



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

PROGRAM
15-17 December 2025

Day 1 - Opening

Conference Chair: **ZIRMI**
Monday, December 15, 2025 at 8:30 – 9:00 (GMT+1)

Day 1 – Keynote 1

Speaker: **PROF. TEDJANI MESBAHI**

Smart Battery and Hybrid Energy Storage Systems for Electric Vehicles and Drones: Advanced Energy Management Strategies and Applications

Monday, December 15, 2025 at 9:00 – 9:45 (GMT+1)

Day 1 – Coffee Break

Monday, December 15, 2025 at 9:45 – 10:15 (GMT+1)

Day 1 – Keynote 2

Speaker: **DR. HACIB BEN AISSA**

Energy Transition and Industry Decarbonisation: Emerging Pathways and Technologies

Monday, December 15, 2025 at 10:15 – 11:00 (GMT+1)



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

PROGRAM
15-17 December 2025

Day 1 - Oral Session 1 - Track 1

Session Chair:

Session Title: **Renewable Energy Innovation, Control, and Optimization**

Monday, December 15, 2025 at 11:00 – 12:00 (GMT+1)

MM_Room01

- | | |
|-----|--|
| 67 | Sustainable Power Generation via Olive Solid Waste Gasification in the Tizi Ouzou Region.
Abdenour Elias and Abderrezak Kennas |
| 71 | 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, Salih Boulahchiche and Fella Tobbal |
| 77 | 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 | 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 - Oral Session 1 - Track 5

Session Chair:

Session Title: **Advanced Control, Optimization, and Sustainable Technologies for Renewable Energy Systems**

Monday, December 15, 2025 at 11:00 – 12:00 (GMT+1)

MM_Room02

- | | |
|----|---|
| 33 | Solar Inverter Performance Prediction Using Double Exponential Curve Fitting
Lyazid Kaci, Amar Hadj Arab and Rachid Zirmi |
| 44 | 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 | Energy-Efficient and Sustainable Approaches to AS/RS Design and Control: A Comprehensive Review
Omar Bahmid, Sihem Kouloughil and Bendouis Amaria |
| 97 | Equivalent Consumption Minimization Strategy for Energy Management in Unmanned Aerial Vehicle
Haroune Aouzellag and Sabrina Nacef |



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PROGRAM
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Day 1 - Oral Session 1 - Track 6

Session Chair:

Session Title: **AI-Driven Automation and Robotics for Precision Agriculture**

Monday, December 15, 2025 at 11:00 – 12:00 (GMT+1)

MM_Room03

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|-----|---|
| 92 | Using a UAV Crop Monitoring System for Early Tomato Disease Detection and Decision Support
Dimosthenis Minas, Theodosios Chronopoulos and Michalis Xenos |
| 105 | Sensor-Driven Real-Time Obstacle Detection for Agricultural Drone Spraying Systems
Ahmed Lallal, Sabrina Mokrani, Tassadit Sadoun and Mehammed Daoui |
| 112 | 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 – Lunch Break

Monday, December 15, 2025 at 12:00 – 13:00 (GMT+1)

Day 1 – Keynote 3

Speaker: **MR. DANIEL COOK**

Energy Management and Storage with Bio-Based Phase Change Materials

Monday, December 15, 2025 at 13:00 – 13:45 (GMT+1)



PROGRAM
15-17 December 2025

Day 1 - Oral Session 2 - Track 1

Session Chair:

Session Title: **Innovations in Renewable Energy Conversion, Optimization, and Integration**

Monday, December 15, 2025 at 13:45 – 14:45 (GMT+1)
MM_Room01

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|-----|--|
| 27 | Performance and Emission Analysis of LPG-Hydrogen Dual Fuel Engines
Hassina Ghodbane, Fouad Khaldi and Bahloul Derradji |
| 55 | 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 | 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 | Coupled Magneto-Mechanical Modeling of a Marine Wave Energy Recovery System
Bachir Ouartial, Meziane Hamel, Mustapha Zaouia, Ratiba Fellag, Riad Moualek and Ahmed Nait Ouslimane |

Day 1 - Oral Session 2 - Track 5

Session Chair:

