

12^{ème} Journées des Sciences de l'Ingénieur
JSI'2025, June 27-29, 2025, Sfax, Tunisia
Conference on Engineering Science

**Scientific Program
of the JSI'2025**

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27-29 Juin 2025



JSI
2025

Scientific Program of JSI'2025

Time	Friday / June 27, 2025	Saturday / June 28, 2025	Sunday / June 29, 2025
9:00		Keynote session 2	Keynote session 4
10:00		Coffee break	Coffee break
10:30		Coffee break	Oral session 3
11:00		Oral session 2	
11:30			Closing ceremony
12:30		Lunch	Lunch
14:00			
14:30		Keynote session 3	Social program
15:00	Opening ceremony		
15:30	Coffee break	Poster session + Coffee break	
18:00	Keynote session 1 + Oral session 1		

WELCOME TO JSI'2025



Registration

14H00-15H00

Opening ceremony including the honoring session

15H00-15H30

COFFEE BREAK



15H30-16H00

Keynote session 1

16H00-17H00

Chairmans:

Prof. Hafedh Trabelsi (University of Sfax, Tunisia)

Dr. Mariem Lajnef (University of Gafsa, Tunisia)

1. Advancing waste valorization: strategic utilization of refuse-derived fuels (RDF) in energy and industrial systems (**JSI'2025-47**)

Keynote 1: Prof. Hanen Jrad

2. Active harmonic compensation in four-wire power grids via shunt filter topology (**JSI'2025-31**)

Keynote 2: Prof. Hani Benguesmia

3. Investigation of the magnetoelectric effect in multi-layer PVDF/PU+x% Fe_3O_4 composites and monolayer PVDF (**JSI'2025-12**)

Keynote 3: Prof. Rabah Belouadah

Oral session 1

17H00-18H00

Chairmans:

Prof. Mohamed Salah Abid (University of Sfax, Tunisia)

Dr. Ahmed Ayadi (University of Gabes, Tunisia)

1. Olive pomace as a bioenergy resource: Thermal characterization and calorific potential (**JSI'2025-60**)
Dr. Naoual Ouchitachne
 2. Characterization of microstructure and texture evolution in drawn high Carbon steel for prestressing applications (**JSI'2025-35**)
Dr. Meyssoune Meriem
 4. Optimal sustainable marine microgrid control using seawater desalination station and pumped storage system for smoothing offshore power fluctuation (**JSI'2025-34**)
Dr. Nour EL Yakine Kouba
 5. Optimal planning of coordinated storage system and ancillary frequency services for reducing climatic change on clean energies supply in interconnected microgrid nano grid (**JSI'2025-74**)
Dr. Amel Brik
 6. Contact mechanics modelling of layer thickness on two rigid bases of the same material (**JSI'2025-64**)
Dr. Fadila Guerrache
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Keynote session 2

09H00-10H30

Chairmans:

Prof. Badis Bakri (University of Msila, Algeria)

Dr. Ridha Boudhiaf (University of Sfax, Tunisia)

1. Failure analysis of laminated composite materials Carbon-Epoxy using smart piezoelectric pastilles and numerical finite models (**JSI'2025-7**)

Keynote 4: Prof. Brahim Necib

2. Numerical analysis of combustor configurations: Enhancing methane combustion efficiency and emission control (**JSI'2025-59**)

Keynote 5: Prof. Rachid Renane

3. Experimental measurements and numerical modeling of the Manouba hydroponic greenhouse (**JSI'2025-62**)

Keynote 6: Prof. Zied Driss

COFFEE BREAK



10H30-11H00

Oral session 2

11H00-12H30

Chairmans:

Prof. Rachid Renane (University of Blida, Tunisia)

Dr. Dorra Abid (University of Gabes, Tunisia)

1. Experimental study and analytical comparison of RBDO's techniques for determining a composite structure's fatigue lifetime. (**JSI'2025-13**)

Dr. Riyad Jawad Mutar

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- 2. Optimizing shrink-fit assembly by changing the form of the axis (**JSI'2025-37**)
Dr. Allal Bedlaoui
 - 3. Design and production of an acquisition card for a tribometer (**JSI'2025-38**)
Dr. Moncef Ben Jarray
 - 4. Thermal performance analysis of a solar air heater with integrated water storage tank: Coupled CFD and thermal simulation approach (**JSI'2025-39**)
Dr. Wiem Nasri
 - 5. Numerical solution of the axisymmetric indentation problem for two elastic layers of different materials on two rigid bases (**JSI'2025-79**)
Dr. Fadila Guerrache
 - 6. 3D modeling of a shrink-fit assembly with form defect incorporation (**JSI'2025-80**)
Dr. Allal Bedlaoui
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LUNCH TIME
12H30-14H30



