



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.ummto.dz>

## Program Layout

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

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

#### **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

## Zoom Information

Room#	Zoom
Mammeri Room01	<a href="https://uva-live.zoom.us/j/62109557560?pwd=16u7zKQ2Vnvp7tHKrybZ3bvTgett1O.1">https://uva-live.zoom.us/j/62109557560?pwd=16u7zKQ2Vnvp7tHKrybZ3bvTgett1O.1</a> Meeting ID: 621 0955 7560 Passcode: 497195
Mammeri Room02	<a href="https://zoom.us/j/95191075939?pwd=dZj4V18csPyDXZoNhdeJWOLztURIpX.1">https://zoom.us/j/95191075939?pwd=dZj4V18csPyDXZoNhdeJWOLztURIpX.1</a> Meeting ID: 951 9107 5939 Passcode: 054356
Mammeri Room03	<a href="https://us02web.zoom.us/j/84885459983?pwd=c2FqbWdGSkdwRVRZWmcvYURFSllxQT09">https://us02web.zoom.us/j/84885459983?pwd=c2FqbWdGSkdwRVRZWmcvYURFSllxQT09</a> Meeting ID: 848 8545 9983 Passcode: 063890

## 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

<i>Session Code:</i>	<b>Track 1</b>
<i>Session Title:</i>	<b>Renewable Energy Innovation, Control, and Optimization</b>
<i>Session Time:</i>	<b>11:00 – 12:00</b>
<i>Session Room:</i>	<b>Mammeri_Room01</b>
<i>Session Chairs:</i>	<b>MEZIANE HAMEL &amp; SAID AISSOU</b>

ID	Starts at	Title & Authors
67	11:00	<b>Sustainable Power Generation via Olive Solid Waste Gasification in the Tizi Ouzou Region.</b> Abdenour Elias and Abderrezak Kennas
71	11:15	<b>Analysis of Long-Term Performance Degradation in Photovoltaic Modules</b> 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	<b>Sensorless Voltage-Oriented Control of Modular Multilevel Converters for Wind Power Systems</b> Mustapha Asnoun, Adel Rahoui, Koussaila Mesbah, Boussad Boukais, Noumidia Amoura and Seddik Bacha
130	11:45	<b>Improved Funnel Control Strategy with PI Regulation for Wind Energy Systems for Maximum Power Point Tracking</b> Zaina Ait Chekdhidh, Aghiles Ardjal and Maamar Bettayeb

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

<i>Session Code:</i>	<b>Track 5</b>
<i>Session Title:</i>	<b>Advanced Control, Optimization, and Sustainable Technologies for Renewable Energy Systems</b>
<i>Session Time:</i>	<b>11:00 – 12:00</b>
<i>Session Room:</i>	<b>Mammeri_Room02</b>
<i>Session Chairs:</i>	<b>AREZKI FEKIK &amp; MOHAMED LAMINE HAMIDA</b>

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

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

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

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

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

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

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

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

<i>Session Code:</i>	<b>Track 5</b>
<i>Session Title:</i>	<b>Advanced Forecasting, Control, and Energy Harvesting</b>
<i>Session Time:</i>	<b>13:45 – 14:45</b>
<i>Session Room:</i>	<b>Mammeri_Room02</b>
<i>Session Chairs:</i>	<b>MOURAD LAGHROUCHE &amp; FATEH KRIM</b>

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

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

<i>Session Code:</i>	<b>Track 6</b>
<i>Session Title:</i>	<b>Intelligent Sensing and Prediction for Agricultural Systems</b>
<i>Session Time:</i>	<b>13:45 – 14:45</b>
<i>Session Room:</i>	<b>Mammeri_Room03</b>
<i>Session Chairs:</i>	<b>NABIL KHERBACHE &amp; SALAH HADDAD</b>

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

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

<i>Session Code:</i>	<b>Track 1, 5 &amp; 6</b>
<i>Session Title:</i>	<b>Smart Energy, Machine Learning, and Power Materials Reliability</b>
<i>Session Time:</i>	<b>14:45 – 15:30</b>
<i>Session Room:</i>	<b>Mammeri_Hall</b>
<i>Session Chairs:</i>	<b>MUSTAPHA MOUDOUD &amp; SAID DJENNOUNE</b>

