

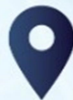
ICEERE'24



4th INTERNATIONAL CONFERENCE ON ELECTRONIC ENGINEERING AND RENEWABLE ENERGY



31 May to
02 June 2024



Hotel Oasis Atlantico
Saidia Palace & Blue Pearl
Saïdia, Morocco



Starting from
08h00



ADRENT
ASSOCIATION POUR LE DÉVELOPPEMENT DE LA RECHERCHE
ET DE LA FORMATION EN NOUVELLES TECHNOLOGIES





**4th International Conference On Electronic Engineering
and Renewable Energy (ICEERE'24)
SAIDIA, MOROCCO
31 May-2 June 2024**



Program and Useful information

31 May-2 June 2024

Hotel Oásis Atlantico Palace & Blue Pearl, Saidia, Morocco

www.iceere.com/iceere24/

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- Y. Douzi, FSO-Oujda, Morocco
- B. HAJJI, ENSA-Oujda, Morocco

WELCOME MESSAGE FROM GENERAL CHAIRS

It will be a great pleasure to welcome you to the fourth edition of the International Conference on Electronic Engineering and Renewable Energy (ICEERE'24) which will be held from May 31 to June 2, 2024 in Saidia city, Morocco.

This 4th edition of the International Conference on Electronic Engineering and Renewable Energy (ICEERE'2024) will be the international forum for presenting new advances and research results in the fields of electronic engineering, Internet of Things, Artificial Intelligence and its applications, communication and renewable energies. This will focus on innovative applications of AI to address critical challenges in agriculture, energy systems, energy materials, energy use and conversion, and other important questions.

ICEERE'24 is intended for academia, including graduate students, experienced researchers and industrial practitioners working in the fields of Electronic Engineering and Renewable Energy. This event includes different kinds of presentations given by researchers and experts from the international community, including keynote speakers, special sessions, posters and tutorials. It covers a wide spectrum of topics as renewable energy, electronics, internet of things, artificial intelligence and its applications, materials and devices applications, image and signal processing and Network and Telecommunications.

The overwhelming success of ICEERE'24 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, technical sponsors and all the participants. We seize this opportunity to address all of our sincere thanks and gratitude.

Last but not least, we wish all the participants in ICEERE'24 a very successful and fruitful conference and a wonderful and enjoyable stay in the wonderful city of Saïdia.

Bekkay Hajji

Mohammed First University
ENSA, Morocco.

Abdelhamid Rabhi

University of Picardy Jules Verne
France

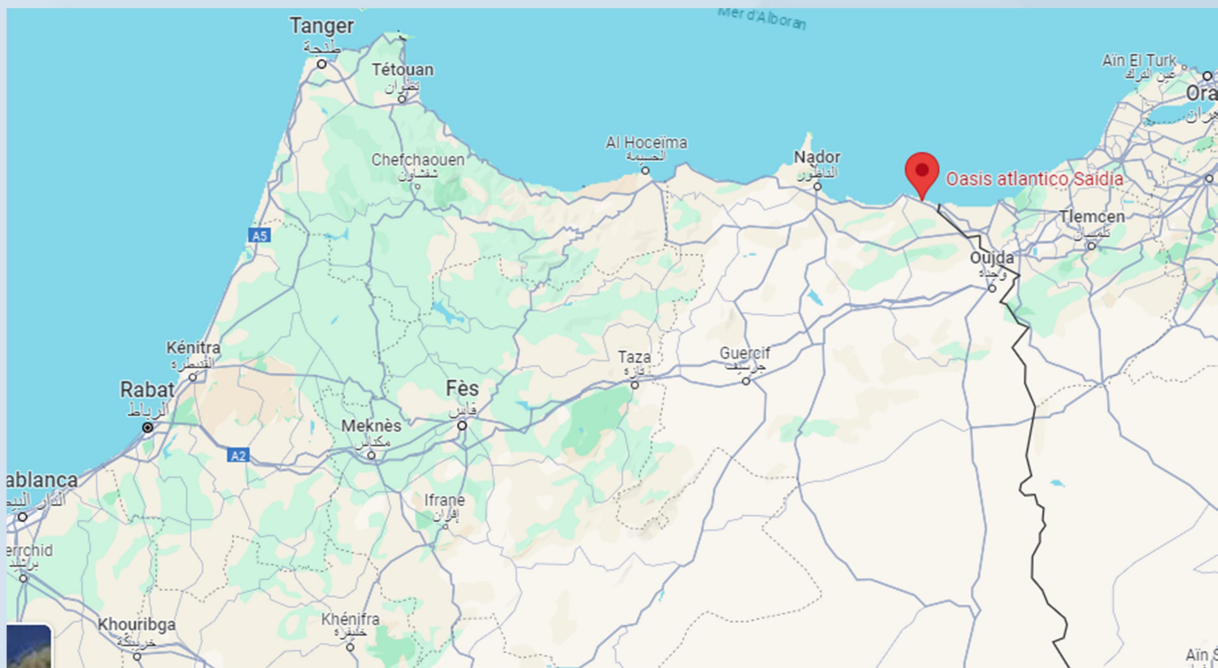
Adel Mellit,

Jijel University, Algeria

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ICEERE'2024 TOPICS

Session I	Solar Energy - Photovoltaic
Session II	Solar Energy –Thermal
Session III	Power Electronics and Control Systems
Session IV	Electronics and Industry 4.0
Session V	Materials and Devices Applications
Session VI	IoT and Machines Learning methods
Session VII	Communication, Networks and Information Technology
Session VIII	AI and IoT in Agriculture

ICEERE '24 ADVANCED PROGRAM OVERVIEW

Friday 31May

8:00 - 9:00

Registration

9:00 - 09:30

Welcome and Opening

09:30 – 10:15

Keynote 1

Prof. Gilles Dequen (University of Picardie Jules Verne, France) : Decision Support for Healthcare

10:15 – 10:45

Coffee Break / Poster

10:45 - 12:45

(Room 1)

Session I-1

10:45 - 12:30

(Room 2)

Session II-2

10:45 - 12:15

(Room 3)

Session VI-1

10:45 – 12:45

(Plenary Room)

