



Ministry of Higher Education and Scientific Research
University of Mouloud Mammeri, Tizi-Ouzou
Faculty of Electrical Engineering and Computer Science



International Conference on Artificial Intelligence,
Embedded Systems, and Renewable Energy

15-17 December 2025

AIESRE 2025

PROGRAM

<https://aiesre.ummtto.dz>

Program Layout

1 ST DAY - 15 DECEMBER	Registration (8:00- 8:30)		
	Opening Ceremony (8:30 – 9:00)		
	Keynote 1 (9:00 – 9:45) PROF. TEDJANI MESBAHI		
	Smart Battery and Hybrid Energy Storage Systems for Electric Vehicles and Drones: Advanced Energy Management Strategies and Applications		
	Coffee break (9:45 – 10:15)		
	Keynote 2 (10:15 – 11:00) DR. HACIB BEN AISSA		
	Energy Transition and Industry Decarbonisation: Emerging Pathways and Technologies		
	Oral Session 1 (11:00 – 12:00)		
	Track 1	Track 5	Track 6
	Lunch (12:00 – 13:00)		
2 ND DAY - 16 DECEMBER	Keynote 3 (13:00 – 13:45) MR. DANIEL COOK		
	Energy Management and Storage with Bio-Based Phase Change Materials		
	Oral Session 2 (13:45 – 14:45)		
	Track 1	Track 5	Track 6
	Poster Session (14:45 – 15:30)		
	Online Session (15:30 – 17:30)		
	Track 1	Track 5	Track 6
	Registration (8:00 – 8:30)		
	Keynote 1 (9:00 – 9:45) PROF. HAMID LAGA		
	Efficient Deep Learning for 3D/4D Shape Analysis: From Medical Applications to Generative AI		
2 ND DAY - 16 DECEMBER	Coffee break (9:45 – 10:15)		
	Keynote 2 (10:15 – 11:00) PROF. FREDE BLABJERG		
	Challenges of Renewable Energy Integration in Clean Energy Systems		
	Oral Session 1 (11:00 – 12:00)		
	Track 1	Track 2	Track 3&4
2 ND DAY - 16 DECEMBER	Lunch (12:00 – 13:00)		

2ND DAY- 16 DECEMBER	Keynote 3 (13:00 – 13:45) DR. KAMAL HADIDI Innovating Chemical Manufacturing: Low-Temperature Solutions for Energy Efficiency and Emissions Reduction		
	Track 1	Track 2	Track 3&4
	Poster Session (14:45 – 15:30)		
	Online Session (15:30 – 17:30)		
	Track 1	Track 2	Track 3&4
3RD DAY- 17 DECEMBER	Panel Discussion 1 (8:30 – 9:30) Policy, Regulation and Standards in Renewable Energy <hr/> Energy Transition and Decarbonization Strategies		
	Coffee Break (9:30 – 10:00)		
	Panel Discussion 2 (10:00 – 11:00) Energy Education and Training for the Future Workforce <hr/> Stakeholder Collaboration and Economic Benefits of Renewable Energy		
	Award & Closing Ceremony (11:00 – 12:00)		
	Historic Tizi Ouzou and Surroundings (Starting at 12:00) Guided Tour (Lunch Included)		

Presentation – Duration & Format

- Keynote:** Each presentation is 30 minutes, followed by 10 minutes of Q&A
- Oral Presentation:** Each presentation is 10 minutes, followed by 5 minutes of Q&A
- Note:** Accepted file formats for all presentations are PDF and PPT



Track Room Assignments

Track#	Title	Room
Track 1	Harnessing Renewable Energy: Advances and Innovations	Mammeri Room01
Track 2	Innovations in Embedded Systems for Renewable Energy Management	Mammeri Room02
Track 3	Green Computing (ML/AI) for Renewable Energy Integration	Mammeri Room03
Track 4	Advancing Hybrid Energy Systems for Sustainable Infrastructure	Mammeri Room03
Track 5	Energy Management and Storage	Mammeri Room02
Track 6	Innovations in Precision Agriculture and Sustainable Water Management	Mammeri Room03
Panel Discussion	Renewable Energy Policy and Regulation, Education and Training, and Stakeholder Collaboration	Mammeri Room01



Session Schedule

Day 1: Monday – December 15, 2025 / Oral Session 1

Session Code:	Track 1
Session Title:	Renewable Energy Innovation, Control, and Optimization
Session Time:	11:00 – 12:00
Session Room:	Mammeri_Room01
Session Chairs:	SAID DRID & ABDELLAH KOUZOU

