

SET2023 - DETAILED PROGRAMME - FINAL

Time	Day 1 - Tuesday 15th August 2023			
09:00	Arrivals & Registration Main Entrance Foyer Monica Partridge Building <i>(Pre-registration (early arrivals) will be open from 11am - 3pm Monday 14th August)</i>			
09:45	Morning Coffee - Main Foyer / Atrium			
10:00	Welcome Presentation & Introduction Mark Gillott - Co-Chair Saffa Riffat - Chair SET2023			
10:30	Keynote Speaker Lucelia Rodrigues - University of Nottingham - UK Title: <i>The Journey to Net Zero Cities</i>			
11:15	Keynote Speaker AbuBakr Bahaj - University of Southampton - UK Title: <i>Title: Are Mini Grids the Way Forward to Provide Energy Access to 800 Million People by 2030?</i> Chair: Saffa Riffat Lecture Theatre A03			
12:00	Photo Shoot - Group Photo Monica Partridge - Main Foyer / Millennium Garden Hot Buffet Lunch & Poster Session A			
12:30	<p>Papers #10: Renewable Energy Based Electric Vehicles Charging Stations Design in Developing Nations by <i>Hisham Alghamdi</i> #17: Optimizing Solar Energy Harvesting with Self-Cleaning Surfaces: Examining the Role of Wetting State in Dust Removal by <i>Ghassan Hassan and Bekir Yilbas</i> #22: A Spectrally Selective Metal Mesh Coating for photovoltaic/thermal applications by <i>Ken Chen, Kongfu Hu, Bin Zhao and Gang Pei</i> #24: A BIM-based Framework for the Integrated Assessment of Building Circularity and Sustainability by <i>Ihab Al-Qazzaz, Carlos Osorio Sandoval, Serik Tokbolat and Georgia Thermou</i> #25: Numerical study of PCM integrated two-evaporator variable speed compressor domestic refrigerator for applications in remote areas by <i>Cagri Kutlu, Mehmet Tahir Erdinc, Yuehong Su and Saffa Riffat</i> #29: Nanocomposite TiO₂/MgO photocatalyst for CO₂ reduction to solar fuels by <i>Wenbin Zhang and Debashish Pal</i> #58: Design, production, and performance analysis of a pyramid-type solar desalination system; an experimental study by <i>Pinar Mert Cuce, Erdem Cuce and Tamer Guclu</i> #83: Feasibility Study of Machine Learning in Solar Energy Storage Systems Optimisation by <i>Yanan Zhang, Ziwei Chen, Yong Zhang, Cagri Kutlu, Yuehong Su, Saffa Riffat and Xiao Li</i> #84: Sustainability through innovative materials and government intervention in Residential housing by <i>Jordan Turner</i> #119: Design, preliminary testing and construction of a novel water collection system using PCM for water scarce regions in Africa by <i>Emmanuel Tapia-Brito, Cagri Kutlu, Ziwei Chen, Saffa Riffat and Yanan Zhang</i> #203: Experimental investigation of concentrated triple junction solar cells under non-uniform illumination by <i>Mahalakshmi Krishnan, Reddy K. S and Subrahmanyam Aryasomayajula</i> #213: Composite Filament Winding Technology for Ultra-Lightweight Chassis in L7e Class Electric Vehicles: Enabling Cost-Effective Zero Emission Urban Mobility Solutions by <i>Hasan Ufuk Gökçe and Kamil Umur Gökçe</i> #245: A Renewable Multigeneration Energy System for a Public School in Denmark by <i>August Maahn Skyggebjerg Thomsen, Alaa Jalal El-Ahmad, Ali Ibrahim Al-Badri and Muhyiddine Jradi</i> #272: Towards Decarbonised Transportation with L6e Electric Vehicle: Exploring CERYAN by <i>S. Alperen Celtek, A. Ozgur Polat, Seda Kul and Abdullah Dik</i> #273: Techno-economic assessment of solar/ground dual-source heat pump based Electro-thermal energy storage (ETES) system with control and operation strategies for British housing stock by <i>Ke Qu, Yuhao Wang and Saffa Riffat</i> #279: Rotation Heat Pump - Presentation of the integral rotor design by <i>Andreas Laengauer and Bernhard Adler</i> #281: Smart Responsive Shadings for Enhanced Energy Efficiency in Hot Climates by <i>Mahmoud Zameem</i> #298: How Window Opening Behaviour Affect the Climate Resilience of Low-cost Apartment in Indonesia by <i>Irma Handayani Lubis, Lucelia Rodrigues and Lorna Kiamba</i></p>			
	Monica Partridge - Main Foyer near Main Entrance			
13:30	Session 1 Invited Speaker Carbon saving potential of Rainwater Harvesting Michael Farnsworth Stormsaver Ltd UK Paper #40: Experimental and numerical analysis of concentrating parabolic trough collectors integrated with semiconductor thermoelectric generators by <i>Qiliang Wang, Yao Yao, Zhicheng Shen and Hongxing Yang</i> Paper #75: Forecasting PV generation for a community energy scheme by <i>Mitchell Searjeant, Mark Gillott, Lucelia Rodrigues and Rabah Boukhanouf</i> Paper #124: Zero-energy modularized atmospheric water harvester with advanced thermal management by <i>Fangfang Deng and Ruzhu Wang</i> Paper #181: Trans-critical rotating heat pump system by <i>Chris Benson</i> A03 Chair: Armando Oliveira	Session 2 Invited Speaker