FRIENDLY METHOD
13:30-13:40	605	KUN FU, MEIQIAN CHEN	EVALUATION ON MIGRATION OF RADIOACTIVE METAL IN NUCLEAR GRAPHITE WASTE DURING AN INNOVATIVE THERMAL TREATMENT BASED UPON THE GIBBS FREE ENERGY MINIMIZATION
13:40-13:50	696	YUFENG REN, WEILING LUAN, TAO JIANG	SURFACTANT CTAB CONTROLLED SYNTHESIS OF CUBIC Pt-NC CATALYST FOR ACIDIC OXYGEN REDUCTION REACTION

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Dec.10

Oral Presentations

ROOM C**ENERGY SCIENCES**

SESSION CHAIR: LARA CARVALHO, ZHANG BAI

TIME	PAPER ID	AUTHOR	PAPER TITLE
12:00-12:10	200	SHUKUN WANG, ZUMING LIU, CHAO LIU, XIAONAN WANG	THERMODYNAMIC ANALYSIS OF ALTERNATIVE OPERATING STRATEGY FOR GAS TURBINE WASTE HEAT RECOVERY COMBINED HEATING AND POWER SYSTEM
12:10-12:20	543	RUITAO SONG, LIANG YAO, QIFAN WANG, XUETAO LIU, MIAOHAO ZHAN, MINXIA LI	COMPARATIVE ANALYSIS OF THERMODYNAMIC PERFORMANCE AND ECONOMY OF TWO CO2 TRANSCRITICAL AIR SOURCE HEAT PUMP SYSTEMS FOR HEATING
12:20-12:30	46	YONGHONG XU, FUBIN YANG, HONGGUANG ZHANG	SIMULATION RESEARCH OF A FREE PISTON EXPANDER-LINEAR GENERATOR UNDER VARIABLE OPERATION CONDITIONS FOR SMALL-SCALE ORGANIC RANKINE CYCLE SYSTEM OF VEHICLE ENGINE.
12:30-12:40	309	HAIYAN LEI, SHUAIBO BU, CHUANSHAN DAI	THE MIGRATION OF UNDERGROUND CONTAMINANTS UNDER THE PERIODIC OPERATING CONDITIONS OF BURIED PIPES
12:40-12:50	119	JINGXUAN LI, QIFAN WANG, TIANJIN UNIVERSITY, DANDAN SU, TIANJIN UNIVERSITY, XIYING REN, LULU MENG	THERMODYNAMIC EVALUATION OF THE EFFECT OF INTERNAL HEAT EXCHANGER AND EXPANDER ON THE CO2 TRANS-CRITICAL CYCLE CASCADE REFRIGERATION SYSTEM
12:50-13:00	320	MUHAMMAD KHRISTAMTO ADITYA WARDANA, OCKTAECK LIM	THE OPTIMIZATION OF NOX REDUCTION QUALITY WITH 2 DIFFERENT TYPES OF UREA INJECTORS IN HEAVY DUTY DIESEL ENGINE
13:00-13:10	404	AMBROSE DODOO, TRUONG NGUYEN	TECHNO-ECONOMIC PERFORMANCE OF HEAT RECOVERY AIR HANDLING UNITS FOR RESIDENTIAL BUILDINGS IN A SUB-ARCTIC CLIMATE
13:10-13:20	527	MOHAMMAD MEHEDI HASAN, MOHAMMAD RASUL, NANJAPPA ASHWATH, MD JAHIRUL ISLAM, MASUD KHAN	EFFECT OF TEMPERATURE ON THE CHARACTERISTICS OF BIO-OIL PRODUCED FROM SLOW PYROLYSIS OF BEAUTY LEAF FRUIT SHELL
13:20-13:30	322	BAMBANG WAHONO, OCKTAECK LIM	INVESTIGATION OF VELOCITY DISTRIBUTION AND VELOCITY VECTOR ON HELICAL-TANGENTIAL INLET PORT OF SMALL MOTORCYCLE ENGINE
13:30-13:40	642	AHMAD HADADPOUR, XUE-SONG BAI, MEHDI JANGI	AN IMPROVED FLAMELET METHOD FOR SPRAY COMBUSTION SIMULATIONS IN MODERN ENGINE APPLICATIONS
13:40-13:50	330	TRUONG NGUYEN, AMBROSE DODOO	EFFECTS OF VENTILATION HEAT RECOVERY IN DISTRICT-HEATED BUILDINGS FUELED BY RENEWABLE-BASED ENERGY SYSTEM