ID	Starts at	Title & Authors
67	11:00	Sustainable Power Generation via Olive Solid Waste Gasification in the Tizi Ouzou Region. Abdenour Elias and Abderrezak Kennas
71	11:15	Analysis of Long-Term Performance Degradation in Photovoltaic Modules Amar Hadj Arab, Bilal Taghezouit, Fatah Mehareb, Smail Semaoui, Kamel Abdeladim, Ismail Bendaas, Abdelhak Razagui, Kada Bouchouicha, Saliha Boulahchiche and Fella Tobbal
77	11:30	Sensorless Voltage-Oriented Control of Modular Multilevel Converters for Wind Power Systems Mustapha Asnoun, Adel Rahoui, Koussaila Mesbah, Boussad Boukais, Noumidia Amoura and Seddik Bacha
130	11:45	Improved Funnel Control Strategy with PI Regulation for Wind Energy Systems for Maximum Power Point Tracking Zaina Ait Chekdhidh, Aghiles Ardjal and Maamar Bettayeb

Day 1: Monday – December 15, 2025 / Oral Session 1

Session Code:	Track 5
Session Title:	Advanced Control, Optimization, and Sustainable Technologies for Renewable Energy Systems
Session Time:	11:00 – 12:00
Session Room:	Mammeri_Room02
Session Chairs:	AREZKI FEKIK & RACHID MANSOURI

ID	Starts at	Title & Authors
33	11:00	Solar Inverter Performance Prediction Using Double Exponential Curve Fitting Lyazid Kaci, Amar Hadj Arab and Rachid Zirmi
44	11:15	Robust Generalized Predictive Speed with Direct Torque Control for Multiphase Wind Generators under Parametric Uncertainty Kamel Ouari, Amel Kasri, Youcef Belkhier and Zoubir Boudries
58	11:30	Energy-Efficient and Sustainable Approaches to AS/RS Design and Control: A Comprehensive Review Omar Bahmid, Sihem Kouloughil and Bendouis Amaria
97	11:45	Equivalent Consumption Minimization Strategy for Energy Management in Unmanned Aerial Vehicle Haroune Aouzellag and Sabrina Nacef

Day 1: Monday – December 15, 2025 / Oral Session 1

Session Code:	Track 6
Session Title:	AI-Driven Automation and Robotics for Precision Agriculture
Session Time:	11:00 – 12:00
Session Room:	Mammeri_Room03
Session Chairs:	KHALED BOUNAR & DRISS NEHARI

ID	Starts at	Title & Authors
92	11:00	Using a UAV Crop Monitoring System for Early Tomato Disease Detection and Decision Support Dimosthenis Minas, Theodosios Chronopoulos and Michalis Xenos
105	11:15	Sensor-Driven Real-Time Obstacle Detection for Agricultural Drone Spraying Systems Ahmed Lallal, Sabrina Mokrani, Tassadit Sadoun and Mohammed Daoui
112	11:30	Fruit Anomaly Detection and Manipulation Using a Vision-Guided Autonomous Aerial Manipulator Bidjad Souier, Choukri Bensalah, Rida Mokhtari, Amal Choukchou Braham and Mohamed Abderrahim

Day 1: Monday – December 15, 2025 / Oral Session 2

Session Code:	Track 1
Session Title:	Innovations in Renewable Energy Conversion, Optimization, and Integration
Session Time:	13:45 – 14:45
Session Room:	Mammeri_Room01
Session Chairs:	FATMA LOUNNAS & KAHINA LAGHA

ID	Starts at	Title & Authors
27	13:45	Performance and Emission Analysis of LPG-Hydrogen Dual Fuel Engines Hassina Ghodbane, Fouad Khaldi and Bahloul Derradji
55	14:00	Comparative Study of the Different Structures of Multi-Level Inverters for the Connection of PV Systems to the Power Grid Amina Benabda and Amina Azizi
83	14:15	Hippopotamus Optimization Algorithm-Based Robust Tilt-FOID Control Design for Linear Time-Invariant Systems in Renewable Energy Applications Elouahab Bouguenna, Samir Ladaci, and Akila Djoudi Gherbi
107	14:30	Coupled Magneto-Mechanical Modeling of a Marine Wave Energy Recovery System Bachir Ouartal, Meziane Hamel, Mustapha Zaouia, Ratiba Fellag, Riad Moualek and Ahmed Nait Ouslimane