Heat pump retrofit for boiler heating systems Zafer Ure PCM Products Ltd UK Paper #61: Highly Oriented Thermally Conductive Stearic Acid/Expanded Graphite-Graphene Films Phase Change Material for Efficient Photothermal Energy Storage by <i>Zhaofeng Dai, Zhu Jiang, Xiaohui She, Yulong Ding, Xiaosong Zhang and Donaliam Zhao</i> Paper #123: Thermodynamic evaluation and comparison of electric heating paths by <i>Xiaoxue Kou and Ruzhu Wang</i> Paper #114: Performance Analysis of Waste Heat Recovery in Hydrogen Storage Compression Process Based on TEG by <i>Jingyong Cai, Jie Ji, Tao Zhang and Ruonan Zhang</i> Paper #222: Synthesis and characterization of doped magnesium hydroxide for medium heat storage application by <i>Nawaf Albeladi, Anti Kur, Robert Mokaya, Jo Darkwa, John Calautit, Mark Worall and Rabah Boukhanouf</i> C14 Chair: Chris Wood	Session 3 Invited Speaker Environment friendly superhydrophobic surfaces Junho Oh Hanyang University South Korea Paper #197: Flax fiber reinforced concrete for sustainable building material by <i>Zainab Al Hajaj and Mohammad Hany Yassin</i> Paper #33: The intermittency and flexibility of space heating systems with different terminal types in buildings by <i>Baoping Xu, Qiangang Li, Yanzhe Dou and Yuying Yan</i> Paper #28: A dynamic simulation of controllable crystallisation supercooled PCM for space heating via using Simulink/Simscape software by <i>Cagri Kutlu, Yuehong Su and Saffa Riffat</i> Paper #204: Optimum Scheduling by Creating Feeder Scale Islands for Continuity of Supply of Critical Loads in Emergency Network Conditions by <i>Fatma Avli Firis, Esra Kübra Aytemiz and Ali Osman Koksak</i> C17 Chair: Carlos Osorio-Sandoval	Session 4 Invited Speaker Innovative development of photovoltaic vacuum glazing for Net Zero energy buildings Chin Huai Young National Taiwan University of Science and Technology Taipei Paper #27: Toward Zero-Carbon HVAC for Temperate Regions: Cooling using Thermoelectric Heat Exchanger - An Experimental Study by <i>M Hasan Shariq and Ben Hughes</i> Paper #295: AI-based Hourly Electricity Consumption Prediction for Households and Residents by <i>Mingrui Zhou, Xiao Li, Somayajulu Sripada and Yanan Zhang</i> Paper #55: A novel PCM cooling system for building applications by <i>Tianhong Zheng, Hasila Jarimi and Saffa Riffat</i> Paper #48: Rapid Evaluation of a Building's Thermal Performance Using Infrared Thermography and Artificial Neural Network by <i>Amin Al-Habaibeh and Arijit Sen</i> C15 Chair: Serik Tokbolat
14:00	Coffee Break & Poster Session B			
15:00	<p>Papers #14: Deep Learning-Based Vision for Real-Time Building Occupancy and Window Status Detection: Enhancing Energy Efficiency and Indoor Comfort by <i>Paige Tien, Wuxia Zhang, Shuangyu Wei and John Calautit</i> #39: Design analysis of closed hydronic loop system for PV cooling in the hot and arid region by <i>Hazim Dirawi, Yuehong Su and Mingke Hu</i> #52: Modelling Analysis of a Novel Thermochemical Energy Storage Reactor Coupled with a Finned Microchannel Tube Heat Exchanger for Water Heating by <i>Yong Zhang, Ziwei Chen, Yanan Zhang, Yuehong Su and Saffa Riffat</i> #53: A Novel Modelling Approach for Performance Analysis of a Concentrated Radiative Cooling System using the Compound Parabolic Concentrator by <i>Ya Dan, Mingke Hu, Suhendri Suhendri, Yuehong Su and Saffa Riffat</i> #62: Experimental Researches on the Operation Modes for a Water Source Heat Pump System to Expand Heating Operation Range by <i>Gilbong Lee, Sun Ik Na, Kibong Kim, Kichang Chang, Eunseok Wang, Junhyun Cho, Bongsoo Choi, Bong Seong Oh and Jaehyeok Heo</i> #68: Rotary desiccant wheel systems: a review by <i>Erdem Cuce, Pinar Mert Cuce and Yusuf Nadir Yilmaz</i> #72: Field trial and numerical study of a wind tower and run-around heat exchanger by <i>Harry Mahon, Daniel Friedrich and Ben Hughes</i> #105: The impact of indoor climate and occupancy rates on electricity use in campus buildings by <i>Keovathana Run, Franck Cévaër and Jean-François Dubé</i> #117: Revitalizing Bangkok's Skywalks: A Sustainable Design Approach to Enhance 'Green Mile' Walkway by <i>Jitiporn Wongwatcharapaiboon, Asan Suwanarit, Massimo Ingegno, Chomphunut Pechkong, Gemmy Chiarakul, Gunsinee Tantrathivud, Napassawan Prasittisang, Natchaphat Likitluck, Natthinan Tipkaew, Oranun Athibodee, Pachaporn Rattakul, Phuonng Linhrannnguyen, Pisitpong Jaiwong, Ploypak Intim, Pukjira Prarakkamo, Punawit Ngansamrej and Salinthip Mahakaew</i> #196: Investigation of the key barriers of energy efficiency retrofitting UK social houses by <i>Sara Bertoluzzo and Xiaofeng Zheng</i> #236: A review on the state of the art wind energy