People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
Amar Telidji University – Laghouat
Faculty of Sciences
Mathematics Department

Laboratory of Pure and Applied Mathematics

2nd National Conference on Pure and Applied Mathematics

NCPAM'2022, December 18 - 19, 2022, Laghouat, Algeria

CERTIFICATE OF PARTICIPATION

The organizing committee of the 2nd National Conference on Pure and Applied Mathematics NCPAM'2022 December 18 - 19, 2022, Laghouat, Algeria, certifies that:

Bilal BASTI

Presented an ORAL COMMUNICATION entitled:

Thermo-viscous elastic free boundary problem of fractional PDEs of nonlinear acoustics

Chairman of the NCPAM'2022

Dr. Fares Yazid

Thermo-viscous elastic free boundary problem of fractional PDEs of nonlinear acoustics

Bilal Basti

Department of mathematics, Ziane Achour University of Djelfa, 17000, Algeria.

E-mail: bilalbasti@gmail.com

Abstract

This paper examines the existence and uniqueness of solutions under the traveling wave forms for a free boundary Cauchy problem of space-fractional Jordan-Moore-Gibson-Thompson equations of nonlinear acoustics, which describe sound propagation in thermo-viscous elastic terms. It does so by applying the properties of Banach's fixed point theorem.

AMS Mathematics Subject Classification 2010 : 35R11, 35A01, 34A08, 35C06, 34K37.

Keywords: Traveling wave, nonlinear acoustics, fractional order, existence, uniqueness.

1 Introduction and statement of results

Several mathematical models are used to describe nonlinear acoustics phenomena. For example, In this work, we shall give a fractional model of nonlinear acoustics that is named the space-fractional Jordan-Moore-Gibson-Thompson (JMGT) equation. This equation results from modeling high-frequency ultra sound waves, and is written as follows:

$$\begin{cases} \tau\psi_{ttt} + \mu\psi_{tt} - \kappa^2\partial_x^\alpha\psi - \eta\partial_x^\alpha\psi_t = \varphi\left(x, t, \psi, \psi_t, \psi_{tt}, \psi_{xx}, (\psi_t)_{xx}\right), & (x,t) \in \Omega, \\ \psi(x,0) = \psi_0(x), \ \psi_t(x,0) = \psi_1(x), \ \psi_{tt}(x,0) = \psi_2(x), & \psi_0, \psi_1, \psi_2 \in \mathbb{C}, \\ \psi_x(\kappa t, t) = 0, \ \psi_{xx}(\kappa t, t) = 0, & \kappa > 0, \end{cases} \quad (1.1)$$

where $\tau, \mu, \kappa, \eta \in \mathbb{R}_+^*$ and $\varphi : \Omega \times \mathbb{C} \times \mathbb{C} \times \mathbb{C} \times \mathbb{C} \times \mathbb{C} \to \mathbb{C}$ is a nonlinear function.

The major goal of this work is to determine the existence and uniqueness of the fractional-order's partial differential equation (1.1), under the traveling wave form

$$\psi(x,t) = \exp\left(-\frac{\kappa^2}{\eta}t\right) u(x - \kappa t), \ \text{with } \kappa, \eta \in \mathbb{R}_+^*. \quad (1.2)$$

The basic profile u is not known in advance and is to be identified.

For the forthcoming analysis, we impose the following assumptions:

$(A1)$ φ is a continuous function that is invariant by the change of scale (1.2). It gives us

$$\varphi\left(x, t, \psi, \psi_t, \psi_{tt}, \psi_{xx}, (\psi_t)_{xx}\right) = \exp\left(-\frac{\kappa^2}{\eta}t\right)\left(\eta\kappa f\left(\xi, u\left(\xi\right), u'\left(\xi\right), u''\left(\xi\right)\right) - \kappa^3\tau u'''\left(\xi\right)\right), \qquad (1.3)$$

where $\xi = x - \kappa t$ and $f : [0, \ell] \times \mathbb{C} \times \mathbb{C} \times \mathbb{C} \to \mathbb{C}$ is a continuous function.

