



WREC Conference Program

PROGRAMME

Wednesday 15 January 2025

HALL- D

09:00 – 10:30		PLENARY – 4, Chair: Prof Peter Farrell
1 Done	09:00 – 09:20	High Temperature Heat Pumps for Industrial Applications Professor Neil J Hewitt Ulster University, Belfast School of Architecture & The Built Environment, Belfast, Northern Ireland, UK
2 Done	09:20 – 09:40	Renewable energy district heating: the work of LoT-NET and the Warwick case study. Prof. R E Critoph, Dr R Moss School of Engineering, University of Warwick, UK
3 Done	09:40 – 10:00	Transition towards a Carbon Free City Districts Prof. DSc Dr Dorota Chwieduk Institute of Heat Engineering, Faculty of Power and Aeronautical Engineering Warsaw University of Technology, Warsaw, Poland
10:30 – 11:00		Coffee Break

HALL – D

11:00 – 12:40		PLENARY – 5, Chair: Prof Salam Darwish
1 Done	11:00 – 11:30	Environmental Design and Urban Development: Applied Research in Waterloo Marco Sala - University of Florence, Florence, Italy
2 Done	11:30 – 12:00	Sustainable Solutions at Times of Transition: From Linear to Circular. Prof Anastasia Zabaniotou Dept of Chemical Eng., Aristotle Univ. of Thessaloniki, Thessaloniki, Greece
3 Done	12:00 – 12:30	SUSTAINABLE AVIATION FUEL TECHNOLOGIES & MITIGATING KEY CHALLENGES TO SAF TRANSITION Mr Satya, Group Managing Director, Kuala Lumpur, Malaysia

HALL – A

11:00 – 12:30		PLENARY – 6, Chair: Dr Hussein Kazem
1 Done	11:00 – 11:15	<p>Spatial suitability model for the best locations of solar power plants using geographic information systems Prof Abbas Al-Tayeb Babiker Mustafa, & Abdulelah Adel Rashed Alrasheed Dept. of Geography - College of Arts - King Faisal Univ. - Kingdom of Saudi</p>
2 Done	11:30 – 11:45	<p>Towards the Characterization of Regional and Local Air Dust in the Arabian Gulf Region and Its Potential Effects on Public Health & the Economy Dr. Nidal Dahman 1‡, and Mrs. Nourah Alhajji</p>
3 Done	11:45 – 12:00	<p>A Passive Redirection of Solar Radiation by Micro Optics to Increase the Bifacial Gain of Photovoltaics Helmut F.O. Müller, Prof. Dr.-Ing., Green Building R&D GmbH, Düsseldorf, Germany</p>
4 Done	12:00 – 12:15	<p>Investigation of the use of PCM as a solution for regulating indoor temperature fluctuation for residential housing in Hot arid climate. Mohamed Ahmed Fouad Mahdy Dept. of Architectural Eng., College of Eng. and Design, Kingdom University, Bahrain</p>
5 Done	12:15 – 12:30	<p>Exploring Low-Energy Building Design in Bahrain: Retrofitting Active & Passive Strategies in Residential Buildings *1 Dr, Mahtab Asvar, 2 M.A. Avni Durga Hemanth, 3 Prof. Islam Hamdy Elghonaimy *1 Department of Interior Design, College of Eng & Design, Kingdom Univ. Bahrain 2 & 3 Dept. of Architecture and Interior Design, College of Eng., Univ of Bahrain, Bahrain</p>
6 Done	12:30 – 12:45	<p>A Simplified Onshore Wind Turbine Structural Model Mahmoud Jahjouh¹, Nidal Dahman², Abdulhameed Irhouma³ and Hassan Aljaidah⁴ University of Bahrain, Bahrain</p>