Day 1: Monday – December 15, 2025 / Oral Session 2

Session Code:	Track 5	
Session Title:	Advanced Forecasting, Control, and Energy Harvesting	
Session Time:	13:45 – 14:45	
Session Room:	Mammeri_Room02	
Session Chairs:	MOURAD LAGHROUCHE & FATEH KRIM	

ID	Starts at	Title & Authors
138	13:45	Design and Development of a Piezoelectric Shoe Using Lead-Free Composite Materials for Mechanical Energy Harvesting Zakia Chelli, Massine Gana, Hakim Achour, Abdel Madjid Djidda, Yacine Baghdadi, Malika Saidi, Mourad Laghrouche and Ahcène Chaouchi
140	14:00	Energy Management of a Smart District Using the Neural Predictions and Predictive Control Model (MPC) Zoulikha Ouchefoun, Mourad Hasni and Lakhdar Guenaf
173	14:15	Enhanced Battery Health Forecasting with Dynamic Thresholds Using Multi Input LSTM Networks Rafik Saddaoui, Karim Oudiai, Mhenna Nacheff, Hamid Hamiche, Rachid Zirmi and Mourad Laghrouche
185	14:30	Predictive Control of DFIG in a Hybrid PV/DFIG/Batt System Supplying a Water Pumping System Tarek Boudjerda, Sofia Lalouni Belaid and Salah Tamalouzt

Day 1: Monday – December 15, 2025 / Oral Session 2

Session Code:	Track 6	
Session Title:	Intelligent Sensing and Prediction for Agricultural Systems	
Session Time:	13:45 – 14:45	
Session Room:	Mammeri_Room03	
Session Chairs:	NABIL KHERBACHE & REDOUANE KARA	

ID	Starts at	Title & Authors
134	13:45	Prediction of a Tunnel Greenhouse Relative Humidity Using Artificial Neural Network Salah Bezari, Asma Adda and Sidi Mohamed El Amine Bekkouche
161	14:00	Review of Smart Systems in Aquaculture and Aquaponics Elarbi Kacemi, Khelifa Benahmed and Tariq Benahmed
178	14:15	Comparative Analysis of YOLOv8, YOLOv11, and Faster R-CNN for Multi-Crop Plant Disease Detection Rim Gasmi, Marwa Chander and Mohamed Amine Badache

Day 1: Monday – December 15, 2025 / Poster Session

Session Code:	Track 1, 5 & 6		
Session Title:	Smart Energy, Machine Learning, and Power Materials Reliability		
Session Time:	14:45 – 15:30		
Session Room:	Mammeri_Hall		
Session Chairs:	MUSTAPHA MOUDOUD & SAID DJENNOUNE		
ID	Starts at	Title & Authors	
72	14:45	Smart Energy Control in PV-Battery Systems Using Three-Level Boost Converters with DC-Link Voltage Regulation via Genetic Algorithm Ahmed Bahri, Nabil Mezhoud, Bilel Ayachi, Abdelkrim Thameur, Farouk Boukhenoufa and Abderrahmane Bellaouar	
85	14:45	Bio-Inspired Method for Optimal Energy Management and Efficiency Improvement of Microgrids Nabil Mezhoud, Ahmed Bahri, Farouk Boukhenoufa, Bilel Ayachi, Lakhdar Bouras and Ilham Ahmed Hazila	
131	14:45	Thermal Aging Effects on the Electrical, Mechanical and Physicochemical Properties of LDPE Power Cables Insulation Ferhat Slimani, Abdallah Hendir, Mustapha Moudoud, Omar Lamrous, Soraya Nait Larbi and Sébastien Rondot	
142	14:45	Comparative Numerical Study of Multilayer Walls with and without Phase Change Materials for Enhanced Thermal Performance Asma Bouterif and Farid Mechighel	
146	14:45	Design and Implementation of a Modular Cold Storage System Bouchra Lahiou, Latefa Ghomri and Mohammed Sari	
151	14:45	Performance Assessment of ANN and MLR Models for Predicting NF/RO Desalination System Asma Adda, Salah Bezari and Salah Hanini	
163	14:45	Heart Beat IoT: Real-Time Cardiac Monitoring Saliha Rabehi, Malika Saidi, Hayat Hammouche, Nadia Serkhane, Hakim Achour, Ahcène Chaouchi, Mourad Laghrouche, Nouara Lamrani, Mohamed Rguiti, Christian Courtois, Yannick Lorgouilloux and Mohamed Aymen Ben Achour	
177	14:45	Effect of Critical Current Density Dependence on the Internal Magnetic Field Penetration in an HTC Superconducting Bulk Asma Azzouza, Hicham Allag and Jean-Paul Yonnet	
183	14:45	Machine Learning for Predictive Maintenance of Electrical Machines: A Review Taher Amraoui, Samir Merad and Ahmed Amrane	
184	14:45	Hydrothermal Degradation Impacts on the Properties Of PVC Cables Insulation Hassene Ait Ouazzou, Ferhat Slimani and Mustapha Moudoud	
191	14:45	Ultraviolet Aging Effects on the Dielectric Properties of PVC/Al₂O₃ Nanocomposites Cables Insulation Sabrina Amraoui, Abdallah Hendir, Ferhat Slimani, Mustapha Moudoud, Omar Lamrous and Ali Durmus	