$(A2)$ There exist three positive constants $\beta, \gamma, \lambda > 0$ so that the function f given by (1.3) satisfies

$$|f\left(\xi, u, v, w\right) - f\left(\xi, \bar{u}, \bar{v}, \bar{w}\right)| \leq \beta\left|u - \bar{u}\right| + \gamma\left|v - \bar{v}\right| + \lambda\left|w - \bar{w}\right|, \text{ for } \beta, \gamma, \lambda > 0,$$

for any $u, v, w, \bar{u}, \bar{v}, \bar{w} \in \mathbb{C}$.

Now, we give the principal theorems of this work.

Theorem 1.1. *Assume that the assumptions* $(A1)$, $(A2)$ *hold. We give*

$$\tau\kappa^5 + \beta\eta^4 - \mu\eta\kappa^3 \neq 0 \text{ and } \omega \in (0, 1)$$

If we put

$$\ell < \left(\frac{\eta^4\Gamma\left(\alpha + 2\right)\left(1 - \omega\right)}{\left|\tau\kappa^5 + \beta\eta^4 - \mu\eta\kappa^3\right|}\right)^{\frac{1}{\alpha+1}}, \qquad (1.4)$$

then the Cauchy problem (1.1) admits a unique solution in the traveling wave form (1.2) on Ω.

References

[1] B. Basti, Y. Arioua and N. Benhamidouche, *Existence results for nonlinear Katugampola fractional differential equations with an integral condition*, Acta Mathematica Universitatis Comenianae, **89** (2020), 243–260.

[2] B. Basti and N. Benhamidouche, *Existence results of self-similar solutions to the Caputo-type's space-fractional heat equation*, Surveys in Mathematics and its Applications, **15** (2020), 153–168.

[3] E. Buckwar and Y. Luchko, *Invariance of a partial diffrential equation of fractional order under the Lie group of scaling transformations*, J. Math. Anal. Appl. **227**, No 1 (1998), 81–97.

[4] B. Kaltenbacher and V. Nikolić, *The Jordan-Moore-Gibson-Thompson equation: Well-posedness with quadratic gradient nonline arity and singular limit for vanishing relaxation time*, Mathematical Models and Methods in Applied Sciences, **29** (2019), 2523–2556.

[5] A. A. Kilbas, H. H. Srivastava and J. J. Trujillo, *Theory and Applications of Fractional Differential Equations*, Elsevier Science B.V, Amsterdam, 2006.

The second National Conference on Pure and Applied Mathematics

December 18-19, 2022

Google Meet

*** PROGRAM NCPAM 2022 ***

Sunday, December 18, 2022

08:00-09:00 Welcome and Opening Remarks

Opening Speech

Pr. Djamel BENBERTAL, President of University Amar Telidji, Laghouat

Pr. Mohamed YAGOUBI, Dean of Faculty of Sciences

Dr. Abdelaziz RAHMOUNE, Head of Department of Mathematics

Pr. Mohand BENTOBACHE, Director of the LMPA laboratory

Dr. Fares YAZID, General Conference Chair

	Plenary lectures
	Chairman: SALAH DRABLA
09:00 - 09:45	**Conference n°①: MOHAND OUAMER BIBI** **BEJAIA UNIVERSITY| ALGERIA** *Lien dialectique existant entre l'Optimisation, l'Analyse et l'Algèbre*
09:45 - 10:30	**Conference n°②: ABDELHAK DJEBABLA** **ANNABA UNIVERSITY| ALGERIA** *New Stability Result for Bresse System with Dual-Phase-Lag Thermoelasticity*
	Lunch (13:30 - 14:30)