12:45 – 14:00

Lunch Break

HALL- D

14:00 – 15:30		TECHNICAL SESSION – 1, Chair: Mr Rainer Hinrichs-Rahlwes	
1	14:00 – 14:10 Done	Simplifying Building Thermal Modelling by Using Online Local Weather Data Abdullah Zaheer ¹ , Dr Zhengyu Lin ² , Dr James Fleming ³ 1-Centre for Renewable Energy Systems Tech. (CREST), UK, 2-(CREST), Loughborough Univ., UK, 3-Loughborough University, UK	
2	14:10 – 14:20	Use of Clean Energy Technologies in Improving Walkability, New Housing Developments and Oriented Towards Sustainable Future Energy Scenario V.K. Sharma* and G. Braccio, Biorefinery and Green Chemistry, ENEA Research Centre Trisaia, Italy	
3	14:20 – 14:30 Done	Identification, prioritization, and co-development of stakeholders for the transition towards Solar Energy Storage (SES) in Australia Nikhil Jayaraj, School of Mark. & Manag., Faculty of Bus. and Law, Curtin Univ, Perth, Western Australia.	Online Session (Recording)
4	14:30 – 14:40	Adsorption technology for cooling applications: A review of evaporator behaviour and performance challenges Mr Ibrahim J.M. Mwasubila College of Engineering and Tech., University of Dar es Salaam, Tanzania	
5	14:40 – 14:50	Preparation, Characterization, and Performance Optimization of Cu₂ZnSnS₄ (CZTS) Absorber Layer Deposited by Sol-Gel Spin Coating Technique. S. Abdullahi, M. Momoh and A. U. Moreh, Department of Physics Usmanu Danfodiyo University Sokoto, Nigeria	
6	14:50 – 15:00	The role of Grid-Connected RES and BSS Systems using PLL Techniques in Environmental Sustainability Mohammad A. Bany Issa, Zaid A. Al Muala, Pastora M. Bello Bugallo* TECH-NASE Research Group, Department of Chemical Engineering Universidade de Santiago de Compostela, Spain	
7	15:00 – 15:10 Done	Exploring ionic liquids as phase change materials in thermal energy storage for temperature control of photovoltaics Katherine Bolger ¹ , Anita Ortega ¹ , Martin Esson ¹ , P.R. Sarika ² , Paul Nancarrow ² and Sarah J. McCormack ¹ 1 Dpt of Civil, Structural and Env Eng., Trinity College Dublin, Ireland 2Dept of Chemical & Biological Eng, American Univ. of Sharjah, United Arab Emirates	Online Session
8	15:10 – 15:20 Done	Adopting Biomimetic Principles from the Sunflower for Solar Panel Tracking Cormac McCarthy, Atiq Ur Rehman & Sarah J. McCormack Dept of Civil, Structural and Env. Eng., Trinity College Dublin, Ireland	Online Session
9	15:20 – 15:30 Done	Performance analysis of 3D printed Dome-shaped Luminescent Solar concentrators Youn Le Roy, Anita Ortega, Sarah J. McCormack, Dept of Civil, Structural and Env. Eng., Trinity College Dublin, Ireland	Online Session

