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CERTIFICATE

This is to certify that 'Mourad Naidji' participated in the 1st National Conference on Electronics, Electrical Engineering and Telecommunications, Challenges and Applications, NCEET 2025, held in El bayadh from 13 to 14 December 2025.

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University Center of El-Bayadh — 1st National Conference on ELN-ELEC- and TELECOM NCEET '25 — Institute of Technology

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مدير المركز الجامعي
أ. د. فراج الطيب

Impact of Massive Wind Penetration on the Dynamic Stability of Electrical Transmission Grids

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***Abstract*— This study gives an in-depth analysis of the influence of high penetration of wind turbines (WTs) into power electrical grid transmission systems, focusing on dynamic impacts of wind generation during large system disturbances. The main aim is to assess the effects of integration of wind power on the grid response, especially under fault scenarios. The IEEE 9-bus test system was a basis model for stability analysis. The modeling and simulations were done using PSAT (Power System Analysis Toolbox), along with Matlab. The most significant aspect of the study was to explore the impacts of a three-phase short circuit, a severe fault that generates a severe disturbance in the system. The dynamic research was divided into three phases: pre-fault, fault, and post-fault to capture the total impact on system performance. The results showed important data related to primary electrical and electromechanical variables, identifying the contribution of wind farms to grid stability, and specifically the robustness of the transmission network and its ability to respond to disturbances. Finally, the paper deepens the knowledge of how renewable energy sources (RES), in this case wind power, can assist in enhancing power system stability under severe conditions.**

Keywords—wind turbine (WT), massive penetration, dynamic stability, transmission grids

I. INTRODUCTION

Wind turbines (WTs) have emerged as a major part of modern electrical power systems, especially with growing applications of renewable energy sources (RES). Their integration within power systems is an environmentally friendly and sustainable way of handling rising energy requirements. Integration of wind turbines into the grid, though, makes it difficult to maintain stability and reliability of the system [1]. WTs produce electric power in a non-steady flow that depends on time, and this can affect the operation of the grid, especially during the existence of problems. The stability of the grid thus has to be considered with regards to the installation of WTs within the grid so that the renewable energy sources do not affect the performance and reliability of the electrical system negatively. The power system is a multifaceted system having many components, each of which reacts in a different way, typically in a nonlinear and time-varying fashion. It is required to study how the system reacts under different conditions, especially when there occurs some problem, so it can be kept stable and safe. These dynamic phenomena can have a tremendous impact on business expense as well as overall quality of service. Detailed examination of these behaviors tells us a great deal about the circumstances under which the power system functions well. Such technical inspections are of great importance to the stability and security of the grid, whether it is during regular operations, the addition of new elements, or connection to other grids. The system has to run at its best at all times, even during failures, whether due to system failure or extrinsic causes. Dynamic analyses must be done for accurate network planning and management in the future. Both electric and mechanical processes play a role in these challenges and may affect both the passive and active elements of the grid. We will study short circuits, load surges, generator faults, and line outages, which are all standard problems in our case studies [2].

This paper looks into the idea of power system stability. It does this by looking at its effects on important electrical variables like machine rotor angles, bus voltages, and system frequency, as well as the type of disturbance (steady-state, dynamic, or transient). System stability means the system's ability to keep a steady balance between power generation and consumption, since it is not possible to store large amounts of electrical energy. The system must be able to go back to normal after a disturbance while keeping its variables within acceptable limits [3], [4]. To analyze stability, we need accurate mathematical models because they show how system parts move and interact with each other in a reliable way. Synchronous and asynchronous machines, primary generator control systems, on-load tap changers in transformers, protection devices, and electrical loads are some of the most common models used in these kinds of studies [5], [6]. To respond effectively to problems at the generator terminals, it is important to have key primary control mechanisms like frequency regulation (TG for Turbine Governor), voltage regulation (AVR for Automatic Voltage Regulator), and power oscillation damping (PSS for Power System Stabiliser) [7, 8]. When things are stable, the mechanical power from the turbine and the electrical power from the generator are in balance. When there is an imbalance between supply and demand, primary control mechanisms are very important for changing the system's operating point to bring it back to stability.

II. WIND POWER FORMULATION

In the turbine model with pitch angle (or blade angle) control, the blades of the turbine adjust their angle to slow down the rotor speed when operating under hyper-synchronous conditions. The mechanical power extracted from the wind (P_ω) is influenced by both the wind speed (ω) and the rotor speed (V_ω). This relationship is represented by the following equation: [9], [10]

$$P_w = \frac{1}{2}\, \rho\, \pi\, r^2\, V_w^3\, C_P \quad (1)$$

Where P_i is the total power output achieved considering wake effect in wind farm. ρ is the air density (kg/m³).