Session III-2

12:30 – 14:00

Lunch

14:00 – 14:45

Keynote 2

Prof. Mohamed Ait Alla (Senior ; Google): Transforming Organizations with Machine Learning and Generative AI: Unleashing the Power of Intelligent Automation

14:45– 16:30

(Room 1)

Session I-2

14:45 – 16:30

(Room 2)

Session II-1

14:45 – 16:15

(Room 3)

Session VI-2

14:45 - 16:15

(Plenary Room)

Session VII-1

16:30 – 17:00

Coffee Break

17:00 – 17:45

Keynote 3

Prof. Michele Cali (University of Catania, Italy) : Advanced integrated CAD-CAE design techniques in the field of sustainable renewable

18:00 – 19:30

(Room 1)

Session VIII-1

18:00 – 19:45

(Room 2)

Session V-2

18:00– 19:45

(Room 3)

Session V-3

18:00 - 20:00

(Plenary Room)

Session III-3

Saturday 1 June

8:30 - 9:00

Registration

9:00–9:45

Keynote 4

Dr. Khalid Radouane (Vice-President, EDF, France): Storage: Gamer changer for Renewable Energy?

9:45 – 11:15

(Room 1)

Session IV-1

9:45 – 11:15

(Room 2)

Session V-1

9:45 – 11:30

(Room 3)

Session VII-2

11:15 - 11:45

Coffee Break / **Poster session I**

11:45 – 12:30

Keynote 5

Prof. Hamid Madani CHU Mohamed VI, Morocco) : AI in the Doctor's Office

12:30 – 14:00

Lunch

14:00 – 14:45

Keynote 6

Prof. Luis Martins (University of Minho, Portugal): Perspectives for the energy transition in the building sector

14:45 – 16:30

(Room 1)

Session IV-2

14:45 – 16:15

(Room 2)

Session VIII-2

14:45 - 16:30

(Room 3)

Session III-1

16 :45 – 17 :15

Coffee Break

17:15-17h:45

Closing Ceremony

ICEERE'24 KEYNOTE SPEAKERS



Decision Support for Healthcare.

By Dr. Gilles Dequen

University of Picardie Jules Verne, France



**Transforming Organizations with Machine Learning and
Generative AI: Unleashing the Power of Intelligent
Automation.**

By Dr. Mohamed Ait Alla.

Senior at Google, Paris, France



**Advanced integrated CAD-CAE design
techniques in the field of sustainable renewable.**

By Dr. Michele Calì.

University of Catania, Italy



Storage: Game changer for Renewable Energy?

By Dr. Khalid Radouane

Vice-President, EDF, France



AI in the Doctor's Office

By Dr. Hamid Madani

CHU Mohamed VI, Morocco



**Perspectives for the energy transition in
the building sector**

Dr. Luis Martins

University of Minho, Portugal.

ICEERE'24 PROGRAM

PRESENTATION GUIDELINES

- All presentations are in English.
- Each presentation is fifteen (15) minutes long with five (5) minutes for Q/As.
- Please ensure you arrive 10 minutes before the session begins to upload your PowerPoint presentation. It's essential to start and end your presentation punctually, adhering to the designated time schedule.
- Regarding poster presentations, the posters should be displayed one hour before the beginning of the poster session and any explanation required should be provided to session chairs and visitors.

SESSIONS PROGRAM

	Solar Energy-Photovoltaic (1)
Session I-1 Friday, May 31, 2024 10:45 -12:45	Chairs : Luís Martins, University of Minho, Guimarães, Portugal Abdelhafid Messaoudi, Mohamed First University, Morocco Mostafa El Ouariachi, Mohamed First University, Morocco
10:45 -11:00	Development of a Micro-Grid Physical Model (ID: 9). <i>Danny Khoury, Bechara Nehme, Nacer K M'Sirdi, Aziz Naamane, Fabrice Aubepart, and Tilda Akiki</i>
11:00 -11:15	Parameters Extraction of Photovoltaic Cell Using Particle Swarm Optimization (ID: 11). <i>Charaf Chermite , Moulay Rachid Douiri and Oumaymah Elamri</i>
11:15 -11:30	Hybrid Data Ecosystem: A Unified Framework for Affordable Sensors, free tools Integration and Real-time Display for PV Cost-Effective Data Management (ID :14). <i>Karom Mohamed, Yahyaoui Meryem, Chaieb El Bekkaye, Chadli Hajar, Chadli Sara, Salmi Khalid, Derkaoui Abdechafik, and Tahani Abdelouahad</i>
11:30-11:45	Unveiling the potential and viability of offshore wind energy along Morocco's mediterranean coast using robust statistical analysis (ID: 16). <i>Badr El Kihel, Nacer Eddine El Kadri Elyamani, Abdelhakim Chillali and Hicham Slimani</i>

11:45-12:00	A DFT Study of Structural, Electronic, and Optical Properties of Cubic and Monoclinic KGeCl₃ Perovskite Material for Photovoltaic Applications (ID: 21). <i>Hamza Bochaoui and Mohamed El Bouabdellati</i>
12:00-12:15	Solar Dish Stirling technology to decrease the Grid- electricity dependence for rural communities: case study of Eastern Morocco (ID: 68). <i>Choukri Nour Elhouda, Azzaoui Abdellatif, Samir Touili, Abdel-illah Amrani, Ahmed Alami Merrouni</i>
12:15-12:30	Modelling the envelope change effects in a small building using Energy Plus® (ID: 81). <i>Pedro Gonçalves, Ana Marta Carneiro Ana C. Ferreira, Senhorinha Teixeira and Luís B. Martins</i>
12:30-12:45	Hydrogen Energy Revolution: An Innovative Electrolysis-Based Centrifugal Compressor (ID: 104). <i>Giuseppe Laudani, Giuliana Baiamonte, Gianfranco Di Martino, Fabio Matera and Michele Calì</i>

