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AL AKHAWAYN UNIVERSITY

INTERNATIONAL NETWORK OF ENERGY TRANSITION & RENEWABLE GENERATION

INERG'26
ÉNERGIE | INNOVATION | DURABILITÉ

NOVEMBER 23-24, 2026, IFRANE, MOROCCO

CONFERENCE PROGRAM

IFRANE, MOROCCO



AL AKHAWAYN UNIVERSITY



NOVEMBER 23-24, 2026
AL AKHAWAYN UNIVERSITY IFRANE, MOROCCO

HTTPS://INERG.MA

E-mail: inerg2026@gmail.com

WELCOME MESSAGE

It is our great pleasure to welcome you to the first edition of the International Network of Energy Transition & Renewable Generation (INERG'26), organized as a hybrid event in Morocco on November 23-24, 2026, and hosted at Al Akhawayn University in Ifrane, Morocco.

INERG'26 is an international Conference that encourages quality, scientifically valid, original paper which presents a good understanding of scientific knowledge, experiments, and theories, methods, and techniques, as well as interdisciplinary linkages, in the field of Energy Transition & Renewable Generation.

The main themes will be Sustainability, Energy Systems, Electrical Systems and Thermal Energy & Materials, along with their applications in several areas.

The INERG'26 has succeeded to attract more than 100 participants from different universities of the world, a very rich and attractive scientific program covering multiple aspects of various topics is designed to provide an excellent opportunity for networking, dissemination and, exchange of innovative research findings related to different issues and topics.

The overwhelming success of INERG'26 is doubtlessly the result of the commitment, perseverance, implication, and hard work of different stakeholders, particularly, the Organizing Committee Members, Technical Program Committee members, keynote, and invited talks speakers, and all the participants. We seize this opportunity to address them all with our most sincere thanks and gratitude. We hope you enjoy your time with us and we look forward to meeting you all in the next edition of the INERG Conference.

General Chairs





PROF. BADRE BOSSOUFI

FSDM, USMBA, Fez, Morocco

PROF. SAAD MOTAHHIR

ENSA, USMBA, Fez, Morocco

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Lahcen El Youssfi	Ibn Tofail University, Morocco

MONDAY, 23 NOVEMBER 2026 (GMT)

8:00- 9:00	**Welcoming Participants**	
9:00-10:00		Official Opening of The Conference (Auditorium 04) Al Akhawayn University, Ifrane, Morocco Moderator: Imane Fakir (AUI, Ifrane, Morocco)
	Dr. Amine BENSAID	President, AL Akhawayn University, Ifrane, Morocco
	Dr. CHETIOUI Youssef	Assistant Vice-President for Academic Research at Al Akhawayn University
	Dr. Saad MOTAHHIR	INERG'26 Chair, ENSA, SMBA University Fez Morocco
	Dr. Ahmed KHALLAAYOUN	School of Science & Engineering, Al Akhawayn University, Ifrane, Morocco
	Group Photo INERG2026	
10:00-10:45	Plenary Session 1: In Person: (Auditorium 04) Moderators : Pr. Ahmed KHALLAAYOUN (AUI, Ifrane, Morocco), Houssame Limami (AUI, Ifrane, Morocco) Speakers: Prof.Carsten Montzka (Forschungszentrum Jülich, Institute of Bio- and Geosciences: Agrosphere, Wilhelm-Johnen-Straße, Jülich, Germany) ***"Remote Sensing as the Information Backbone of the Water–Energy–Food Nexus: Monitoring, Digital Twins, and Autonomous Resource Management"***	
10:45-11:15	**Coffee Break, Exhibition & Poster Session**	
11:15–13:00	Oral Session P-1 (In Person)	Power Systems, Microgrids and PV Plants
	Oral Session P-2 (In Person)	Electric Mobility and Transportation
	Oral Session P-3 (In Person)	Solar Materials, Energy Harvesting and Efficient Buildings
	Oral Session P-4 (In Person)	Resource Management, Agriculture and Applied Sensing
	Oral Session P-5 (In Person)	Hydrogen, Solar Thermal Systems and Sustainability Reporting
13:00-14:30	**Networking & Lunch Break & Posters**	

MONDAY, 23 NOVEMBER 2026 (GMT)