Keynote session 3

14H30-15H30

Chairmans:

Prof. Jamel Bouaziz (University of Sfax, Tunisia)

Dr. Wiem Nasri (University of Sfax, Tunisia)

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- 1. Solar still desalination based on bio-waste materials: a review (**JSI'2025-8**)
Keynote 7: Prof. A. Muthu Manokar
 - 2. Industrial metals: advanced characterizations and applications (**JSI'2025-3**)
Keynote 8: Prof. Zidani Mosbah
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POSTER SESSION

15H30-18H00

Chairmans:

Dr. Dorra Abid (University of Sfax, Tunisia)
Dr. Marwa Ben Chobba (University of Sfax, Tunisia)
Dr. Wissal Yangui (University of Sfax, Tunisia)

1. Spectrum analysis of von Kármán vortex street induced vibrations on bladeless turbines (**JSI'2025-1**)
Dr. Ahmed Ketata
2. Computational study of electronic, optical, and thermoelectric properties of vacancy-ordered double perovskite K₂SnI₆ for renewable energy (**JSI'2025-2**)
Dr. Afifa Zikem
3. Study and improvement of the performance of the Jijel power plant (**JSI'2025-9**)
Dr. Sofiane Chorfi
4. Control of the multilevel boost converter using the linear quadratic regulator-integral (LQR-I) technique (**JSI'2025-11**)
Dr. Adel Bouchahed
5. Development and improvement of an alloy based on Fe-C-Mn alloyed with Nb for railway use (**JSI'2025-14**)
Dr. Sofiane Chorfi
6. Effect of temperature aging on the tensile behavior of high-density polyethylene (**JSI'2025-15**)
Dr. Ladaci Naouri
7. Modeling and simulation of simplified model of squirrel cage induction motor (SCIM) drive by a two-level inverter (**JSI'2025-16**)
Dr. Fawzi Senani
8. Numerical and experimental comparison of torsion testing on Alpax (AlSi12) alloy: Von Mises stress analysis using Abaqus (**JSI'2025-18**)
Dr. Fnides Mohamed
9. A shunt active filter approach for harmonic suppression in four-wire power systems (**JSI'2025-19**)
Dr. Habiba Becha

10. Influence of dielectric barriers on electric field behavior in high-voltage point-plane configurations (**JSI'2025-20**)

Dr. Habiba Becha

11. Design and implementation of a solar irradiance measurement system with Arduino Uno (**JSI'2025-21**)

Dr. Badis Bakri

12. Efficiency and operational performance evaluation of utility-scale grid-connected solar PV installations (**JSI'2025-41**)

Dr. Hani Benguesmia

13. Linking and turning a conveyor between two production lines (**JSI'2025-44**)

Dr. Njeh Anis

14. Simulation of thermal displacement errors in the prismatic axis of a CNC machine tool (**JSI'2025-46**)

Dr. Mechta Ahlem

15. Numerical investigation of recycled rubber-Aluminum composites: Multiscale insights from RVE modeling (**JSI'2025-50**)

Dr. Abir Bouhamed

16. Experimental investigation of a solar chimney power plant integrated with water-based thermal energy storage (**JSI'2025-55**)

Dr. Sami Missaoui

17. Investigation of the friction and wear behavior of S235JR plate during reciprocating sliding tests (**JSI'2025-58**)

Dr. Wissal Yangui

18. Using fractional-order PI λ control to improve the performance of a three-level boost converter (**JSI'2025-65**)

Dr. Mohamed Assabaa

19. Design and development of smart robotic arms using pattern recognition techniques (**JSI'2025-66**)

Dr. Fatma Mejdoub

20. Statistical and numerical evaluation of barrier effects on air gap breakdown voltage with Minitab (**JSI'2025-68**)

Dr. Mohammed Saoudi

21. Simulation of high-energy supersonic combustion under varied Mach flows and chamber configurations (**JSI'2025-73**)

Dr. Allouche Rachid

22. Load and contact mechanics in wind turbine bearings: dem analysis of NJ 328 ECNML cylindrical roller bearings (**JSI'2025-76**)