harvesting technologies and potential integration into building roof structure by <i>Katrina Calautit and Cameron Johnstone</i> #248: Experimental study on Film hole wall heat transfer by using transient liquid crystal technique by <i>Abdallah Ahmed, Edward Wright and Yuying Yan</i> #266: Non-Traditional Social Housing in the UK by <i>Praveena Pochampalli, Lucelia Rodrigues and Renata Tubelo</i> #267: Unlocking the Potential of Renewable Energy: Analyzing Energy Storage Deployment and Policy in the EU by <i>Kristiana Dolge, Laura Kristiāna Vičmane and Dagnija Blumberga</i> #274: An integrated liquid desiccant air-conditioning (ILDAC) system for multi-family terraced houses in subtropical and humid Mediterranean climate regions by <i>Yuhao Wang and Ke Qu</i> #289: Investigation on a novel thermoelectric ventilator system for retrofit in heritage buildings by <i>Qi Xu, Shihao Zhang and Saffa Riffat</i> #293: Impact of various technologies on peak energy demand of Residential Buildings in the cold climate of the UK by <i>Sajan Preet and Stefan Thor Smith</i></p>			
	Main Foyer			
15:30	Session 5 Paper #155: Assessment of Municipal Solid Waste derived biochar for Electricity Generation by <i>Ravi Kumar, Abhijeet Anand, Kamal Kishore Pant and Priyanka Kaushal</i> Paper #102: Experimental Assessment of Spray Characteristics of Hydrogen and CNG Using Schlieren Imaging by <i>Dhananjay Kumar and Avinash Agarwal</i> Paper #285: Mapping Electric Vehicle Charging Points for Hampshire County using the Multi-Criteria Decision Analysis Optimisation by <i>Mostafa Mahdy, Abubakr Bahaj, Phillip Turner and Tom Rushby</i> Paper #69: Thermal insulation performance assessment of UK dwellings through co-heating test methodology: A critical review by <i>Erdem Cuce, Pinar Mert Cuce and Emre Alvrur</i> A03 Chair: John Calautit	Session 6 Paper #220: A computational study into the charging of an agitated fluidised bed thermochemical energy storage system by <i>Mark Worall, Jo Darkwa, John Calautit, Rabah Boukhanouf, Weiguang Su, Sarah Roger-Lund and Anti Kur</i> Paper #74: A BIM-based framework to assess embodied carbon of a structural model by <i>James Hunt and Carlos Osorio Sandoval</i> Paper #9: Solar cooking experiments with a finned heat storage cooking pot by <i>Ashmore Mawire, Oyirwoth Abedigamba and Atul Sagade</i> Paper #170: Numerical Study of Phase Change Material Nodal Arrangements in Multi-Directional Windcatcher by <i>Olamide Eso, Jo Darkwa and John Calautit</i> C14 Chair: Siddig Omer	Session 7 Paper #44: Exploring vernacular courtyard strategies to improve thermal performance of modern housing in Dhaka by <i>Shayeeka Alam, Lucelia Rodrigues and Lorna Kiamba</i> Paper #242: Power Quality Impacts of Grid-Tied PV Inverters on Low Voltage Distribution Networks by <i>Chinthaka Attanayake, Nilupulee Gunathilake and Janaka Ekanayake</i> Paper #167: Using Digital Twins to investigate the need for active cooling systems in Danish public buildings by <i>Muhyiddine Jradi</i> Paper #43: Concept of Net-Zero-Ready Residential Buildings in hot-humid Region-(Lessons learned from the Arabian Gulf vernacular architecture) by <i>Mosad Alhawas and Rabah Boukhanouf</i> C17 Chair: Ben Hughes	Session 8 Paper #93: Splitting the exergy destruction into avoidable and unavoidable parts for integrated biomethane liquefaction process and liquid air energy storage system by <i>Ali Rehman, Bo Zhang, Muhammad Abdul Qyyum, Fatima Zakir, Xiangji Guo, Salman Ijaz and Ahmad Naquash</i> Paper #199: Performance of multiphase anaerobic hybrid reactor for the treatment of biopesticide wastewater by <i>Mullai Pandian and Sobiya E</i> Paper #15: Continual learning-based adaptive data-driven model for building energy prediction by <i>Ao Li and Fu Xiao</i> Paper #253: The Impact of Courtyards and Window Designs on Thermal and Visual Comfort Conditions in Adobe Traditional Buildings of Nigeria by <i>Olutola Adekeye, Lucelia Rodrigues, Lorna Kiamba and Sara Mohamed</i> C15 Chair: Rob Shipman
16:30	COMFORT BREAK			
16:45	Keynote Speaker Ashok Pandey - Indian Institute for Toxicology Research Title: <i>Microplastics and nanoplastics pollution: Challenges and way forward</i>			
17:30	Keynote Speaker Peter Lund - Aalto University, Finland Title: <i>The energy transition will require a strong systems view</i> Chair: Lucelia Rodrigues Lecture Theatre A03 Close			
18:15	Close			
18:30	Welcome Reception Mezzanine at the Orchard Hotel			
20:00	Close and end of the evening			

Time	Day 2 - Wednesday 16th August 2023			
09:00	Keynote Speaker Don Mclean - Integrated Environmental Solutions Limited, Scotland <i>Title: Digital twins for decarbonisation</i>			