- r is the radius of the rotor (m).
- v_i is the wind speed at the turbine (m/s).
- C_P is the power coefficient, for commercial WTs, C_P =0.4.

The power output of a WT is dynamically adjusted based on the wind speed available at any given time and location [11]. This regulation is crucial for maintaining the turbine's performance within its rated capacity, preventing operation under unfavorable wind conditions. By doing so, it ensures both the efficiency of power generation and the safety of the turbine. The regulation is governed by specific formulas that consider local wind conditions and the operational limits of the turbine, as outlined below: [9], [10]

$$P_w = \begin{cases} 0 & V_w < 3\, m/s \text{ and } V_w > 25\, m/s \\ P_w & 3\, m/s \le V_w < 12\, m/s \\ 1\, p.u & 12\, m/s \le V_w < 25\, m/s \end{cases} \quad (2)$$

III. DESCRIPTION OF THE SYSTEM

The test system to be described was initially simulated using the Power System Analysis Toolbox (PSAT), a MATLAB-based tool created by [12] to analyze power systems. PSAT offers a comprehensive set of functions to conduct various types of analysis, ranging from power flow studies and stability analysis to time-domain simulations of electric grids. It supports standard models for major power system components, e.g., transmission lines, transformers, circuit breakers, and synchronous and asynchronous machines. PSAT also supports modeling of major control components such as Automatic Voltage Regulators (AVR), Turbine Governors (TG), and Power System Stabilizers (PSS) typically associated with synchronous generators. The toolbox is further enhanced by robust models of three of the wind turbine models addressed in this study: the Constant-Speed Wind Turbine (CSWT), the Doubly-Fed Induction Generator (DFIG), and the Decoupled-DDSG Variable-Speed Synchronous Generator, which is decoupled from the power grid by a power electronic interface. Furthermore, PSAT integrates a wind model specially developed for stability studies, which enables various wind generation conditions to be analyzed. Through time-domain simulation, PSAT delivers information on transient, mid-term, and long-term stability phenomena. Time-domain simulations are of immense value in estimating the stability of the system under wide-ranging operating conditions, especially in situations where a large percentage of wind energy penetrates the grid, all in accordance with the operational capacity of the grid infrastructure. One of the distinctive features of contemporary power systems is their vast interconnection, with each location capable of distributing energy efficiently to other areas. In an attempt to embrace this interconnectivity without making the model overly complex for the sake of illustration, we chose to utilize a traditional meshed transmission system for our dynamic analysis. We specifically employed the WSCC (Western System Coordinating Council) 9-bus system with three generators and nine buses at 230 kV. It is a commonly accepted practice in the literature and is extensively employed for stability as well as dynamic analysis owing to its applicability and simplicity.

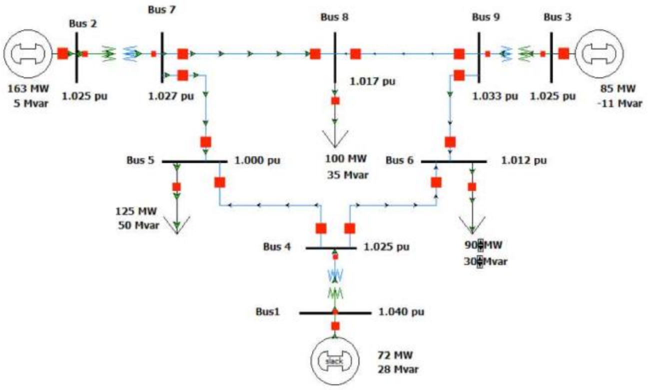

Fig. 1. Diagram of the IEEE 9 bus Test System

The system consists of three major equivalent loads and three large synchronous generators connected to the grid. While the network is relatively small, its structure is sufficiently complex to enable the exploration of a wide range of scenarios, including those incorporating renewable energy sources. For this study, the original configuration was adapted by introducing a wind farm at bus 4, allowing for the analysis of wind power integration and its impact on the system's behavior. The diagram of the test system under study is illustrated in Fig. 1.