HALL- A

14:00 – 15:30		TECHNICAL SESSION – 2, Chair: Dr Amina Batakarawa	
1	14:00 – 14:10	African University collaboration on renewable energy technology for distributed energy systems Mr Ibrahim J.M. Mwasubila. College of Engineering and Tech., University of Dar es Salaam, Tanzania	
2	14:10 – 14:20	Modelling the Impact of Uncoordinated Plug-In Electric Vehicles’ Charging Patterns on the Low Voltage Distribution Network Tebogo Mongale, Kanzumba Kusakana, Patric Manditereza Dept. of Electrical, Electronic and Computer Engi.	
3	14:20 – 14:30	Enhancing Indoor Air Quality for Residential Building in Hot Arid Regions Prof. Dr Ghanim Kadhem Abdul Sada*, Dr Tawfeeq Wasmi M. Salih	
4	14:30 – 14:40	Experimental investigations on dual tank energy storage system: A solar photovoltaic indoor clean cooking solution for Sub-Saharan Africa Jimmy Chacigaa, Denis Okelloa, Karidewa Nyeingaa, Ole Jorgen Nydalb a Department of Physics, Makerere University, Kampala, Uganda. b	
5	14:40 – 14:50	FEASIBILITY STUDIES ON WIND ENERGY POTENTIAL OF DAMATURU, YOBE STATE NIGERIA USING WEIBULL AND RALIAGH STATISTICAL DISTRIBUTION MODEL ¹ AMEH S.E, ² MUSA A.J, ¹ SHUAIBU A.Y and ¹ JANGA A. A,	
6	14:50 – 15:00	BIOGAS GENERATION POTENTIAL AND ITS ANALYSIS FROM COW DUNG CO DIGESTED WITH COMMONLY FOOD AND VEGETABLE WASTE FOUND IN DAMATURU, NORTH - EAST NIGERIA ENGR. MUSA AHMED JATTO,	
7 Done	15:00 – 15:10	INNOVATIVE 3D PRINTING TECHNIQUES FOR LUMINESCENT SOLAR CONCENTRATORS Aaron Glenn ¹ , Alan Keoghan ¹ , Lizzie Collins ¹ , Subhash Chandra ² , Sarah J. McCormack	Online Session
8 Done	15:10 – 15:20	Enhancing Photovoltaic Performance through Lens-Shaped Cast Glass Panels for Building Integrated Photovoltaics Peter McGuire, Anita Ortega, Sarah J McCormack	Online Session
9 Done	15:20 – 15:30	Optimising material selection for compound parabolic concentrators to enhance daylighting in buildings Wai Qian Tham ¹ , Subhash Chandra ² , Brian Norton ³ and Sarah J. McCormack ¹	Online Session

10 Done	15:30 – 15:40	Effect OF Copper Slag Additive on Mechanical Properties of Asphalt Mixure Meran Mohamed Alnourag, Mustafa Aytakin, Nuha Alzayani
	15:40 – 16:00	Coffee Break

HALL – D

16:00 – 17:30		TECHNICAL SESSION – 3, Chair: Prof Saad Darwish	
1	16:00 -16:10	The public's perception of renewable energy as a significant alternative for fossil fuels in Saudi Arabia - An overview of attitude toward renewable energy in the Riyadh area. Khalid N. Alharbi ¹ , Naif S. Almuqati ² , Mohammed S. Alnafisah ² , Latifah A. Shaber ³ , Khawla Almalahi ² , Mohammed H. Almusawa ² , Ahmad A. Alsaleh ⁴	
2	16:10 – 16:20	Do PV installations cause Pseudo Heat Island Effect? Naser W. Alnaser ¹ , Ghadeer M. Kadhem ² and Waheeb E. Alnaser ³ ,	
3	16:20 – 16:30	An experimental study on the impact of porous media in improving the heat transfer performance characteristics of photovoltaic-thermal Amjad H. Hamzaw ¹ , and Qahtan A Abed ²	Online Session
4	16:30 – 16:40	Transitioning to Sustainable Communities through Education and Integrated Design: Embracing AI, Technology, and Data Dr Maryam Singery	
5	16:40 – 16:50	Geopolymer concrete for low energy architecture. Reducing carbon emissions with industrial byproducts. Amitha Varghese ¹ , Assoc Prof Martin Anda ¹ , Dr. Kuruville Mathew ¹ , Maheswaran Arumugam ¹ and Dr Nugroho Adi Sasongko	
6	16:50 – 17:00	Impact of Indoor Environmental Temperature on Academic Performance of Students in the Tropical Climate Uchenna Augustine Eberendu ¹ , Stanley Nwabueze Osamor ² and Chinedu Uchechukwu Oluigbo ^{2*}	
7	17:00 – 17:10	Clean energy applications and their impact on the status of international powers Dr. Alshaimaa Mohamed Mahmoud Hassan Dr. Mona Abdulaziz Almelhem Dr. Faieq Hassen Jasem	Online Session
8	17:10 – 17:20	Uptake of Renewable Energy Integration and Electric Vehicles in Ireland. Rehman A. U1*. Ortega, A1. McCormack, S. J1.	Online Session
9	17:20 – 17:30	Exploring agrivoltaics for sustainable energy and agriculture in Ireland Mikhail Vaganov & Sarah J. McCormack	Online Session
10	17:30 – 17:40	A Novel String-based Mechanical Motion Rectifier for Power Take-off Systems for Energy Harvesting from Oscillatory Forces	
11	17:40 – 17:50	Public open spaces' design as a catalyst for communities' awareness of climate change implications and mitigation Sherif Mohamed Elwageeh	

