PUBLIC EDITION

TECHNICAL SESSIONS PROGRAMME

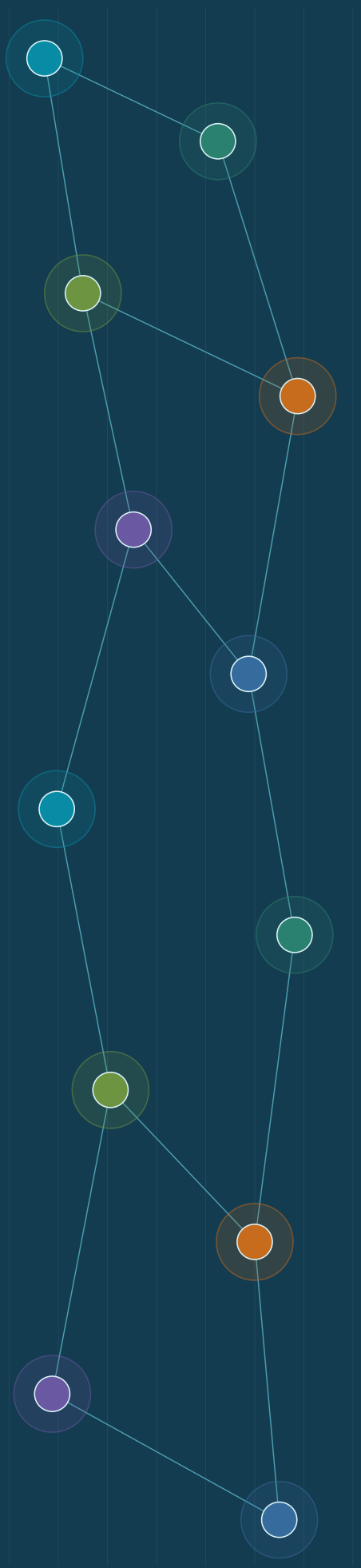
Session schedule, leadership and submission allocation

5-7 OCTOBER 2026

22 technical sessions / 138 scheduled papers

SIX TECHNICAL BLOCKS

A	B	C	D	E	F
5 OCT	6 OCT	6 OCT	7 OCT	7 OCT	7 OCT



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Technical programme at a glance

Six technical blocks across three conference days

3	6	22	138
DAYS	BLOCKS	SESSIONS	PAPERS

DAY 1 5 OCT	A	15:30-17:30 120 minutes	A1 A2 A3 A4 4 parallel sessions	28 papers 15 min each
DAY 2 6 OCT	B	10:30-12:30 120 minutes	B1 B2 B3 B4 4 parallel sessions	29 papers 15 min each
DAY 2 6 OCT	C	15:30-17:30 120 minutes	C1 C2 C3 3 parallel sessions	20 papers 15 min each
DAY 3 7 OCT	D	09:00-10:50 110 minutes	D1 D2 D3 3 parallel sessions	20 papers 15 min each
DAY 3 7 OCT	E	11:30-12:30 60 minutes	E1 E2 E3 E4 4 parallel sessions	14 papers 15 min each
DAY 3 7 OCT	F	13:30-15:30 120 minutes	F1 F2 F3 F4 4 parallel sessions	27 papers 15 min each

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Session directory

22 sessions grouped by programme block | Select a session code to open its page

A 5 OCT 15:30-17:30	A1	AI, Digital Twins & Data-Centre Energy	A2	Smart Grids, Forecasting & Digital Power Infrastructure
	A3	Water-Energy Nexus, Desalination & Resource Recovery	A4	Thermal Management, Cooling & Thermoelectric Conversion
B 6 OCT 10:30-12:30	B1	Renewable Hydrogen & Green Fuel Production	B2	Intelligent Fuel-Cell Systems, Diagnostics & Control
	B3	Carbon Capture, Utilization & Industrial Decarbonization	B4	Energy Policy, Equity, Security & Governance
C 6 OCT 15:30-17:30	C1	Waste Valorization, Circular Economy & Critical Materials	C2	Electrochemical & Thermal Energy Storage
	C3	Renewable Systems, Microgrids & Flexible Demand		
D 7 OCT 09:00-10:50	D1	AI Methods, Education & Cross-Domain Applications	D2	Environmental Pollution, Monitoring & Water Treatment
	D3	Ammonia & Hydrogen Carriers		
E 7 OCT 11:30-12:30	E1	Alternative Fuels & Engine Combustion	E2	Clean Mobility: Electric, Aerial & Marine Systems
	E3	Life-Cycle Assessment of Energy & Transport Systems	E4	Industrial Sustainability, Materials & Emissions
F 7 OCT 13:30-15:30	F1	Electrochemical Reactor Transport, Flow Fields & Multiphysics	F2	Energy Devices, Interfaces & Intelligent Control
	F3	Electrocatalysis, Photocatalysis & Advanced Materials	F4	AI-Enabled Modeling, Optimization & Industrial Analytics