Session I: Applied mathematics

Chairmen: ABDELAZIZ RAHMOUNE - TAHAR BENDOUMA

11:00 - 11:15	**Abdelatif Boutiara**; **Ghardaia University**: Extremal solutions of generalized Caputo fractional differential equations using monotone iterative method.
11:15 - 11:30	**Djamel Ouchenane** ; **Laghouat University**: Global nonexistence of solution for coupled nonlinear Klein-Gordon with degenerate damping and source terms.
11:30 - 11:45	**Fairouz Boulanouar and Salah Drabla**; **Hight school , Bou Saâda**: Boundary stabilization of memory-type thermoelasticity with second sound.
11:45 - 12:00	**Ala Eddine Draifia** ; **Tebessa University** : Blow-up of solutions for a system viscoelastic equation with Balakrishnan-Taylor damping and nonlinear source of polynomial type.
12:00 - 12:15	**Fatima Siham Djeradi and Fares Yazid** ; **Laghouat University** : Exponential stability of laminated beam with constant delay feedback.
12:15 - 12:30	**Lina Chetioui**; **Setif 1 University** : Analytical approximate solutions of nonlinear fractional Logistic equation involving Caputo fractional derivative operator.
12:30 - 12:45	**Imane Boulmerka** ; **Batna 2 University** : A nonlinear viscoelastic wave equation with general source and damping terms: Blow up of positive-initial energy solution.
12:45 - 13:00	**Mouna Hachelfi and Abdelhak Djebabla**; **Annaba University** : Exponential decay of solutions in one-dimensional porous-thermoelasticity.
13:00 - 13:15	**Taklit Hana Lahlah and Hamid Benseridi**; **Setif 1 University** : Study of a Non-Isothermal Hooke Operator in Thin Domain with Friction on the Bottom Surface.
13:15 - 13:30	**Sami Loucif and Salah Zitouni**; **Tebessa University** : Well-posedness and asymptotic behavior of Shear beam model with delay.
14:30 - 14:45	**Abdelaziz Rahmoune** ; **Laghouat University** : Exponential Stability of Porous System with Constant Delay Feedback.
14:45 - 15:00	**Abdellatif Ghendir Aoun**; **El-Oued University** : On the existence of solutions for Riemann-Liouville fractional differential equations on the infinite interval.
15:00 - 15:15	**Samir Aibout and Saïd Abbas** ; **Saïda University** : A Coupled Caputo–Hadamard Fractional Differential System with Multipoint Boundary Conditions.
15:15 - 15:30	**Imane Achour and Abdelghani Bellagoun** ; **Biskra University** : Analytical Solutions for Pure Frgmentation Equation in Continuous System by Decomposition Method.
15:30 - 15:45	**Salim Krim and Abdelkrim Salim** ; **Sidi Bel-Abbes University** : On Implicit Impulsive Conformable Fractional Differential Equations with Infinite Delay in b-Metric Spaces.
15:45 - 16:00	**Nadia Allouch and Samira Hamani**; **Mostaganem University** : Boundary Value Problem for Fractional q-Difference Equations With Integral Conditions in Banach Spaces.
16:00 - 16:15	**El-Hadi Kamel**; **Bab Ezzouar University** : Existence of solutions for a hyperbolic system with non homogeneous boundary condition.
16:15 - 16:30	**Karima Femmam**; **Biskra University** : Efficient dimensionality reduction based on bivariate copulas.
16:30 - 16:45	**Hadjer Ryma Mouseddek and Fatima Boudaoud** ; **Oran University** : Resolving the delicate problem caused by zero-divisors appearing as leading coefficients.
16:45 - 17:00	**Billal Lekdim**; **Djelfa University** : Boundary stabilization of a Euler-Bernoulli beam under disturbance.