<b>ID</b>	<b>Starts at</b>	<b>Title &amp; Authors</b>
72	14:45	<b>Smart Energy Control in PV-Battery Systems Using Three-Level Boost Converters with DC-Link Voltage Regulation via Genetic Algorithm</b> Ahmed Bahri, Nabil Mezhoud, Bilel Ayachi, Abdelkrim Thameur, Farouk Boukhenoufa and Abderrahmane Bellaouar
85	14:45	<b>Bio-Inspired Method for Optimal Energy Management and Efficiency Improvement of Microgrids</b> Nabil Mezhoud, Ahmed Bahri, Farouk Boukhenoufa, Bilel Ayachi, Lakhdar Bouras and Ilham Ahmed Hazila
131	14:45	<b>Thermal Aging Effects on the Electrical, Mechanical and Physicochemical Properties of LDPE Power Cables Insulation</b> Ferhat Slimani, Abdallah Hedir, Mustapha Moudoud, Omar Lamrous, Soraya Nait Larbi and Sébastien Rondot
142	14:45	<b>Comparative Numerical Study of Multilayer Walls with and without Phase Change Materials for Enhanced Thermal Performance</b> Asma Bouterfif and Farid Mechighel
146	14:45	<b>Design and Implementation of a Modular Cold Storage System</b> Bouchra Lahlou, Latefa Ghomri and Mohammed Sari
151	14:45	<b>Performance Assessment of ANN and MLR Models for Predicting NF/RO Desalination System</b> Asma Adda, Salah Bezari and Salah Hanini
163	14:45	<b>Heart Beat IoT: Real-Time Cardiac Monitoring</b> Saliha Rabehi, Malika Saidi, Hayat Hammouche, Nadia Serkhane, Hakim Achour, AHCÉNE Chaouchi, Mourad Laghrouche, Nouara Lamrani, Mohamed Rguiti, Christian Courtois, Yannick Lorgouilloux and Mohamed Aymen Ben Achour
177	14:45	<b>Effect of Critical Current Density Dependence on the Internal Magnetic Field Penetration in an HTC Superconducting Bulk</b> Asma Azzouza, Hicham Allag and Jean-Paul Yonnet
183	14:45	<b>Machine Learning for Predictive Maintenance of Electrical Machines: A Review</b> Taher Amraoui, Samir Merad and Ahmed Amrane
184	14:45	<b>Hydrothermal Degradation Impacts on the Properties Of PVC Cables Insulation</b> Hassene Ait Ouazzou, Ferhat Slimani and Mustapha Moudoud
191	14:45	<b>Ultraviolet Aging Effects on the Dielectric Properties of PVC/Al<sub>2</sub>O<sub>3</sub> Nanocomposites Cables Insulation</b> Sabrina Amraoui, Abdallah Hedir, 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:	AGHILAS ARDJAL & YACINE TRIKI

ID	Starts at	Title & Authors
136	15:30	<b>Study and Development of Methodology for Dimensioning Photovoltaic Systems (PVS)</b> Leonardo Kunen, André Tavares, Breno Carvalho and Franciele Ronchi
153	15:45	<b>Daily Energy Production Patterns in Medium-Scale Hydroelectric Operations: a Longitudinal Descriptive Study</b> Elmer Arellanos-Tafur and Marcelo Damas-Niño
156	16:00	<b>Design and Implementation of a Low-Cost Automatic Weather Station Based on the Internet of Things</b> Sefia Attia, Abdelkader Mechernene and Mourad Loucif
158	16:15	<b>From Grid Following to Grid Forming in PV Grid Tied Single Phase Inverter</b> Mourad Zebboudj, Syphax Ihammouchen, Toufik Rekioua, Djamila Rekioua, Ali Chebabhi and Mohammed Said Ouahabi
167	16:30	<b>Overshoot-Free Speed Control in PMSG Wind Turbines Using a Smooth Sliding Mode Controller</b> Wassila Hattab, Abdelhamid Benakcha, Seddik Tabet, Amira Slimani, Ahmed Marouane Ghodbane
84	16:45	<b>Modeling High-Performance <math>\text{Cs}_{0.05}(\text{FA}_{0.77}\text{MA}_{0.23})_{0.95}\text{Pb}(\text{I}_{0.77}\text{Br}_{0.23})_3</math> Perovskite Solar Cells via SCAPS-1D Simulation</b> Belkacem Hanafi, Abderrahim Yousfi, Rabah Boubaaya, Okba Saidani, Mokhtar Djendel, Sara Bendib, Rafik Zouache
179	17:00	<b>Numerical Investigation of <math>\text{CsSnCl}_3</math> Perovskite Solar Cells Utilizing <math>\text{WS}_2</math> and <math>\text{CuSbS}_2</math> Transport Layers for Enhanced Efficiency beyond 24%</b> Ahmed Benameur, Abderrahim Yousfi, Okba Saidani
186	17:30	<b>Seasonal Variability and Performance Optimization of Wind Power Generation: A Comprehensive Study of ENGIE Operations</b> Elmer Arellanos-Tafur and Marcelo Damas-Niño

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

<i>Session Code:</i>	<b>Track 5</b>
<i>Session Title:</i>	<b>Metaheuristic Optimization and Control Strategies for Hybrid Systems</b>
<i>Session Time:</i>	<b>15:30 – 17:30</b>
<i>Session Room:</i>	<b>Mammeri_Room02</b>
<i>Session Chairs:</i>	<b>TEDJANI MESBAHI &amp; SMAIL SEMAOU</b>

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

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

<i>Session Code:</i>	<b>Track 6</b>
<i>Session Title:</i>	<b>Machine Intelligence and Sensing Technologies for Precision Agriculture and Water Management</b>
<i>Session Time:</i>	<b>15:30 – 17:30</b>
<i>Session Room:</i>	<b>Mammeri_Room03</b>
<i>Session Chairs:</i>	<b>MOHAMMED RACHEDINE &amp; ADAM BELLOUM</b>