TEA/COFFEE BREAK

ROOM A**INTELLIGENT ENERGY SYSTEM**

SESSION CHAIR: XIANMING YE, SHUANG GAO

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	281	ZEXU CHEN, JING SHI, SHUJIAN LI, ZHAOFANG SONG, WANGWANG YANG, ZITONG ZHANG	A DLC STRATEGY OF AGGREGATED AC LOADS USING A TEMPERATURE-QUEUEING METHOD
14:10-14:20	539	RONG DAI, XIA ZHAO, MINGYI SUN, XINYI LI	CONVEX OPTIMIZATION BASED DAY-AHEAD DISPATCH OF INTEGRATED ELECTRICITY AND NATURAL GAS SYSTEM
14:20-14:30	590	WEI HU, QIUTING GUO, XU HUANG, WEIHENG WANG	RESEARCH ON ENERGY SAVING AND LOSS REDUCTION STRATEGY BASED ON REASONABLE LINE LOSS INTERVAL OF LOW-VOLTAGE DISTRIBUTION NETWORK
14:30-14:40	44	YUNFEI MU, YANG JI	CALCULATION METHOD OF THEORETICAL LINE LOSS DYNAMIC EQUIVALENT RESISTANCE BASED ON PARTICLE SWARM NEURAL NETWORK
14:40-14:50	612	JIANG ZHENYU, HU WEI, YIN GUANGAO, YUE HAN	A NOVEL FEATURE SELECTION METHOD FOR POWER SYSTEM TRANSIENT STABILITY ASSESSMENT BASED ON INTERACTION GAIN
14:50-15:00	287	DONG SU LEE, YONG SOON KIM, SEUNG WAN KIM	SMART METER USE CASES FOR NEW ENERGY SERVICES
15:00-15:10	555	VAHID M. NIK, AMIN MOAZAMI	IMPLEMENTING COLLECTIVE INTELLIGENCE IN DEMAND SIDE MANAGEMENT
15:10-15:20	223	VIJAY MOHAN NAGULAPATI, HYUNJUN LEE, BOREUM LEE, MANHEE BYUN, DONGJUN LIM, YUNSEOK CHOI, HANKWON LIM.	REMAINING USEFUL LIFE PREDICTION OF LITHIUM ION BATTERIES BASED ON SVM AND GPR MODELS: A COMPARATIVE STUDY
15:20-15:30	607	YUNCHAO SUN, WEI HU	INTELLIGENT ANALYSIS OF POWER TRANSMISSION QUOTA FOR MULTI-ENERGY POWER SYSTEM EXTERNAL TRANSMISSION SECTION BASED ON NEURAL NETWORK
15:30-15:40	678	MAOSHENG SANG, MINGLEI BAO, XUNHU YIN, YI DING	RESTORATION STRATEGY FOR INTERDEPENDENT GAS AND POWER SYSTEMS BASED ON REVERSE GREEDY METHOD
15:40-15:50	289	ZITONG ZHANG, JING SHI, SHUJIAN LI, WANGWANG YANG, ZHAOFANG SONG LI, ZEXU CHEN, DENGQUAN LIN	AN OPTIMAL SCHEDULING MODEL FOR MICROGRID CONSIDERING DEMAND RESPONSE
15:50-16:00	344	ATHANASIA APOSTOLOPOULOU, CARLOS JIMENEZ-BESCOS	EVALUATING THE PERFORMANCE OF AN ENERPHIT BUILDING UNDER DIFFERENT CLIMATES IN GREECE – A DIGITAL TWIN APPROACH