Session II: Numerical analysis and PDEs

Chairmen: FARES YAZID – MOHAMED EL HABIB MAICHA

11:00 -	11:15	**Safia Meftah; El-Oued University** : Applications of nonlinear oscillators with generalized order.
11:15	11:30	**Wissem Boughamsa and Amar Ouaoua ; Skikda University** : Theoretical and Numerical result for a class of nonlinear fourth-order wave equation with variable-exponents.
11:30 -	11:45	**Youcef Henka and Samir Lemita ; Guelma University** : Solving Fractional Nonlinear Integro-Differential Equations by Using Hermite Wavelets.
11:45 -	12:00	**Hacen Serrai and Brahim Tallab ; Ouargla University** : Uniqueness for Ordinary Version of Langevin Equation involving ψ-Hilfer Derivative.
12:00 -	12:15	**Asma AYACHI, Hamza Guebbai and Ammar Khellaf ; *Guelma* Uinversity** : Numerical study for nonlinear infinite dimensional equations.
12:15 -	12:30	**Abdallah Roubi; Biskra University** : Existence of solutions for semi-linear PDEs and application to existence of weak solutions of forward-backward SDEs with discontinuous coefficients.
12:30 -	12:45	**Bachir Douib ; El-Oued University** : Variational Analysis of a Frictional Contact Problem with Damage.
12:45 -	13:00	**Salim Mesbahi and El-Hacène Chalabi ; Setif 1 University** : Study of singular reaction-diffusion model applied in Quenching.
13:00 -	13:15	**Ahlème Bouakkaz and Rabah Khemis ; Skikda University** : Some new results for a revisited Nicholson's blowflies equation with an iterative recruitment term.
13:15 -	13:30	**Rabah Djemiat ; M'sila University** : Non-local physical problem of nonlinear space and time fractional parabolic equations with mixed conditions.
14:30 -	14:45	**Nesrine Merabti Lamya and Imad Rezzoug ; Oum el Bouaghi University** : Boundary sentinel for an elliptic problem.
14:45 -	15:00	**Mohammed El Mahdi Hacini ; Sidi-Bel-Abbes University :** Existence of positive solutions for Delay Fractional Differential Equations.
15:00 -	15:15	**Nour Elhouda Allaoui and Fares Mokhtari ; USTHB, Algiers**: On p_i-Laplacian equations with degenerate coercivity and L^m data.
15:15 -	15:30	**Amar Chidouh and Salim Adjemi ; Eltarf University** : Some results on the Lyapunov's inequality for a fractional boundary value problem.
15:30 -	15:45	**Mokhtar Boumaaza ; Ghardaïa University** : Random Solution For Non-local Generalized Caputo Periodic Value Problem.
15:45 -	16:00	**Boudaoud Miloudi and Abdallah El Farissi ; Mostaganem University** : Entire functions sharing one finite value CM with their difference operators.
16:00 -	16:15	**Hamza Bibi ; Tizi-Ouzou University** : Observer-Based Stabilization of continuous Linear Systems with Parameter Uncertainties: LMI Conditions.
16:15 -	16:30	**Somia Djiab ; M'sila University** : Uniqueness of positive solutions for high-order p-Laplacian conformable fractional differential equations with integral boundary conditions.
16:30 -	16:45	**Amina Hallal and Mohammed Belloufi ; Souk ahras University** : A new hybrid conjugate gradient method as convex combination of three algorithms.
16:45 -	17:00	**Youssra Bouhenache and Wided Chikouche ; Jijel University** : Complexity of interior-point methods for convex quadratic programming using a parametric kernel function.

Session III: Functional analysis and operator theory and PDEs

Chairmen: AMEUR YAGOUB – TAHAR ALLAOUI

11:00 - 11:15	**Amin Benaissa Cherif and Fatima Zohra Ladrani ; Oran University** : Sobolev Spaces on Time Scales.
11:15 - 11:30	**Maatougui Belaala and Khalil Saadi ; M'sila University** : New characterization of two spaces of Lipschitz p-summing operators.
11:30 - 11:45	**Aissa Nasli Bakir; Chlef University** : Intertwining a class of operators on a Hilbert space.
11:45 - 12:00	**CHAOUI SAADIA ; Relizane University** : Natural Metrics On Tangent Bundle.
12:00 - 12:15	**Imane Labiod and Mourad Chelgham ; Jijel University** : Generating Functions of Products of 2-orthogonal Tribonacci and Tribonacci-Lucas polynomials with Horadam numbers.
12:15 - 12:30	**Abdelaziz BELAADA; M'sila University** : A characterization of positive (p; q)-summing sublinear operators.
12:30 - 12:45	**Aissa BOUHALI; ENS Laghouat** : Roots and Commuting of Toeplitz Operators on the Bergman Space.
12:45 - 13:00	**Safa Menkad; Batna 2 University** : On p-hyponormal operators.
13:00 - 13:15	**Zouheyr Zeghad; M'sila University** : Boundedness of singular integral operator of convolution type on variable Herz-type Hardy spaces.
13:15 - 13:30	**El-Hacène Chalabi and Salim Mesbahi ; Constantine University** : The Convergence of Caratheodory's and Euler-Maruyama's Approximative solutions of G-SDE.
14:30 - 14:45	**Ameur Yagoub ; Laghouat University** : Opérateurs de Toeplitz tronqués non-bornés sur les espaces modèles.
14:45 - 15:00	**Oussama Djeribia ; Laghouat University** : Strongly (p; σ)-Lipschitz operators .
15:00 - 15:15	**Amar Bougoutaia ; Laghouat University** : Positive Cohen weakly nuclear multilinear operators.
15:15 - 15:30	**Fatima Ziane; Djelfa University** : Unsteady micropolar fluid flow problem with mixed boundary conditions.
15:30 - 15:45	**Abdelali Malek, Abdelkader Saadallah and Fares Yazid; Setif 1 University** : ASYMPTOTIC BEHAVIOR OF A HERSCHEL-BULKLEY FLUID IN A THIN DOMAIN WITH TRESCA FRICTION.
15:45 - 16:00	**BAAZIZ Islam; Setif 1 University** : Behavior study of a nonlinear viscoelastic wave problem.
16:00 - 16:15	**Zahia Ahmedi Ezzourgui and hafida Saggou ; BAB EZZOUAR University** : Analysis of The Markovian Bernoulli queues with linear mpatient Customers and Vacation Interruption.
16:15 - 16:30	**Khezzani Rimi ; El-Oued University** : Analysis Results for Frictional Contact Problem in Visco-Elastic-Plastic Piezoelectric Materials with Wear and Thermal Effect.
16:30 - 16:45	**Tahar Belhadi and Hakim Lakhal ; Skikda University** : Existence of weak Solutions of the p(x)-Laplacian-like Problem with Convection Term.
16:45 - 17:00	**Soufiane CHATTA ; Houari Boumediene University** : Stability of regularized Hibler model of sea-ice dynamics.