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Session leadership

Chair and Sub-Chair assignments | Subject to final organiser confirmation

SESSION	SESSION CHAIR	SUB-CHAIR
A1	**Changda Wang**	Peter Roche
A2	**Arivazhagan Valluvar Oli**	Yongxi Li
A3	**Zainab Mohammed Lutfi Ali Alansari**	Musthafa Mavukkandy
A4	**Navya Thomas**	
B1	**Monica Trivino**	Reibelle Raguindin
B2	**Navya Thomas**	Piotr Dlugolecki
B3	**Suresh Kuppireddy**	Fahmi Anwar
B4	**Peter Roche**	
C1	**Reibelle Raguindin**	
C2	**Piotr Dlugolecki**	
C3	**Alban Echchelh**	Arivazhagan Valluvar Oli
D1	**Peter Roche**	Yongxi Li
D2	**Musthafa Mavukkandy**	Iosif Scoullos
D3	**Mohammad Faisal**	Suresh Kuppireddy
E1	**Mohammad Faisal**	
E2	**Reibelle Raguindin**	
E3	**Alban Echchelh**	Yousif AlHammadi
E4	**Monica Trivino**	Fahmi Anwar
F1	**Iosif Scoullos**	Piotr Dlugolecki
F2	**Yongxi Li**	Amira Ali
F3	**Fahmi Anwar**	Suresh Kuppireddy
F4	**Sagarika Kumar**	Changda Wang

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SESSION

A1

AI, Digital Twins & Data-Centre Energy

DATE	TIME	DURATION	PAPERS
Monday, 5 October 2026	15:30-17:30 Studio 1&2	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Changda Wang	Peter Roche

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 10	15:30-15:45	Digitalizing the Atmosphere: An AI-Driven Framework for Integrating FSOC-Derived Environmental Data into Energy Digital Twins
02	ID 24	15:45-16:00	Identification of Shale Gas Horizontal Well Trajectories Based on Bidirectional LSTM, Attention Mechanisms and Physics-Informed Neural Networks (PINN)
03	ID 57	16:00-16:15	Synergy of Artificial Intelligence and Physics-Based Modeling in the Evolution of Marine and Ocean Energy Systems: A Comprehensive Critique
04	ID 67	16:15-16:30	AI for Strategic Management and Optimization of Energy Systems in Georgia
05	ID 68	16:30-16:45	Dipul's Green AI Reclamation Framework (GARF): A Constraint-Aware Priority Doctrine for Sustainable AI under Energy Limits
06	ID 72	16:45-17:00	Explainable Physics-Guided Machine Learning with Bayesian Uncertainty Modeling for Thermalefficiency Degradation in CHP Plants
07	ID 80	17:00-17:15	From FASTBLADE to MAXBLADE: Full-Scale Fatigue Testing, Digital Twins and AI-Enabled Monitoring for Next-Generation Tidal Blades
RESERVE		17:15-17:30 | 15 minutes for session discussion / contingency	

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

A2

Smart Grids, Forecasting & Digital Power Infrastructure

DATE	TIME	DURATION	PAPERS
Monday, 5 October 2026	15:30-17:30 Studio 3&4	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Arivazhagan Valluvar Oli	Yongxi Li