Session I-2 Friday, May 31, 2024 14:45 -16:30	Solar Energy-Photovoltaic (2)
	Chairs : Senhorinha Fátima, University of Minho, Guimarães, Portugal Loubna Bouselham, Mohamed First University, Morocco Samir Amraoui, Mohamed First University, Morocco
	Improving Power Consumption Efficiency and Cost Reduction Using Firefly Algorithm in Smart Home: A Multi-Scenario Analysis (ID: 120). <i>Mohammed Dhriyyef, Abdelmalek El Mehdi, Mohammed Benzaouia, Sara Hebal</i>
	Green roofs in the urban environment: a review of sustainable system and biodegradable materials (ID: 130). <i>Giuliana Baiamonte, Giuseppe Laudani, Gianfranco Di Martino and Michele Cali</i>
	Methodology to prototype a small wind turbine emulator (ID: 137). <i>Pablo Colorado Posadas, Antonio de Jesus García Toribio, David Lara Alabazares , Eddy Sánchez-DelaCruz, Jesús Namigtle Jiménez and Irahan Jose</i>
	A comparative evaluation of the efficiency of CTS and CTSe solar cells with a p+-CTS as back surface field (ID: 140). <i>Elarbi Laghchim, Abderrahim Raidou , Atika Fahmi , Mounir Fahoume</i>
	Forecasting of electricity load in Morocco towards 2030 with time series decomposition (ID: 154). <i>M. El Fahssi, T. Ouchbel, S. Zouggar, M. Larbi Elhafyani</i>
	Dynamic Reconfigurable Photovoltaic Array architectures A review (ID: 163). <i>Loubna Bouselham, Bekkay Hajji, Abdelhamid Rabhi, Adel Mellit and Mohammed Benhaddou</i>
	Agent-Based Modeling of Residential Peer-to-Peer Energy Trading: A Simulation Framework for Evaluating Energy Distribution Strategies (ID: 165). <i>Fadoua Aissaoui, El Mehdi Abdelmalek, and Abdelkader Bouazza</i>

Session II-1 Friday, May 31, 2024 14:45 -16:30	Solar Energy–Thermal (1)
	Chairs : Stefano Aneli, Catania University, Italy Ahmed Alami Merrouni, FSO, Mohamed First University, Morocco Elmiloud Chaabelasri, FSO, Mohamed First University, Morocco
	Fuzzy Petri Nets for Real-Time Cleaning Decisions in Solar Collectors (ID: 10) <i>Serji Abdelilah, Mermri El Bekkaye and Blej Mohammed</i>
	Numerical Study of Heat Transfer Phenomenon for Thermal Management along the Heat Exchanger (ID: 35) <i>Omar Ghoulam, Majdoulina Alla, Yassine Rharrabi, Kamal Amghar, Ismael Driouch , Hicham Bouali</i>
	Recovery of Thermal Energy from Phosphogypsum (PG) Desulfurization by the Rankine Cycle (RC) (ID:36). <i>Majdoulina ALLA, Kamal Amghar, Ilham Lahlal, Hind Talbi, Yassine Rharrabi, Omar Ghoulam</i>
	Design and Performance Analysis of a Photovoltaic-Thermal Hybrid Collector (ID: 39) <i>Yassine Rharrabi, Omar Ghoulam , Majdoulina Alla , Kamal Amghar, Hicham Bouali and Ismael Driouch</i>
	CFD simulation of the smoke control process in an underground parking lot – the impact of fire location (ID: 61) <i>Ana Carneiro, Ana C. Ferreira, João Silva, Nelson Rodrigues, Pedro Lobarinhas and Senhorinha Teixeira</i>
	Enhancement of natural convection heat transfer in energy storage systems: Utilization in a cavity including an adiabatic obstacle (ID: 64) <i>Ilham Lahlal, Hind Talbi, Majdoulina Alla , Kamal Amghar, Salah Daoudi</i>
	Comparative Study of Heat Transfer Enhancement of Al ₂ O ₃ -CuO/Water hybrid Nanofluids of Different Channel Geometries (ID: 65) <i>Fatima Zahra Barhdadi, Ikrame Jamal, Kamal Amghar, Salah Daoudi, Kamal Ghoumid, Dris Bahia</i>

Session II-2 Friday, May 31, 2024 10 :45 -12 :30	Solar Energy–Thermal (2)
	Chairs : Michele Cali, Catania University, Italy Daoudi Salah, Mohamed First University, Morocco Chaimae El Fouas, Mohamed First University, Morocco
10 :45 -11 :00	Optimizing Channel Thermal Performance by Adjusting Baffle Distance: A Numerical Study (ID: 66). <i>Ikrame Jamal, Fatima Zahra Barhdadi, Kamal Amghar, Salah Daoudi1, Kamal Ghoumid, Dris Bahia</i>
11 :00 -11 :15	Numerical Modeling of a Serpentine Tube Photovoltaic/Thermal Collector (ID: 85). <i>Oussama El Manssouri, João Silva, Hajji Bekkay, José Teixeira and Senhorinha Teixeira</i>
11 :15 -11 :30	Water circulation in the Nador lagoon by semi-implicit finite volume scheme (ID: 86). <i>Ouafae Boulterhcha, Mohamed Frihessane, Salah Daoudi, and Imad Elmahi</i>
11 :30 -11 :45	Performance Investigation of a Water-Based Photovoltaic Collector System: Velocity and PV Temperature Impact (ID: 143). <i>Oussama El Manssouri, Omayma M. Abdulmajeed, Hajji Bekkay, João Silva, Hajji Mohammed, José Teixeira and Senhorinha Teixeira</i>
11 :45 -12 :00	Impact of heat exchanger materials on the performance of solar hybrid photovoltaic thermal (PVT) systems: 3D analysis (ID: 147). <i>Yassine El Alami, Hicham Dahmani, Fatima Ouerradi, Bouchaib Zohal, Rachid Bendaoud, Elhadi Baghaz</i>
12 :00 -12 :15	Thermal behavior assessment of an electric and a solar dryer (ID: 170). <i>Mourad Salhi, Dounia Chaatouf, Abir Bria, Benyounes Raillani Samir Amraqui and Ahmed Mezrhab</i>
12 :15 -12 :30	Energy and exergy analysis of photovoltaic systems with self-cleaning coatings: a case study in a semi-arid climate (ID: 176). <i>Mounia Guetbach, Fatiha Abbi, Said Elhamaoui, Alae Azouzoute, Mohammed Benhaddou, Abdellatif Ghennioui and Salah Daoudi</i>