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Dec.10

Oral Presentations

ROOM B

ENERGY MANAGEMENT, POLICY AND ECONOMICS
SESSION CHAIR: LIJING ZHU, FREDRIK WALLIN

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	408	NAIMA CHABOUNI, EDI ASSOUMOU , NADIA MAIZI , HICHAM BENAMIROUCHE	LONG TERM ANALYSIS OF THE ELECTRICITY SECTOR IN ALGERIA: AN ENERGY DILEMMA NEXUS
14:10-14:20	578	JUAN C. GONZÁLEZ PALENCIA, YUTA ITOI, MIKIYA ARAKI	HYDROGEN PRODUCTION SYSTEM DESIGN CONSIDERING THE WATER-ENERGY-CARBON NEXUS AND COST
14:20-14:30	562	LISI GUO, GENGYUAN LIU	ANALYSES OF ENERGY CONSUMPTION AND CO2 EMISSION IN LONG-TERM LOW-CARBON TRANSIT OF BEIJING
14:30-14:40	182	YINAN LI, SONG LAN, XIAONAN WANG	ACHIEVING LOW-CARBON FUTURE THROUGH INTER-PROVINCIAL ENERGY-CHEMICAL-CARBON MARKETS IN CHINA
14:40-14:50	56	HOLGER SCHLÖR, SANDRA VENNGHAUS	MEASURING THE RESILIENCE OF THE FOOD-ENERGY-WATER-NEXUS - BASED ON ETHICAL VALUES AND TRADE RELATIONS
14:50-15:00	409	WILTRUD FISCHER, SANDRA VENNGHAUS, HOLGER SCHLÖR	BEYOND COAL – THE ROLE OF INSTITUTIONS IN THE PARTICIPATORY DECISION? MAKING PROCESS FOR STRUCTURAL CHANGE FROM LIGNITE MINING TO SUSTAINABLE BIOECONOMY IN THE GERMAN RHEINISCHE REVIER
15:00-15:10	593	BOQIANG LIN, RONGXIN WU	DILEMMA OF PARAXYLENE PLANTS IN CHINA? A REAL TROUBLE FOR ENVIRONMENT?
15:10-15:20	627	MENZHENG ZHAO, KJELLSTROM TORD, SHIHUI ZHANG, WENJIA CAI	ESTIMATING ECONOMIC IMPACTS OF HEAT-RELATED LABOR PRODUCTIVITY CHANGE
15:20-15:30	451	BANDAR JUBRAN ALQAHTANI, ABDULRAHMAN SALMAN ALMERBATI	INTEGRATING LARGE RESIDENTIAL GRID-TIED SOLAR INTO A FLEXIBLE BASE-LOAD POWER NETWORK
15:30-15:40	397	MOHAMMAD ANSARIN, YASHAR GHIASSI-FARROKHFAL, WOLFGANG KETTER, JOHN COLLINS	ECONOMIC INEFFICIENCIES OF DISTRIBUTED GENERATION UNDER NOVEL TARIFF DESIGNS
15:40-15:50	311	BANBAN WANG, WEI WU, XIUJIE TAN	THE POTENTIAL IMPACT OF CARBON PRICES ON INDUSTRIAL ENERGY STRUCTURE IN CHINA
15:50-16:00	340	NHU Y QUACH, OCKTAECK LIM	THE EFFECT OF IGNITION TIMING ON RESIDUAL GAS, EFFECTIVE RELEASE ENERGY AND ENGINE EMISSIONS OF A V-TWIN ENGINE