Session IV: Optimization, optimal control and applications

Chairmen: NACIMA MOUSSOUNI – YOUNES GUELLOUMA

11:00 - 11:15	**Djaouida Guettal and Mohamed Rahal** ; **Setif 1 University** : Global optimization method of multivariate Hölder functions over non-hyperrectangle regions using, α-dense curves.
11:15 - 11:30	**Nacer Meriem**; **Constantine 1 University** : Chaotic Salp Swarm Optimization Algorithm.
11:30 - 11:45	**Meriem El-Batoul Keddar and Omar Belhamiti** ; **Mostaganem University** : Stability and sensitivity analysis of a discrete epidemiological system: "COVID-19 case".
11:45 - 12:00	**Ramdani Zoubir**; **Bordj Bou Arreridj University** : Method of Feasible Directions for Multiobjective Linear Programming.
12:00 - 12:15	**Aib aziza**; **Setif 1 University** : Optimal control of bilinear systems using the homotopy perturbation method.
12:15 - 12:30	**LEULMI Assma**; **Setif 1 University** : A New Approximate Function for Linear Semi-Definite Programming.
12:30 - 12:45	**Mohamed Khemici** ; **Bejaia University** : Generalized Birnbaum–Saunders kernel density estimators for Positive Time Series.
12:45 - 13:00	**Mohammed Bassoudi**; **Laghouat University** ; Time series analysis of error correction model estimate in the cointegrating relationships studies.
13:00 - 13:15	**Soumya Leulmi**; **Skikda University** : An upper bound function for linear semi-definite optimization.
13:15 - 13:30	**Imad Eddine Lakhdari**; **Biskra University** : Partially Observed Optimal Control Problem with L-derivative of Probability Measures.
14:30 - 14:45	**Fazia RAHMOUNE**; **Bejaia University** : Analysis and Opitimization in the Unreliable M/G/1 Retrial Queue with impatient customers and Deladed Repair.
14:45 - 15:00	**Mohand Bentobache**; **Laghouat University**: An adaptive direction algorithm for linear fractional programming.
15:00 - 15:15	**Nacima Moussouni**; **Laghouat University** : Global study of an epidemiological model.
15:15 - 15:30	**Saadi Achour, Khalil Mokhtari and Abdelaziz Rahmoune** ; **Laghouat University** : Experimental Study on the Effect of the Initial Decomposition on the Difference of Convex Functions Algorithm .
15:30 - 15:45	**Bilal Basti**; **Djelfa University** : Thermo-viscous elastic free boundary problem of fractional PDEs of nonlinear acoustics.
15:45 - 16:00	**Mohamed Kara and Jaafar El Karkri** ; **Setif 1 University** : Study of a delay differential equations arising from epidemiology.
16:00 - 16:15	**Aici Soumia and Abdelkader Frakis** ; **Mascara University** : Classical and Hilbert-Schmidt Numerical radii inequalities.
16:15 - 16:30	**Abdelatif Benchrif Madani and Noura Kacem** ; **Setif 1 University** : ON THE LOCAL TIME OF A REFLECTING BROWNIAN MOTION.
16:30 - 16:45	**Samiha Djemai**; **Setif 1 University** : Study of reaction-diffusion system arising in life science.
16:45 - 17:00	**Matallah Hana**; **Skikda University** : existence result for the population dynamics model by a perturbation term using nonlocal boundary conditions.

