



11^{ème} Journées des Sciences de l'Ingénieur



JSI'2024, October 11-13, 2024, Sfax, Tunisia



International Conference on Engineering Science



Scientific Program of the JSI'2024

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Scientific Program of JSI'2024

Time	Friday/ October 11, 2024	Saturday / October 12, 2024	Sunday/ October 13, 2024
9:00		Oral session 2	Oral session 5
10:00			Coffee break
10:30		Coffee break	Oral session 6
11:00		Oral session 3	(Webinar)
11:30			Closing ceremony
12:30			Lunch
14:00		Registration	Lunch
14:30		Oral session 4	Social program
15:00	Opening ceremony		
15:30	Coffee break		
16:00	Oral session 1	Poster session	
18:00		and Coffee break	

WELCOME TO JSI'2024



Registration

14H00-15H00

**Opening ceremony including the honoring of retired professors
and condolences for Professor Fakher Chaari**

15H00-15H30

COFFEE BREAK



15H30-16H00

Oral session 1

16H00-18H00

1. Untargeted phytochemical profiling of Tunisian olive leaves: high added values compound for food and therapeutic application (**JSI'2024-151**)

Keynote 1: Prof. Mohammed Bouaziz

2. Analysis of Partial Discharge in High-Voltage Cable Insulation: Influence of Heterogeneous Cavity Presence, Location, and Size (**JSI'2024-102**)

Keynote 2: Hani Benguesmia

3. Entropy generation of the laminar natural convection in a two-dimensional trapezoidal porous cavity filled with hybrid nanofluid flow under magnetic field (**JSI'2024-4**)

Mohamed A. Medebber

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4. Thermal Analysis and Investigation of Chip Formation During Turning of AISI 1045 Steel (**JSI'2024-8**)

Hamadi billel

5. Optimizing a Hybrid Storage System by Combining Supercapacitors with Lithium-Ion Batteries (**JSI'2024-5**)

Hadjadj Mouna

6. Modeling of the Stress Intensity Factor of mode I-initiated cracks in thin perforated plates (**JSI'2024-12**)

Chorfi Sofiane

7. QSPR-ANN Models' Estimation of Thermophysical Properties of Pure Hydrocarbons and Organic Compounds (**JSI'2024-19**)

Rayene Boutoutane

8. Effects of molybdenum and nickel on microstructures after hardening and wear resistance of austenitic manganese steel (**JSI'2024-28**)

Hichem Maouche

9. Deep learning methods for predicting the hoop tensile stress-strain curve for anisotropic tubes (**JSI'2024-45**)

Zied Ktari

10. Study of the indoor thermal comfort testing the opening/closing of the room windows (**JSI'2024-82**)

Sondes Ifa

Oral session 2

09H00-10H30

Chairmans:

Mohamed Abid (University of Sfax, Tunisia)
Badis Bakri (University of M'sila, Algeria)

1. Heat Exchanger Technology and Applications: Ground source Heat Pump System for Buildings Heating and Cooling (**JSI'2024-144**)
Keynote 3: Prof. Abdeen Mustafa Omer
2. Study and emerging of a hydroponic greenhouse (**JSI'2024-06**)
Keynote 4 : Prof. Zied Driss
3. Global optimization of water distribution networks: modeling and simulation (**JSI'2024-21**)
Keynote 5: Prof. Yasmina Lahiouel

COFFEE BREAK



10H30-11H00

Oral session 3

11H00-12H30

Chairmans:

Costanza Aricò (University of Palermo, Italia)
Jamel Bouaziz (University of Sfax, Tunisia)

1. Determine and calibrate the reliability-based design optimization of composite structures under fatigue stress (**JSI'2024-50**)
Riyadh Jawad Mutar
2. Integration of the MR damping system in the wind turbine tower (**JSI'2024-52**)

Oumou el mouminine Alaoui

3. The NPR's Effect on the Flow through a Supersonic Nozzle (**JSI'2024-93**)
Benlembarek.Sabrina

4. Study by simulation the form defect in thin-walled cylinder (**JSI'2024-97**)

Allal Bedlaoui

5. Combined Convective heat transfer and surface radiation through a coaxial conical cavity (**JSI'2024-105**)

Belkacem Ould Said

6. Eco-Friendly Water Treatment: Harnessing Seaweed as a Natural Adsorbent for Efficient Safranin O Removal – Optimization and Analytical Insights (**JSI'2024-111**)
Larbi Haddad