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

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

<b>Session Code:</b>	<b>Track 1</b>
<b>Session Title:</b>	<b>Advanced Photovoltaic Materials and Solar Forecasting</b>
<b>Session Time:</b>	<b>11:00 – 12:00</b>
<b>Session Room:</b>	<b>Mammeri_Room01</b>
<b>Session Chairs:</b>	<b>NACEREDDINE BENAMROUCHE &amp; MOHAMMED KAOUANE</b>

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

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

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

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

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

<i>Session Code:</i>	<b>Track 3&amp;4</b>
<i>Session Title:</i>	<b>Data-Driven Modeling and Optimization in Power Systems</b>
<i>Session Time:</i>	<b>11:00 – 12:00</b>
<i>Session Room:</i>	<b>Mammeri_Room03</b>
<i>Session Chairs:</i>	<b>ADAM BELLOUM &amp; FERHAT SLIMANI</b>

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

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

<i>Session Code:</i>	<b>Track 1</b>
<i>Session Title:</i>	<b>Intelligent Control and Fault Diagnosis in Photovoltaic Systems</b>
<i>Session Time:</i>	<b>13:45 – 14:45</b>
<i>Session Room:</i>	<b>Mammeri_Room01</b>
<i>Session Chairs:</i>	<b>KARIM KEMIH &amp; MOUNIR AMIR</b>

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

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

<i>Session Code:</i>	<b>Track 2</b>
<i>Session Title:</i>	<b>Control and Security in Modern Renewable Energy Systems</b>
<i>Session Time:</i>	<b>13:45 – 14:45</b>
<i>Session Room:</i>	<b>Mammeri_Room02</b>
<i>Session Chairs:</i>	<b>ADEL MELLIT &amp; MASSINE GANA</b>

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

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

<i>Session Code:</i>	<b>Track 3&amp;4</b>
<i>Session Title:</i>	<b>Intelligent Control and Optimization in Renewable Energy Systems</b>
<i>Session Time:</i>	<b>13:45 – 14:45</b>
<i>Session Room:</i>	<b>Mammeri_Room03</b>
<i>Session Chairs:</i>	<b>BILAL ATTALLAH</b>

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

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

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

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

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

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

<b>ID</b>	<b>Starts at</b>	<b>Title &amp; Authors</b>
68	15:30	<b>A Heuristic Optimization Approach for Wind Turbine Dimensions to Enhance Energy Capture and Reduce Costs</b> Mourad Naidji, Mohamed Ilyas Rahal, Alla Eddine Toubal Maamar, Aicha Aissa-Bokhtache, Maamar Latroch and Radu-Florin Porumb
75	15:45	<b>Advancements in Solar Energy Systems: Innovations in Photovoltaic (PV) and Floating PV Technologies for Decentralized Energy Production</b> Mourad Naidji
103	16:00	<b>Current Sensor Fault Diagnosis of Wind Power System Based on DFIG</b> Chaima Gherari, Farid Berrezzek, Hicham Zaimen and Khaled Khelil
106	16:15	<b>Cold plasma-Based Methane Dry Reforming for Hydrogen Production</b> Abir Azara and Khadidja Khodja
122	16:30	<b>Recent Advancements in Energy Management for Hybrid Renewable Energy Systems</b> Fayçal Hassaini, Said Aissou, Ali Berboucha, Elyazid Amirouche, Yanis Hamoudi, Houssam Deboucha and Abdelhakim Belkaid
152	16:45	<b>Renewable Energy Deployment Efficiency: Analyzing Algeria's Achievement Gap and Optimization Strategies</b> Elmer Arellanos-Tafur and Marcelo Damas-Niño
126	17:00	<b>Ultra Wideband Hybrid-Shaped Dielectric Resonator Antenna Using (RE-BaTiO<sub>3</sub>) for Modern Wireless Communication Applications</b> Chelghoum Rachid, Brahimi Abdelhalim, Bourouba Nacerdine, Juan Pablo Martínez Jiménez, Bouzit Nacerdine, Zerrougui Raouf, Yousfi Abderrahim, Saidani Okba

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

<i>Session Code:</i>	<b>Track 2</b>
<i>Session Title:</i>	<b>Advanced Control and Modeling for Wind and PV Energy Systems</b>
<i>Session Time:</i>	<b>15:30 – 17:30</b>
<i>Session Room:</i>	<b>Mammeri_Room02</b>
<i>Session Chairs:</i>	<b>RATIBA FELLAG &amp; NIDAL CHERRAT</b>

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

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

<i>Session Code:</i>	<b>Track 3 &amp; 4</b>
<i>Session Title:</i>	<b>Advanced AI, Forecasting, and Control Strategies in Modern Energy Systems</b>
<i>Session Time:</i>	<b>15:30 – 17:30</b>
<i>Session Room:</i>	<b>Mammeri_Room03</b>
<i>Session Chairs:</i>	<b>KARIMA OUKFIF &amp; MEHAMMED DAOUI</b>

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