Day 1: Monday – December 15, 2025 / Online Session

Session Code:	Track 1	
Session Title:	Advanced Renewable Energy Systems: Design, Monitoring, and Control	
Session Time:	15:30 – 17:30	
Session Room:	Mammeri_Room01	
Session Chairs:	YACINE TRIKI & AGHILAS ARDJAL	
ID	Starts at	Title & Authors
136	15:30	Study and Development of Methodology for Dimensioning Photovoltaic Systems (PVS) Leonardo Kunen, André Tavares, Breno Carvalho and Franciele Ronchi
153	15:45	Daily Energy Production Patterns in Medium-Scale Hydroelectric Operations: a Longitudinal Descriptive Study Elmer Arellanos-Tafur and Marcelo Damas-Niño
156	16:00	Design and Implementation of a Low-Cost Automatic Weather Station Based on the Internet of Things Sefia Attia, Abdelkader Mechernene and Mourad Loucif
158	16:15	From Grid Following to Grid Forming in PV Grid Tied Single Phase Inverter Mourad Zeboudj, Syphax Ihammouchen, Toufik Rekioua, Djamil Rekioua, Ali Chebabhi and Mohammed Said Ouahabi
167	16:30	Overshoot-Free Speed Control in PMSG Wind Turbines Using a Smooth Sliding Mode Controller Wassila Hattab, Abdelhamid Benakcha, Seddik Tabet, Amira Slimani, Ahmed Marouane Ghodbane
186	16:45	Seasonal Variability and Performance Optimization of Wind Power Generation: A Comprehensive Study of ENGIE Operations Elmer Arellanos-Tafur and Marcelo Damas-Niño

Day 1: Monday – December 15, 2025 / Online Session

Session Code:	Track 5
Session Title:	Metaheuristic Optimization and Control Strategies for Hybrid Systems
Session Time:	15:30 – 17:30
Session Room:	Mammeri_Room02
Session Chairs:	TEDJANI MESBAHI & SMAIL SEMAOUI

ID	Starts at	Title & Authors
28	15:30	PSO Algorithm for Optimal of Fuzzy Logic Controller for A DC-DC Buck Converter Ahmed Benhaoui, Aissa Ameur, Ameur Benhaoui and Salah Benzian
64	15:45	Two-Level Hierarchical Control of a PV-Battery Hybrid Energy System Using Differential Flatness-Based Strategy and MShOA-Tuned FOPID Controller Hadjer Chabana, Ilyes Tegani, Hamza Afghoul and Soumia Merah
73	16:00	Comparative Optimal Dispatch Control Strategies for a Hybrid Renewable Energy System Mourad Zebboudj, Djamil Rekioua and Toufik Rekioua
115	16:15	Energy Management of a PEMFC/Battery Electric Vehicle Using a State Machine Strategy Khoudir Kakouche, Toufik Rekioua, Djamil Rekioua, Amira Slimani, Zahra Mokrani and Mohammed Amine Soumeur
149	16:30	Optimization of Energy Management in a PV–Wind–Battery Microgrid Using PSO in MATLAB Meziane Kaci, Hassane Ezziane, Slim Rouabah, Zakaria Layate, Hakim Ait Said and Hamou Nouri
154	16:45	Statistical Assessment of Commercial Electric Service Quality: A Case Study of ENEL Distribution Company in Peru Marcelo Damas-Niño and Elmer Arellanos-Tafur
162	17:00	Optimal Distribution Network Reconfiguration for Minimizing Energy Losses and Enhancing Reliability Using Metaheuristics Anes Bouhanik, Samir Bouslimani, Ahmed Salhi, Djemai Naimi, Younes Zahraoui and Saad Mekhilef