13:00-14:30	**Networking & Lunch Break & Posters**	
14:30-15:50	Plenary Session 2: In Person (Auditorium 04) Moderators: Prof. Ettaibi Bouali (AUI, Ifrane, Morocco), Prof.Amine Allouhi (USMBA, Fez, Morocco) Speaker 2: Dr. Melaku Berhe Belay (Addis Ababa Science and Technology University, Addis Ababa, Ethiopia) ***"Degree based topological indices of some carbon nanomaterial"*** Speaker 3: Dr. Hicham Oufettoul (Green Energy Park, Benguerir, Morocco) ***"Innovative Floating PV"***	
15:50- 16:15	**Coffee Break, Exhibition & Poster Session**	
16h15- 18h15	Oral Session O-1 (Online):	Photovoltaic Systems and Control
	Oral Session O-2 (Online):	Wind Energy, Grid Control and Microgrids
	Oral Session O-3 (Online):	Electric Vehicles, Charging and Battery Diagnostics
	Oral Session O-4(Online):	Water, Bioenergy, Hydrogen and Sustainable Cooling
	Oral Session O-5 (Online):	Energy Transition, Finance and Esg
	Oral Session O-6 (Online):	AI, IoT and Digital Applications
	Oral Session O-7 (Online):	Energy Materials, Storage and Power Electronics

SPEAKERS



Dr. Carsten Montzka

Dr. Carsten Montzka, a research scientist at IBG-3 since 2007. Co-lead of the CEOS Land Product Validation (LPV) subgroup on soil moisture and alumnus of the Arab-German Young Academy on Sciences and Humanities (AGYA). Important projects: H2020 GEOEssential, , BMWi Hydrological Earth Observation and Assimilation (AssimEO), BMBF Agricultural Systems of the Future (DAKIS), ESA Soil Moisture and Ocean Salinity (SMOS) Mission, NASA Soil Moisture Active and Passive (SMAP) Mission. Research Interests: hydrological remote sensing, data assimilation, hydrological modelling.



Dr. Melaku Berhe Belay

Dr. Melaku Berhe Belay is an associate professor of Applied Mathematics (Operational Research and Cybernetics) with the Division of Mathematics, Physics, and Statistics at Addis Ababa Science and Technology University (AASTU). He also served as visiting fellow at China University Summer School Association (CUSSA) for 4 years from 2020-2024.

He has more than 17 years of experience in higher education institutions. His research interests includes Post Quantum cryptosystem, Chemical graph Theory, Algebraic graph theory, combinatory, and cybernetics. He has published over 30 articles in peer-reviewed journals. Dr. Melaku was served in different academic positions at different institutions including department head, continuing education coordinator, and dean of school and as head of research grant management office at AASTU. Currently, he is serving as special assistant to the vice president for research and Technology Transfer at AASTU. He is also a core member of High Performance Computing and Big Data Analytics Center of Excellence and an associate member of Sustainable Energy Center of Excellence at Addis Ababa Science and Technology University, Ethiopia.

SPEAKERS



Dr. Hicham Oufettoul

Hicham Oufettoul is a Moroccan researcher and engineer specializing in renewable energy systems, embedded technologies, and smart photovoltaic solutions. He holds a Ph.D. in Electrical Engineering from the Mohammadia School of Engineers (EMI), Rabat, where his research focused on smart reconfiguration techniques for photovoltaic (PV) arrays under partial shading conditions. His academic journey began with a Bachelor's degree in renewable energy exploitation technologies, followed by a Master's degree in renewable energy engineering and energy efficiency, both earned with distinction. Currently, he serves as a Scientist and Project Manager at Green Energy Park in Ben Guerir, Morocco.

His work focuses on developing digital twin technologies and advanced battery management systems, contributing to several innovative projects, such as Chaire EESEPS and Intelligent PV. Previously, he worked as a Research Assistant at Green Energy Park, where he played a key role in creating monitoring systems for photovoltaic stations across Morocco and Spain, integrating fault detection and diagnostic tools. He has also contributed to academia by teaching courses on synchronous and asynchronous machines and photovoltaic systems at prestigious institutions, including the EMI and UM6P. Beyond research, Hicham has participated in international training programs and winter/summer schools focused on energy transition and decarbonization, and he has earned distinctions such as the Outstanding Paper Award at the ICRERA conference.