ROOM C

INTELLIGENT ENERGY SYSTEM
SESSION CHAIR: MENG LIN, YINGRU ZHAO

TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	268	JIEKUN SONG, ZHONGYAN KANG	RESEARCH ON MULTI-OBJECTIVE FUZZY OPTIMAL ALLOCATION OF PROVINCIAL RENEWABLE PORTFOLIO STANDARDS
14:10-14:20	395	ABHISHEK KUMAR, BIKASH SAH, YAN DENG, XIANGNING HE, PRAVEEN KUMAR, R.C. BANSAL, R. M. NAIDOO	A ROBUST AND SUSTAINABLE MICROGRID TO RESIST ENERGY DISRUPTION DURING A PANDEMIC
14:20-14:30	312	SHUAI WANG, BIN LI1, GUANZHENG LI, BIN YAO, JIANZHONG WU	SHORT-TERM WIND POWER PREDICTION FOR MULTI-DIMENSIONAL DATA SPACE BASED ON CONVOLUTIONAL NEURAL NETWORK
14:30-14:40	246	STEPHEN OLIVER, FARZAD POUR RAHIMIAN, SALEH SEYEDZADEH, NASHWAN DAWOOD	A BOTTOM-UP METHODOLOGY FOR DESIGNING RESIDENTIAL RETROFIT SUBSIDIES USING MACHINE LEARNING AND GENETIC ALGORITHMS
14:40-14:50	732	CHENG LIU, HANG YU	EXPERIMENTAL STUDY ON TWO-PHASE LIQUID-IMMERSION COOLING SYSTEM FOR DATA CENTER
14:50-15:00	447	ZHUANG ZHENG, XIAOWEI LUO	MULTI-OBJECTIVE OPTIMIZATION FOR APPLIANCES SCHEDULING IN PHOTOVOLTAIC-EQUIPPED RESIDENTIAL HOUSES
15:00-15:10	366	YOUCEF BOUSSAA, AMBROSE DODOO, TRUONG NGUYEN, KATARINA RUPAR GADD	ANALYSIS OF COST-EFFECTIVE ENERGY EFFICIENCY MEASURES FOR THERMAL ENVELOPE OF A MULTI-APARTMENT BUILDING IN SWEDEN
15:10-15:20	355	SHAHZAD S, DISCI ZN, MODY S, BK S, CALAUTIT JK	OLDER PEOPLE, THERMAL COMFORT BEHAVIOUR AND RELATED ENERGY USE
15:20-15:30	346	SALLY SALOME SHAHZAD, HOM B. RIJAL	SLEEP QUALITY AND ADAPTIVE THERMAL COMFORT UNDER VARIOUS ENERGY USE MODES
15:30-15:40	635	TOMAS NHABETSE, BOAVENTURA CUAMBA, OLE NYDAL	DESIGNING A SOLAR PV SYSTEM FOR TOPPING UP ENERGY OF A THERMAL COLLECTOR FOR COOKING APPLICATION
15:40-15:50	333	HIEU LE TRONG, OCKTAECK LIM	AN INVESTIGATION ON THE PERFORMANCE CHARACTERISTICS OF THE ELECTRIC BICYCLE USING SEMI-AUTOMATIC TRANSMISSION
15:50-16:00	671	COSIMO MAGAZZINO, MARCO MELE	ECONOMIC GROWTH, POLLUTION, AND COVID-19 DEATHS IN HUBEI AREA. A DEEP LEARNING IMAGING EVIDENCE