7. Experimental comparative study of the temperature-dependent thermal conductivity of laminated FRP composites (**JSI'2024-113**)

Wiem Nasri

8. Analysis of Partial Discharge in High-Voltage Cable Insulation: Influence of Heterogeneous Cavity Presence, Location, and Size (**JSI'2024-102**)

Hani Benguesmia

LUNCH TIME

12H30-14H30



Oral session 4

14H30-15H30

Chairmans:

Muslum Arici (University of Koaceli, Turkey)
Mouldi Chrigui (University of Gabes, Tunisia)

1. Use of solar distillation to improve the performance of water-cooling solar PV panel (**JSI'2024-32**)

Keynote 6: A. Muthu Manokar

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2. Behavior and properties of industrial and advanced materials analyzes and characterization (**JSI'2024-2**)
Keynote 7: Zidani Mosbah
 3. Investigation of the Use of Crab Shells on the Yield of Single-Slope Solar Still (**JSI'2024-125**)
A. Muthu Manokar
 4. Optimizing greenhouse design for better plant growth in arid zone: Investigating the impact of roof height (**JSI'2024-129**)
Hasna Abid
 5. Numerical simulation of strain rate effects on the mechanical behavior of a two-phase polymer composite (PBT/PTMO) (**JSI'2024-137**)
Ahlem Tahari
 6. Optimization in shrink assembly manufacturing (**JSI'2024-53**)
Allal Bedlaoui
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POSTER SESSION

15H30-18H00

1. Output voltage control of multilevel boost converter dedicated to photovoltaic system (**JSI'2024-7**)
Dr. Adel Bouchahed
 2. Predictive Control Strategy for Three-Phase Inverter (**JSI'2024-9**)
Prof. Abdelfettah BOUSSAID
 3. Laboratory study of the mechanical properties of rectangular wires (reinforced with composite fibers) for dental implants and orthodontics. (**JSI'2024-13**)
M. Hassen Merzouk
 4. Output voltage control of multilevel boost converter dedicated to photovoltaic system (**JSI'2024-15**)
Adel Bouchahed
 5. Vibration analysis in milling based on ANN and instantaneous angular velocities (**JSI'2024-16**)
Dr. Salah HAMMOUDI
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6. Enhanced Efficiency of Free Convection in Al₂O₃-Ag-CuO Ternary Hybrid Nanofluid inside closed Differential-Heated Domain (**JSI'2024-17**)
Prof. El Hocine Mohamed Benhamza
 7. Predicting the structural, electronic, and thermoelectric properties of the double half-Heusler alloy ScNbNi₂Sn₂ (**JSI'2024-31**)
Dr. Houria Mekki
 8. Numerical investigation of thermomechanical coupling during spark plasma sintering process of polycrystalline materials: Effect of side surface radiation on heat transfer (**JSI'2024-33**)
Dr. Farid Mechighel
 9. The helical condenser coil's geometry and its impact on heat transfer (**JSI'2024-46**)
Dr. Sami Missaoui
 10. Numerical simulation and experimental validation of ductile damage model during drawing process (**JSI'2024-47**)
Mr. Laboubi Salah
 11. Characterization and adhesion evaluation of borided and nitrocarborided AISI 4130 steel (**JSI'2024-48**)
Prof. Mohamed Zine Touhami
 12. Effect of Microchannel Geometry and Nanofluid Rheological Behaviour on the Cooling Effectiveness of a Microchannel Heat Exchanger (**JSI'2024-55**)
Prof. Mahfoud Kadja
 13. Numerical analysis of the mechanical behavior to the ovality of the shell of a rotary kiln of cement (**JSI'2024-57**)
Mohammed Bouhafis
 14. Control of a Hybrid Tank System Using Fractional Order PI^λD^μ Controller (**JSI'2024-59**)
Mohamed Assabaa
 15. Comparative 2D numerical study of a co-current heat exchanger (**JSI'2024-61**)
Bouhamri Nouredine
 7. Structural Analysis of a Premolar Tooth Using 3D Finite Element Method (**JSI'2024-62**)
Ali Merdji
 8. Experimental study of HDPE by the differential scanning calorimetry (DSC) method (**JSI'2024-65**)
Zemouri Zahia
 9. Estimation of Solar Irradiation with Minitab: Case Study of Ain El-Melh, Algeria (**JSI'2024-66**)
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Badis Bakri