Oral Session P-1 (In Person)	Power Systems, Microgrids and PV Plants Monday, 23 November 11h15–13h00 (Building 4, Room 008)
Moderators	**Mustapha El Alaoui** (Mohammed V University, Rabat, Morocco) **Hassane Roukhe** (Mohammed V University, Rabat, Morocco)
8	**Reda ICHARMOUHENE, Elhadj EZZAHID, Ismail ELBEJNOUNI** Power System: From The System to Capacity's Market and Passage Fee
12	**EL MJABBER EL KABIRAA. Cascade Intelligent Control Strategy for DFIG Wind Turbine Power Converters Based on Rbfnn–Pi and Mst-Tanh**
13	**Minatallah EL Labbakh, Amina Aghanim, Hamid Chekenbah and Rafik Lasri. Auditing Decisions of Industrial Microgrid Ems by Blockchain: A Balanced Security Performance Evaluation of Pbft and Poa**
15	**Kaoutar ryahi, Khalid chikh, fatima ezzahraa tahiri, aziz oukennou** Comparative load flow analysis of radial distribution systems
25	**Abderrahim OUALI, Fayrouz DKHICHI. Performance of a Grid-Connected Photovoltaic System Under Uniform Irradiance and Dynamic Partial Shading**
117	**Imane benkhadir, Badre Bossoufi, Mohammed Karim** Comparative Assessment of Deep Reinforcement Learning Algorithms for Energy Management of Hybrid Renewable Microgrids: PPO, SAC and TD3
230	**El Mehdi Douhabi, Issam El Azzaoui, Zineb Drissi.Behavioral Finance and Sustainable Energy Investment: A Bibliometric Mapping of Research Trends and Emerging Themes**
246	**Adam Bouhafs, Asmae Khaldoune. Evaluating The Impact of Fixed, Manual, And Automated Shading Systems on Cooling Energy Demand in Office Buildings in the Fes Region**

Oral Session P-2 (In Person)	Electric Mobility and Transportation Monday, 23 November 11h15–13h00 (Building 8B, Room 109)
Moderators	**Abdelaziz El Ghzizal** (Expert in Energy, Morocco) **Abdelilah CHALH** (Hassan II University. Mohammedia, Morocco)
9	**Yassine MORADI, Julien Bustillo, Lionel Haumesser, Khalid Chikh & Marc Lethiecq. Electrical Equivalent Circuit Parameters Identification of a Li-Ion battery using a Genetic Algorithm**
20	**Khadija RAGHI, Khalid El Majdoub. Comparative Analysis of Pi-Based Field Oriented Control and Nonlinear Backstepping for A Pmsm Drive in an Electric Vehicle**
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225	**Aliyu Salihu, Mohamed Abbas Hatati, Ahmed Bazzi, Ahmed Khallaayoun** Cross-Country Well-To-Wheel Environmental Assessment of Passenger Vehicle Powertrains: Morocco, Nigeria, France, And Brazil
240	**Hind Bellabair, Bakr Legsir, Fadoua Chemachi** Beeswax as a Bio-Based Phase Change Material in Building Envelopes: Effect of Layer Position and Climate in Ifrane and Errachidia, Morocco
245	**CHEMACHI Fadoua, BELLABAIR Hind, LEGSIR Bakr. Enhancing The Thermal Performance of Unfired Clay Brick with Spent Coffee Grounds and Mycelium (Pleurotus Ostreatus): A Trnsys Study for Ifrane, Morocco (Rtcm Zone 4)**

Oral Session P-3 (In Person)	Solar Materials, Energy Harvesting and Efficient Buildings Monday, 23 November 11h15–13h00 (Building 8B, Room 02)
Moderators	**Ahmed Bazzi** (AUI, Ifrane, Morocco), **Kamal Hirech** (UMP, Oujda, Morocco), **EL OUARIACHI MOSTAFA** (UMP, Oujda, Morocco)
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102	**Walid Adil, Chaimae Rachidi, Houssame Limami** Experimental Invistigation of the Mechanical Properties and Apparent Porosity of Alfa Fibre-Reinforced Illite Clay Composites for Energy-Efficient Buildings
144	**Hibatallah Wari, Moulay El Hassan ElAzhari. Wissale El Hallabi** Smart Ventilation on demand and Access control
163	**Fatima Elfatouaki, Rabi Takassa, Omar Farkad, Abdelkarim El Mouncharih, Salima Tastift and Driss Abouelaoualim. Machine Learning for Perovskite/Silicon Tandem Solar Cells: Predicting Device Performance and Stability**
208	**Meriem Lmoubariki. A Feasibility Study of ML Optimized Piezoelectric Energy Harvesting from Pedestrian Traffic at a University Campus**
251	**Ouiam Arifi, Abderrahmane Bouziane, Salma Guennoun, Aya Atif. Comparative Stochastic Modelling of Uncertainty in Energy and Sustainable Transportation Systems**
176	**Mohammed Cherfaoui, El Houcine Lahrar, Abdechafik El Harrak, Ghulam Abbas, Abdessamad FaikTime-Resolved Life Cycle Assessment of Green Hydrogen Production via PEM Electrolysis in Morocco**