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 1	15:30-15:45	Artificial Intelligence and Grid Management: Accelerating Papua New Guinea's Renewable Energy Transition
02	ID 8	15:45-16:00	Short-Term Forecasting of Heterogeneous Wind Power Fleets: Global Temporal Fusion Transformer Leveraging Static Covariates
03	ID 90	16:00-16:15	Powering Digital Mega-Loads: Barriers and Solutions to Accelerate Grid Efficiency, Investment and GDP Growth in the AI Era
04	ID 126	16:15-16:30	Securing the Future Grid: Evaluating Strategies and Challenges to Maintain Energy Availability Amidst Increased Projected Energy Demand in Texas
05	ID 142	16:30-16:45	CNN-LSTM-Based Short-Term Photovoltaic Power Forecasting for CCHP Microgrids
06	ID 160	16:45-17:00	Multi-Sensor Attention-Based 1D-CNN for Wind Turbine Fault Classification Using the Fraunhofer LBF Dataset
07	ID 60	17:00-17:15	A Comparative Study of Open-Source Image Segmentation Techniques for Solar Panel Surface Analysis

RESERVE 17:15-17:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

A3

Water-Energy Nexus, Desalination & Resource Recovery

DATE	TIME	DURATION	PAPERS
Monday, 5 October 2026	15:30-17:30 Studio 5&6	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Zainab Mohammed Lutfi Ali Alansari	Musthafa Mavukkandy

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 6	15:30-15:45	A Novel Capacitive Deionization Approach for Efficient Ammonium Removal and Recovery Using Zeolite Composites
02	ID 32	15:45-16:00	Advancing Hollow Fiber Membrane Distillation for Energy-Efficient Water Recovery from High-Salinity Brines
03	ID 45	16:00-16:15	Application of Deep Eutectic Solvents in Water Desalination
04	ID 65	16:15-16:30	Developing Scalable Graphene Based Electrodes for Capacitive Deionization
05	ID 135	16:30-16:45	A Photovoltaic Cooling Waste Heat-Driven Air-Gap Membrane Distillation System for Simultaneous Freshwater Production and Electricity Generation Enhancement
06	ID 157	16:45-17:00	From Energy Transition to Intelligent Energy Systems: An AI-Enabled Framework for Resilient Water–Energy Infrastructure in the MENA Region
07	ID 171	17:00-17:15	Real-Time Monitoring of Organic Fouling in Reverse Osmosis under Hydrodynamic Conditions: A Comprehensive Analysis

RESERVE 17:15-17:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

A4

Thermal Management, Cooling & Thermoelectric Conversion

DATE	TIME	DURATION	PAPERS
Monday, 5 October 2026	15:30-17:30 Studio 7	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Navya Thomas	Zishan Akhter

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 17	15:30-15:45	Modulating Thermo-Diffusion/Galvanic Coupling via Ion Speciation Engineering Enables High-Performance Ionic Thermoelectric Cells
02	ID 25	15:45-16:00	Decoding Cu-Cl Coordination Dynamics in PVA-$CuCl_2$ Ionic Thermoelectric Gels: A Thermodynamic Analysis for Enhanced Energy Conversion
03	ID 33	16:00-16:15	Topology-Induced Performance Variation in a Cryogenic Pulsating Heat Pipe
04	ID 74	16:15-16:30	Optimal Control of a Flexible Heat Pump with Thermal Energy Storage for Peak Shaving
05	ID 114	16:30-16:45	Reducing Classroom Cooling Energy Use with Materials-Led Passive Retrofit Strategies for Hot-Arid Climates
06	ID 129	16:45-17:00	Engineering Advanced Phase Change Materials for Sustainable Thermal Energy Storage and Cooling Applications
07	ID 156	17:00-17:15	Self-Heating Houses: A Case Study of Passive Solar Architecture with Maximum Energy Efficiency

RESERVE 17:15-17:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

B1

Renewable Hydrogen & Green Fuel Production

DATE	TIME	DURATION	PAPERS
Tuesday, 6 October 2026	10:30-12:30 Great Room	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Monica Trivino	Reibelle Raguindin

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 22	10:30-10:45	Interpretable Surrogate Assisted Multi-Objective Optimisation for Green Methanol Systems with Embedded Electrolysers
02	ID 46	10:45-11:00	Energy and Environmental Assessments of Water-Energy Nexus in a Hydrogen Production Plant
03	ID 55	11:00-11:15	Mechanism Analysis of Multi-Domain Energy Coupling in Renewable-Integrated Hydrogen Production Systems
04	ID 70	11:15-11:30	Optimal Operation Strategy for Off-Grid Photovoltaic Hydrogen Generation System
05	ID 109	11:30-11:45	Techno-Economic Analysis of a Residential Photovoltaic–Hydrogen System for Energy Autonomy and Hydrogen Commercialization in Morocco
06	ID 116	11:45-12:00	Energy and Performance Analysis of Green Hydrogen Production Using Solar PV and Wind Energy in Morocco: A Comparative Study of Casablanca and Tanger
07	ID 141	12:00-12:15	Regional Optimal Pathways for Green Hydrogen Integration into China’s Coal Chemical Industry under Deep Decarbonization Constraints
RESERVE		12:15-12:30 | 15 minutes for session discussion / contingency	