HALL – A

16:00 – 17:30		TECHNICAL SESSION – 4, Chair: Prof Antonella Trombadore	
1	16:00 – 16:10	EXPLORING THE USE OF BIOBASED FATTY AMIDE AS A TETRAALKYLAMMONIUM SALT PRECURSOR FOR PEROVSKITE SOLAR CELLS: SYNTHESIS AND CYTOTOXICITY INVESTIGATIONS N. M. Mustafa1, F.N. Jumaah2, N.A. Ludin1, M. Akhtaruzzaman1, N.H. Hassan3,4, A. Ahmad3,4, K.M. Chan5, M.S. Su'ait1*	
2 Done	16:10- 16:20	Yoking Big Data Analytics to Predict Mental Health Issues from Social Media Activity - An Early Intervention Approach *Dr Sadia Syed,	
3 Done	16:20 – 16:30	Optimal Placement and Sizing of Charging Stations Considering EVs Battery Load in a Radial Power Distribution System Ayaz Ahmad1, 2, Hameed Ullah2, Hafeez Ahmad2, Mohammed Abdulaziz Alaqil1, Sadiq Ahmad	
4	16:30- 16:40	Operational Performance of Vestas 850 kW Wind Turbines in Bahrain's Coastal Environment N. W. Alnaser 1, H.M.Albuflasa 2, E.A. Al-Kaabi 3 , W.E. Alnaser 4,	
5	16:40 – 16:50	ALBA's Environmental, social, and governance (ESG) Journey: Leading Sustainable Aluminum Production *Saad Darwish, Abdelrhman Meero, Ali Al Abqali, Kingdom	
6 Done	16:50 – 17:00	PRODUCTION OF GREEN HYDROGEN IN MOROCCO FROM SOLAR AND WIND ENERGY: REALITY AND FEASIBILITY Hassan NFAOUI*1, Faissal ELMARIAMI2 & Ali SAYIGH3,	
7 Done	17:00 – 17:10	Modern Engineering Education in the Field of Renewable Energies Description: Mr Mohammad Al Refaee	
8 Done	17:10 – 17:20	Multifunctional phosphorescent layers for photovoltaic efficiency enhancement Shaakirah Madhi 1, Subhash Chandra2 and Sarah J McCormack 1, 1 Dept of Civil, Structural and Env. Eng., Trinity College Dublin, Ireland 2Dept of Geology, School of Natural Sciences, Trinity College Dublin, Ireland	Online Session
9 Done	17:20 – 17:30	Performance assessment and feasibility study of photovoltaic solar energy integration at the Trinity Technology & Enterprise Centre Arya Krishnan, Anita Ortega and Sarah J McCormack,	Online Session
10 DONE	17:30 – 17:40	Structural Behavior of Bamboo Reinforced Concrete Domes Prof.Wael Ibrahim, Prof. W.El-fattah, Dr. Amal Zamrawi, Eng. Mohamed Abdelrady, Dr. Samy Elbially	Online Session