Oral Session P-4 (In Person)	Resource Management, Agriculture and Applied Sensing Monday, 23 November 11h15–13h00 (Building 8B, Room 03)
Moderators	**EL GHARBAOUI Bouteina** (UMI, Meknes, Morocco), **Sara GRIGUER** (UIZ, Dakhla, Morocco), **Sara CHELH** (UMI, Meknes, Morocco), **EL OUBANI Ahmed** (UMI, Meknes, Morocco)
26	**Ouiam KMICH, Hicham MOUTACHAOUIK, Badr HIRCHOUA, Mustapha HAIN. A Transformer-Driven Reinforcement Learning Environment for Groundwater Extraction Policy: A Feasibility Study**
28	**Carsten Montzka, Saad Motahhir, Lahcen El Youssfi, Bagher Bayat, Rahul Raj. Remote Sensing as the Information Backbone of the Water–Energy–Food Nexus: Monitoring, Digital Twins, and Autonomous Resource Management**
134	**BOUHIA NADA. Adaptive Anaerobic Digestion of Heterogeneous Organic Wastes: A Low-Cost Research Framework for Feedstock-Responsive Biogas Production in Morocco**
212	**Imad Rajie Elellah, Oumaima Ennajmi and Moulay El Hassan El Azhari. An FPGA-Based Circular Farming System for Smart Poultry and Regenerative Agriculture In Morocco**
211	**Hamidi Nabil.** Matter, Physical Change, Energy, And Quantum Oscillations As Spatial Geometry
238	**Bakr Legsir, Hind Bellabair, Fadoua Chemachi, Ahmed bazzi. Life Cycle Sustainability Assessment of Passenger Cars in Morocco: Monetized Environmental Costs and Social Criteria**
156	**EL GHARBAOUI Bouteina, GRIGUER Sara, CHELH Sara, EL OUBANI Ahmed. Internal Audit and Esg Risk Management In the Energy Transition**

Oral Session P-5 (In Person)	Hydrogen, Solar Thermal Systems and Sustainability Reporting Monday, 23 November 11h15–13h00 (Building 8B, Room 112)
Moderators	**Hala Alami Aroussi** (UMP, Oujda, Morocco), **Mounir Ouremchi** (USMBA, Fez, Morocco)
101	**Salma Benjelloun & Larbi Tamnine. ESG Pillar Scores, Corporate Sustainability and Financial Performance: Exploratory Evidence from Cac 40 Firms**
128	**Abou-El-Alla Soukaina; Fatiha Addyoubah** Digital maturity and the environmental transition of Moroccan automotive manufacturing: The mediating role of dynamic capabilities
135	**Mostafa EL OUARIACHI, Kamal HIRECH, Adaliou Abdel Hamid, Mohammed RHIAT. Hourly Techno-Economic Assessment of a Hybrid Csp– Pv–Soec Plant for Green Hydrogen at the Aïn Beni Mathar Solar Complex (Morocco): Temperature dependent Pv, Hot-Standby Reserve and Surplus-Based Storage Sizing**
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220	**Hajar Rati, XIN GAO. Hermal-Supply Assumptions and Part-Load Soec Modelling: Implications for PV Sizing in Ifrane and Benguerir, Morocco**
239	**Bakr Legsir, Hind Bellabair, Fadoua Chemachi** Dynamic Simulation of a Geothermal Ambient Loop System for Heating and Cooling of a Residential Building in Ifrane, Morocco