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

B2

Intelligent Fuel-Cell Systems, Diagnostics & Control

DATE	TIME	DURATION	PAPERS
Tuesday, 6 October 2026	10:30-12:30 Studio 1&2	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Navya Thomas	Piotr Dlugolecki

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 23	10:30-10:45	Adaptive Thermal Management of Hybrid Fuel Cell-Battery Powertrains under Cold-Climate Operation Using Deep Reinforcement Learning
02	ID 37	10:45-11:00	Grid-Based Trust-Driven Sampling for Fault Zone Localization in Hydrogen Fuel Cell Stacks
03	ID 47	11:00-11:15	Deep Generative Models Regulate Ultralow-Pt Catalyst Layer in Fuel Cells
04	ID 49	11:15-11:30	Experimental Study of Reinforcement Learning–Assisted Active Disturbance Rejection Control for Fuel Cell UAV Blower Systems
05	ID 66	11:30-11:45	Long Short-Term Memory Time Series Modelling of Temperature Distributions in PEM Fuel Cells
06	ID 118	11:45-12:00	Multivariate Statistical Diagnosis of Cell-To-Cell Inconsistency in High Power Proton Exchange Membrane Fuel Cell Stacks via EIS-DRT Technology
07	ID 76	12:00-12:15	Influence of Flow-Rectified Headers on PEMFC Performance under Two-Phase Conditions

RESERVE 12:15-12:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

B3

Carbon Capture, Utilization & Industrial Decarbonization

DATE	TIME	DURATION	PAPERS
Tuesday, 6 October 2026	10:30-12:30 Studio 3&4	120 min	8

SESSION CHAIR*	SUB-CHAIR*
Suresh Kuppireddy	Fahmi Anwar

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 21	10:30-10:45	A Multi-Ion Mass Transfer Model of Bipolar Membrane Electrodialysis (BMED) for Carbon Capture
02	ID 30	10:45-11:00	Recent Advancement in Closed-Loop Material Discovery to Accelerate Carbon Capture and Utilization
03	ID 88	11:00-11:15	Blue Hydrogen with CCUS for Utility-Scale Decarbonization: A Pragmatic Pathway to Reliable, Low-Carbon Power
04	ID 89	11:15-11:30	Electrifying Industrial Heat: A Scalable Pathway to Decarbonization in the UAE
05	ID 102	11:30-11:45	Carbon Capture, Utilization, and Storage in the United Arab Emirates: A Comprehensive Analysis of Current Status and Sustainable Pathways
06	ID 105	11:45-12:00	Hybrid Twin Modeling of Hydrogen Reduction in Waste-Integrated Green Steelmaking
07	ID 73	12:00-12:15	Surrogate-Assisted Multi-Objective Robust Optimization of Heat Exchanger Networks under Parametric Uncertainty
08	ID 132	12:15-12:30	Data-Driven Modeling and AI-Based Optimization of Cold Plasma Systems for Converting CO2 and CH4 Emissions into Clean Energy

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

B4

Energy Policy, Equity, Security & Governance

DATE	TIME	DURATION	PAPERS
Tuesday, 6 October 2026	10:30-12:30 Studio 5&6	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Peter Roche	

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 69	10:30-10:45	Managing Energy Security and Decaronization in Georgia: Strategy Policy and Risk Approaches
02	ID 75	10:45-11:00	Managing Renewable Energy Transition in Georgia: Quantitative Policy Modeling for Sustainable Energy Security
03	ID 103	11:00-11:15	Transitioning Kenya’s Informal Settlements to Adopt Sustainable and Resilient Energy Systems
04	ID 134	11:15-11:30	“Regulating Artificial Intelligence for Environmental Sustainability: Bridging the Governance Gap.”
05	ID 43	11:30-11:45	Renewables, Algorithms, and Inequity: How Biased AI Shapes Energy Access in a Global Context
06	ID 165	11:45-12:00	Who Gets the Rain? Cloud Seeding, Atmospheric Justice, and the Water–Energy Nexus in Arid Regions
07	ID 51	12:00-12:15	Studying the Economics and Operation of Fuel Cell Electric Vehicle-To-Grid Stations
RESERVE		12:15-12:30 | 15 minutes for session discussion / contingency	

