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University of Mohamed Boudiaf-M'sila, Algeria.

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ICMSA'2025 University 8 may 1945 Guelma, Algeria
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An overview on (p,σ)-Absolutely Lipschitz mappings

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Abstract. Following recent advances in the theory of ideals of Lipschitz mappings, we present (p,σ)-absolutely Lipschitz mappings as an interpolating class between Lipschitz mappings and Lipschitz absolutely p-summing mappings.
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Keywords: Lipschitz operators, (p,σ)-absolutely Lipschitz mappings, Pietsch factorization theorem.

Mathematics Subject Classification: Primary 32A70, 60H07, 34A08

1 Introduction

The fruitful development of the theory of absolute summability for linear operators produced several generalizations to the non linear context. This is the case of Lipschitz p-summing mappings, introduced by Farmer and Johnson in [1], that quickly attracted the interest of many researchers who are trying to derive a parallel theory to the linear one.
In the mid way between continuous linear operators and absolutely summing operators, a scale of linear operators, namely (p,σ)-absolutely continuous operators ($1 \leq p < \infty$, $0 \leq \sigma < 1$), were defined by Matter [2, 3] by applying an interpolative ideal procedure. The interpolated operator ideal $\Pi_{p,\sigma}$ of all (p,σ)-absolutely continuous operators was defined as an intermediate operator ideal between the ideal Π_p of the absolutely p-summing linear operators and the ideal of all continuous operators, and shares similar properties with absolutely p-summing operators.
Connecting both the linear and the Lipschitz theories, we study the class of (p,σ)-absolutely Lipschitz mappings. These have to be considered as an attempt to interpolate Lipschitz mappings with Lipschitz absolutely p-summing mappings.

2 (p,σ)-Absolutely Lipschitz mappings

Let $1 \leq p < \infty$ and $0 \leq \sigma < 1$. Recall that a linear operator $T \in \mathcal{L}(E,F)$ between two Banach spaces E and F is called (p,σ)-*absolutely continuous* [2] if there exist a Banach space G and a linear operator $S \in \Pi_p(E,G)$ such that

$$\|T(x)\| \leq \|x\|^{\sigma} \|S(x)\|^{1-\sigma}, \quad x \in X. \tag{2.1}$$

Let $\pi_{p,\sigma}(T) = \inf \pi_p(S)^{1-\sigma}$, where the infimum is taken over all Banach spaces G and $S \in \Pi_p(X, G)$ such that (2.1) holds. By $\Pi_{p,\sigma}(E, F)$ we denote the Banach space of all (p, σ)-absolutely continuous operators between E and F.
Let us introduce the Lipschitz version of (p, σ)-absolutely continuous operators.

Definition 2.1. Let $1 \leq p < \infty$, and $0 \leq \sigma < 1$. Let X be a pointed metric space and E be a Banach space. A base point preserving mapping $T \in \mathrm{Lip}_0(X, E)$ is called (p, σ)-*absolutely Lipschitz* if there exist a Banach space F and a Lipschitz operator $S \in \Pi_p^L(X, F)$ such that

$$\|T(x) - T(x')\| \leq \|S(x) - S(x')\|^{1-\sigma} d(x, x')^{\sigma}$$

for all $x, x' \in X$. Let $\pi_{p,\sigma}^L(T)$ denote the infimum of all $\pi_p^L(S)^{1-\sigma}$, when S varies over all Lipschitz p-summing operators defined on X that fulfill the above condition.

The space of all (p, σ)-absolutely Lipschitz mappings between X and E is denoted by $\Pi_{p,\sigma}^L(X, E)$. An easy calculation shows that

$$\Pi_p^L \subset \Pi_{p,\sigma}^L \subset \mathrm{Lip}_0 \tag{2.2}$$

and $\mathrm{Lip} \leq \pi_{p,\sigma}^L \leq \pi_p^L$ for every $0 < \sigma < 1$.