09:45	Keynote Speaker Chi-Hwa Wang - National University of Singapore <i>Title: Conversion of waste to energy and resource</i> Chair: Mark Gillott Lecture Theatre A03			
10:30	COFFEE BREAK & COMFORT BREAK			
10:45	Session 9 <i>Invited Speaker</i> Hydrogen and fuel studies at Lentatek Ibrahim Pamuk Lentatek Ltd Turkiye Paper #157: Solar Water Pumping for Agrivoltaics: A Comparative Study of Performance in Different Climates by <i>Ritrick Maity, Sudhakar Kumarasamy and Amir Abdul Razak</i> Paper #118: Comprehensive study of energy, comfort, and economic performance of the smart all-in-one window with integration of PV vacuum glazing and window frame heat recovery ventilation system by <i>Ke Qu, Yuhao Wang and Saffa Riffat</i> Paper #56: Performance of CO2 Air-to-Water Heat Pumps for Small Domestic Buildings in the UK by <i>Usman Qayyum, Savvas Tassou and Debarati Torrens</i> Paper #13: A multi-directional flap fin louver windcatcher: Experiment, numerical and field test investigations by <i>Jiayang Li, John Kaiser Calautit and Carlos Jimenez-Bescos</i> A03 Chair: Yuehong Su	Session 10 <i>Invited Speaker</i> Solar-assisted heat pump system with hybrid energy storage for space heating in China Shuli Liu Beijing Institute of Technology China Paper #30: A Field Study on Occupants' Thermal Sensation Vote in a Test Room Equipped with Trombe Wall by <i>Erfan Malekian Nobarani, Murat Ozdenefe and Seydeh Zahra Shahabi</i> Paper #183: Phase Change Materials embedded in plasters: criticalities and limitations by <i>Eleonora Baccega and Michele Bottarelli</i> Paper #261: Carnot battery using a partial cascade organic-steam Rankine cycle by <i>Pengcheng Li, Jing Li and Xudong Zhao</i> Paper #19: Classification of Climate Zone Using Degree-Day Method: A Case Study of Saudi Arabia by <i>Fahad Mohammed Alrefai and Siddig Omer</i> C14 Chair: Zafer Ure	Session 11 <i>Invited Speaker</i> Solar PV Driven DC vapour compression system with low-cost PCM storage for cooling: Performance evaluation and potential application in low-income community areas Hasila Jarimi Universiti Kebangsaan Malaysia Malaysia Paper #4: Integrated IEC+MVC Air Conditioning system for Future Sustainability by <i>Muhammad Wakil Shahzad, Qian Chen, Kim Choon Ng, Mkuum Ja, Nida Imtiaz and Muhammad Ahmad Jamil</i> Paper #241: Operational tool for selecting energy systems for small buildings based on useful energy needs by <i>Sérgio Fernando Tadeu</i> Paper #127: A preliminary investigation comparing the use of biochar powder coatings to standard materials for heat and mass transfer surfaces in evaporative coolers by <i>Michele Cossu, Nicolò Morselli and Alberto Muscio</i> Paper #86: Enhancing Energy Efficiency in Hospital Buildings: A Comprehensive Diagnosis Strategy for Chiller Plant Fault Detection by <i>Xi Bai, Caihua Liang, Qi Tang, Yubo Mao and Junjie Huang</i> C17 Chair: Chris Benson	Session 12 <i>Invited Speaker</i> Digital Twins for Energy Efficient Buildings Muhyiddine University of Southern Denmark Denmark Paper #49: An investigation into the challenges, benefits, and drivers for integrating renewable energy technologies into Nigerian electricity grid by <i>Amin Al-Habaibeh and Daminabo Pokubo</i> Paper #282: Acceptability of heat pump energy deferral for mitigating peak electricity demands – Findings from a UK field trial by <i>Philip Turner, Thomas Rushby, Patrick James, Stephanie Gauthier, Massimiliano Manfren and Abubakr Bahaj</i> Paper #210: Integration of electric cooking and electric bike charging into East Africa mini grid projects: A policy review by <i>Majboul Alam, Abubakr Bahaj, Luke Blunden, Patrick James, Issac Kiva and Samson Ondiek</i> Paper #256: The impact of PV, battery and Immersion on the Meadows community: data analysis of Project SENSIBLE by <i>Jun Guan, Mark Gillott, Mark Sumner and Eldar Naghiyev</i> C15 Chair: Beatrice Pulvirenti
12:15	COMFORT BREAK			
12:30	Session 13 Paper #18: Remote Monitoring Unit for Solar Home Systems: A Field Trial by <i>Matthew Little and Richard Blanchard</i> Paper #166: Utilisation of Digital Twins for Community Heat Decarbonisation by <i>Zaid Al-Atari, Rob Shipman and Mark Gillott</i> Paper #186: Analysis of the use of photovoltaic systems within the AGRI-PV concept in the Portuguese context by <i>Ana Isabel Palmero, Armando Oliveira, Miguel Marques and Diogo Curval</i> Paper #47: Machine learning applications in data centre cooling performance optimisation and forecasting: A review by <i>Zhichu Wang, Cheng Zeng, Xudong Zhao, Zishang Zhu and Xiaoli Ma</i> A03 Chair: Shuli Liu	Session 14 Paper #292: Advancing Double Pass PV/T Solar Collectors with Asymmetric