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

C1

Waste Valorization, Circular Economy & Critical Materials

DATE	TIME	DURATION	PAPERS
Tuesday, 6 October 2026	15:30-17:30 Studio 1&2	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Reibelle Raguindin	

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 86	15:30-15:45	An Overview of Waste-To-Energy in the UAE: Technologies, Case Studies, and Strategic Impact
02	ID 125	15:45-16:00	Understanding Repair in the Circular Economy: A Network Perspective on Actors, Interdependencies, and Policy
03	ID 137	16:00-16:15	Closing the Loop in Lithium-Ion Batteries: Sustainable Recovery of Critical Metals and Re-Synthesis of Waste-Derived NMC Cathode Materials
04	ID 151	16:15-16:30	Advanced Materials: The Hidden Enabler and Bottleneck of the Global Energy Transition
05	ID 161	16:30-16:45	Fertilizer-Grade Magnesium Sulphate from Real UAE Desalination Brine: A Brine-Valorisation Pathway with High Purity and Yield
06	ID 178	16:45-17:00	Conceptual Design of an Integrated Process for Calcium and Magnesium Carbonate Recovery from Desalination Brine
07	ID 169	17:00-17:15	Single-Source Assisted Synthesis of Spin-Regulated Cobalt/Nickel Co-Doped Pyrite FeS2: Enhanced Spin Channels in Co-Ni-Fe Oxyhydroxides for Efficient Alkaline Oxygen Evolution Reaction
RESERVE		17:15-17:30 | 15 minutes for session discussion / contingency	

TIMING NOTE — Reserve follows the explicit v5.15 running order; the summary header differs.

Document Classified as: Internal

SESSION

C2

Electrochemical & Thermal Energy Storage

DATE	TIME	DURATION	PAPERS
Tuesday, 6 October 2026	15:30-17:30 Studio 3&4	120 min	6

SESSION CHAIR*	SUB-CHAIR*
Piotr Dlugolecki	

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 87	15:30-15:45	Quinone-Based Aqueous Redox Flow Batteries: A Cost-Effective Pathway for Large-Scale Energy Storage
02	ID 150	15:45-16:00	Accelerated Latent Heat Thermal Energy Storage Using a New Finned Heating Element Design: A CFD Study
03	ID 168	16:00-16:15	Renewable Biopolymer-Based Flexible Solid-State Zinc-Ion Batteries for Sustainable Energy Storage
04	ID 170	16:15-16:30	Fast Physics-Guided Modelling of Heat Pumps with Thermal Energy Storage
05	ID 58	16:30-16:45	Quantum-Inspired Multi-Objective Optimization for Optimal Placement and Sizing of Energy Storage in Smart Grids
06	ID 146	16:45-17:00	Magnetic Field–Enhanced Digital Twin for Battery SoC/SoH Estimation

RESERVE 17:00-17:30 | 30 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

C3

Renewable Systems, Microgrids & Flexible Demand

DATE	TIME	DURATION	PAPERS
Tuesday, 6 October 2026	15:30-17:30 Studio 5&6	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Alban Echchelh	Arivazhagan Valluvar Oli

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 41	15:30-15:45	Household Adoption of Electric Cooking Technologies in Bangladesh: Barriers, Drivers, and Implications for Clean Energy Transition
02	ID 104	15:45-16:00	Economic Viability, Technical Barriers, and Policy Pathways for Vehicle-To-Grid Technology in the United Kingdom
03	ID 140	16:00-16:15	Implementation Framework for Geothermal Energy Development and Utilization in Tanzania
04	ID 144	16:15-16:30	Techno-Economic and Environmental Assessment of a Hybrid Solar PV–Battery Energy System in Libya
05	ID 149	16:30-16:45	Comparative Review of AI-Based Energy Management Strategies for Solar PV–Battery Microgrids: Challenges and Future Directions
06	ID 120	16:45-17:00	Design and Performance Analysis of a Wind – Solar Assisted RO Desalination System for Rural Water Supply in Oman
07	ID 176	17:00-17:15	Desert Agrivoltaics under Arid Gulf Conditions: Lessons from Field Operation