Day 1: Monday – December 15, 2025 / Online Session

Session Code:	Track 6	
Session Title:	Machine Intelligence and Sensing Technologies for Precision Agriculture and Water Management	
Session Time:	15:30 – 17:30	
Session Room:	Mammeri_Room03	
Session Chairs:	MOHAMMED RACHEDINE & ADAM BELLOUM	
ID	Starts at	Title & Authors
30	15:30	Hybrid WCA-HS Based Control for Autonomous Quadrotor Navigation in Precision Agriculture Nesrine Tenniche, Boubekeur Mendil, Farid Ghilas and Lamine Brikh
40	15:45	Advancing Infiltration Modeling with Deep Learning: A Superior Alternative to Empirical Approaches in the Mitidja Plain Amina Mazighi, Mohamed Meddi and Hind Meddi
91	16:00	Advancing Agricultural Robotics: AI Control Strategies for Delta Robots Issam Kessira, Ali Chabane, Nawel Ghazi, Khaled Benfriha and Samir Meradi
98	16:15	Early-Season Water Use Patterns in Wheat and Barley under Semi-Arid Conditions: A Lysimetric Approach Omar Bouziane, Mohamed Meddi and Amina Mazighi
147	16:30	IoT-Based Climatic Environment Monitoring System Design for a Cattle Breeding Buildings Sihem Souiki, Mourad Hadjila, Reda Yagoub, Abdelillah Boudjella and Oussama Ahed Messaoud
157	16:45	Integrated Geophysical Approach for Groundwater Prospecting Doria Kutrubes and Khaled Bounar

Day 2: Tuesday – December 16, 2025 / Oral Session 1

Session Code:	Track 1	
Session Title:	Advanced Photovoltaic Materials and Solar Forecasting	
Session Time:	11:00 – 12:00	
Session Room:	Mammeri_Room01	
Session Chairs:	FATMA LOUNNAS & MOHAMED LAMINE HAMIDA	

ID	Starts at	Title & Authors
22	11:00	Comparative Analysis of Pure ZnO, Ag-Mn Codoped ZnO, and Mn:ZnO/Ag/Mn:ZnO Multilayer Transparent Conductive Oxides for Photovoltaic Applications Fouaz Lekoui, Khaoula Settara, Rachid Amrani, Elyes Garoudja, Walid Filali, Slimane Oussalah, Driss Dergham and Salim Hassani
41	11:15	Characterization of EVA/phase change material blend embedded with zinc oxide (ZnO) nanomaterial as nanocomposite for photovoltaic module encapsulation process Kamel Agroui, Lyes Maifi, Ouided Hioual, Aicha Ayadi and Abdelhamid Chari
70	11:30	Surpassing 16% Efficiency in Cd-Free CZTS Solar Cells via Si Back-Contact Engineering and IR Harvesting Lynda Metref, Essaid Mansouri, Mahfoud Abderrezek and Samira Sali
171	11:45	A Hybrid Electrical and Environmental LSTM Approach for Short-Term Solar Power Forecasting in Algeria Rafik Saddaoui, Samir Aoughlis, Karim Oudiai, Nachef Mhenna, Hamiche Hamid and Mourad Laghrouche

Day 2: Tuesday – December 16, 2025 / Oral Session 1

Session Code:	Track 2	
Session Title:	Edge AI and Intelligent Monitoring for Energy Systems	
Session Time:	11:00 – 12:00	
Session Room:	Mammeri_Room02	
Session Chairs:	NADHIR DJEFFAL & RACHID ZIRMI	

ID	Starts at	Title & Authors
26	11:00	Recent Advances in the Application of TinyML and Edge Devices in Solar Photovoltaic Systems: Bridging the Gap Between Laboratory Research and Industry Adel Mellit and Marco Zennaro
49	11:15	An Embedded AI Model for Defect Detection in Photovoltaic Modules Using a Jetson Nano-Powered Unmanned Aerial Vehicle Nouamane Kellil, Adel Mellit, Toufik Benkherouf and Maamar Bettayeb
125	11:30	Unbalance fault detection in an IoT-Connected Motor Network Using Artificial Neural Networks Massine Gana, Zakia Chelli, Rafik Saddaoui, Hakim Achour and Mourad Laghrouche