Session III-1 Saturday, June 1, 2024 14 :45 -16:30	Power Electronics and Control System (1)
	Chairs : Jamal Bouchnaif, Mohamed First University, Morocco Anas Benslimane, Mohamed First University, Morocco Aziz Abdelhak, EST, Mohamed First University, Morocco
14:45-15 :00	I Impact of Statcom on Inverse Time Overcurrent Relays (IDMT) (ID: 4). <i>Youssef El mir, Anas Benslimane, Jamal Bouchnaif, Mir Ismail , Mimoun Yandouzi</i>
15 :00 -15 :15	Integral Sliding Mode MPPT Control of a Direct-Drive Vernier DSPM generator in Wind Energy Conversion System (ID: 5). <i>Abderrahmane Redouane1, Rachid Saou1, Amrane Oukaour</i>
15 :15 -15 :30	Quality of electrical energy:Decoupling of the power grid due to voltage dip (ID: 20). <i>Abdelkader Mir, Abdechafik Derkaoui , Hajar Chadli</i>
15 :30 -15 :45	Hybrid system based on a permanent magnet synchronous generator used to power a water pumping system (ID: 30). <i>Tarik El Allaoui, Smail Zouggar, Lahcen Amri, Mohamed Elhafyani and Taoufik Ouchbel</i>
15 :45 -16 :00	Study and simulation of the transient thermal behavior of a rim-driven motor with submerged air gap for the purpose of geometry optimizationri (ID: 50). <i>Lahcen Amri, Abdelhamid Senhaji , Smail Zouggar, Jean-Frederic Charpentier, Mohamed Kebdani, Mohamed Larbi El Hafyani and Tarik El Allaouin</i>
16 :00 -16 :15	Real-Time Power Management Strategy of Parameters Identification and SOC estimation with RLS and SMO based on Electro-Thermal Equivalent Circuit battery Model (ID: 149). <i>Houda Bouchareb, Khadija Saqli, Nacer-Kouider M'sirdi, and Mohammed Oudghiri Bentaie</i>
16 :15 -16 :30	Comparative Study of Current Control Strategies to Improve Dynamic Performance of Fuel Cell-Based DC-DC Boost Converters in Hybrid Fuel Cell-Battery Systems (ID: 174). <i>M. Essoufi, M. Benzaouia, B. Hajji, and A. Rabhi</i>

Session III-2 Friday, May 31, 2024 10 :45 -12 :45	Power Electronics and Control System (2)
	Chairs : Nacer Msirdi, Aix Marseille Université, Marseille, France Samail Zoggar, EST, Mohamed First University, Morocco Mohammed Barboucha, EHEIO, Mohamed First University, Morocco
10 :45 -11 :00	Enhancing Power Quality in Grid-Connected PV Systems: Investigating the Influence of Solar Irradiance on Harmonic Mitigation and Control Techniques Using Hysteresis and PI Controllers (ID: 63). <i>Mohamed Oukili, Mustapha Melhaoui, Mohammed Chennani, Taoufik Ouchbel</i>
11 :00 -11 :15	Performance Evaluation of Three Controllers for PMSM: FOC with PI, FOC with Fuzzy-PI, Backstepping (ID: 77). <i>Miraoui Meriam, El Hafyani Mohamed Larbi and Zerdani Sara</i>
11 :15 -11 :30	Design and Control of a Wind Turbine Emulator Utilizing a DC-Motor (ID: 97). <i>H. Zekraoui, T. Ouchbel, S. Benzaouia, M. El Hafyani, S. Zouggar, H. Zahboun</i>
11 :30 -11 :45	Adaptive backstepping control for PMSM (ID: 98). <i>Abdelhamid Senhaji , Lahcen Amri, Abderrahman Ouanaabi and Jamal Bouchnaif</i>
11 :45 -12 :00	Assessment of Linear and Nonlinear Control techniques for variable Speed Wind Turbine Systems (ID: 101). <i>Ahmed Omar Elgharib, Soufyane Benzaouia, Abdelhamid Rabhi, Mona Fouad Moussa, Mohammed Benzaouia, and Aziz Naamane</i>
12 :00 -12 :15	Optimizing Photovoltaic Systems: Efficient Hydrogen Production and Grid Integration through PWM Control and PLL Synchronization (ID: 131). <i>S. Yahyaoui, J. Blaacha , S. Dahbi, A. Aziz</i>
12 :15 -12 :30	Control and Performance Assessment of Fuel Cell/Supercapacitor Hybrid Systems (ID: 141). <i>S. Benzaouia, A. Rabhi, K. Sidi Brahim , M. Benzaouia, A.O Elgharib</i>
12 :30 -12 :45	Frequency Splitting-Based High Order Sliding Mode Control Strategy for Electric Vehicle (ID: 172). <i>Mohammed Benzaouia, Mohammed Essoufi, Bekkay Hajji, Abdelhamid Rabhi</i>

Session III-3 Friday, May 31, 2024 18 :00 -20:00	Power Electronics and Control System (3)
	Chairs : David Lara Alabazares, TECNM-Instituto Tecnológico Superior de Misantla, Mexico Mohamed Larbi El Hafyani, Mohamed First University, Morocco Abdelmalek El Mehdi , Mohamed First University, Morocco
18:00-18:15	Accuracy and Computational Cost of the Hammerstein-Wiener Neural Network Structure Applied to the Nonlinear Systems Identification (ID: 133). <i>Jesus Namigtle Jim'enez, David Lara Alabazares, Victor Manuel Alvarado, Eddy Sanchez-DelaCruz, Irahán Otoniel Jose Guzman, and Pablo Colorado Posadas</i>
18 :15 -18 :30	Design of a Hardware-In-the-Loop simulation system for synchronous buck converter (ID: 136). <i>Mohammed Bachiri, Driss Yousfi, Mohammed Chaker, Meryam Elouali , Andronic Boanarijesy</i>
18 :30 -18 :45	Exploring Different Snubber Circuit Solutions for Enhancing PSFB Converter Performance and Reliability (ID: 145). <i>Amine El Houre, Driss Yousfi and Mohammed Chaker</i>
18 :45 -19 :00	Design, modeling and simulating a 10-bus grid-tied micro-grid system (ID: 159). <i>Hamza Squendissy , Wiam Ayrir and Hassan EL Fadil</i>
19 :00 -19 :15	Parameter Optimization of bidirectional LLC resonant converter tank (ID: 74). <i>El Hmidi Jawhara , Mansouri Anass and Ahaitouf Ali</i>
19 :15 -19 :30	Efficient Energy Management in DC Microgrids using Fuzzy Logic Approach (ID: 139). <i>Ayoub Rahmouni, Driss Yousfi, Mohammed Bachiri, Mohamed Bakhouya, Ab-delilah Rochd</i>
19 :30 -19 :45	Study and analysis of the influence of current unbalance on technical losses in low-voltage distribution systems (ID: 171). <i>Ismail Mir, Anas Benslimane, Yassine Ayat, Jamal Bouchnaif and Abdelaziz El aouni</i>
19 :45 -20 :00	Hybrid Energy Storage System Configurations Analysis & Improved Control Strategy (ID: 173). <i>Mohammed Benzaouia, Hajji Bekkay, Soufyane Benzaouia, Abdelhamid Rabhi</i>
20 :00 -20 :15	Sizing of an impulse voltage test generator for distribution and power transformers up to 10 MVA, class 69 kV and up to 3 000 masl, submerged in dielectric oil (ID: 148). <i>Renato Almache, Carlos Ivan Quinatoa Caiza, Adriana Tapia,</i>