RESERVE 17:15-17:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

D1

AI Methods, Education & Cross-Domain Applications

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	09:00-10:50 Studio 1&2	110 min	6

SESSION CHAIR*	SUB-CHAIR*
Peter Roche	Yongxi Li

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 7	09:00-09:15	Photonics-Enhanced Energy Education: An AI-Augmented Framework for Building Sustainable and Digitally Competent Engineering Professionals
02	ID 106	09:15-09:30	Secure Web-Based File Sharing with Machine Learning and Anomaly Detection
03	ID 107	09:30-09:45	An NLP-Based Intelligent Chatbot for Smart Campus Information Retrieval and Student Assistance
04	ID 110	09:45-10:00	Machine Learning–Based User Behavior Analysis for Product Recommendation in E-Commerce
05	ID 112	10:00-10:15	Multimodal Unsupervised Clustering for Regional Bird Community Pattern Discovery
06	ID 113	10:15-10:30	Adaptive Framework for Predictive Modelling of Cervical Cancer Using Machine Learning

RESERVE 10:30-10:50 | 20 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

D2

Environmental Pollution, Monitoring & Water Treatment

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	09:00-10:50 Studio 3&4	110 min	7

SESSION CHAIR*	SUB-CHAIR*
Musthafa Mavukkandy	Iosif Scoullos

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 3	09:00-09:15	Microbial Kinetics of Aerobic and Anoxic Ethanolamine Biodegradation: Substrate and Free Nitrous Acid Inhibition
02	ID 61	09:15-09:30	Advanced 0D-1D-2D Nanomaterial-Loaded Membranes for Antibiofouling Applications in Water Purification
03	ID 91	09:30-09:45	Advanced Integrated System for PFAS Removal from Water
04	ID 111	09:45-10:00	Ionic-Liquid-Enhanced Membrane Filters for Waterborne Virus Capture
05	ID 123	10:00-10:15	Porous rGO/Networked Cellulose Composite Membranes: Towards Enhanced Nanofiltration Performance of rGO-Based Membranes
06	ID 124	10:15-10:30	Novel Laccase–Copper Phosphate Hybrid Nanoflowers for Effective Thiazole Degradation in Water
07	ID 152	10:30-10:45	Leveraging Machine Learning and Satellite Remote Sensing to Map Extreme Heat at High Resolution for Cooling Energy Demand and Solar Performance in Arid Cities

RESERVE 10:45-10:50 | 5 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

D3

Ammonia & Hydrogen Carriers

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	09:00-10:50 Studio 5&6	110 min	7

SESSION CHAIR*	SUB-CHAIR*
Mohammad Faisal	Suresh Kuppireddy

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 13	09:00-09:15	Electrified Thermal Routes for Low-Pressure Ammonia Synthesis
02	ID 19	09:15-09:30	High Entropy Oxysulfide as Electrocatalyst for Ammonia Oxidation Reaction
03	ID 26	09:30-09:45	Hydrogen Storage in Magnesium Catalysed by Off-Stoichiometric High Entropy Alloy
04	ID 62	09:45-10:00	Computational Study of Thermal Enhancement in a Metal Hydride Hydrogen Storage Reactor Using Internal Baffles
05	ID 138	10:00-10:15	Engineering g-C_3N_4@Fe_2O_3 Heterostructures for Boosting Electrochemical Nitrate Reduction to Ammonia - A Sustainable Waste to Wealth Strategy
06	ID 155	10:15-10:30	Heat Release Mechanism of Ammonia Spray Diffusion Combustion in Internal Combustion Engines
07	ID 159	10:30-10:45	Dynamic Characteristic Analysis of Wind-Driven Green Ammonia Production Process

RESERVE 10:45-10:50 | 5 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

E1

Alternative Fuels & Engine Combustion

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	11:30-12:30 Great Room	60 min	4