Compound Parabolic Concentrators for Building Façade by <i>Hasila Jarimi</i> Paper #125: Flow and heat transfer in a Double-pipe heat exchanger using Microencapsulated phase change material (MPCM) slurry by <i>Tewodros Belay Ashagre and Dibakar Rakshit</i> Paper #2: A Disruptive Approach to Improving Energy Efficiency of Air Conditioning chillers by <i>Kim Choon Ng, Muhammad Burhan, Mkuum Ja, Doskhan Ybyraiymkul, Qian Chen, Faheem Akhtar and Muhammad Wakil Shahzad</i> Paper #54: Simulation of thermal performance of horizontal slinky-loop ground source heat exchangers by <i>Man Luo, Guohui Gan and Lingze Lin</i> C14 Chair: Xiaofeng (Ken) Zheng	Session 15 Paper #121: A Dual-Purpose Innovative Cooling Cycle for Future Sustainability by <i>Muhammad Ahmad, Muhammad Wakil Shahzad, Nida Imtiaz, Kim Choon Ng, Muhammad Mehroz and Mohammed Sanjid Thavalengal</i> Paper #23: Solar Control Devices on Glazed Facades: Optimizing the Shape of an outer Slat Array as function of latitude, climate and solar control strategy by <i>Antonio Carbonari</i> Paper #254: Advancing Thermal Comfort Research: Evaluating Indices for Naturally Ventilated Residential Buildings in Diverse Climatic Zones by <i>Deepa Rani Rangaswamy</i> Paper #35: A novel hybrid multi-layer CdTe based PV ventilated window system integrated with phase change material: concept, construction and experimental investigation by <i>Wei Ke, Jie Ji, Chengyan Zhang and Hao Xie</i> C17 Chair: Ashmore Mawire	Session 16 Paper #221: Implementing a University's Sustainability Strategic Plan – The journey so far by <i>Abubakr Bahaj, Rahul Jain and Ben Anderson</i> Paper #225: Enhancing policy framework to support rooftop photovoltaic deployment in Saudi Arabia by <i>Majboul Alam, Abubakr Bahaj, Luke Blunden, Abdulsalam Alghamdi, Patrick James and Victoria Araon</i> Paper #283: Interpretable data-driven methods to automate energy model calibration – Southampton Highfield Campus case study by <i>Karla Magali Gonzalez Carreon and Massimiliano Manfren</i> Paper #240: Inter-unit transmission of pollutants inside a typical street canyon by <i>Murtaza Mohammadi and John Calautit</i> C15 Chair: Erdem Cuce
13:30	Sandwich Buffet Lunch & Poster Session C Papers #128: Multi-level simulation of cooking processes in a domestic oven by <i>Simona Rustico, Jacopo Briglia, Beatrice Pulvirenti, Lorenzo Raschi and Marco Reguzzoni</i> #129: Air Conditioning System Optimization for Historical Building Thermal Comfort: A CFD Analysis by <i>Eleonora Palka Bayard de Volo, Beatrice Pulvirenti and Giovanni Semprini</i> #130: CFD analysis of the effect of rectangular groove structure on heat transfer in parabolic fins by <i>Erdem Cuce, Pinar Mert Cuce and Harun Sen</i> #141: Exploration of Simulation Methodology for Thermal Comfort Assessment of Educational Buildings in Nigeria by <i>Aminu Adamu Bena, Mark Gillott, Rabah Boukhanouf and Auwal Dodo</i> #145: Increasing the energy efficiency with an Intelligent Light-Management Photovoltaic Greenhouse by <i>Fangcai Chen, Liulu Fan, Haoyu Ma, Jianan Zheng, Wei Zhang, Ming Li, Fangxin Zhang, Altyeb Ali Abaker Omer, Xinyu Zhang and Wen Liu</i> #153: Storage and Distribution Warehouses: A Neglected Building Type in Natural Ventilation Design by <i>Kate Pelletier, Christopher Wood and John Calautit</i> #174: Assessing the Energy Performance and Solar Energy Potential of Low-Rise Residential Buildings in the Kingdom of Saudi Arabia by <i>Eman Alkhalifah</i> #179: The Impact of in Buildings' Glazing on Operational Carbon Emissions Across Multiple Climates by <i>Ruba Salah</i> #193: Computational Analysis of Heat Transfer in a Fluidised Bed Thermochemical Energy Storage Reactor by <i>Sarah Roger-Lund, Jo Darkwa, Mark Worral, John Calautit and Rabah Boukhanouf</i> #202: Designing Ecological Landscapes: A Case Study of Amata City's Smart Environment by <i>Fa Likitswat and Siwaporn Klinmalai</i> #209: Effect of diffuser proximity to buildings on wind energy potential by <i>Abdel Rahman Elbakheit</i> #244: The Potential of Green Engineering Solutions Toward Sustainable Residential Buildings: A Case Study of Saudi Arabia by <i>Abdullah Alshabanat and Siddig Omer</i> #246: Implementing Deep Reinforcement Learning for Enhanced Energy Management in Renewable-Energy Microgrids by <i>Yanan Zhang, Xiao Li and Saffa Riffat</i> #249: A BIM-based Framework for Designing Sustainable Structures Through the Reuse of Precast Concrete Components by <i>Husam Al-Jawhar, Georgia Thermou, Carlos Osorio-Sandoval and Serik Tokbolat</i> #260: Converting flood risk areas to water resilient and productive dryland production systems: Example of flood water spreading