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Dec.10

Oral Presentations

ROOM E			
ENERGY SCIENCE			
SESSION CHAIR: XINHAI YU			
TIME	PAPER ID	AUTHOR	PAPER TITLE
14:00-14:10	442	QIAN LIU, ZHIGUO QU, JIAN-FEI ZHANG, RUIXUE TANG	SALINITY-GRADIENT OSMOTIC ENERGY CONVERSION USING PARALLELLY SCALABLE GRAPHENE OXIDE MEMBRANE/PDMS COMPOSITE
14:10-14:20	305	NAN WANG, CHUNYAN MA, XIAOYAN JI	CO2 SEPARATION FROM BIOGAS WITH A NEW HYBRID IL-BASED SOLVENT
14:20-14:30	323	BUMGI BAEK, OCKTAECK LIM	PERFORMANCE STUDY OF HIGH PRESSURE PUMP USING DME AS FUEL
14:30-14:40	118	T BUIDUC, W PANG, G CHENG	3D NUMERICAL ANALYSIS OF SILICA GEL ROTARY DEHUMIDIFIER
14:40-14:50	694	MD SHAKIR, SIDDHARTHA SENGUPTA, APURBA SINHAMAHAPATRA, HARI VUTHALURU	SYNTHESIS OF BORON CONTAINING Ni, Co, Ni-Co/MgAl2O4 CATALYST FOR DRY REFORMING OF METHANE
14:50-15:00	326	XIANGTIAN KONG, OCKTAECK LIM	THE STUDY OF INJECTION PRESSURE ON SPRAY CHARACTERISTIC UNDER GCI CONDITIONS FUELED WITH GASOLINE-BIODIESEL BLENDED USING CVCC
15:00-15:10	96	JIHUI WU, BING BAI, XUEZHAN ZHAO, NAIFENG ZHANG, CHAO CHEN, LEI DENG, DEFU CHE	A STUDY ON HIGH TEMPERATURE CORROSION OF 20G IN PRECIPITATED SODIUM SULFATE
15:10-15:20	700	JIAHAO YAN, PEIJIAN YAN, XINHAI YU, SHANTUNG TU	OXIDIZING-RESISTANT PdZn CATALYST FOR HYDROGEN PRODUCTION FOR FUEL CELL
15:20-15:30	277	YAN XIE, HEYANG WANG, XIN LIU, CHAOQUN ZHANG, JUN ZHAO, JUNJIE LI	NUMERICAL SIMULATION OF RADIATION HEAT TRANSFER CHARACTERISTICS OF OXY-FUEL COMBUSTION FURNACE
15:30-15:40	327	ARDHIKA SETIAWAN, OCKTAECK LIM	STUDY OF COMBUSTION CHARACTERISTICS OF GB20 UNDER PILOT INJECTION ON SINGLE CYLINDER COMPRESSION IGNITION ENGINE
15:40-15:50	324	DUY NGUYEN, OCKTAECK LIM	A STUDY ON SPRAY CHARACTERISTIC OF GASOLINE-BIODIESEL BLENDED UNDER NON-VAPORIZING CONDITION WITH VARIABLE INPUT ENERGIES IN CONSTANT VOLUME COMBUSTION CHAMBER
15:50-16:00	325	NGUYEN XUAN KHOA, OCKTAECK LIM	THE INFLUENCE OF COMBUSTION DURATION ON EFFECTIVE RELEASE ENERGY AND NOX EMISSION OF A SPARK IGNITION ENGINE USING PURE ETHANOL AND METHANOL AS FUEL
ROOM P			
PANEL: NEGATIVE EMISSIONS TECHNOLOGIES			
16:00-17:00	NEGATIVE EMISSIONS TECHNOLOGIES		