Dr. Wissal Yangui

23. Green synthesis of clove-functionalized Graphene nanoparticles for enhanced heat transfer (**JSI'2025-78**)

Miss. Dalel Mokhtari

24. Transient thermal analysis of a solar chimney integrated with a storage tank (**JSI'2025-82**)

Miss. Eya Missaoui

25. Aerodynamic study of a Darrieus rotor equipped with deflectors (**JSI'2025-86**)

Dr. Dorra Ghodhbani

26. Modal analysis of a vortex bladeless wind turbine for sustainable wind energy generation (**JSI'2025-90**)

Miss. Lina Chelbi

27. Nonlinear control of a brushless doubly-fed induction generator in wind power applications via feedback linearization (**JSI'2025-91**)

Dr. Oussama Moussa

28. Sugar-based biosurfactants as emulsifier in drug design (**JSI'2025-92**)

Mrs. Bidjou-Haiour Chahra

29. Nonlinear fusion of colors to face authentication using LDA (**JSI'2025-24**)

Dr. Meriem Fedias

30. Face authentication using color with EFM feature extraction (**JSI'2025-25**)

Dr. Meriem Fedias

31. Numerical and mathematical validation of electric field enhancement in high-voltage cable insulation (**JSI'2025-26**)

Dr. Salima Kehali

32. An Arduino-based device for accurate solar irradiation measurement (**JSI'2025-27**)

Prof. Hani Benguesmia

33. Direct voltage control using DSOGI-FLL estimator for stand-alone brushless doubly fed induction generator based WEC (**JSI'2025-27**)

Dr. Abderrezak Rahab

34. Control of permanent magnet synchronous machines based on interval type-2 fuzzy logic controller (**JSI'2025-29**)

Dr. Hellali Lallouani

35. Mathematical modeling and partial differential equation analysis of electric potential distribution in high-voltage cable insulation with elliptical cavities (**JSI'2025-30**)

Dr. Salima Kehali

36. Nonlinear control of a PM synchronous motor drive in electric vehicles using input-output linearization (**JSI'2025-32**)

Dr. Khessam Medjdoub

37. Numerical simulation under Ansys fluent of a supersonic flow in a rocket nozzle (**JSI'2025-33**)

Dr. Guemmadi Messaouda

38. Performance evaluation of a solar air heater with integrated thermal energy storage under forced convection (**JSI'2025-36**)

Dr. Sami Missaoui

39. Enhancing vibration prediction of graphene nanocomposite beams under magnetic fields via machine learning (**JSI'2025-93**)

Dr. Billel Hamza

40. Techno-economic analysis of a Solar-Hydrogen-Grid Hybrid System (JSI'2025-97)
Prof. Djerad Abdelkader

41. Fault Tolerant Control Based on Adaptive Type-2 Fuzzy Global Fast Dynamic Terminal Sliding Mode for Actuators Failures in an Omnidirectional Vehicle (**JSI'2025-98**)

Prof. Djerad Abdelkader

COFFEE BREAK



Keynote session 4

09H00-10H00

Chairmans:

Prof. Imad Hamadneh (University of Jordan, Jordan)

Dr. Ahmed Ketata (University of Gabes, Tunisia)

1. Study of cerite based catalyst material to mitigate the exhaust emissions in CI engines using diesel and watermelon seed biodiesel (**JSI'2025-67**)

Keynote 9: Prof. Balaji Gnanasikamani

2. Enhancing EAHE Parameters using Artificial Neural Network based on LSTM Architecture (**JSI'2025-63**)

Keynote 10: Prof. Abdelmadjid Kaddour

COFFEE BREAK



10H00-10H30

Oral session 3

10H30-11H30

Prof. Abdelmadjid Kaddour (University of Gardaya, Algeria)

Dr. Sahar Haj Kacem (University of Sfax, Tunisia)

1. From peel to purifier: Eco-engineered graphene oxide from citrus waste for high-efficiency dye removal – optimization and AI study (**JSI'2025-45**)

Dr. Larbi Haddad

2. Transforming solid waste into solid recovered fuel (SRF): A comprehensive overview (**JSI'2025-48**)

Dr. Manel Haddar

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- 3. Performance improvement of a solar air heater using water as heat storage fluid: an experimental investigation (**JSI'2025-49**)
Dr. Ridha Boudhiaf
 - 4. Assessment of airflow characteristics in a greenhouse with hydroponically grown tomato crops (**JSI'2025-70**)
Dr. Olfa Zghal
 - 5. Structural behavior of natural teeth and dental implants: 3D finite element comparative study (**JSI'2025-81**)
Dr. Ali Merdji
 - 6. CFD Analysis of blade number influence in delta-profile Darrieus rotors (**JSI'2025-84**)
Dr. Dorra Ghodhbani
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CLOSING CEREMONY

11H30-12H00

LUNCH TIME

12H30-15H00



SOCIAL PROGRAM