Session Title: **Advanced Forecasting, Control, and Energy Harvesting**

Monday, December 15, 2025 at 13:45 – 14:45 (GMT+1)
MM_Room02

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|-----|---|
| 138 | 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 | Energy Management of a Smart District Using the Neural Predictions and Predictive Control Model (MPC)
Zoulikha Ouchefoun, Mourad Hasni and Lakhdar Guenfaf |
| 173 | Enhanced Battery Health Forecasting with Dynamic Thresholds Using Multi Input LSTM Networks
Rafik Saddaoui, Karim Oudiai, Mhenna Nachef, Hamid Hamiche, Rachid Zirmi and Mourad Laghrouche |
| 185 | Predictive Control of DFIG in a Hybrid PV/DFIG/Batt System Supplying a Water Pumping System
Tarek Boudjerda, Sofia Lalouni Belaid and Salah Tamalouzt |



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PROGRAM
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Day 1 - Oral Session 2 - Track 6

Session Chair:

Session Title: **Intelligent Sensing and Prediction for Agricultural Systems**

Monday, December 15, 2025 at 13:45 – 14:45 (GMT+1)
MM_Room03

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



PROGRAM
15-17 December 2025

Day 1 - Poster Session

Session Chair:

Session Title: **Smart Energy, Machine Learning, and Power Materials Reliability**

Monday, December 15, 2025 at 14:45 – 15:30 (GMT+1)

MM_Hall

72	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	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	Thermal Aging Effects on the Electrical, Mechanical and Physicochemical Properties of LDPE Power Cables Insulation Ferhat Slimani, Abdallah Hédir, Mustapha Moudoud, Omar Lamrous, Soraya Nait Larbi and Sébastien Rondot
142	Comparative Numerical Study of Multilayer Walls with and without Phase Change Materials for Enhanced Thermal Performance Asma Bouterif and Farid Mechighel
146	Design and Implementation of a Modular Cold Storage System Bouchra Lahlou, Latefa Ghomri and Mohammed Sari
151	Performance Assessment of ANN and MLR Models for Predicting NF/RO Desalination System Asma Adda, Salah Bezari and Salah Hanini
163	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	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	Machine Learning for Predictive Maintenance of Electrical Machines: A Review Taher Amraoui, Samir Merad and Ahmed Amrane
184	Hydrothermal Degradation Impacts on the Properties Of PVC Cables Insulation Hassene Ait Ouazzou, Ferhat Slimani and Mustapha Moudoud
191	Ultraviolet Aging Effects on the Dielectric Properties of PVC/Al₂O₃ Nanocomposites Cables Insulation Sabrina Amraoui, Abdallah Hédir, Ferhat Slimani, Mustapha Moudoud, Omar Lamrous and Ali Durmus



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PROGRAM
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Day 1 - Online Session - Track 1

Session Chair:

Session Title: **Advanced Renewable Energy Systems: Design, Monitoring, and Control**

Monday, December 15, 2025 at 15:30 – 17:30 (GMT+1)

MM_Room01

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| 136 | Study and Development of Methodology for Dimensioning Photovoltaic Systems (PVS)
Leonardo Kunen, André Tavares, Breno Carvalho and Franciele Ronchi |
| 153 | Daily Energy Production Patterns in Medium-Scale Hydroelectric Operations: a Longitudinal Descriptive Study
Elmer Arellanos-Tafur and Marcelo Damas-Niño |
| 156 | Design and Implementation of a Low-Cost Automatic Weather Station Based on the Internet of Things
Sefia Attia, Abdelkader Mechernene and Mourad Loucif |
| 158 | From Grid Following to Grid Forming in PV Grid Tied Single Phase Inverter
Mourad Zebboudj, Syphax Ihammouchen, Toufik Rekioua, Djamila Rekioua, Ali Chebabhi and Mohammed Said Ouahabi |
| 167 | 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 | Seasonal Variability and Performance Optimization of Wind Power Generation: A Comprehensive Study of ENGIE Operations
Elmer Arellanos-Tafur and Marcelo Damas-Niño |



PROGRAM
15-17 December 2025

Day 1 - Online Session - Track 5

Session Chair:

Session Title: **Metaheuristic Optimization and Control Strategies for Hybrid Systems**

Monday, December 15, 2025 at 15:30 – 17:30 (GMT+1)

MM_Room02

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| 28 | PSO Algorithm for Optimal of Fuzzy Logic Controller for A DC-DC Buck Converter
Ahmed Benchaoui, Aissa Ameur, Ameur Benchaoui and Salah Benzian |
| 64 | 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 | Comparative Optimal Dispatch Control Strategies for a Hybrid Renewable Energy System
Mourad Zebboudj, Djamila Rekioua and Toufik Rekioua |
| 115 | Energy Management of a PEMFC/Battery Electric Vehicle Using a State Machine Strategy
Khoudir Kakouche, Toufik Rekioua, Djamila Rekioua, Amira Slimani, Zahra Mokrani and Mohammed Amine Soumeur |
| 149 | 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 | Statistical Assessment of Commercial Electric Service Quality: A Case Study of ENEL Distribution Company in Peru
Marcelo Damas-Niño and Elmer Arellanos-Tafur |
| 162 | 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 |