SESSION CHAIR*	SUB-CHAIR*
Mohammad Faisal	

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 28	11:30-11:45	Experimental Investigation of Ethanol Gasoline Blend (E50) Spray Wall Impingement in a GDI Injector Using Diffused Back Illumination (DBI) Imaging Technique
02	ID 63	11:45-12:00	Effect of Ethanol Blending on Pressure-Swirl Spray: A Stereoscopic PIV Study
03	ID 119	12:00-12:15	Effect of Hot and Cold Exhaust Gas Recirculation (EGR) on Bio Diesel Fueled Diesel Engine Performance, Combustion and Emissions
04	ID 122	12:15-12:30	Effect of Pilot Injection Strategy on the Performance of Diesel Engine under Dual-Fuel (Diesel-Bioethanol) Combustion Mode

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

E2

Clean Mobility: Electric, Aerial & Marine Systems

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	11:30-12:30 Studio 1&2	60 min	3

SESSION CHAIR*	SUB-CHAIR*
Reibelle Raguindin	

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 12	11:30-11:45	AI-Assisted Energy Optimization of an Electric UAV for Sustainable Flight
02	ID 14	11:45-12:00	Techno-Economic Evaluation of Cold Ironing Using Hybrid Bio-Compressed Natural Gas Power Barges
03	ID 79	12:00-12:15	Analyzing and Quantifying EV Range Disparity through a Spatiotemporal Perspective

RESERVE 12:15-12:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

E3

Life-Cycle Assessment of Energy & Transport Systems

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	11:30-12:30 Studio 3&4	60 min	4

SESSION CHAIR*	SUB-CHAIR*
Alban Echchelh	Yousif AlHammadi

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 11	11:30-11:45	Life Cycle Assessment and Carbon Footprint Analysis of Power Transformers: Strategies for Enhancing Sustainability through Technological Innovations
02	ID 20	11:45-12:00	How Temporal Horizons and Aggregation Choices Shape Sustainability Assessments of Hydrogen Energy Pathways
03	ID 29	12:00-12:15	Life Cycle Assessment of Electric and Conventional Compact SUVs in India
04	ID 93	12:15-12:30	Life Cycle Assessment of CO_2-Free Hydrogen Production via Catalytic Methane Decomposition

TIMING NOTE

Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

E4

Industrial Sustainability, Materials & Emissions

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	11:30-12:30 Studio 5&6	60 min	3

SESSION CHAIR*	SUB-CHAIR*
Monica Trivino	Fahmi Anwar

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 117	11:30-11:45	A Lifecycle Sustainability Assessment Framework for Industrial Manufacturing Systems Incorporating Predictive Operational Optimization
02	ID 139	11:45-12:00	Greenhouse Gas Emissions from Petroleum Production in Guyana (2019-2030): Implications for the Country's Net Carbon Sink Status
03	ID 173	12:00-12:15	Bio-Based Additives for Sustainable Bituminous Binder Modification: Characterization, Performance Assessment, and Environmental Consequences

RESERVE 12:15-12:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

F1

Electrochemical Reactor Transport, Flow Fields & Multiphysics

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	13:30-15:30 Great Room	120 min	6

SESSION CHAIR*	SUB-CHAIR*
Iosif Scoullos	Piotr Dlugolecki

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 15	13:30-13:45	Pore-Scale Study on Mass and Energy Transfer Processes in the Low-Iridium Catalytic Layer of Proton Exchange Membrane Electrolyzer
02	ID 56	13:45-14:00	Study on Intelligent Prediction of Reactor Dynamics Integrating Multi-Scale Features and Multi-Branch Parallelism
03	ID 81	14:00-14:15	Numerical Study of Flow Field Configuration and Channel Geometry Effects in Proton Exchange Membrane Water Electrolyzers
04	ID 84	14:15-14:30	Investigation of Gas-Liquid Two-Phase Transport in the Flow Channel and Porous Transport Layer of Proton Exchange Membrane Water Electrolyzers
05	ID 97	14:30-14:45	Cooperative Optimization of Hydrophbicity and Porosity of Gas Diffusion Layer Double-Layer Structure in PEMFCs
06	ID 154	14:45-15:00	Gradient Network Flow Field Design for Enhanced Mass Transport in Anion Exchange Membrane Water Electrolyzers

RESERVE 15:00-15:30 | 30 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

F2

Energy Devices, Interfaces & Intelligent Control

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	13:30-15:30 Studio 1&2	120 min	7