Session IV-1 Saturday, June 1, 2024 9:45-11:15	Electronics and Industry 4.0 (1)
	Chairs : Jerome Launay, LAAS-CNRS, Toulouse, France Youssef Reggad, ENSA, Mohamed First University, Morocco Jamal Youssfi, Mohamed First University, Morocco
9:45 -10:00	Photoneutrons spatial distribution around medical line-ar accelerator due to high energy photon beam: Even-tual risk associated (ID: 19) <i>Ibrahim Ait Ouaggou, Dikra Bakari, Abdeslem Rrhious, Zerfaoui Mustapha, Oulhouq Yassine, Rezzoug Mohammed, Hassan Ouhadda</i>
10:00 -10:15	Integrating Digital Twins into Manufacturing Execution Systems (MES) Case study on wastewater filtration pilot (ID: 22) <i>Embarki Soufiane and EL Kihel Yousra</i>
10:15 -10:30	Harmonizing Human-Centric Collaborative Hybrid Intelligence: A Deep Dive into the Transition from Industry 4.0 to Industry 5.0 (ID: 25) <i>Ali El Kihel and Soufiane Embarki</i>
10:30 -10:45	Design of a dust cleaning prototype for photovoltaic generators (ID: 27). <i>M. Latreche, B. Medjahed, A. Mellit, A. Rabhi and B. Hajji</i>
10:45 -11:00	Radiative effects of aerosols in North subtropical area (ID: 51) <i>Ouassila Salhi, Mohammed Diouri and Mohammed Amine Moussaoui</i>
11:00 -11:15	Low cost LDR based position sensor design for PVTOL experimental platform (ID: 87). <i>Jair Galicia Santiago, Eduardo Tzitzihua Garcia Anai Camacho Luna, David Lara Alabazares, Mario Perez Acosta, and Saul Reyes Barajas</i>

Session IV-2 Saturday, June 1, 2024 14:45 – 16:30	Electronics and Industry 4.0 (2)
	Chairs : Kamal Kassmi, EST, Mohamed First University, Morocco Rachid Aboutni, EST, Mohamed First University, Morocco Driss Bahia, Mohamed First University, Morocco
14:45-15:00	A Maturity Model for Maintenance 4.0: An Empirical Analysis and a Roadmap for Digital Transformation with an Industrial Case Study (ID: 88) <i>Bouyahrouzi El Mahdi, El Kihel Ali and El Kihel Bachir</i>
15:00 -15:15	Genetic algorithm-based parameter extraction for optimized modeling of SiNW-MOSFET transistors and SiNW-ISFET sensor (ID: 95). <i>Nabil Ayadi, Ahmet Lale, Bekkay Hajji, Jerome Launay, Pierre Temple-Boyer and Jérôme Bosche</i>
15:15 -15:30	Advancing Radiotherapy Quality Assurance: A Comparative Analysis of a Novel MATLAB-Based Gamma Index Program and Established MyQA Software (ID: 106). <i>Omar Hamzaoui, Yassine Oulhouq, Dikra Bakari, Mustapha Zerfaoui , Abdessamad Didi and Abdeslem Rrhious</i>
15:30 -15:45	An improved DVHOP based on Fmincon solver in a WSN (ID: 146). <i>Omar Arroub , Anouar Darif , Rachid Saadane , Zineb Aarab, My Driss Rahmani</i>
15:45 -16:00	Investigation of the gain reconfigurability of a metallic dipole antenna with metallic and plasma reflector (ID: 57). <i>Ayoub El Jaouhari, Abdelhak Missaoui, Majid Rochdi, Morad El Kaouini</i>
16:00 -16:15	In dosimetry, estimation and characterization of the exposition of material object in term of electric field (ID: 164). <i>Khalid El Yousfi, Bachir Elmagroud, Chakib Taybi and Abdelhak Ziyyat</i>
16:15 -16:30	Sensor Fusion using LiDAR and Visual Sensor for SLAM Indoor Navigation (ID: 175). <i>Hind Messbah, Mohamed Emharraf, Mohamed Saber , Hanae Al Kaddouri</i>