TABLE I. ELECTRICAL CONSTRAINTS OF THE GRID

≠ Bus	The constraints of the machines			
	Pmin [p.u.]	Pmax [p.u.]	Qmin [p.u.]	Qmax [p.u.]
1	0	2.00	-1.00	1.00
2	0	2.00	-0.30	0.70
3	0	2.00	-0.30	0.70

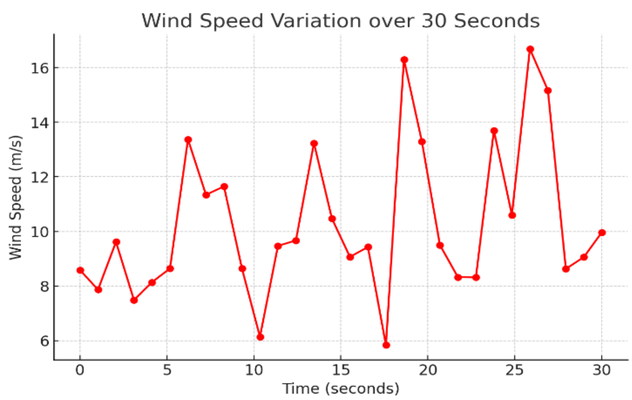

Fig. 2. Wind speed variation

Table I presents the electrical constraints of the network under analysis, highlighting the specific parameters and limitations that define its operational boundaries. In parallel, Fig. 2 offers a graphical representation of the wind speed distribution across the wind farm, providing a clear and detailed overview of the fluctuations in wind conditions.

IV. Disturbances Analysis

A. Test System Operating Under Severe Fault

The analysis of network disturbances, specifically under short-circuit conditions, is critical for understanding the stability and performance of the electrical grid. During a three-phase short-circuit fault [13], [14], the system undergoes a significant disturbance that causes rapid changes in voltage and current levels, potentially leading to system instability [15], [16]. By simulating such conditions within the studied network, it becomes possible to analyze how different components, such as wind farms, respond to these disturbances. This simulation helps to evaluate the effectiveness of protective relays, control systems [17], and fault-tolerant mechanisms. Furthermore, it provides insights into the grid's resilience, particularly in handling faults, maintaining voltage stability, and ensuring that the system can quickly return to normal operation post-fault.

A three-phase short circuit occurs between buses 4 and 10, near the connection point of the wind farm. This fault takes place at t = 10 s and lasts for 150 ms, ending at t = 10.150 s. The circuit breakers located at the ends of the line, at buses 4 and 10, trip at that moment in accordance with the N-1 contingency criterion, isolating the faulty line. The wind farm must be capable of withstanding the voltage dip caused by this short circuit. It must also comply with the operating limits of the voltage-time curve under fault conditions to remain connected to the grid. Otherwise, it will automatically disconnect. During the fault, the minimum acceptable voltage is set at 0.25 p.u.

V. Simulation Results and Discussion

A. Three-Phase Short Circuit

A solid three-phase short circuit occurs at t = 10 s. The network topology evolves during the simulation through three states: before the fault (normal conditions), during the fault (fault conditions), and after the fault (with line disconnection). These topological changes impact the network's impedance matrix (Zbus).

1) Bus Voltages

Fig.4 shows the voltage distribution of all the buses.

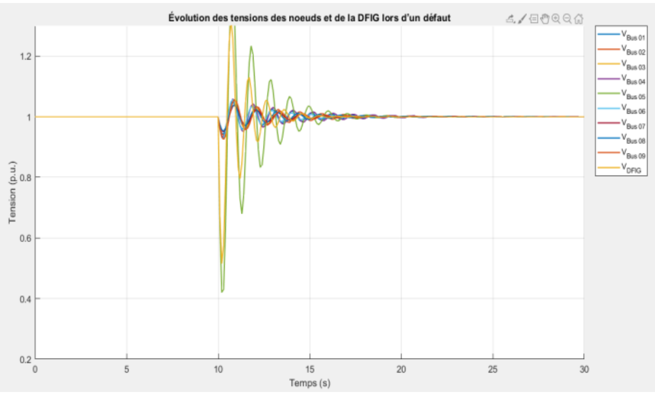

Fig. 3. Bus voltages

a) Before the Fault (t < 10 s):

All voltages are stable, between 0.99 and 1.04 p.u. (Fig. 3). The system is in a steady-state condition, well balanced. The system show no visible oscillations or unbalance.

b) During the fault (t = 10 s) :

- A sharp voltage drop is observed, especially at specific buses.
- The voltage at the faulted bus (likely Bus 04) drops to approximately 0.30 p.u., indicating a severe local disturbance.
- Voltages at other buses also drop, but less severely, depending on their proximity to the faulted bus.

c) After the fault (t > 10 s) :

- Voltages recover quickly but show transient oscillations.
- These oscillations are damped, indicating good dynamic stability.
- By t = 18–20 s, most buses return to values near the nominal voltage (≈1.0 p.u.).
- The fault is clearly localized, and its impact varies depending on the bus location relative to the fault point.
- The system shows good regulation capabilities, especially due to generators and automatic controllers (AVR, DFIG, etc.).
- The coordination between wind generation and synchronous machines contributes to rapid stabilization.
- The voltage at the DFIG bus drops more severely to ~0.3 p.u. at the moment of the fault.
- Thanks to its converter (vector control), it recovers more quickly than conventional buses.
- This behavior is typical of DFIGs, which inject reactive current to support local voltage during faults (Low Voltage Ride Through – LVRT).