Monday December 19, 2022

Plenary lectures

Chairman: MOHAMED KARA

08:30 - 09:15	**Conference n°③: KAHLED ZENNIR** **QASSIM UNIVERSITY | SAUDI ARABIA** *Bresse-Timoshenko type systems with thermodiffusion effects*
09:15 - -10 :00	**Conference n°④: KAMEL TAHRI** **TLEMCEN UNIVERSITY| ALGERIA** *Existence, Non existence and Multiplicity Results for Certain Elliptic Equations*
10:00 - 10:30	**Conference n°⑤: AHMED BENDJEDDOU** **SETIF 1 UNIVERSITY| ALGERIA** *Étude qualitative de systèmes différentiels polynômiaux*
	Lunch (13:30 - 14:30)

Session I: Applied mathematics

Chairmen: ABDELAZIZ RAHMOUNE - TAHAR BENDOUMA

11:00 -	11:15	**Abdelaziz AZEB AHMED;** El Oued University : A frictional contact problem in thermo-electro-viscoelasticity.
11:15	11:30	**Taklit Hana LAHLAH;** Setif 1 University : Asymptotic behavior of a non-Newtonian fluid in a thin domain with friction.
11:30 -	11:45	**Elhabib Hadjadj ;** El Oued University : Existence result for boundary value problem of fractional differential inclusion with Covitz-Nadler theorem.
11:45 -	12:00	**Radhouane Aounallah;** Sidi Bel Abbes University : Bresse system with infinite memories and fractional time delay.
12:00 -	12:15	**Aida Irguedi and Khadidja Nisse ;** El Oued University : Hadamard-Type Impulsive Fractional Differential Equations with Finite Delay.
12:15 -	12:30	**Zineb Khalili ;** Laghouat University : Stability rate of a thermoelastic laminated beam with a time-varing delay term in the internal feedback and localized nonlinear damping.
12:30 -	12:45	**Abdeldjabar Bouregaa and Salah Benzian ;** Laghouat University : Systèmes différentiels fractionnaires de Riemann-Liouville couplés.
12:45 -	13:00	**Maroua Meneceur:** El Oued University : Existence of solutions for Boundary valued problems of fractional differential equations with integral boundary conditions.
13:00 -	13:15	**Aya Khaldi, Messaoud Maouni and Amar Ouaoua ;** Skikda University : Stabilization results for a p-Kirchhoff type hyperbolic equation with damping and source terms.
13:15 -	13:30	**Mohamed BACHIRI;** Laghouat University : Analytical approach by similarity group method of unsteady boundary layer evolving over an horizontal stretching flat plate.
14:30 -	14:45	**Hamza MEDEKHEL;** EL Oued University : EXISTENCE OF SOLUTIONS FOR EVOLUTION PROBLEMS PERTURBED VIA WEIGHT FUCNTION IN PLANE SECTOR.
14:45 -	15:00	**Zina Antouri and Mohamed Kainane Mezadek ;** Chlef University ; Global existence and uniqueness of small data solution for damped wave equation.
15:00 -	15:15	**Wissem Benamira and Ahmed Nasri ;** Jijel University ; New Generating functions for binary product of Pell polynomials with generalized Tribonacci numbers.
15:15 -	15:30	**Kadari Halima;** Sidi Bel-Abbès University ; Existence of Solution for Impulsive Differential Equations with Non-local Boundary Conditions at Resonance.
15:30 -	15:45	**Ahlam GUIATNI;** Jijel University ; Solving Fractional Equations Using Atomic Solution Method.
15:45 -	16:00	**Naimi ABDELLOUAHAB;** Ouargla University ; An equivalent integral equation for a new fractional differential problem with boundary conditions.