Session V-1 Saturday, June 1, 2024 9:45 -11 :15	Materials and Devices Applications (1)
	Chairs : Abdelkarim Nougauoui, Mohamed First University, Morocco Abdelhamid KERKOUR-EL MIAD, Mohamed First University, Morocco Hicham Bouali, Mohamed First University, Morocco
	Investigation of magnetized plasma sheath in the presence of non-extensive electrons and ionization source (ID: 7). <i>Oussama Jdaini, Abdelhak Missaoui, Mohamed El Bojaddaini , Morad El Kaouini and Hassan Chatei</i>
	Study of Geometric Defects in a 1D Acoustic Band Gap Structure Formed by the Combination of Closed and Opened Resonators (ID: 8). <i>I. Antraoui and A. Khettabi</i>
	Examination of Variables Affecting Electron Dose Calculation in Eclipse eMC (ID: 17). <i>Rezzoug Mohammed, Zerfaoui Mustapha, Oulhouq Yassine, Rhiaoua Abdeslem, Ibrahim Ait Ouaggou, Hassan Ouhadda</i>
	Thermoelectric Properties of the Tetragonal Iron Antimonide FeSb ₂ as an Electrode Material for Li-ion Batteries (ID: 29). <i>Malki Siham, El Farh Larbi, Guesmi Ibtissam, Darhi Zakariae, Mounaim Bencheikh and Challioui Allal</i>
	Two types of bound states in the continuum in photonic comb structure (ID: 54). <i>Yamina Rezzouk, Soufyane Khattou, Mohamed El Ghafiani, Madiha Amrani, El Houssaine El Boudouti, Abdelkrim Talbi, Bahram Djafari-Rouhani</i>
	I-shaped amplitude divider based on 1D photonic system (ID: 55). <i>Fatima-Zahra Berahioui, Ilham El-Atmani, Younes Errouas, Abdelaziz Ouariach, Farid Falyouni and Driss Bria</i>

Session V-2 Friday, May 31, 2024 18:00 -19 :45	Materials and Devices Applications (2)
	Chairs : Aziz El Moussaouy, Mohamed First University, Morocco Farid Falyouni, Mohamed First University, Morocco Mohamed Hajji, Mohamed First University, Morocco
18:00 -18:15	Pressure-induced Electronic and Structural Properties in 1T-ZrS ₂ using Quantum ESPRESSO Code (ID: 59). <i>Ibtissam Guesmi, Siham Malki, Zakariae Darhi, Mounaim Bencheikh, Allal Challioui and Larbi El Farh</i>
18:15 -18:30	Electronic Localized States in GaAs/GaAlAs Coupled Multi-Quantum Wells structure with a block of defects (ID: 109). <i>Fatima Zahra Elamri, Abdelkader Baidri, Siham Machichi, Abdelouahid Ezzarfi, Farid Falyouni, and Driss Bria</i>
18:30 -18:45	Investigation of the Effect of the Nitrogen on the band offset and the intersubband absorption coefficient of the GaN _x As _{1-x-y} Sb _y /GaSb quantum well structures (ID: 82). <i>L. Chenini, S. Ammi, A. Aissat, JP. Vilecot</i>
18:45 -19:00	Determination of the structural and optoelectronic properties of the tetragonal monochalcogenide TlS using Wien2k software (ID: 83) <i>Mounaim Bencheikh, Larbi El Farh, Ibtissam Guesmi, Zakariae Darhi, Siham Malki, and Allal Challioui</i>
19:00 -19:15	Effect of Geo-material Parameters on the Quality Factor of Proper Electronic States in a Symmetric Tapered Lamellar Structure with Increasing-Decreasing Profile (ID: 116). <i>Youssef Ziach, Abdelkader Baidri, Fatima Zahra Elamri, Farid Falyouni , Faouaz Jeffali and Driss Bria</i>
19:15 -19:30	Influence of Hydrostatic Pressure on the Optical properties of Excitons in a Core/Shells Cylindrical Quantum Dot (ID: 117). <i>Mohammed Hbib, Omar Mommadi, Abdelaaziz El Moussaouy, Carlos Alberto Duque and Farid Falyouni</i>
19:30 -19:45	Thermodynamic properties of the hemispherical quantum dot in the presence of the donor impurity (ID: 142). <i>Soufiane Chouef , Omar Mommadi, Abdelaziz El Moussaouy, Farid Falyouni, Carlos Alberto Duque</i>

Session V-3 Friday, May 31, 2024 18:00 -19 :45	Materials and Devices Applications (3)
	Chairs : El Houssaine El Boudouti, Mohamed First University, Morocco Aissat Abdelkader, University of Blida, Algeria Madiha Amrani, Mohamed First University, Morocco
18:00 -18:15	Electron transport in a thickness-symmetric quantum well ZnO/ Zn1-XMgxO under the effect of a constant external electric field (ID: 107). <i>Abdelkader Baidri, Fatima Zahra Elamri, Abdelouahid Ezzarfi, Farid Falyouni, and Driss Bria</i>
18:15 -18:30	Optoelectronic Characterization of Exciton in Multilayered Quantum Dots for Light-Emitting Devices Applications: Incorporating Polaronic Contribution (ID: 108). <i>Omar Mommadi, Abdelaziz El Moussaouy, and Carlos Alberto Duque</i>
18:30 -18:45	Topological Interface States in a One-Dimensional Mesoscopic Crystal using Su-Schrieffer-Heeger Model (ID: 62). <i>Noura Ezzahni, Mohammed Elaouni, Soufyane Khattou, Madiha Amrani, Mohamed El Ghafiani, Yamina Rezzouk, El Houssaine El Boudouti, and Bahram Djafari-Rouhani</i>
18:45 -19:00	Impact of Quantum Confinement and Defective Quantum Wire Parameters on the Creation of Electronic States in Periodic GaAs/AlGaAs Cylindrical Quantum Wire Structure (ID: 110). <i>S. Machichi, MR Qasem, T. Touiss, FZ. elamri, F. Falyouni, and D. Bria</i>
19:00 -19:15	Influence of Electric Fields and Donor Impurity on the Electronic Properties of Quantum Rings: A Finite Difference Approach (ID: 111). <i>Reda Boussetta, Omar Mommadi, Abdelaaziz El Moussaouy, Carlos Alberto Du-que and Abdelhamid Kerkour El Miad</i>
19:15 -19:30	Y-Shaped Electromagnetic Switch Using Waveguides and a Resonator (ID: 112). <i>ImaneChaker , Younes Errouas , Ilham El-atmani , Amina Ghadban , Driss Bria , and Khalid Laabidi</i>
19:30 -19:45	New THz Notch Filter Based on Cylindrical Periodic Structure (ID: 114). <i>T. Touiss, M. R. Qasem, S. Machichi, F. Falyouni, and D. Bria</i>