2) Active Power of the Generators:

Fig.4 shows the distribution of active power injected by the various generation sources. The wind farm supplies an active power of 1.5 p.u., representing a 47% penetration rate relative to the total load. The synchronous machines located at buses 1, 2, and 3 inject 0.20 p.u., 0.80 p.u., and 0.80 p.u., respectively, representing 6.3%, 25.4%, and 25.4% of the total demand.

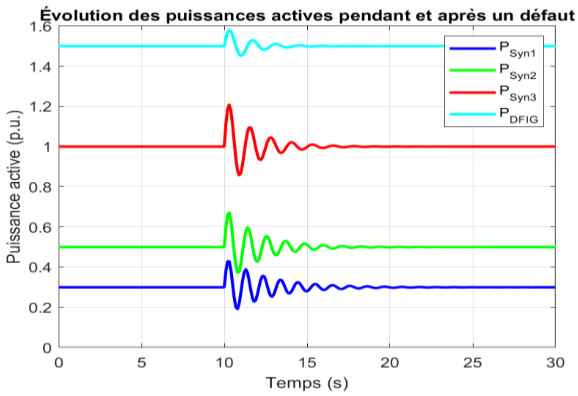

Fig. 4. Active power of the generators

a) Before the fault (t < 10 s) :

- All generators inject constant active power:

P_Syn1 = 0.3 p.u.

P_Syn2 = 0.5 p.u.

P_Syn3 = 1.0 p.u.

P_DFIG = 1.5 p.u.

- The system is in a stable steady-state condition, with no disturbances.

b) During the fault (t = 10 s) :

- A fault occurs at t = 10 s, causing a disturbance in the network.
- All power curves exhibit damped oscillatory transients:
  - This reflects the dynamic response of the machines to a voltage dip or system imbalance.
  - The oscillations differ in amplitude and duration depending on the generator type:

✓ Synchronous machines exhibit more pronounced and longer-lasting oscillations.

✓ The DFIG responds more quickly and stabilizes its output faster thanks to its power converter.

c) After the fault (t > 10 s):

- Active power levels gradually return to their initial values.
- The damping of the oscillations depends on the characteristics of each generator:
  - The return to equilibrium is slower for P_Syn3 (greater oscillation amplitude).
  - The system shows good transient stability, with no divergence.
- The studied electrical system demonstrates coherent dynamic behavior.
- The wind farm equipped with a DFIG contributes positively by quickly stabilizing its injected power.
- The quality of the transient response depends on the control strategy and tuning of each machine.

3) *Reactive Power of the Generators*

Fig. 5 shows the reactive power of the generators.

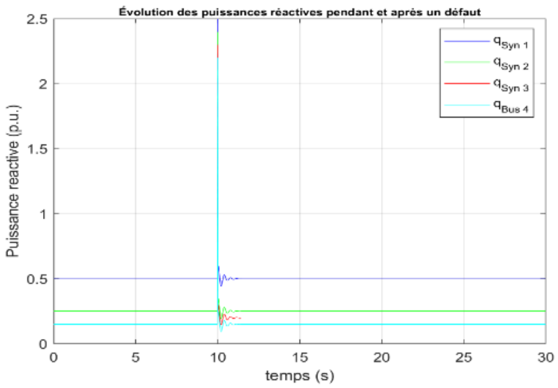

Fig. 5. Reactive power of the generators

a) Before the fault (t < 10 s):

Reactive power outputs are stable and constant, indicating a balanced steady-state operation. The typical values are:

- q_Syn1 ≈ 0.5 p.u.
- q_Syn2 ≈ 0.25 p.u.
- q_Syn3 ≈ 0.2 p.u.
- q_Bus4 ≈ 0.15 p.u.

This reflects nominal operation with balanced reactive power sharing between generators and loads.

b) During the fault (à t = 10 s)

A sharp spike in reactive power is observed across all signals:

- q_Syn1 reaches approximately 2.5 p.u.
- q_Syn2 ≈ 2.4 p.u.
- q_Syn3 ≈ 2.3 p.u.
- q_Bus4 ≈ 2.2 p.u.

- This jump is due to the severe voltage drop caused by the three-phase short circuit:

✓ Synchronous generators inject large amounts of reactive current to support local voltage through their excitation systems (AVRs).