Session II: Numerical analysis and PDEs

## Chairmen: FARES YAZID – MOHAMED EL HABIB MAICHA

Time	Presentation
11:00 - 11:15	**Chabekh Meriem and Nadhir Chougui ; Setif 1 University** : Finite Element Solution of 2D Boundary Value Nonlinear Problem.
11:15 11:30	**Lounes Ameur; Skikda University** : Perturbation Analysis of the M/PH/1/N queueing model.
11:30 - 11:45	**Lakehal Nadjet and Hannachi Fareh; Tebessa University** : Hybrid Synchronization of New Chaotic System.
11:45 - 12:00	**Issra Nada Benatallah and Talhi Hamida ; Annaba University** : On Bayesian estimation in the presence of progressively censored data.
12:00 - 12:15	**Yassine Benia and Boubaker-Khaled Sadallah ; Algiers University** : On the regularity for solutions of Benjamin-Bona-Mahony-Korteweg-de Vries.
12:15 - 12:30	**Dallel Diabi; Djelfa University** : Some new Gronwall-type and its application in the analysis for solutions to fractional differential equations.
12:30 - 12:45	**Bendjeddou Sara; Houari Boumediene University** : Kernel based estimation of locally stationary GARCH processes.
12:45 - 13:00	**Belouafi Mohammed Essaid and Beggas Mohammed ; El Oued University** : The Uniform Convergence of Non-linear Multigrid Methods for Solving a Nonlinear Obstacle Problems.
13:00 - 13:15	**REGGAB Khalid ; Djelfa University** : THE NUMERICAL SEMI INVERSE VARIATION METHOD FOR SOLVING NONLINEAR SYSTEM (SHRODINGER EQUATION).
13:15 - 13:30	**Brahim Achour, Malika Belkadi, Idir Filali and Mourad Laghrouche ; Tizi Ouzou University** : An artificial neural network approach for dairy cows behavior monitoring.
14:30 - 14:45	**DJIBAOUI Meriem; École normale supérieure de Laghouat**; Variational methods to second-order Dirichlet boundary value problems with impulses on the half-line.
14:45 - 15:00	**Rachid Yahi; M'sila University** : Interpolative Lipschitz operator ideals.
15:00 - 15:15	**Amina Boucenna; ENS-Kouba**: Existence of solutions for a p-Laplacian fractional boundary value problem.
15:15 - 15:30	**Rahma Fertas, Lekadir Ouiza and Adel-Aissanou Karima ; Bejaia University** ; Queuing model for dynamic spectrum access in cognitive radio.
15:30 - 15:45	**Nita Hadjer; Biskra University** ; Effect of the feedback on the performance measures of a markovian queue.
15:45 - 16:00	**Yasmina Ghettout and Lotfi Meddour ; Constantine University** ; Construction of a hyperchaotic system based on the Lorenz system.

Session III: Mathematics Modeling

Chairmen: AMEUR YAGOUB – YOUNES GUELLOUMA

11:00 -	11:15	**Bachir Alliti and Toufik Laadj ; BAB EZZOUAR University** : The impedance operator for planar geometries.
11:15	11:30	**Khaoula Chabane and Lourabi Hariz Bekkar ; El Oued University** : Study the types of operators and their applications.
11:30 -	11:45	**Djalal Ounadjela; Oran1 University** : New Characterizations of Left and Right Generalized Drazin Invertible Operators.
11:45 -	12:00	**Salim Saf; Laghouat University** : TRANSMISSION PROBLEM BETWEEN TWO HERSCHEL-BULKLEY FLUIDS IN THIN LAYER WITHOUT FRICTION.
12:00 -	12:15	**Billal Elhamza and Abdelhak Hafdallah ; Tebessa University** : Null-controllability with constraints on control for the heat equation.
12:15 -	12:30	**Soumaia KAHLOUL; Bordj Bou Arreridj University** : A three novel algorithms for complex MOPs: Performance comparison study.
12:30 -	12:45	**Raouf Ziadi; Setif 1 University** : A mixed algorithm for smooth global optimization.
12:45 -	13:00	**Zineb Sabbagh; Boumerdes University** : Well-Posedness and Exponential Decay of a Beam Coupled with Vessel Dynamics.
13:00 -	13:15	**Abdeldjalil Chattouh; Khenchela University** : Non-iterative numerical method for the identification of space-dependent source term in parabolic equation.
13:15 -	13:30	**MAZOUZ SAID and SAADA HAMOUDA ; Mostaganem University** ; Growth and oscillation of a class of linear differential equations near a singular point.
14:30 -	14:45	**AMIRA Rami and HANNACHI Fareh ; Tebessa University** ; Study of chaos and stabilization in the generalized fractional Lotka-Volterra system using active control.
14:45 -	15:00	**Messaoud Bitam; Setif 1 University** ; Reaction-diffusion systems with polynomial growth.
15:00 -	15:15	**Adjemi salim and Amar Chidouh ; El tarf University** ; Numerical solution of nonlinear Bresse-Timoshenko system with second sound.
15:15 -	15:30	**Omar Choucha and Abdelkader Amara; Ouargla University** : On the Ulam-Hyers-Rassias stability of structure of discrete fractional three-point boundary value problems.
15:30 -	15:45	**Fatima Amiour and Tahar Haddad ; Jijel University** ; Non convex lower semicontinuous perturations.
15:45 -	16:00	**Boukelia Ahmed Ayoub and Kara Mohamed ; Setif 1 University** ; Existence of Weak Solutions for a Nonlinear Fluid-Structure Interaction Model.
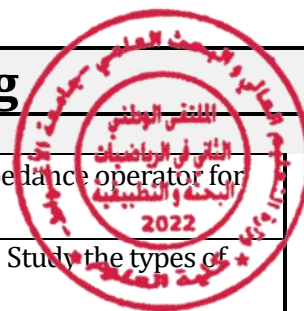
Session IV: Mathematics Modeling
Chairmen: SALIM SAF – ILYES BOUAAKAZ