Oral Session O-1 (Online)	Photovoltaic Systems and Control Monday, 23 November 16h15–18h15 meet.google.com/snv-ybki-ott
Moderators	**Mohammed El Ghzaoui** (USMBA, Fez, Morocco), **Rachid El Alami** (USMBA, Fez, Morocco),
18	**Hanedele Elhajri, Sameh Zribi, Manef Bourogaoui, Zina Boussaada** Advanced Control and Energy Management Strategies for Grid-Connected PV–Battery Systems: A Comparative Review
65	**Anas Hassari, Mohammed Rhiat, Mostafa El Ouariachi, Imane Ihsane and Kamal Hirech. Optimization of Photovoltaic Power Generation under Partial Shading Using Particle Swarm Optimization**
66	**EL ASRI Yassine, M. El Ancary, A. Hasni, Z. Fathi, A. Intidam, A. Lassioui, H. El Fadil. Real-Time Self-Tuning Photovoltaic Array Emulator for Partial-Shading Studies Using RIs-Based Adaptive PI Control**
92	**Ikram Saady, Btissam Majout, Badre Bossoufi, Mohammed Karim** Performance Comparison of PSO-Based MPPT with IFOC and DFOC for Photovoltaic Water Pumping Systems
124	**Mohammed Rhiat, Anas Hassari, Samia Boutahri, Mustapha Melhaoui, Badre Bossoufi, Kamal Hirech, Mostafa El Ouariachi, Mohamed Amine Meqqori and Abdel Hamid Adaliou. Dynamic Thermal Behavior of a Thermal Chamber Supplied by Constant PV Power**
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132	**Rajae El-Amri, Bekkay Hajji, Adel Mellit, Hanae Azzaoui. Robust and Adaptive Photovoltaic Fault Diagnosis Using Feature Selection and Gaussian Prototype-Based Fuzzy Classification**
197	**Douae Youbi, Abdessamad Ouchen, El Mehdi Steli** **Energy Disclosure in Moroccan Listed Building and Construction Materials Firms: Reporting Patterns and Exploratory Financial Associations**
129	**Yassine Rami, Aymane Bouisfi, Amine Allouhi** **Techno-Economic Assessment of Wind-Powered Cold Storage for Fish Preservation in Dakhla, Morocco**

Oral Session O-2 (Online)	Wind energy, grid control and microgrids Monday, 23 November 16h15–18h15 meet.google.com/dis-ephe-rgd
Moderators	**Manale Bouderbala** (USMBA, Fez, Morocco), **Farah Echiheb** (EMSI, Fez, Morocco)
6	**SMOUNI Samy; OULAD BENZAROULA Rachad** Improved Super-twisting Integral Sliding Mode Controller for Control of Variable Speed Wind Turbine
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103	**Venkatesh Daggupati, CH. Naga Sai Kalyan, B Srikanth Goud** Intelligent Power Routing and Loss Minimization in Hybrid ACDC Microgrids with Electric Vehicle Integration
69	**EL ASRI Yassine, M. El Ancary, A. Hasni, Z. Fathi, A. Afkari, A. Lassioui, H. El Fadil. Real-Time Transmission-Line Fault Locator Using Reactance Estimation and Low-Cost DAQ Hardware**
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228	**Khadija-Ikram Mahider, Reda Rabeh, Mohammed Ferfra** Improving Statcom Performance Through Control Strategies Incorporating the Sliding Mode Control Method
133	**Sara Sghiouri, Hamza Sabir, Abdelilah Chalh, Mohamed Bezza, Soukayna Tantani. Physics-Guided Cross-Operating-Point Discrimination of Rotor Electrical Asymmetry and 1P Torque Imbalance in a 2-MW DFIG Wind Turbine**
11	**Khayala Aliguliyeva, Jamil Taghiyev, Asim Harunov, Irada Jamalkhanova. Energy-Intensive Commodity Trade and Global Price Shocks: Old vs New World Wine Export Dynamics under CS-ARDL**
32	**Lucky de Marco Yeboh Ngalo, Meriem Nachidi Labourel, Hole Loïc. Sub-Hourly Scada Diagnostics and A Predictive-Maintenance Framework for Thermal De-Rating and Irradiance-Sensor Asymmetry in A 2 Mw Grid-Connected Photovoltaic Plant**