✓ Bus 4, either near the fault or within the affected zone, shows a significant reactive power variation.

- The machines' behavior indicates their immediate contribution to reactive power compensation.

c) After the fault (t > 10 s):

- Damped transient oscillations appear in the reactive power signals:

✓ Typical of dynamic stability and automatic regulation phenomena.

- Reactive power levels gradually return to their initial values:

✓ q_Syn1 shows slight oscillations around 0.5 p.u.

✓ q_Syn3 returns more slowly, suggesting either greater inertia or a closer topological location to the fault point.

- The system exhibits stable post-fault behavior thanks to:

✓ Coordination of voltage regulators (AVRs),

✓ Transient support from loads and generators,

✓ A well-configured network control system.

- The IEEE 9-bus system with a fault at t = 10 s demonstrates good dynamic performance.
- Generators rapidly inject reactive power (Q) to compensate for the voltage drop.
- Bus 4, although affected, is not critical and follows a coherent trajectory: strong transient demand followed by a gradual return to equilibrium.
- This behavior is typical of well-regulated systems, with sufficient inertia, voltage control, and synchronization.

- To restore their electromagnetic torque, synchronous machines must absorb a large amount of reactive power to rebuild their magnetization (Fig. 5).

VI. CONCLUSION

Dynamic studies on grid stability are a vital tool for transmission system operators, enabling them to evaluate how electrical variables behave when subjected to potential disturbances. These studies are crucial for ensuring the continued reliability of power systems, especially in the context of integrating renewable energy sources like wind power. The efficient operation of a wind farm within the grid hinges on several key factors, including frequency regulation, voltage control, and the management of both active and reactive power. In this paper, we examine the concept of electrical network stability, approaching it from two distinct perspectives: first, by assessing its impact on electrical variables such as rotor angles, voltage, and frequency at various system nodes, and second, by considering the nature of the disturbances, whether they are static, dynamic, or transient. Moreover, we suggest that future research should focus on exploring the integration of energy storage solutions and demand response strategies. These innovations could significantly enhance grid flexibility and resilience, particularly during fluctuations in wind power generation, ensuring a more reliable and adaptive grid in the face of increasing renewable energy penetration.

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1st National Conference on Electronics, Electrical Engineering and Telecommunications, Challenges and Applications

The first NCEET-2025

Held in University centre Nour Bachir El bayadh
Sunday 14th December, 2025

Time	Sunday/December 14,2025
$8^{h}00$ – $8^{h}30$	**Welcome & Registration**
$8^{h}30$ – $9^{h}15$	**Opening Ceremony** **Allocation of Pr Faradj Tayeb Rector of University center Nour Bachir El bayadh** **Allocation of Dr GUENTRI Hocine Chair NCEET conference**
$9^{h}15$ – $10^{h}15$	**Keynote** **Dr Benyahia Kadda** **Cybersecurity for IA: A core requirement, not an option**
10h 30 – 13h 00	**Oral session /02 Parallel Rooms**
14h00 – 15h00	**Poster session**
18h00 – 20h00	**Online session/03 Parallel Rooms**

Importantnote: **The registration process will be available during the days of the seminar**

Sunday/December 14,2025 Amphitheater C

08h00 – 8h30	Welcome & Registration
8h30 – 9h15	Opening Ceremony Allocation of Pr Faradj Tayeb Rector of University center Nour Bachir El bayadh Allocation of Dr GUENTRI Hocine Chair NCEET conference

Plenary Session:

Chairs: …Dr GUENTRI Hocine….& …Dr Djouhri Moustapha……

9h15 – 10h15	Keynote Dr Benyahia Kadda Cybersecurity for IA: A core requirement, not an option