11:00 - 11:15	**Amar OUAOUA ;** Skikda University : Parallel solution of the linearised G-heat equation by the subdomain iterative methods with overlapping.
11:15 11:30	**Rania Mime ;** Oran 1 University : Generalization of Park's necessary condition of realizability over SL2(R$[x_1^{\pm} ;...; x_k^{\pm}]$) .
11:30 - 11:45	**Soumaya BELABBES and Abdellatif BOUREGHDA ;** Setif 1 University : INTEGRAL METHOD FOR SOLVING MOVING BOUNDARY PROBLEM.
11:45 - 12:00	**BENATMANE Sara ;** BAB EZZOUAR University : Hybrid cryptography.
12:00 - 12:15	**Asma Issasfa ;** Constantine University : Lump and mixed rogue-soliton solutions to the 2+1 dimensional Ablowitz-Kaup-Newell-Segur equation.
12:15 - 12:30	**Abdelkader Frakis ;** Mascara University : Refinements of some bounds for the numerical radius of operators.
12:30 - 12:45	**Nor-El-Houda BEGHERSA and Mehdi BENABDALLAH ;** Mohamed Boudiaf University : On the stabilization of a controlled degenerate system in Hilbert spaces.
12:45 - 13:00	**Khouloud Makhlouf ;** Biskra University : Model Uncertainty Stochastic Partial Differential Equation Control.
13:00 - 13:15	**BOUABDALLAH Fatiha ;** Teachers Higher college of Laghouat : Invariant Subspaces in Bergman Space.
13:15 - 13:30	**MAZOUZ SAID and SAADA HAMOUDA** ; Mostaganem University ; Growth and oscillation of a class of linear differential equations near a singular point.
14:30 - 14:45	**Abd Elhakim Lamairia** ; Tebessa University ; Nonexistence results of global solutions for fractional order integral equations on the Heisenberg group.
14:45 - 15:00	**Hanane Chinoune** ; Ouargla University ; Study the Existence and Uniqueness to the Solution of differential equations of fractional order.
15:00 - 15:15	**Khadidja Iatime and Mounira Azouzi** ; El-Oued University ; Results of existence of the generalized proportional fractional differential equation at the case of resonance according to the topological degree theory.
15:15 - 15:30	**Fayssal DJELLALI;** Annaba University ; GENERAL STABILITY RESULT OF A TYPE III THERMOELASTIC LAMINATED BEAM WITH STRUCTURAL MEMORY.
15:30 - 15:45	**Hassan MESSAOUDI and Salah ZITOUNI;** Souk-Ahras University ; general energy decay of the solution for a piezoelectric beam system with magnetic effects and a nonlinear damping term.
	Keltoum BOUHALI; Skikda University ; A new topological approach to target the existence of solutions for nonlinear fractional impulsive wave equations.