SESSION CHAIR*	SUB-CHAIR*
Yongxi Li	Amira Ali

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 9	13:30-13:45	AI-Inspired Design and Comparative Performance of Walnut Shell Based Ternary Composite Anodes for Microbial Fuel Cells
02	ID 50	13:45-14:00	Synergistic 1D–2D Conductive Networks in CNT/Graphene Hybrid Hydrogels for Energy-Efficient Wearable Sensing
03	ID 53	14:00-14:15	Engineering Layered Double Perovskites for Robust Electrocatalysis in Next-Generation Fuel Cells and Electrolyzers
04	ID 77	14:15-14:30	Suppressing Gas Reverse Flow During Multi-Ejector Switching Using Nested Dual-PID Control
05	ID 82	14:30-14:45	QADAM-X: An Edge-AI Hybrid Intelligent Floor for Footstep Energy Harvesting and Intrusion Prevention
06	ID 174	14:45-15:00	The Significance of Temperature Dependence on the Piezoelectric Energy Harvesting by Using a Phononic Crystal
07	ID 177	15:00-15:15	Mitigating UV-Induced Degradation in Photovoltaic Modules

RESERVE 15:15-15:30 | 15 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

F3

Electrocatalysis, Photocatalysis & Advanced Materials

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	13:30-15:30 Studio 3&4	120 min	8

SESSION CHAIR*	SUB-CHAIR*
Fahmi Anwar	Suresh Kuppireddy

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 35	13:30-13:45	Pt-Doped RuO_2 for Efficient and Durable Oxygen Evolution in Acidic Media
02	ID 42	13:45-14:00	Spectrally Managed Photothermal Breathable Membrane Enabled Vapor-Fed Photocatalytic Hydrogen Production from Seawater
03	ID 108	14:00-14:15	Engineering Single-Phase Spinel High-Entropy Oxides for Sustainable Green Hydrogen Production
04	ID 121	14:15-14:30	Photocatalytic Hydrogen Generation: An Experimental Approach to Sustainable Energy
05	ID 158	14:30-14:45	Temperature Effects on Interfacial Water at BiVO4(010): Ab Initio-Assisted Deep Potential Molecular Dynamics
06	ID 164	14:45-15:00	Acceptor-Engineered 2D-Triphenylene-Based COFs for Enhanced Photocatalytic Hydrogen Production
07	ID 167	15:00-15:15	Graphene Oxide–Induced Transformation of Needle-Like Metal–Organic Frameworks into Quasi-Cubic Nanoparticles for Enhanced H_2 Storage
08	ID 175	15:15-15:30	Self-Supporting MoS2@Ni2B Electrode for Enhanced Hydrogen Evolution

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal

SESSION

F4

AI-Enabled Modeling, Optimization & Industrial Analytics

DATE	TIME	DURATION	PAPERS
Wednesday, 7 October 2026	13:30-15:30 Studio 5&6	120 min	6

SESSION CHAIR*	SUB-CHAIR*
Sagarika Kumar	Changda Wang

** Subject to final organiser confirmation*

PRESENTATION ORDER

15 MINUTES PER PAPER

ORDER	ID	TIME	PAPER TITLE
01	ID 48	13:30-13:45	Predictive Modeling of Catalytic Heavy Oil Oxidation: Integrating Isoconversional Kinetics and Machine Learning for Enhanced In-Situ Combustion
02	ID 71	13:45-14:00	Data Driven Performance Evaluation of Automatic Power Generation Control for Thermal Power Units
03	ID 83	14:00-14:15	Human Factors and Safety Risk Mitigation in Oil and Gas Operations: A Data-Driven Framework toward Predictive Safety Intelligence
04	ID 85	14:15-14:30	Optimization of Self-Recirculating Casing for Bent-Pipe Intake Centrifugal Compressor Based on Orthogonal Experiment
05	ID 92	14:30-14:45	From Prediction to Generation: Decision Criteria for Selecting Traditional ML or Generative AI in Organizations
06	ID 95	14:45-15:00	Explainable AI Framework for Predicting Building Energy Use and Envelope Optimization in Indian Climate Zones

RESERVE 15:00-15:30 | 30 minutes for session discussion / contingency

TIMING NOTE Each 15-minute slot includes presentation, questions and changeover.

Document Classified as: Internal