Oral Session O-3 (Online)	Electric vehicles, charging and battery diagnostics Monday, 23 November 16h15–18h15 meet.google.com/kwv-tixn-sdt
Moderators	**Chakib Alaoui** (Euromed, Fez, Morocco), **Youness EL MOURABIT** (USMBA, Fez, Morocco),
118	**Ikram BARKI, Naoufal BELLA, Hicham HIHI. Comparative Optimization of Photovoltaic-Assisted Electric Vehicle Charging Using Genetic Algorithm and Model Predictive Control**
146	**Hafsa Abbade, Abdessamad Intidam, Ahmed Hamed, Marouane El Ancary, Yassine El Asri, Ouiam bria, Hassan El Fadil, Abdellah Lassioui. Modeling of an ADRC Controller for BLDC Motor Control in Hydrogen Electric Vehicles**
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210	**Mohamed KRICHI, Tarik RAFFAK, Mhamed FANNAKH, Abderrahmane SMAALI. Seeing The Weakest Cell from The Pack Terminals: Hidden State-Of-Charge Error in Low-Cost Micromobility Battery Packs**
221	**Soufiane Fettah, Imad Ez-Zazi, Anas Loutou, Toufik Mzili** **individual differences in eeg-based driver drowsiness detection**
223	**Rachida Hachache, El Houssine Amraouy, Soukayna Abibou, Ali Yahyaouy, Hamid Gualous. Optimizing Electric Station Placement Using Real-World Data: A Comparative Study of Deep Reinforcement Learning Models**
236	**Abdelouahad FHAIL, Hassan EL FADIL, Abdellah LASSIOUI, Anwar HASNI, Yassine EL ASRI, Hafsa ABBADE, Salah Eddine EL MESLOUHI.** State-Of-Charge Estimation for Lithium-Ion Batteries in Electric Vehicles: Modeling and Comparative Analysis of Coulomb Counting, Ekf, And Ukf
219	**Anas El Maliki, Mohammed Chaman, Mohamed El Moufid, Hicham Medromi. AI-Based State of Charge and State of Health Estimation in Battery Management Systems: A Critical Review of Models, Challenges, And Future Directions**
237	**Anwar Hasni, Yassine El Asri, Marouane El Ancary, Abdessamad Intidam, Abdelouahad Fhail, Salah Eddine El Meslouhi, Abdellah Lassioui, Hassan El Fadil. Embedded Implementation and Experimental Validation of Open Loop Bldc Motor Control Using STM32F401RE Card**

Oral Session O-4 (Online)	Water, bioenergy, hydrogen and sustainable cooling Monday, 23 November 16h15–18h15 meet.google.com/ndb-gfqs-ovs
Moderators	**Aziza Benaboud** (Ecole Royale Navale, Morocco), **Btissam Majout** (EMSI, Tanger, Morocco
47	**Katitou Aadil, Dakkak Badr, Irhirane El Hassan. AI-Driven Energy-Efficient Pressure Management for Smart Water Networks: A Pathway to Water Security and Sustainable Energy Transition**
59	**Abdelhamid Issa Hassane, Abdulrahman Itopa Suleiman, Bill Vaneck Bôt, Mustapha Omenesa Idris. Fruit processing effluent as a renewable energy feedstock for single-chamber microbial fuel cell bioelectricity generation and waste water stabilization**
125	**Estefânia Gonçalves, Pedro Albino, Luís Afonso, Rui Fernandes, Khadija Sabiri. Towards A Standardized Multispectral Imaging and Data Acquisition Framework for AI-Based Acorn Kernel Quality Assessment**
157	**Oumaima STITINI, Said RAKRAK. Towards Intelligent and Sustainable Water Monitoring: A Reliability-Aware IoT Sensing Configuration Selection**
158	**Yassine LAAYATI, Younes CHHITI - Ahmed CHEBAK. Cost-Aware Co-Optimization of Biomass Drying and Hydrogen Production Under Time-Varying Electricity Prices: A Simulation-Based Study.**
171	**Safae EL HIR, Nour EL Haq EL MACOUTI, Mehdi MAANAN, Ismail LAGRAT, Ayoub AZZAYANI, Mohamed Maanan and Ahmed AITERROUHI. AI-Enabled Iot Prototype for Predictive Environmental Monitoring of Nador Lagoon, Morocco: Design and Simulation-Based Validation**
184	**Issam BEKKI.** **An Intelligent BES-Optimized Backstepping Sliding Mode MPPT Controller for PEM Fuel Cell Systems**
207	**Meriem Lmoubariki. A Hybrid Seawater-Aquifer Thermal Battery Framework for Water-Free Cooling of AI Data Centers: A Techno-Economic Assessment Across Coastal Climate Archetypes**
27	**Hajar Chafik, Rachid El Ganbour, Mohcine Kodad.** **Machine Learning, Multi-Agent Systems, and Cybersecurity for Smart Microgrids: A Literature Review**
34	**Hole Loïc, Meriem Nachidi Labourel, L. de M. Yeboh Ngalo, F. Mbakop Kwefeu, A. Wangbotching, A. Anaguele, D. Djakba, S. Amadou, P. N. Bello.** **Dispersive Transfer-Matrix Design of Single- And Double-Layer Anti-Reflection Coatings for Crystalline-Silicon Cells and Modules: Material Ranking, Angular Response and Cover-Glass Integration**