10. Simulation of High Voltage Insulator Performance Using COMSOL Multiphysics (JSI'2024-67)

Habiba Becha

11. Assessment of Polluted Insulator Surface Conditions Using Fuzzy Inference System (FIS) (JSI'2024-68)

Habiba Becha

12. DTC strategy of double star induction motor using fuzzy logic enhanced sliding mode controller (JSI'2024-69)

Hassen Reghioui

13. Sizing and Comparative Analysis of a Standalone Hybrid Photovoltaic-Wind Energy System with Battery Storage: A Case Study of Two Algerian Cities (JSI'2024-70)

Abdellah Draidi

14. Study of the relationship between angular errors and straightness errors of a prismatic axis of a numerically controlled machine tool (JSI'2024-71)

Ahlem Mechta

15. First-Principles Analysis of CuMg₂InS₄: Insights into Optical Properties (JSI'2024-78)

Hocine Hayat

16. A Comparative Study of Z-N and HHo based tuning methods in control strategy of DC Motor (JSI'2024-79)

Naima Rahoua

17. Optimal control of PMSM motor using SFS algorithm (JSI'2024-80)

Naima Rahoua

18. Artificial Intelligence-Based Solar Irradiation Estimation (JSI'2024-81)

Badis Bakri

19. Simulation of an unsteady 2D radio frequency inductively coupled plasma ICP/RF (JSI'2024-92)

Ahmed Ketata

20. Analysis of the influence of sound pressure levels by geometric shapes using the Ffowcs-Williams and Hawkins (FWH) Technique (JSI'2024-95)

Kamel Chadi

21. Comparison between P&O and PSO methods based MPPT algorithm for PV systems under partially shaded conditions (JSI'2024-96)

Nacira Tkouti

22. 3D Simulation of the Electric Field on HV Insulators (JSI'2024-98)

Hani Benguesmia

23. Power Quality Enhancement of a Low Voltage Network by Using a Photovoltaic Source (**JSI'2024-99**)

Hani Benguesmia

24. A Comparative Study of Different Types of Multilevel Inverters (**JSI'2024-100**)

Nacira Tkouti

25. An image-based visual servoing control approach for quadrotors based on gain-scheduled (**JSI'2024-101**)

Mahdi Labeled

26. Numerical Investigation and Mathematical Validation of Cavity- Induced Electrical Constraints in High-Voltage Cable Insulation (**JSI'2024-103**)

Nadjib Kadri

27. Comparative Study of CNC Machine Tools: Evaluating the Efficiency of Three Types (**JSI'2024-104**)

Ahlem Mechta

28. Structural, hydrophobicity and mechanical property of Ti-V-N coatings (**JSI'2024-110**)

Sara Fares

29. Numerical Analysis and Mechanical Characterization of Notched Arc-Shaped PVC Specimens Under Uniaxial Load (**JSI'2024-112**)

Rebehi Kheira

30. Comparison of the power performance of two and three-bladed Savonius rotors (**JSI'2024-114**)

Nour Rabeh

31. Grid Connected Three-Phase Inverter for Systems using Sliding Mode Controller (**JSI'2024-115**)

Hicham Serhoud

32. Numerical investigation of the air-source heat pump water heater with immersed condenser coil under transient conditions (**JSI'2024-117**)

Sami Missaoui

33. CFD study of the aerodynamic performance of a Zephyr wind rotor (**JSI'2024-118**)

Lina Chelbi

34. CFD analysis of blade number optimization in Darrieus wind turbines (**JSI'2024-120**)

Dorra Ghodhbani

35. Experimental evaluation of a solar air heater's efficiency under forced and natural convection (**JSI'2024-121**)

36. A comparative CFD study between solar stills with and without absorber cylindrical pin fins on the water productivity under Tunisian conditions **(JSI'2024-122)**

Ahmed Ketata

37. Robotic assisted therapy and virtual reality based therapy for neurorehabilitation in MS patients: a comprehensive review of meta-analysis **(JSI'2024-123)**