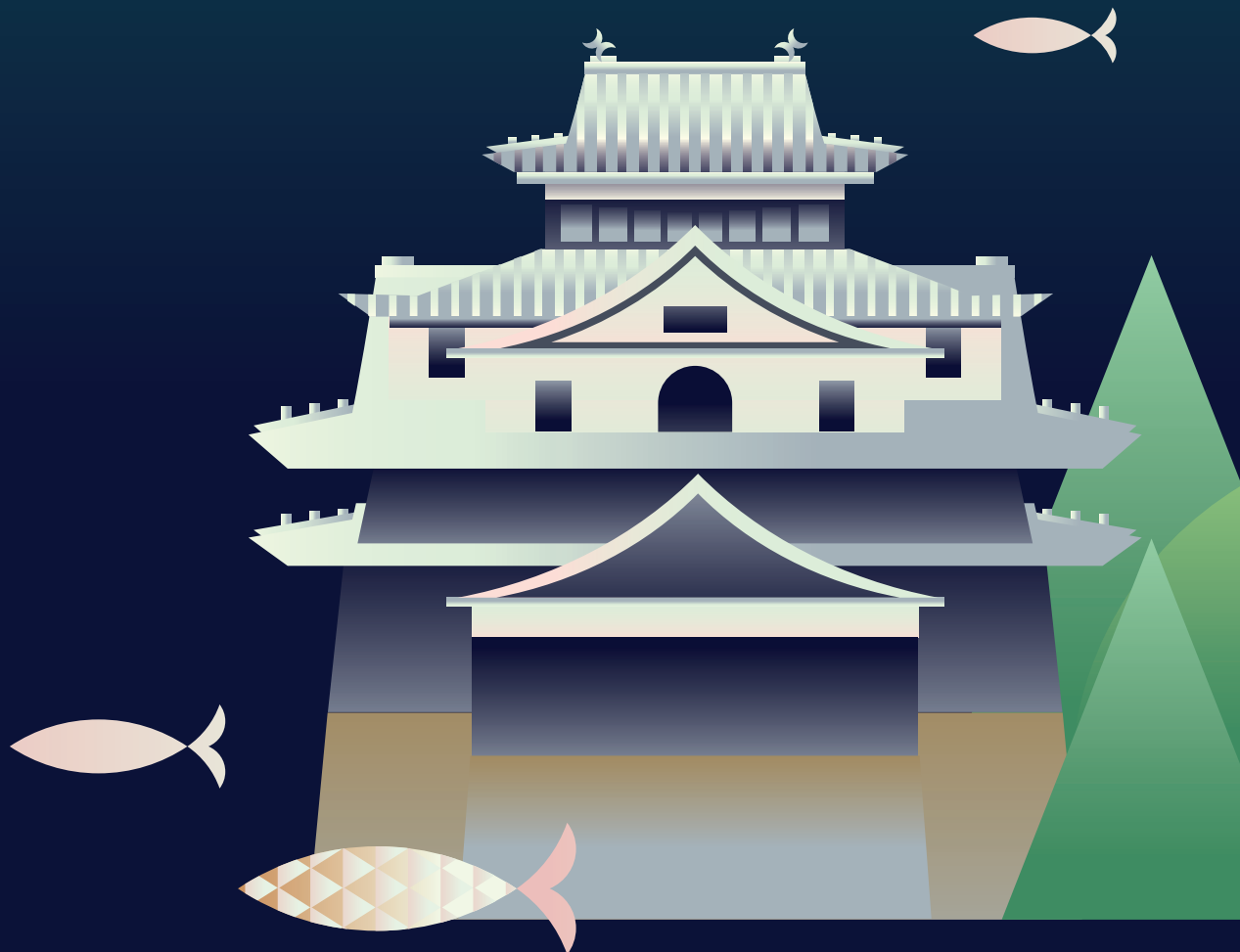
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Open Course Energy (OC:E) is a not-for-profit platform of online open courses focused on energy-related areas. The objective of OC:E is to provide an effective, dynamic, and flexible platform for free online learning to disseminate knowledge and improve people's skills relating to energy science and engineering. OC:E will establish an online platform at enerarxiv.org with links to each specific open course to facilitate open course learning. To join OC:E as a partner, the partner is required to offer at least one online open course in the format of (but not limited to) realtime lectures, course video recordings, course presentation slides, or other materials. OC:E will further develop new courses involving the collaboration of partners on the platform.

For more information, please contact: oce-info@applied-energy.org



Call for Courses/Partners

Background and objective

- **Open Course: Energy (OC:E)** is a not-for-profit platform of online open courses focused on energy-related areas.
- The **objective** of OC:E is to provide an effective, dynamic, and flexible platform for free online learning to disseminate knowledge and improve people's skills relating to energy science and engineering.
- OC:E will establish an online platform at enarXiv.org with links to each specific open course to facilitate open course learning.
- OC:E was initiated and developed based on the existing Applied Energy network, with 50K+ professors, scientists, engineers in energy fields, participating as scientists, researchers, teachers, students, authors, reviewers, readers, speakers, and audiences at the Journals of Applied Energy, Advances in Applied Energy, the International Conferences such as International Conference on Applied Energy (ICAE: applied-energy.org), CUE, REM etc, Energy Proceedings (energy-proceedings.org), energy preprint platform (enarXiv.org), UNiLABs, and summer schools, etc.

Approach

To join OC:E as a partner, the partner is required to offer at least one online open course in the format of (but not limited to) real time lectures, course video recordings, course presentation slides, or other materials.

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Please find the attached template for the course description to be filled in by each prospective partner.

Further contact information

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