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PROGRAM
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Day 1 - Online Session - Track 6

Session Chair:

Session Title: **Machine Intelligence and Sensing Technologies for Precision Agriculture and Water Management**

Monday, December 15, 2025 at 15:30 – 17:30 (GMT+1)

MM_Room03

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|-----|---|
| 30 | Hybrid WCA-HS Based Control for Autonomous Quadrotor Navigation in Precision Agriculture
Nesrine Tenniche, Boubekeur Mendil, Farid Ghilas and Lamine Brikh |
| 40 | Advancing Infiltration Modeling with Deep Learning: A Superior Alternative to Empirical Approaches in the Mitidja Plain
Amina Mazighi, Mohamed Meddi and Hind Meddi |
| 91 | Advancing Agricultural Robotics: AI Control Strategies for Delta Robots
Issam Kessira, Ali Chabane, Nawel Ghazi, Khaled Benfriha and Samir Meradi |
| 98 | Early-Season Water Use Patterns in Wheat and Barley under Semi-Arid Conditions: A Lysimetric Approach
Omar Bouziane, Mohamed Meddi and Amina Mazighi |
| 147 | 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 | Integrated Geophysical Approach for Groundwater Prospecting
Doria Kutrubes and Khaled Bounar |



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PROGRAM
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Day 2 – Keynote 1

Speaker: **PROF. HAMID LAGA**

Efficient Deep Learning for 3D/4D Shape Analysis: From Medical Applications to Generative AI

Tuesday, December 16, 2025 at 9:00 – 9:45 (GMT+1)

Day 2 – Coffee Break

Tuesday, December 16, 2025 at 9:45 – 10:15 (GMT+1)

Day 2 – Keynote 2

Speaker: **PROF. FREDE BLAABJERG**

Challenges of Renewable Energy Integration in Clean Energy Systems

Tuesday, December 16, 2025 at 10:15 – 11:00 (GMT+1)



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PROGRAM
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Day 2 - Oral Session 1 - Track 1

Session Chair:

Session Title: **Advanced Photovoltaic Materials and Solar Forecasting**

Tuesday, December 16, 2025 at 11:00 – 12:00 (GMT+1)

MM_Room01

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|-----|--|
| 22 | 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 | 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 | 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 | 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 - Oral Session 1 - Track 2

Session Chair:

Session Title: **Edge AI and Intelligent Monitoring for Energy Systems**

Tuesday, December 16, 2025 at 11:00 – 12:00 (GMT+1)

MM_Room02

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| 26 | 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 | An Embedded AI Model for Defect Detection in Photovoltaic Modules Using a Jetson Nano-Powered Unmanned Aerial Vehicle
Nouamane Kellil, Adel Mellit, Toufik Benkerouf and Maamar Bettayeb |
| 125 | Unbalance fault detection in an IoT-Connected Motor Network Using Artificial Neural Networks
Massine Gana, Zakia Chelli, Rafik Saddaoui, Hakim Achour and Mourad Laghrouche |



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PROGRAM
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Day 2 - Oral Session 1 - Track 3&4

Session Chair:

Session Title: **Data-Driven Modeling and Optimization in Power Systems**

Tuesday, December 16, 2025 at 11:00 – 12:00 (GMT+1)

MM_Room03

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|-----|--|
| 36 | Advanced Polynomial and Gaussian Regression Frameworks for Predictive Modeling of Tangential Discharge Phenomena in High-Voltage Insulation Systems
Nabila Saim |
| 80 | 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 | Formal Concept Analysis for Knowledge Extraction and Optimal Configuration Selection in Photovoltaic Installations
Zina Ait Yakoub, Ali Bechouche and Djaffar Ould Abdeslam |
| 170 | Study of a Hybrid PV/Fuel Cell System Dedicated to an Electric Vehicle Charging Station
Mohamed Lamine Hamida, Damya Lamrache, Sarah Maouche, Hakim Denoun, Arezki Fekik, Dyhia Kais and Zoulikha Tebri |

Day 2 – Lunch Break

Tuesday, December 16, 2025 at 12:00 – 13:00 (GMT+1)