weirs in Ethiopia by <i>Gizaw Desta and Gizachew Legesse</i> #270: Investigation into sustainable technologies for mitigation urban heat island effects in subtropical monsoon Climate – thermal energy storage technologies contribution by <i>Tianhong Zheng, Jo Darkwa, John Calautit and Saffa Riffat</i> #286: An experimental investigation on adsorption and regeneration performance of composite desiccants for building applications by <i>Mariana Velasco Carrasco, Jorge Luis Aguilar Santana and Saffa Riffat</i> #290: Investigations on the Retrofitting Strategies Coupling Multiple Targets on Heritage Dwellings Located in Suzhou by <i>Shihao Zhang, Qi Xu and Saffa Riffat</i> #297: An Empirical Critique of the Low Income Low Energy Efficiency Approach to Measuring Fuel Poverty by <i>Torran Semple, Lucelia Rodrigues, Graziella Figueredo and Mark Gillott</i> Main Foyer			
14:30	Keynote Speaker Hongxing Yang - Hong Kong Polytechnic University <i>Title: Development of wake model and yaw-control simulation models validated by experiments for optimized wind power generation</i> Chair: Peter Lund Lecture Theatre A03			
15:15	COFFEE BREAK & COMFORT BREAK			
15:30	Session 17 <i>Invited Speaker</i> Multiscale analysis applied to sustainable design of buildings and neighbours Beatrice Pulvirenti University of Bologna Italy Paper #156: Unlocking the Potential of Floating Solar Farms: A study of comparison of Potential in the UK and Malaysia by <i>Nisha Kaur, Sudhakar Kumarasamy and Mohd Ruslim Mohamed</i> Paper #185: Thermal energy storage for under floor heating systems by <i>Zafer Ure</i> Paper #98: Exploring the Relationship Between Investor Profiles and Sustainable Investment Drivers: A Systematic Review by <i>Kumar Manaswi, Archana Singh and Vikas Gupta</i> Paper #279: Rotation Heat Pump - Presentation of the integral rotor design by <i>Andreas Laengauer and Bernhard Adler</i> A03 Chair: Muhyiddine Jradi	Session 18 <i>Invited Speaker</i> Pop-Up farm (self powered) profitable solution for climate migration Ray Luke Solar Ready Ltd UK Paper #228: Growth in electrical demand in a PV mini-grid: the first decade of operation at Kitonyoni, Kenya by <i>Luke Blunden, Abubakr Bahaj, Majboul Alam, Samson Ondiek, Daniel Nyandera, Patrick James, Isaac Kiva, Patrick Karimi and Jeremiah Kiplagat</i> Paper #66: Economic Viability of Integrating Heat Pumps with Thermochemical Heat Storage for Residential Space Heating in the UK by <i>Marzieh Rezaei, Devrim Aydin, Yuehong Su and Saffa Riffat</i> Paper #97: Study on effect of intercellular gaps on the thermal profile of solar PV systems by <i>Shubham Kumar and Pmv Subbarao</i> Paper #251: The role of the informal sector towards sustainable waste management practices in developing countries: Case Study in Jordan by <i>Husam Abu Hajar and Ola Al-Mahasneh</i> C14 Chair: Hasila Jarimi	Session 19 <i>Invited Speaker</i> The application of sensor fusion and artificial intelligence in assessing air quality during urban commuting Amin Al-Habaibeh Nottingham Trent University UK Paper #51: Electricity Distribution Networks for Multi-Technology Residential Communities: A Sufficiency Assessment by <i>Abdullah Dik, Cagri Kutlu, Siddig Omer, Rabah Boukhanouf, Hao Sun and John Kaiser Calautit</i> Paper #226: The performance of residential rooftop PV arrays in a hot, arid climate: a case study in Jeddah, Saudi Arabia by <i>Abdulsalam Alghamdi, Luke Blunden, Majboul Alam, Abubakr Bahaj and Patrick James</i> Paper #142: Investigating Thermal Comfort in Traditional Adobe Buildings in Warm-Humid Climates: A Case Study of Ilorin Heritage Buildings in Nigeria by <i>Olutola Adekeye, Lucelia Rodrigues and Lorna Kiamba</i> Paper #263: Simulation models with different electric vehicle charging strategies: a case study in East Midlands Airport by <i>Wenjia Yi, Murtaza Turabhai Mohammadi, Mark Gillott, Lucelia Rodrigues, Rob Shipman and Rong Qu</i> C17 Chair: Michael Farnsworth	Session 20 <i>Invited Speaker</i> Power generation prediction of a new tower type thermal photovoltaic composite power generation system based on spectral beam splitting Zhongzhu Qiu Shanghai University of Electric Power East China Electric Power Design Institute China Paper #116: The Impact of Street Orientation and Aspect Ratio on Cooling Demand in Buildings: A Case Study of the "Sakan Misr" Housing Project in Egypt by <i>Sarah Abdalaziz, Soha Elgohary and Siddig Omer</i> Paper #67: Graph neural network-based spatio-temporal methodology for hydraulic modelling of district cooling systems by <i>Jing Zhang, Hanbei Zhang and Fu Xiao</i> Paper #57: Design, Production and Thermodynamic Analysis of Solar Energy Supported, Nanofluid Integrated Thermolectric Vaccine Cabinet by <i>Pinar Mert Cuce, Erdem Cuce and Tamer Guclu</i> Paper #131: Numerical analysis of the effect of material type on heat dissipation in rectangular ducts in parabolic fin application by <i>Erdem Cuce, Pinar Mert Cuce and Harun Sen</i> C15 Chair: Yanan Zhang