Session VI-1 Friday, May 31, 2024 10:45 -12:15	Machines learning and Deep Learning methods (1)
	Chairs : Adel Mellit, Jijel University, Algeria Mohammed CHOUKRI, CHU Mohammed VI d'Oujda, Morocco Hamid Madani, CHU Mohammed VI d'Oujda, Morocco
10:45 -11:00	TinyML model for solar cell defect classification based on electroluminescence images (ID: 26). <i>S. Boubaker, C. Moussaoui, A. Mellit, and M. Benghanem</i>
11:00 -11:15	Predictive Modeling of Photovoltaic Thermal Systems: A Random Forest Regressor Approach for Enhanced Energy Output (ID: 46). <i>Margoum Safae, Hajji Bekkay, Stefano Aneli, Antonio Gagliano, Giovanni Mannino, Giuseppe M. Tina</i>
11:15 -11:30	Multilayer perception network optimization for the prediction of Totally Implanted Venous Access Port Systems infections (ID: 48). <i>H.El oualy, B.Hajji, M.Omari, K.Mokhtari, H.Madani</i>
11:30 -11:45	Analysis and Prediction of Green Hydrogen Production Potential Using Deep Learning in Tan-Tan (ID: 53). <i>Mohamed Yassine Rhafes , Omar Moussaoui , Maria Simona Raboaca and Abdelkader Betari</i>
11:45 -12:00	Exploring Topological States in Mesoscopic Crystal via Theoretical Approach and Deep Learning (ID: 56). <i>Mohammed Elaouni, Soufyane Khattou, Mohamed El Ghafiani, Noura Ezzahni, Yamina Rezzouk, Madiha Amrani, Fatiha Ouchni, El Houssaine El Boudouti</i>
12:00 -12:15	Comparative Analysis of Machine Learning Models for Predicting CdTe PV Module Performance in Semi-Arid Climate (ID: 58). <i>Maryam Mehdi, Nabil Ammari, Ahmed Alami Merrouni, Abdelhamid Rabhi, Mohamed Dahmani</i>

Session VI-2 Friday, May 31, 2024 14:45 -16:15	IoT and Machines learning methods (2)
	Chairs : Amine Koulali, Mohamed First University, Morocco Naimi Salah Eddine, Mohamed First University, Morocco Moussaoui Omar, EST, Mohamed First University, Morocco
14:45 -15:00	Forecasting and diagnostic of a Photovoltaic Thermal (PVT) system via an AI-based method (ID: 84). <i>Stefano Aneli, Giuseppe M. Tina, Bekkay Hajji, Safae Morgoum, Antonio Gagliano</i>
15:00 -15:15	Data-Driven Home Energy Management Optimization Using Reinforcement Learning (ID: 125). <i>Abdelaziz El aouni, Salah eddine Naimi, Yassine Ayat and Ismail Mir</i>
15:15 -15:30	Optimization model for coordinated multistage planning of the generation-transmission system with demand forecasting using neural networks (ID: 105) <i>Carlos Quinatoa, Alex Chasi, Vicky Puetate, Alexander Casilimas, Luis Camacho, Josue Ortiz</i>
15:30 -15:45	Forecasting Energy Demand in the Building Sector up to 2050: A Genetic Algorithm Approach (ID: 128). <i>Aboubekr Allam, Mouad Karmoun, Hassan Zahboune, Mohamed Maaouane, Smail Zouggar, Mohamed Elhafyani and Taoufik Ouchbel</i>
15:45 -16:00	Impact of the integration of electric cars on energy demand in Morocco (2017-2050): A Predicting Approach using Artificial Intelligence algorithms (ID: 129). <i>Mouad Karmoun, Aboubekr Allam, Smail Zouggar, Mohamed Maaouane, Hassan Zahboune, Mohamed Elhafyani and Taoufik Ouchbel</i>
16:00 -16:15	The Impact of IoT and Machine Learning on Water Quality: An Overview. (ID: 158). <i>Zrouri Amira and El Farissi Ilhame</i>

Session VII-1 Friday, May 31, 2024 14:45 -16:15	Communication, Networks and Information technology (1)
	Chairs : Cyril Drocourt, Université de Picardie Jules Verne, France Mostafa Azizi, Mohamed First University, Morocco Mohammed Ghaouth Belkasmi, Mohamed First University, Morocco
14:45 -15:00	Data Augmentation for Amazigh Speech Recognition Using Filter Banks (ID: 42). <i>Hossam Boulal, Mohamed Hamidi, Jamal Barkani, and Mustapha Abarkan</i>
15:00 -15:15	Spectrum Sensing for Cognitive Radio-based Internet of Things (CR-IoT) Systems: A Bibliometric Analysis (ID: 45). <i>Khadija Lahrouni, Hayat Semlali, Asmaa Maali, Abdelilah Ghammaz, Guillaume Andrieux and Jean- François Diouris</i>
15:15 -15:30	QoS in OneM2M: Performance evaluation and analysis (ID: 60). <i>ET-Tousy Jamal , Zyane Abdellah</i>
15:30 -15:45	MIoT-Driven Comparison of Open Blockchain Platforms (ID: 72). Abdou-Essamad Jabri, Mostafa Azizi, Cyril Drocourt, and Gil
15:45 -16:00	Quantification of the Human Body Effects on Electromagnetic Field Probe at Cellular Mobile Network Frequencies (ID: 75). <i>Meryem Bekkouch, Chakib Taybi, Mohammed Anisse Moutaouekkil, Elbekkaye Chaieb, Aboulkacem Karkri, and Bachir Elmagroud</i>
16:00 -16:15	Assessing Energy Consumptionfor Hashing techniques (ID: 90). <i>Ayyoub El Outmani , El Miloud Jaara and Mostafa Azizi</i>