Imen Ketata

38. Overview of the novel aspiration catheter design (R4Q) for acute stroke thrombectomy **(JSI'2024-124)**

Imen Ketata

39. Structural, hydrophobicity and mechanical property of TiZrN coatings **(JSI'2024-127)**

Linda Aissani

40. Dynamic response of an FG nanobeam rested by an elastic foundation exposed to temperature loads **(JSI'2024-128)**

Lamari Abir

41. Efficient solar tower modeling : A simplified mathematical approach **(JSI'2024-131)**

Haythem Nasraoui

42. Simulation of the effect of biofuel from olive oil waste on the performance and emissions of an internal combustion engine **(JSI'2024-135)**

Munaf Alaseebee

43. Enhanced gear fault classification using MODWPT-based feature extraction and MLP neural network **(JSI'2024-142)**

Ali Damou

44. Study of the structural and electronic properties of double perovskites for energy applications

Imane Layaida

45. Efficiency of GaInP/GaAs DJ solar cell with bottom GaInP base layer

Djedoui Layachi

46. Influence of mechanical ventilation on Greenhouse Microclimate in Sfax City **(JSI'2024-152)**

Hamza Chiboub

47. Employing of laser technique to repair cracks in gas turbine blade **(JSI'2024-153)**

Bassam Alomairi

48. Mechanical properties and buckling of three metals under shot peening (SP) and variable temperature program (**JSI'2024-154**)

Al-Jawaheri A.M.M

49. Study seeding machine efficiency in no-till farming and its impact on soil properties and wheat yield (**JSI'2024-155**)

Osama H. J. Al-Mashhadany

50. Theoretical and experimental analysis of photovoltaic seawater reverse osmosis desalination system (**JSI'2024-156**)

Wisam Hamdan Mousa

51. Modeling and simulation of unstable turbulent flow in a solar heater test bench using ansys software (**JSI'2024-157**)

Fareh Hamrit

COFFEE BREAK



Oral session 5

09H00-10H00

Chairmans:

Imad Hamadne (University of Jordan, Jordan)
Ammar Hidouri (University of Gafsa, Tunisia)

1. Failure analysis of laminated composites materials carbon/epoxy using piezoelectric pzt smart pastilles and finite element models (**JSI'2024-3**)

Keynote 8: Prof. Brahim Necib

2. Optimizing methane combustion in aircraft engines with hydrogen blending: Effects and benefits (**JSI'2024-148**)

Keynote 9: Rachid Renane

COFFEE BREAK



10H00-10H30

Oral session 6 (Webinar)

10H30-11H30

Chairmans:

Nader Haddar (University of Sfax, Tunisia)
Belhi Guerira (University of Biskra, Algeria)

1. Numerical Modeling of Aircraft Cargo Compartment Fire: Flashover and Species Concentration Investigation (**JSI'2024-27**)

Houssam Eddine Nadir Hiber

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2. Numerical Analysis of Thermal Performance in a Multilayer Roof Incorporating Phase Change Materials (PCM) (**JSI'2024-18**)

Djemaa Guerraiche

3. Experimental study to assess the impact of cracks on the performance of photovoltaic modules (**JSI'2024-83**)

Hassen Ayed Chraiga

4. Vibro-acoustic analysis in thermal environment of PCLD sandwich beams with viscoelastic cores, frequency and temperature dependent (**JSI'2024-11**)

Karmi Yacine

5. Mixing performances and hydrodynamic measurements of new chaotic micromixers for non-Newtonian fluids (**JSI'2024-126**)

Tayeb Naas Toufik

6. Optimizing Power Grid Operations: Data Preparation for Continuous Monitoring Under the Deviation Settlement Mechanism (**JSI'2024-130**)

Muthu Manokar

7. Corrosion Inspection in Oil and Gas Platforms: A Case Study Utilizing LRUT Technology (**JSI'2024-132**)

Hemza Gherdaoui

8. Study of scaling defects on the dynamic behavior of spur gears (**JSI'2024-133**)

Hamza Ghardaoui

9. Entropy generation in MHD heat transfer flow in microchannel (**JSI'2024-147**)

Antar Tahiri

CLOSING CEREMONY

11H30-12H00

LUNCH TIME

12H30-15H00



SOCIAL PROGRAM