Day 2: Tuesday – December 16, 2025 / Oral Session 1

Session Code:	Track 3&4	
Session Title:	Data-Driven Modeling and Optimization in Power Systems	
Session Time:	11:00 – 12:00	
Session Room:	Mammeri_Room03	
Session Chairs:	ADAM BELLOUM & MASSINE GANA	

ID	Starts at	Title & Authors
36	11:00	Advanced Polynomial and Gaussian Regression Frameworks for Predictive Modeling of Tangential Discharge Phenomena in High-Voltage Insulation Systems Nabila Saim
80	11:15	Data-Driven Based Sparse Identification of Nonlinear Dynamics for Stability Analysis of Mixed Grid-Following and Grid-Forming Inverters Houssam Deboucha, Bessam Deboucha, Elyazid Amrouche, Said Aissou, Ali Berboucha, Kaci Ghedamsi and Saad Mekhilef
121	11:30	Formal Concept Analysis for Knowledge Extraction and Optimal Configuration Selection in Photovoltaic Installations Zina Ait Yakoub, Ali Bechouche and Djaffar Ould Abdeslam
170	11:45	Study of a Hybrid PV/Fuel Cell System Dedicated to an Electric Vehicle Charging Station Mohamed Lamine Hamida, Damya Iamrache, Sarah Maouche, Hakim Denoun, Arezki Fekik, Dyhia Kais and Zoulakha Tebri

Day 2: Tuesday – December 16, 2025 / Oral Session 2

Session Code:	Track 1	
Session Title:	Intelligent Control and Fault Diagnosis in Photovoltaic Systems	
Session Time:	13:45 – 14:45	
Session Room:	Mammeri_Room01	
Session Chairs:	KARIM KEMIHI & MOUNIR AMIR	

ID	Starts at	Title & Authors
59	13:45	A Novel Linguistic Hedge-Based Fuzzy Logic Controller for Enhanced MPPT in PV Systems Chellali Benachaiba
61	14:00	Tuning of a Neutrosophic Fuzzy Controller for DC Motor Using the Novel Qudwa Metaheuristic Chellali Benachaiba
87	14:15	Experimental Study of Solar Water Pump Control by Arduino Amina Azizi and Amina Benabda
93	14:30	Open-Circuit Fault Diagnosis of a Three-Level Boost Converter for Photovoltaic Applications Abdeldjabar Benrabah, Mouaad Belguedri, Mohamed-Amine Yahiaoui, Fayçal Benyamina and Mohamed Benbouzid

Day 2: Tuesday – December 16, 2025 / Oral Session 2

Session Code:	Track 2
Session Title:	Control and Security in Modern Renewable Energy Systems
Session Time:	13:45 – 14:45
Session Room:	Mammeri_Room02
Session Chairs:	ADEL MELLIT & FERHAT SLIMANI

ID	Starts at	Title & Authors
53	13:45	Security of Grid-Connected Photovoltaic Plants A Mini-Review and Future Directions Nassiha Boutana, Rokia Chekirou, Adel Mellit and Maamar Bettayeb
141	14:00	Direct Power Control Technique for Wind Power Generation System based on a Double Stator Induction Generator (DSIG) Fatma Lounnas
190	14:15	Development and Design of an Intelligent Energy Router Rachid ZIRMI, Belkacem Zouak, Nadhir Djeffal, Abderrahmane Alem, Massinissa Kloul and Hakim Achour

Day 2: Tuesday – December 16, 2025 / Oral Session 2

Session Code:	Track 3&4
Session Title:	Intelligent Control and Optimization in Renewable Energy Systems
Session Time:	13:45 – 14:45
Session Room:	Mammeri_Room03
Session Chairs:	KAMAL HAMMOUCHE & BILAL ATTALLAH

ID	Starts at	Title & Authors
123	13:45	Improving the Performance of a Wind Turbine PID Controller Using GWO Optimization and Fuzzy Logic Houari Habiba and Noureddine Zerhouni
128	14:00	Stabilizing Photovoltaic Output Using a Controlled Ćuk Converter Topology Mohamed Kaouane, Nidhal Cherrat and Akkila Boukhelifa
188	14:15	Anomaly Detection in Datacenter Energy Consumption Using an Autoencoder Karima Oukfif
194	14:30	Optimizing Batteries Charging Time Inside an Autonomous Photovoltaic System Installed on a House's Roof Salah Tamalouzt, Kamel Djermouni, Ali Berboucha, Kaci Ghedamsi and Djamal Aouzellag