Oral Session O-5 (Online)	Energy transition, finance and ESG Monday, 23 November 16h15–18h15 meet.google.com/thx-dvih-obb
Moderators	**Ghita Ibrahimi** (USMBA, Fez, Morocco), **Wijdane Merioumi** (UIZ, Agadir, Morocco)
5	**Mohamed Idalfahim, Saad Elouardirhi. Forecasting the Renewable Share of Morocco's Installed Electricity Capacity Using Logistic and Gompertz Models**
33	**Shoaib A Dayo, Ricardo BS Pereira, Tania ASC Sousa, Oriol Gomis-Bellmunt, Joao C.C. Henriques. Wind Energy Development and Carbon-Neutrality Pathways in Portugal: A National-Scale Performance Assessment.**
60	**Ibtissem Gannoun and Mejdi Argoubi. Electrification, Renewable Energy Deployment, and Energy-Economic Efficiency: Panel Evidence from Tunisia's Medjerda River Basin**
104	**BOUSLIKHANE Saad, HABBANI Souad. Green And Climate Finance for Renewable Energy in Africa: A Bibliometric and Systematic Review**
150	**Mariam El Harras, Hajar Maimouni, My Abdelouhab Salahddine** Artificial Intelligence for Anti-Money Laundering and Sustainable Development: A Systematic Review
168	**Hajar Maimouni, Mariam EL HARRAS, My Abdelouhab Salahddine** AI-Enabled Erp Systems for Corporate Sustainability and Energy Efficiency: A Systematic Review
173	**HAFSSA HARAIFI, GHADA MOUFDI. Does Artificial Intelligence Improve Corporate ESG Performance? A PRISMA-Based Systematic Review of Firm-Level Evidence**
195	**Chaima Saroukh, Amina Yassmine Nadane, Asmae Khaldoun, Nadia Arrousse. Machine Learning Framework for Selecting High-Performance Biosynthesized Nanoparticles in Wastewater Treatment**
234	**Elkhadar Imane, Zaim Houda, Boudahla Ghita, Sahbani Siham** Environmental Management Accounting and Energy Transition: A Bibliometric Analysis

Oral Session O-5 (Online)	Energy transition, finance and ESG Monday, 23 November 16h15–18h15 meet.google.com/thx-dvih-obb
224	**El Moutchou kaoutar, Hassouni Kenza, Touate Samira, Baaddi Mohammed** Green Digital Transformation, AI and Employee Adaptation: A Bibliometric Mapping of Energy-Related HRM Research

Oral Session O-6 (Online)	AI, IoT and digital applications Monday, 23 November 16h15–18h15 meet.google.com/eqa-tamp-nrx
Moderators	**Fatima Zahra Ouariach** (Abdelmalek Essaadi University of Tetouan, Morocco)
7	**Ibrahim Ali Kh Shati, Saida Issa Masoud Aljerbie, Tahani Eisay Abdullah Alqunsul, Nura Issa Salem Warag** A Conceptual Edge-Centric Green AI Framework for Sustainable RFID Security
53	**Halima Azaiz, Mohammed Chaman; Abdelkader Hadjoudja. AI-Based Embedded Voice Command Systems for Intelligent Automotive Applications: A Review of Speech Recognition, Edge AI, and In-Vehicle Integration**
55	**Hiba ALAOUI SOSSE, Mounir OUREMCHI, Abdelhamid BOU-EL-HARMEL, Jamal BELKADID. Artificial Intelligence and Internet of Things in Biomedical Sciences Application & Impacts**
105	**Khadija FASSI FIHRI, Amine SENNOUNI, Mohammed Khalil EL KOUIFAT et Abdennebi El HASNAOUI.** Optimising Access to Energy Scientific Research Through Recommender Systems: Towards a New Model-Based Collaborative Filtering Approach
121	**Zainab benhsain, ghizlane benazzouz** Digitization of the Integrated Management Journal (JIG-EDR): Modeling and Impacts on the Performance of Associations in Morocco
194	**Youssef EL-LOUH; Samir ANTER** Building Multi-Agent Systems with MCP and A2A Protocols: A Comparative Architectural and Operational Analysis
222	**HASNAA BOUGADDOU; MOHAMMED CHAMAN; NAZHA CHERKAOUI; OMAR MOUHIB** LoRaWAN-Enabled Embedded Systems: A Review of Architectures, Applications, and Open Challenges
235	**BARMAN FATIMA, EL KASSIMI FATIMA, ZAHI JAMAL, HOUDA LAHMAR. Digital Technologies for Sustainable Energy Management in Smart Green Cities: A Thematic Literature Review**
63	**Ameur El Jeljal, Mounir Ouremchi - Karim El Khadiri - Moulhime El Bekkali** Design and Simulation of a 45 nm CMOS Integrated Optical Glucose Biosensor Using a Verilog-A Michaelis–Menten and Beer–Lambert Modeling
127	**Muneer M. Ba-Abbad, Dina Ewis, Muftah H. El-Naas. Controlled-Morphology Sno_2/Sn Electrodes for Electrochemical Co_2 Reduction to Formic Acid**