17:00	Close			
17:30	Pre-Dinner Drinks & Nibbles at the Courtyard of Derby Hall			
19:00	Gala Dinner VENUE - Dining Room - Derby Hall Live Music & RAFFLE DRAW			
20:30	Awards Ceremony Live Music Samba Entertainment			
22:30	Close and end of the evening			

Time	Day 3 - Thursday 17th August 2022			
09:00	Keynote Speaker Michele Bottarelli - University of Ferrara, Italy <i>Title: Storytelling of the flat-panel ground heat exchanger: pros and cons of an intuitive shape</i>			
09:45	Keynote Speaker Ji Jie - University of Science & Technology of China <i>Title: Study on the multi-functional application of BIPV/T system</i> Chair: Hongxing Yang Lecture Theatre A03			
	Coffee Break & Poster Session D Papers #43: Concept Of Net-Zero-Ready Residential Buildings in hot-humid Region-(Lessons learned from the Arabian Gulf vernacular architecture) by <i>Mosad Alhawas and Rabah Boukhanouf</i> #148: Performance simulation research of the novel PVT-PCM-GSHP system in different climate zones by <i>Fei Lai, Jinzhi Zhou, Min Yu, Xiaoling Zhu and Yanping Yuan</i> #165: Analysis of energy efficient two evaporator refrigeration system using expander-compressor enhanced subcooling by <i>Muhammed Nasif Kuru, Mehmet Tahir Erdinc and Cagri Kutlu</i> #211: Analysis of Suitability of Local Sustainability Recommendations for Thermal Comfort in Post-disaster Social Housing in Yucatan, Mexico by <i>Yarely Guadalupe Aguilar Perez, Lucella Rodrigues, Paolo Becarelli and Renata Tubelo</i> #212: Carrot pomace as a perspective raw material for obtaining a bunch of value-added bioproducts by <i>Aleksandra Hudek, Lukasz Korzeniowski, Derk W. F. Brillman and Mariusz Wądrzyk</i> #223: Fifth generation district heating and cooling network coupled with geothermal energy source for realizing a sustainable community: A case study of Embassy of Sharing at Malmö by <i>Nischal Chaulagain, Ulla Janson and Saqib Javed</i> #233: Building retrofit- An active influence on the residential building's energy consumption by changing the size of the Windows by <i>Yue Zhang and Siddig Omer</i> #253: The Impact of Courtyards and Window Designs on Thermal and Visual Comfort Conditions in Adobe Traditional Buildings of Nigeria by <i>Olutola Adekeye, Sara Mohamed, Lorna Kiamba and Lucella Rodrigues</i> #255: A Hardware-in-the-Loop Simulation of a Heat Pump System for Vehicle Thermal Management by <i>Luca Muratori, Beatrice Pulvirenti, Lorenzo Peretto, Raffaella Di Sante, Giovanni Bottiglieri and Federico Coiro</i> #259: Analysis of the impact of evaporative cooling strategies on the aero-thermal comfort performance of courtyard buildings in hot-dry climates by <i>Hao Sun, John Calautit, Carlos Jimenez-Bescos, Abdullah Dik, Siddig Omer and Saffa Riffat</i> #260: Converting flood risk areas to water resilient and productive dryland production systems: Example of flood water spreading weirs in Ethiopia by <i>Gizaw Desta and Gizachew Legesse</i> #268: Unlocking affordable and low-carbon retrofit solutions for residential buildings with homeowners' motivations using the Energy-Flow based Ensemble Calibration (EF-EC) model by <i>Ke Qu, Yuhao Wang, Man Luo and Xiangjie Chen</i> #269: A Study on Vermiculite-based Salt Mixture Composite Materials for Low-grade Thermochemical Adsorption Heat Storage by <i>Ziwei Chen, Yanan Zhang, Yong Zhang, Yuehong Su and Saffa Riffat</i> #275: Performance Study For Selected HVAC Systems by <i>Jiufa Chen, Jianchao Ma, Yibo Chen, Bing Guo and Zhikai Zhao</i> #277: Challenges of Climate Change & Resilient Housing Design Solution by <i>Dr Afaq Hyder Chohan, Jihad Awad, Adi-Irfan Che-Ani and Bhai Khan Shar</i> #278: Cooling access among female home-based workers in a village in Selangor, Malaysia by <i>Hasila Jarimi</i> #286: An experimental investigation on adsorption and regeneration performance of composite desiccants for building applications by <i>Mariana Velasco Carrasco, Jorge Luis Aguilar Santana and Saffa Riffat</i> Main Foyer			