Day 2 – Keynote 3

Speaker: **DR. KAMAL HADIDI**

Innovating Chemical Manufacturing: Low-Temperature Solutions for Energy Efficiency and Emissions Reduction

Tuesday, December 16, 2025 at 13:00 – 13:45 (GMT+1)



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PROGRAM
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Day 2 - Oral Session 2 - Track 1

Session Chair:

Session Title: **Intelligent Control and Fault Diagnosis in Photovoltaic Systems**

Tuesday, December 16, 2025 at 13:45 – 14:45 (GMT+1)

MM_Room01

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|----|--|
| 59 | A Novel Linguistic Hedge-Based Fuzzy Logic Controller for Enhanced MPPT in PV Systems
Chellali Benachaiba |
| 61 | Tuning of a Neutrosophic Fuzzy Controller for DC Motor Using the Novel Qudwa Metaheuristic
Chellali Benachaiba |
| 87 | Experimental Study of Solar Water Pump Control by Arduino
Amina Azizi and Amina Benabda |
| 93 | 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 - Oral Session 2 - Track 2

Session Chair:

Session Title: **Control and Security in Modern Renewable Energy Systems**

Tuesday, December 16, 2025 at 13:45 – 14:45 (GMT+1)

MM_Room02

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



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Day 2 - Oral Session 2 - Track 3&4

Session Chair:

Session Title: **Intelligent Control and Optimization in Renewable Energy Systems**

Tuesday, December 16, 2025 at 13:45 – 14:45 (GMT+1)

MM_Room03

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| 123 | Improving the Performance of a Wind Turbine PID Controller Using GWO Optimization and Fuzzy Logic
Houari Habiba and Noureddine Zerhouni |
| 128 | Stabilizing Photovoltaic Output Using a Controlled Ćuk Converter Topology
Mohamed Kaouane, Nidhal Cherrat and Akkila Boukhelifa |
| 188 | Anomaly Detection in Datacenter Energy Consumption Using an Autoencoder
Karima Oukfif |
| 194 | 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 |



PROGRAM
15-17 December 2025

Day 2 - Poster Session

Session Chair:

Session Title: **Smart Sensing, and Intelligent Control in Energy and IoT Systems**

Tuesday, December 16, 2025 at 14:45 – 15:30 (GMT+1)

MM_Hall

- 38 **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 **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 **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 **Graph-Based Semi-Supervised Learning for Fault Clustering in Grid-connected PV Systems**
Nassim Sabri
- 114 **Detection of Silicone Oil Concentration Using a Two-Dimensional Photonic Crystal Sensor**
Sarra Bendib, Saidani Okba, Abderrahim Yousfi and Nadhir Djeffal
- 120 **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 **Dynamic Performance Evaluation of a Dual-Star Induction Machine Fed by an Indirect Matrix Converter**
Sifoura Mezhoud, Celia Mehanaoui and Ahmed Azib
- 159 **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 **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 **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



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PROGRAM
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Day 2 - Online Session - Track 1

Session Chair:

Session Title: **Innovations and Optimization in Wind, Solar, and Hybrid Renewable Systems**

Tuesday, December 16, 2025 at 15:30 – 17:30 (GMT+1)

MM_Room01

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|-----|--|
| 68 | 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 | Advancements in Solar Energy Systems: Innovations in Photovoltaic (PV) and Floating PV Technologies for Decentralized Energy Production
Mourad Naidji |
| 103 | Current Sensor Fault Diagnosis of Wind Power System Based on DFIG
Chaima Gherari, Farid Berrezek, Hicham Zaimen and Khaled Khelil |
| 106 | Cold plasma-Based Methane Dry Reforming for Hydrogen Production
Abir Azara and Khadidja Khodja |
| 122 | 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 | Renewable Energy Deployment Efficiency: Analyzing Algeria's Achievement Gap and Optimization Strategies
Elmer Arellanos-Tafur and Marcelo Damas-Niño |



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Day 2 - Online Session - Track 2

Session Chair:

Session Title: **Advanced Control and Modeling for Wind and PV Energy Systems**

Tuesday, December 16, 2025 at 15:30 – 17:30 (GMT+1)

MM_Room02

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|-----|---|
| 43 | 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 | 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 | 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 Souadie |
| 117 | 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 | 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 |
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Ministry of Higher Education and Scientific Research
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Embedded Systems, and Renewable Energy

PROGRAM
15-17 December 2025

Day 2 - Online Session - Track 3&4

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