Oral Session O-7 (Online)	Energy materials, storage and power electronics Monday, 23 November 16h15–18h15 meet.google.com/wdw-nfmr-mae
Moderators	**Mostafa Bouzi** (UHI, Settat, Morocco), **El Kafazi Ismail** (EST, Khenifra, Morocco)
40	**Sana Boutagount, Mohamed Taoufiq, Aurelian Catalin Galca, Abdeslam Elfanaoui, Bahcine Bakiz, Abdeljalil Benlhachemi** Structural, Morphological and Electrochemical Investigation of V_2O_5 Thin Films Prepared by Spray Pyrolysis
93	**Youssof Zeghari, Khalid Alaoui Zidani, Abdelilah Hammou, Hamid Gualous, Dounia El Bourakadi, Ali Yahyaoui** Intelligent Battery Management and Optimization in Hybrid Energy Systems Using Deep Reinforcement Learning: A Comparative Study of PPO and SAC.
123	**Miraoui Asmae, Driss Yousfi, Ayoub Rahmouni, Miraoui Meriam** Modelling and Control of a DC–DC Buck Converter for a DC Load Simulator under Dynamic Power Profile
136	**Lahcen Ait Lamine, Said Amounas, Abdellah Hbab, Mohamed Lmouchter, Soukaina El-Moudny, Hassan Chaib** First-principles study of the electronic and optical properties of wurtzite ZnO using the VDW-DF3-OPT1 exchange-correlation functionals
149	**Nidal Ghalim, Souad Touairi, Zakaria Khaouch, Nourreeddine Kouider.** AI-Based Fault Detection in Piezoelectric Energy Harvesters
231	**Issam El Azzaoui, El Mehdi Douhabi, Zineb Drissi** Strategic Intelligence and Sustainable Growth in the Renewable Energy Sector: A Bibliometric Analysis

Oral Session O-7 (Online)	Energy materials, storage and power electronics Monday, 23 November 16h15–18h15 meet.google.com/wdw-nfmr-mae
232	**Houda Zaim, Imane Elkhadar, Siham Sahbani, Ghita Boudahla** Artificial Intelligence and Green Taxation: A Bibliometric Analysis
229	**Amine Kendri & Hafid El Hassani.** Navigating energy insecurity under external shocks: exploring clean cooking affordability and renewable energy pathways in Morocco
202	**Imane Hammou Ou Ali, Saad Benbrahim, Mohammed Amine Mossadak, Faycal Ouibourk, Abdelaaziz Bouzyan, Ayoub Zerka, Fatima-zahraa Filali Boukhriss, Alihan Çiloğlu, Mehmet Ali Arslantaş, Muhammed Yasir Atalay.** A Rule-Based Decision-Support Tool for Second-Life Battery Qualification and Application Matching in Microgrids
71	**Salima Tastift, A. Ait Lhaj, B. Ouazik, F. Elfatouaki, A. Boutramine, B. Boughazi, T. Ait-Taleb, D. Abouelaoualim, and H. Chaib** DFT study of structural, electronic, and optical properties of Cu2ZnSnS4 using PBESOL with and without Hubbard corrections, across USPP and PAW pseudopotentials

Meet Link for Oral Sessions

Oral Session O-1 (Online)

meet.google.com/snv-ybki-ott

Oral Session O-2 (Online)

meet.google.com/dis-ephe-rgd

Oral Session O-3 (Online)

meet.google.com/kwv-tixn-sdt

Oral Session O-4 (Online)

meet.google.com/ndb-gfqs-ovs

Oral Session O-5 (Online)

meet.google.com/thx-dvih-obb

Oral Session O-6 (Online)

meet.google.com/eqa-tamp-nrx

Oral Session O-7 (Online)

meet.google.com/wdw-nfmr-mae