Session VII-2 Saturday, June 1, 2024 9:45 -11:30	Communication, Networks and Information technology (2)
	Chairs : Abdellah Zyane, ENSA, Université Cadi Ayyad Marakech, Morocco Abderrahim Mbarki, ENSA, Mohamed First University, Morocco Gil Utard, Université de Picardie Jules Verne, France
9:45 -10:00	Systematic Mapping Study of planning and managing deadlines in case of global software development (ID: 94). <i>Souidi Sara, Mohammed Ghaouth Belkasmi and Mohammed Saber</i>
10:00 -10:15	IoT Security: A comprehensive review of architecture, vulnerabilities, datasets and Intrusion Detection System (ID: 121). <i>Hayat Mahjoubi and Karima Aissaoui</i>
10:15 -10:30	Utilizing Numerical Approaches and Fixed Point Theory for Resolution of Integral Equations (ID: 123). <i>A. Mbarki, M. Elberkani , and R. Naciri</i>
10:30 -10:45	Cross-Sectional Study and Mobile Application Development: Enhancing Medical Care through Technology (ID: 151). <i>Khadija Mokhtari, Hanane EL Oualy, Bekkay Hajji, Amina Zaim and Madani Hamid</i>
10:45 -11:00	Multi-Level Sequential Data Augmentation Approach For Assessing Vision Models Performance In Agrarian Domain (ID: 153). <i>Yassine Zarrouk, Mohammed Bourhaleb, Mohammed Rahmoune, Khalid Hachami, and Mimoun Yandouzi</i>
11:00 – 11:15	From Natural Language to Code Generation in a Specific Domain of Application: A Systematic Map (ID: 161). <i>Mohammed Imahrain and El Farissi Ilham</i>
11:15 – 11:30	Evaluation of Whisper Base and Large Models on Moroccan Dialect Machine Transcription (ID: 177). <i>Yassine EL KANEB and Mohcine Kodad</i>

Session VIII -1 Friday, May 31, 2024 18:00 - 19:30	Session IV: AI and IoT in Agriculture (1)
	Chairs : Houcine Chafouk ESIGELEC, University of Rouen Normandy, France Jamal Ezzahar, Université Cadi Ayyad Marakech, Morocco Yamina Khlifi, Mohamed First University, Morocco
18:00 - 18:15	Sentinel-1 backscatter and interferometric coherence for retrieving soil moisture over winter wheat in semi-arid areas using neural networks algorithms (ID: 18). <i>Jamal Ezzahar, Abdelghani Chehbouni, Nadia Ouaadi, Mohammed Madiafi, Said Khabba, Salah Er-Raki, Ahmed Laamrani, Zohra Lili Chabaane, Adnane Chakir, and Mehrez Zribi</i>
18:15 - 18:30	Assessment of Agrivoltaic Systems for Solar Energy Production: A Case Study in the Berkane Region, Eastern Morocco (ID: 33). <i>Fatiha Abbi, Mounia Guetbach, Alae Azouzoute, Mohammed Benhaddou, Farid Mansouri, Abdellatif Ghennioui, and Salah Daoudi</i>
18:30 - 18:45	Estimation of Root Orientation Using a Convolutional Neural Network Model (ID: 43). <i>Mohammed Kahlaoui, Aboulkacem Karkri, Mohammed Anisse Moutaouekkil, and Chakib Taybi</i>
18:45 - 19:00	Effects of Irrigation Shortage on Leaf Photosynthesis, Plant Growth and Yield of Lettuce Grown under the Semi-arid conditions of the Northeast of Morocco (ID: 96). <i>Mounia Skiker, Walid El Aissaoui, Rachid Lahlali, Mohamed Hassani Zerrouk, Amine Assouguem, Dina Maachi, Ouassila Riouchi, Mariam Oussellam, Malika Ouzouline, Hassan Ghazal, Kamal Aberkani</i>
19:00 - 19:15	Integrating Artificial Intelligence and IoT for Advanced and Sustainable Groundwater Resource Management (ID: 118). <i>Abdelouahab Mohammed, El Moussati Ali and Ayat Yassine</i>
19:15 - 19:30	Plant Disease Detection Using CNN Architectures: A Comparative Evaluation (ID: 119). <i>Hanae Al kaddouri, Abdelmalek El Mehdi, Youssef Douzi, Jalal blaacha, Hind Messbah, Hajar hamdaoui and Yassine Zarrouk</i>

Session VIII -2 Saturday, June 1, 2024 14:45 - 16:15	Session IV: AI and IoT in Agriculture (2)
	Chairs : Vicenç Puig, Universitat Politècnica de Catalunya, Spain Ali El Moussati, Mohamed First University, Morocco Rachid Elgouri, Ibn Tofail University, Morocco
14:45 - 15:00	Cannabis Revolutionizing VOC Detection: Advanced Sensors and Machine Learning Innovations (ID: 122). <i>Yassine Ayat, Ali El Moussati, Abdelaziz El Aouni, Ismail Mir</i>
15:00 - 15:15	Machine Learning Forecasting Approaches for Evapotranspiration: A Comparative Analysis (ID: 126). <i>Hassan Mokhtari, Mohammed Benzaouia, Hajji Bekkay, Nabil Ayadi, Chaabane Khalid</i>
15:15 - 15:30	A Deep Learning-Based Model for Efficient Olive Leaf Disease Recognition (ID: 155). <i>Hajar Hamdaoui, Yassine Zarrouk, Nour-Eddine kouddane, Youness Hsana, Hanae Al Kaddouri, and Fadoua Chkird</i>
15:30 - 15:45	Optimization of Hyperparameters for SVM Classification Of Citrus Diseases Using Grid Search and Cross-Validation (ID: 166). <i>Hanae Al Kaddouri, Jalal Blaacha, Hajar Hamdaoui, Abdelmalek El Mehdi, Youssef Douzi, Hind Messbah and Yassine Zarrouk</i>
15:45 - 16:00	Harnessing Hydroponic Innovation for Water Management and Plant Growth Optimization: A Comparative Study with Soil-Based Cultivation Method (ID: 167). <i>Hajar Hamdaoui , Inass Hamdi, Youness Hsana , Hanae Al Kaddouri, Nour-Eddine Kouddane, and Yassine Zarrouk</i>
16:00 - 16:15	Smart Farming Solutions: IoT Platform Driven Agriculture and Plant disease identification using Deep Learning (ID: 169). <i>Tber Ayoub, Azzedine El Mrabet, Rachid El Gouri, Laamari Hlou</i>

Poster Session I Saturday, June 1, 2024 11:15 - 11:45	Poster Session I
	Chairs : Loubna Bouselham, Mohamed First University, Morocco Chaimae El Fouas, Mohamed First University, Morocco
11:15 - 11:45	Extraction of maximum power from PV system based on P&O and IncCond MPPT techniques under various weather conditions (ID: 168). <i>El-Kaber HACHEM, Abdlouhab HAMMAN</i>