10:30	Session 21 Paper #21: Using System Intrinsic Thermal Storage to Enhance Chiller Plant Efficiency – Control Strategy Development and On-site Validation by <i>Kul Shan, Xiaoyu Lin and Shengwei Wang</i> Paper #6: Experimental and numerical investigation on thermal heterogeneity of a novel zoning air conditioning system by <i>Yunqing Fan, Mamoru Hamada, Shogo Tamaki and Makoto Wada</i> Paper #100: An Empirical Study on Condensation Process and Heat Transfer Enhancement under Corona Discharge: A Visualization-based Investigation by <i>Bo Chen, Yuanzhi Gao, Zhaofeng Dai, Donaxu Wu and Xiaosong Zhang</i> Paper #211: Analysis of Suitability of Local Sustainability Recommendations for Thermal Comfort in Post-disaster Social Housing in Yucatan, Mexico by <i>Yarely Guadalupe Aguilar Perez, Lucella Rodrigues, Paolo Becarelli and Renata Tubelo</i> Paper #65: Implementation of Demand Side Response in Supermarkets: a feasibility study by <i>Debarati Torrens and Savvas Tassou</i> Paper #235: Evaluation of the impact of the aerofoil shape on the performance of a oscillating aerofoil energy harvester integrated into a building structure by <i>Katrina Calautit and Cameron Johnstone</i> Chair: Amin Al-Habaibeh			
	Session 22 Paper #140: Analysis of Thermal Comfort in a University Building, During the Hot/Dry Season in Kebbi State, Nigeria by <i>Aminu Adamu Bena, Mark Gillott and Rabah Boukhanouf</i> Paper #191: A Super-performance Dew Point Cooler – Research and Application by <i>Xudong Zhao</i> Paper #257: Data-Driven Optimisation Based Machine Learning For Thermal Comfort in Building Environment by <i>Ismail Alarab, Christos Efstratiou, Simant Prakoornwit, Fernando Otero, Marielena Nikolopoulou, Matthew Barker, Andrew Baldwin and Malcolm Clarke</i> Paper #126: Analysis of Ignition at different fuel injection timings in Gasoline Direct Injection Engine by <i>Ankur Kalwar and Avinash Agarwal</i> Paper #190: A Dynamic Fuzzy Analytic Network Process Approach for Assessing Renewable Energy Technologies by <i>Shuo-Yan Chou and Luu Dat</i> Paper #205: 3-E analysis of plasma gasification combined cycle integrated molten carbonate fuel cell for power production based on refused derived fuel feedstock by <i>Roni Mallick and Prabhu Vairakannu</i> Chair: Cagri Kutlu			
	Session 23 Paper #34: Investigation on Heat Transfer and Flow Organization Characteristics in Porous Media based on Entransy Analysis Model by <i>Yong Yang, Baojun Chen, Guangfu Li, Shuai Zhang, Zhao Zhang, Hong Liu and Shengqiang Shen</i> Paper #42: Influence of EGR and injection timing on combustion and emissions of a diethyl ether-diesel blend fueled compression ignition engine by <i>Utkarsha Sonawane and Avinash Kumar Agarwal</i> Paper #232: Field monitoring of indoor air temperature of 3D-printed house in the hot climate of Saudi Arabia: A case study of the 3D Studio 2030 in Riyadh by <i>Khalid Mirza and Mohamed Gadi</i> Paper #247: The impact of applying the new Saudi building code on residential buildings performance in Riyadh region by <i>Abdulaziz Aladwani and Siddig Omer</i> Paper #120: The impact of prefabricated wall insulation (PWI) panels on building energy performance: Numerical simulation and experimental validation by <i>Yuhao Wang, Ke Qu and Saffa Riffat</i> Paper #271: Maximizing Solar Power Harvest: Experimental Analysis of Vacuum Insulated Photovoltaic/Thermal (PVT) Power Module in Subtropical Climates by <i>Andrew Young Apuko Oyieke</i> Chair: Devrim Aydin			
	Session 24 Paper #31: Minimising the Performance Gap Using Calibrated Dynamic Building Performance Simulation (DBPS) Models by <i>Shireen Alqadi and Amira Elnokaly</i> Paper #161: Design of Intelligent Lighting System for Plants with High Uniformity by <i>Zhuoyi Ling, Qinghua Lyu and Wanjiang Bai</i> Paper #73: Rural energy accessibility profiling to enable effective energy decarbonisation research by <i>Samir Soares, Mark Gillott and Gavin Walker</i> Paper #207: Estimating Energy Savings in Singapore's Building Benchmarking Policy for Office Buildings by <i>Gu Hao, Xiaoyu Jin and Xiao Fu</i> Paper #136: Energy, exergy, and techno-economic analysis of a 10-kW biogas fuelled solid oxide fuel cell by <i>Amit Kumar Sharma, Biju Illathukandy, Sharang Dev Sharma, Priyanka Kaushal, Ralph E.F. Lindeboom, V.K. Vijay and P.V. Aravind</i> Paper #146: Assessment of Indoor Thermal Comfort with Respect to Building Materials in Low Income Housing Typology - A Case of Trivandrum, Kerala by <i>Fahmida Sherin P M and Deepa Rani R</i> Chair: Emmanuel Tapia-Brito			
11:00	Keynote Speaker Xudong Zhao - University of Hull - UK <i>Title: Key technologies for innovative solar driven heating and cooling systems</i> Lecture Theatre A03 Chair: Saffa Riffat			
12:30	Closing Ceremony & Announcement Lecture Theatre A03			
13:15	Sandwich Buffet Lunch Main Foyer			
13:30	Departures Tours to Creative Energy Homes @Department of Architecture & Built Environment - limited spaces Please sign in at the Registration Desk if interested			
14:30	END OF SET2023			