Day 2: Tuesday – December 16, 2025 / Poster Session

Session Code:	Track 1, 2, 3 & 4
Session Title:	Smart Sensing, and Intelligent Control in Energy and IoT Systems
Session Time:	14:45 – 15:30
Session Room:	Mammeri_Hall
Session Chairs:	MUSTAPHA MOUDOUD & SAID DJENNOUNE

ID	Starts at	Title & Authors
38	14:45	Determination of the Minimum Capacitance for Self-Excitation of a SEIG, Taking Into Account the Speed Ramp Up Madjid Si Brahim, Rabah Rouas, Rahma Kachenoura and Salah Haddad
57	14:45	Comparative Analysis of MPPT Algorithms for Photovoltaic Systems Under Partial Shading: A MATLAB/Simscape-Based Study Ahmed Chebri, Fatima Zohra Boukahil, Assala Mouffouk and Boubeker Azoui
90	14:45	Transformer Fault Diagnosis Using HHO-Enhanced XGBoost and Liquid Dielectric Signal Analysis Tarek Bouguettaya, Abderrahim Reffas, Mohammed Adaika, Hicham Talhaoui, Oualid Aissa and Sherif S. M. Ghoneim
110	14:45	Graph-Based Semi-Supervised Learning for Fault Clustering in Grid-connected PV Systems Nassim Sabri
114	14:45	Detection of Silicone Oil Concentration Using a Two-Dimensional Photonic Crystal Sensor Sarra Bendib, Saidani Okba, Abderrahim Yousfi and Nadhir Djeffal
120	14:45	AI-Enabled Wearable IoT Device for Facial Recognition in Student Transportation Systems Dhai Eddine Salhi, Majdi Rawashdeh, Mohamed Tahar Bennai, Awny Alnusair and Ali Karime
135	14:45	Dynamic Performance Evaluation of a Dual-Star Induction Machine Fed by an Indirect Matrix Converter Sifoura Mezhoud, Celia Mehanaoui and Ahmed Azib
159	14:45	A Low-Cost and Eco-Friendly Humidity Sensor Based on Keratin Thin Film Hayat Hammouche, Rachida Douani, Ahcène Chaouchi, Saliha Rabhi, Nouara Lamrani and Mourad Laghrouche
172	14:45	Wearable Low-Energy RFID-Integrated Vibration Tag for Silent, Long-Term Sleep Apnea Monitoring and Posture Sensing Rafik Saddaoui, Samir Aoughlis, Karim Oudiai, Mhenna Nachef, Hamid Hamiche and Mourad Laghrouche
175	14:45	Low Power Energy and Real-Time Localization of Prisoners Inside Correctional Facilities Using Inertial Sensors and Particle Filtering: A Dead Reckoning Approach Samir Aoughlis, Rafik Saddaoui, Karim Oudiai, Hamid Hamiche, Brahim Achour and Mourad Laghrouche

Day 2: Tuesday – December 16, 2025 / Online Session

Session Code:	Track 1
Session Title:	Innovations and Optimization in Wind, Solar, and Hybrid Renewable Systems
Session Time:	15:30 – 17:30
Session Room:	Mammeri_Room01
Session Chairs:	MEZIANE HAMEL & KOUSSAILA MESBAH

ID	Starts at	Title & Authors
68	15:30	A Heuristic Optimization Approach for Wind Turbine Dimensions to Enhance Energy Capture and Reduce Costs Mourad Naidji, Mohamed Ilyas Rahal, Alla Eddine Toubal Maamar, Aicha Aissa-Bokhtache, Maamar Latroch and Radu-Florin Porumb
75	15:45	Advancements in Solar Energy Systems: Innovations in Photovoltaic (PV) and Floating PV Technologies for Decentralized Energy Production Mourad Naidji
103	16:00	Current Sensor Fault Diagnosis of Wind Power System Based on DFIG Chaima Gherari, Farid Berrezek, Hicham Zaimen and Khaled Khelil
106	16:15	Cold plasma-Based Methane Dry Reforming for Hydrogen Production Abir Azara and Khadidja Khodja
122	16:30	Recent Advancements in Energy Management for Hybrid Renewable Energy Systems Fayçal Hassaini, Said Aissou, Ali Berboucha, Elyazid Amrouche, Yanis Hamoudi, Houssam Deboucha and Abdelhakim Belkaid
152	16:45	Renewable Energy Deployment Efficiency: Analyzing Algeria's Achievement Gap and Optimization Strategies Elmer Arellanos-Tafur and Marcelo Damas-Niño