10h30 - 13h00	Oral session / 02 Parallel Rooms

Room1: Central Library

Chairs : Pr.Hamid A …&…Pr Alaoui Tayeb…..&… Dr Reguig S K

Oral session 1: Electrical engineering				
Time	**ID**	**Title**	**Authors**	**Affiliation**
10h30-10h45	Paper_ID_7	Comparative analysis of the effects of hybrid renewable energy integration	medjdoubi khadidja	University center of El bayadh
10h 45 – 11h 00	Paper_ID_17	Assessment of Optimal PV Placement in IEEE 9-Bus System using powerworld simulator	smail Latifa	University center of El bayadh
11h 00 – 11h 15	Paper_ID_34	Control and optimization of a hybrid PV-wind system under variable climatic conditions for isolated loads	Cheggoufi Nourel Houda	University center of El bayadh
11h 15 – 11h 30	Paper_ID_52	Fuzzy logic-based mppt command and p&o method applied to a photovoltaic system	Guetti Youcef islem	University center of El bayadh
11h 30 – 11h 45	paper_ID_68	Improved Maximum Power Point Tracking Algorithm Using Fuzzy Logic for Wind Conversion System	Behloul Rabia	Universty of Djelfa
11h45 – 12h 00	paper_ID_77	Fuel cell-battery hybrid powered light electric vehicle (scooter)	Saied Boumediene	University of Bechar
12h00 – 12h 15	paper_ID_79	Enhanced Transformer Fault Diagnosis Using Ensemble Machine Learning and Square Root–Normalized Dissolved Gas Analysis Data	Boudjella Fatima Zohra	University of Ain temouchent
12h15 – 12h 30	paper_ID_74	Modeling and Simulation of a Scalable Solar-Powered Green Hydrogen Production System in the Ouargla Region, Algeria	Abdelatif Gadoum	University of Ouargla
12h30 – 12h45	paper_ID_86	Advanced simulation and modeling design of the solar water lift system in an innovative way	Khouani Houssam Eddine	University center of El bayadh

Room2: AMPHI C

Chairs: Pr Belkheir Mohamed …. &…. Dr Ziani Djamila

Oral session 1: Electronic and TELECOM				
Time	**ID**	**Title**	**Authors**	**Affiliation**
10h 30 – 10h 45	**paper_ID_87**	Adaptive Lightweight Defense Against Version Number Attacks: Stability and Energy Impact Evaluation in RPL	BOUKHOBZA Mohamed Achref	University center of Elbayadh
10h 45 – 11h 00	**paper_ID_55**	Design of a Single-Axis Solar Tracker Prototype Based on a Zelio Programmable Logic Controller (PLC)	BENALI Abdelkrim	University of El bayadh
11h 00 – 11h 15	**paper_ID_25**	Bio-Inspired Optimization Algorithms for Renewable Energy Systems: A Review and Application Perspectives	taha bachir ammour	University of Adrar
11h 15 – 11h 30	**paper_ID_39**	IsoLink-Health: A Satellite-Based Edge Computing Framework for Smart Healthcare in Isolated Environments	Fatima Zahra ZAOUI	University of Laghouat
11h30- 11h45	**paper_ID_65**	Study and Evaluation of the Performance of Channel Coding and Decoding Functions in a Multipath Environment: A State of the Art	Dahmani Rekia	University center of Elbayadh
11h 45 – 12h 00	**paper_ID_49**	The evolution of Antenna: from a device to a technology	Fateh Allah Merazga	University center of Elbayadh
12h 00 – 12h 15	**paper_ID_60**	Analytical and Exploratory Study of Photonic Crystal Fibers	Abdelkader Boutaleb	University center of Elbayadh
12h 15 – 12h 30	**paper_ID_88**	Optimizing RPL IoT Networks: Performance Evaluation of an Enhanced Route Selection Strategy	BOUKHOBZA Mohamed Achref	University center of Elbayadh
12h 30 – 12h 45	**paper_ID_31**	Effect of the Conductivity on the Underground Electric Field Radiated by Lightning return stroke on Tall Sructures:Analysis using EM models and the3D-FDTD method	Mohamed Abdelghani	University of Saida
12h 45 – 13h 00	**paper_ID_86**	Couches minces nanocomposites ZnO–SnO_2 : Optimisation structural et optique pour les applications optoélectroniques et photovoltaïques	Benali Mohamed Amine	University center of Elbayadh

14h00 -15h00	**Poster Session**

The hall of the Central Library

Chairs: Dr Bendjilali R I, Dr Smail l…..&..Dr Benali M A …..&..Dr Sellam A

ID	Title	Authors	Affiliation
paper_ID_1	Placement of “FACTS” devices in an electrical energy network	Aissa Belhadj	University of El bayadh
paper_ID_62	Comparative Study of Classical Perturb and Observe and Fuzzy Logic Control-Based MPPT Techniques for Photovoltaic Energy Conversion Systems	MILOUDI Khaled	University of Bechar
paper_ID_63	Enhanced MPPT Performance for Photovoltaic Systems Using Sliding Mode Control: A Comparative Study with the Perturb and Observe Method	MILOUDI Khaled	University of Bechar
paper_ID_11	Comparison between P&O, INC, and PSO MPPT techniques	Aissa Assas	University of El bayadh
paper_ID_26	Applications of Swarm Intelligence and Evolutionary Algorithms in Next-Generation Telecommunication Systems	taha bachir amour	University of Adrar
paper_ID_53	Comprehensive Analysis of a Three-Phase Grid-Connected Solar Photovoltaic System	Guetti Youcef islem	University of El bayadh

paper_ID_56	Design of a PIC16F876-Based Temperature Controller Using One Wire Digital Sensor DS18B20	BENALI Abdelkrim	University of El bayadh
paper_ID_72	Power Loss Reduction in Radial Distribution Systems via Modified Global Harmony Search Approach for Optimal DG Allocation and Sizing	Houari BOUDJELLA	University of Ouargla
paper_ID_73	Computation of Electric Fields in the Vicinity of High Voltage Power Line	Tahar ROUIBAH	University of Ouargla
paper_ID_75	DC Bus Voltage Regulation under Variable Solar Irradiance in PV Systems	Moufok Hadjer	University of Ouargla
paper_ID_76	Fuzzy logic-based speed enhancement of Electric scooter: Design and Analysis	Saied Boumediene	University of Bechar
paper_ID_78	Energy Mangement of hybrid battery/SC For Electric Scooter	Saied Boumediene	University of Bechar
paper_ID_80	Digital Contribution to the Study of Pumping a Ferromagnetic Nanofluid Using an MHD Induction Pump	Abderrahim MOKHEFI	University of Bechar
paper_ID_81	Design of a Micro Converter Powered by a Photovoltaic Panel	Mustapha Belhabib	USTO
paper_ID_82	Design of an LC microfilter and integration into a solar photovoltaic microconverter	Fatima Zohra MEDJAOUI	USTO
paper_ID_83	Assessment of the Electromagnetic Environment Around an Industrial MV/LV Transformer with Shielding Deficiency: Analysis and Corrective Measures	Djilali MAHI	University of Laghouat
paper_ID_84	Study of the electromagnetic performance of a planar coil	Fatna BAHLOULI	USTO
Paper_ID_18	Analysis of the Impact of Wind Power Integration on Power Flow and Losses in an Electrical Network	Reriballah Hafidha	University of Relizane
paper_ID_85	Experimental examination of an altered triboelectric charging system	Djouhri Mostapha	University center of El bayadh
paper_ID_71	Speed control of universal motor using MCU based firing angle control	Djillali Nasri	University of Tiaret

18h00 -20h00	**Online session**

Room1: https://meet.google.com/erv-avzf-ovp
Chairs: DR DAHBI A …..&…Dr NOUR M

Online session: Electrical engineering				
Time	**ID**	**Title**	**Authors**	**Affiliation**
18h 00–18h 10	**paper_ID6**	Enhancement of solar thermal power plants' ability to generate electricity	Mandi benaissa	University of Tlemcen
	paper_ID10	A fuzzy logic approach to detect and classify electrical fault in three-phase squirrel-cage motor	Yassine Bouhelassa	University of Oran 2
	paper_ID15	Integrated MPPT and Power Control Strategy for DFIG-Based Wind Energy Systems Using PI and Sliding Mode Controllers	Mohamed Ilyas Rahal	University of Anaba
	paper_ID19	Performance Evaluation of the Sandia Array Performance Model for Grid-Connected Photovoltaic System Using Artificial Bee Colony Optimization	Yassine BOUDOUAOUI	ESGEE Oran
	paper_ID20	Estimating parameters values of battery lead-acid using Simulink Design Optimization	DJAHFA SALIM	University of Khenchela
	paper_ID23	Comparative Analysis of Dandelion Optimizer and P&O Algorithms for MPPT in PV Systems under Standard and	Hadjer CHABANA	University of Anaba

		Partial Shading Conditions		
	paper_ID30	Innovative Control Techniques for Stand-Alone Self-Excited Induction Generators	zabouri abdelhamid	ENP Oran
	paper_ID32	Optimizing the PID Controller Using the Genetic Algorithm for Temperature Control in Household System	meroua kertous	University of Setif 1
	paper_ID35	Smart Grid Inspired PSO-MPPT Framework for Standalone DC Hybrid Microgrids	yassmine boucherit	University of Constantine1
	paper_ID37	An adaptive state of charge estimation method For Battery PV	Mourad Tiar	University of Biskra
	paper_ID6	Enhancement of solar thermal power plants' ability to generate electricity	Mandi benaissa	University of Tlemcen
	paper_ID46	Model-Based Fault Diagnosis Applied to the Wind Turbine Pitch System	chaima gherari	University of Souk Ahras
	paper_ID67	Computation of Electric Fields in the Vicinity of High Voltage Power Line	Tahar ROUIBAH	University of Ouargla
	paper_ID27	Dynamic voltage support for wind turbine system using STATCOM for grid integration	Soumia Kail	University of Bechar
	paper_ID_12	Impact of Massive Wind Penetration on the Dynamic Stability of Electrical Transmission Grids	Mourad Naidji	University of Anaba
	paper_ID_69	Maximum Power Point Tracking (MPPT) Review and Methods	Amir Eddine Bouguettoucha	University of Mila
	Paper_ID_29	Comparative Optimization of Fractional-Order PID Controllers for Precise Quadcopter Agrissive Trajectory Tracking	aissa benhammou	University of Bechar