Day 2: Tuesday – December 16, 2025 / Online Session

Session Code:	Track 2
Session Title:	Advanced Control and Modeling for Wind and PV Energy Systems
Session Time:	15:30 – 17:30
Session Room:	Mammeri_Room02
Session Chairs:	RATIBA FELLAG & MEHAMMED DAOUI

ID	Starts at	Title & Authors
43	15:30	Real-Time Sensorless Control for PMSG Wind Generators Using Step-by-Step Sliding Mode Observer on STM32 Sofiane Benabit, Hocine Khati, Arezki Fekik and Malek Ghanes
52	15:45	Two Step Ahead Finite Set Predictive Torque Control Using Improved Sliding Mode Control for Three Phase Induction Motor Sofiane Brahami, Kaci Ghedamsi, Yanis Hamoudi and Abdelyazid Achour
78	16:00	A Prototype Design of Smart DC Power Device for Solar System Application Khadar Saad, Larbi Brahimi, Mohamed Elbar, Meriem Ghezal, Aya Mebarki and Sif Eddine Souadia
117	16:15	Co-Simulation and Modeling of WT-AFPMSG Based on Ansys Software and MATLAB/Simulink for Wind Energy Application Lina Bouhafs, Salah Tamalouzt, Mustafa Ergin Şahin and Ahcene Bouzida
118	16:30	Enhanced Fault-Tolerant Harmonic Compensation in Grid-Connected PV Systems: A Comparative Study of Analog Filters for Cascaded Multilevel Inverter Control Sabrina Nacef, Haroune Aouzellag, Bessam Amrouche, Rabah Babouri and Kaci Ghedamsi
119	16:45	Enhanced Direct Current Control in Grid-Following Inverters Using Open-Loop Synchronization and PR Regulator for Renewable Energy Integration Lakhder Ayhar, Ahmed Safa, Abdelmadjid Gouichiche and Fayssal Elyamani Benmohamed
129	17:00	A Space Vector Modulation Scheme for Five-Phase to Three-Phase Indirect Matrix Converter for a Wind Power Application Celia Mehanaoui, Sifoura Mezhoud, Ahmed Azib and Nabil Taib

Day 2: Tuesday – December 16, 2025 / Online Session

Session Code:	Track 3 & 4
Session Title:	Advanced AI, Forecasting, and Control Strategies in Modern Energy Systems
Session Time:	15:30 – 17:30
Session Room:	Mammeri_Room03
Session Chairs:	KARIMA OUKFIF & NASSIMA MELLAL

ID	Starts at	Title & Authors
31	15:30	Fault Diagnosis of Induction Motors Using Convolutional Neural Networks Benyamine Arroul, Farid Tafinine and Farid Ghilas
101	15:45	Autonomous Photovoltaic/Thermal Solar Solution for Resilient Isolated Habitats Djamila Rekioua, Nabil Mezzai, Toufik Rekioua, Zahra Mokrani, Khoudir Kakouche, Adel Oubelaid and Chokri Ben Salah
109	16:00	Intelligent Hysteresis Current Control Based on Support Vector Machine for SAPF Integrated PV System Under Nonstationary Harmonics Mustapha Meraouah, Faiza Kaddari, Said Hassaine, Youcef Mihoub and Sandrine Moreau
145	16:15	Forecasting Electrical Outages in Adrar, Algeria: Towards a Smart Energy Management System Samia Bentaieb, Driss Nehari, Ammar Neçaibia and Messaoud Hamouda
155	16:30	A Multidisciplinary Systems Engineering Approach to Hybrid Energy Systems Khaled Bounar and Salah Badjou
168	16:45	A LADRC-Based Robust Speed Controller for PMSMs in Electric Vehicles With External Disturbance Rejection Amira Slimani, Amor Bourek, Abdelkarim Ammar, Khoudir Kakouche, Wassila Hattab and Samira Heroual
182	17:00	Emerging AI Methodologies in the Renewable Energy Ecosystem: Successes, Challenges, and Future Research Directions (v2) Temitope Bobola and Temitayo Fagbola