Room 2: https://meet.google.com/eja-weyn-gei
Chairs: … Dr Djelaila S..&…Dr MERMOUH S

Online session: Electronic				
Time	**ID**	**Title**	**Authors**	**Affiliation**
18h 00–18h 10	**paper_ID_4**	Evaluating the Impact of Dopants in CdS Buffer Layers for CZTS Solar Cells	Sarra Merabet	University of Mostaganem
	paper_ID_5	Enhancing BHJ Organic Solar Cells Performance through Internal Resistance Management	Samia Moulebhar	University of Mostaganem
	paper_ID_24	Assessing EEMD versus VMD for Enhanced Diagnosis of Inner Bearing Defect	yasser damine	University of Biskra
	paper_ID_36	State estimation for discrete events systems modeled by Petri net	Fayssal Arichi	University of Constantine1
	paper_ID_42	Practical Approach to Calibration of Solar Irradiance Instruments	Oulimar IBrahim	URERMS Adrar
	paper_ID_45	Intelligent drone for autonomous fire detection using artificial vision and on-board intelligence	Oussama Slimani	USTHB
	paper_ID_48	Luenberger control of speed sensorless PMSM	MEDJMADJ Slimane	UBBA
	paper_ID_51	Enhancing IoT Security with AI-Based IDS: A Case Study on BoT-IoT Dataset	Abdelkader Hadj-Attou	University of Blida
	paper_ID_59	Mathematical based magnetic resonance imaging slice selection technique	Mehdi KHALFALLAH	University of Msila

Room 3: https://meet.google.com/czi-wdth-vko
Chairs: Pr ROUISSAT M …..&…Dr MENEZLA F

Online session: Telecommunication				
Time	**ID**	**Title**	**Authors**	**Affiliation**
18h 00–18h 10	**paper_ID_9**	Broadband PCB Bandpass Filters For Millimeter Wave Applications: SIW Circular CSRRs	Rahali bouchra	University of Tlemcen
	paper_ID_21	Predicting Link Quality in Mobile Wireless Sensor Networks: GMLA, Markov Models, and Comparative Insights	Abderrahmane TAMALI	University of Setif 1
	paper_ID_28	A 2D Photonic Crystal Biosensor for Early Cancer Detection Using GaAs Nanoring Resonator	Bachir RAHMI	INRE
	paper_ID_33	An IoT/M2M-Enabled Intelligent Remote Patient Monitoring Framework for Smart Healthcare Systems	Rania Djehaiche	University of Bordj BouAreridj
	paper_ID_64	Focusing Synthetic Aperture Radar Imagery with the Range Doppler Algorithm	Issam Tifouti	University of Skikda
	paper_ID_66	A Dual Side-by-Side Slotted Patch MIMO Antenna with Connecting Vias for mm-Wave 5G applications	Berhab Souad	ENSTTIC, Oran
	paper_ID_43	QoS-Aware Resource Allocation in 6G OFDMA Systems with RIS and Network Slicing	yacine ouazziz	University of Bejaia
	paper_ID_50	Design and Performance Analysis of a Full-Duplex millimeter wave RoF-GPON System Using dual port OFDM Modulation	abdennour fellag chebra	University of Tlemcen
	paper_ID_54	A Compact High-Efficiency Microstrip Antenna with Partial Ground Structure for Broadband Ka-Band 5G	Assia LOMBARKIA	University of Batna
	paper_ID_57	Material-Dependent Performance Optimization of a Compact Wideband 1–3 THz Vivaldi Antenna for Imaging and High-Data-Rate Links Using HDPE, Quartz, Silicon, Alumina, and TiO	khalida khodja	University of Boumerdes
	paper_ID_61	Latency-Aware and Bitrate-Efficient Evaluation of uQUIC Vs UDP in VANET Video Streaming	Hana Elhachi	University of Guelma
	paper_ID_38	Drone-Assisted Telecommunication Networks: A Comprehensive Survey of Applications, Roles, and Existing Works	Tarek Bouzid	University of Laghouat
	paper_ID_3	Experimental Evaluation of DigiMesh Protocols for Optimized Wireless Sensor Network (WSN) Performance	Halima sahraoui	University of Saida
	paper_ID_22	Loop Closures in LiDAR Graph-SLAM for Improved Accuracy	Istighfar Chettih	University of Laghouat