Theorem 2.1. *Let $1 \leq p < \infty$, $0 \leq \sigma < 1$ and $T \in \mathrm{Lip}_0(X, E)$. The following statements are equivalent.*

1. *$T \in \Pi_{p,\sigma}^L(X, E)$.*
2. *There is a constant $C \geq 0$ and a regular Borel probability measure μ on $B_{X\#}$ such that*

$$\|T(x) - T(x')\| \leq C \left(\int_{B_{X\#}} \left(|f(x) - f(x')|^{1-\sigma} d(x, x')^{\sigma} \right)^{\frac{p}{1-\sigma}} d\mu(f) \right)^{\frac{1-\sigma}{p}}$$

   for all $x, x' \in X$.

3. *There is a constant $C \geq 0$ such that for all $(x_i)_{i=1}^n, (x_i')_{i=1}^n$ in X and all $(a_i)_{i=1}^n \subset \mathbb{R}^+$ we have*

$$\left(\sum_{i=1}^n a_i \|T(x_i) - T(x_i')\|^{\frac{p}{1-\sigma}} \right)^{\frac{1-\sigma}{p}} \leq C \sup_{f \in B_{X\#}} \left(\sum_{i=1}^n a_i \left(|f(x_i) - f(x_i')|^{1-\sigma} d(x_i, x_i')^{\sigma} \right)^{\frac{p}{1-\sigma}} \right)^{\frac{1-\sigma}{p}}.$$

Furthermore, the infimum of the constants $C \geq 0$ in (2) and (3) is $\pi_{p,\sigma}^L(T)$.

References

[1] J. D. Farmer and W. B. Johnson, Lipschitz p-summing operators, Proc. Amer. Math. Soc. 137, 9 (2009), 2989-2995.

[2] U. Matter, Absolutely continuous operators and super-reflexivity, Math. Nachr. 130 (1987), 193-216.

[3] U. Matter, Factoring trough interpolation spaces and super-reflexive Banach spaces, Rev. Roum. Math. Pures Appl. 34 (1989), 147-156.

[4] D. Achour, P. Rueda and R. Yahi, (p,σ)$-Absolutely Lipschitz operators, Annals of Functional Analysis 8, no. 1 (2017), 38-50.

Timetable

Dear participants, on-site registration will be available on October 26 in "Lala Maouna Hotel". Please note that attending the conference is allowed even if you have not yet registered.
IS: Invited Speaker, CT: Contributed talks.

Honorary President

Prof. DEBABECHE MAHMOUD, Rector of May 8, 1945 University , Guelma.

Prof. Athmane MEDDOUR, Dean of faculty of Mathematics, Computer Science and Material Sciences.

Monday, October 27

08:00–09:00	Reception & Registration		
09:00–09:30	Opening Ceremony		
09:30–10:30	IS	Prof. Lahcène Chorfi Annaba University, Algeria	Some inverse problems in PDE
10:30–11:00	Poster session 1 & Coffee break, see page 14		
11:00–13:00	CT	Parallel Talks See page 3	Halls 1-3 and Hall 4 for remote talks
13:00–14:15	Lunch break		
14:15–15:00	IS	Prof. Chouhaid Souissi Sfax University, Tunisia	Boundary Value Problems of p-Laplacian Type on a Class of Nested Fractals
15:00–15:30	Poster session 2 & Coffee break, see page 14		
15:30–17:15	CT	Parallel Talks See page 9	Halls 1-3 and Hall 4 for remote talks

Tuesday, October 28

08:00–09:00	Reception & Registration		
09:00–10:00	IS	Prof. Ayman Ammar Sfax University, Tunisia	Quelques résultats de la théorie spectrale des opérateurs linéaires
10:00–10:30	Poster session 3 & Coffee break, see page 14		
10:30–12:30	CT	Parallel Talks See page 7	Halls 1-3 and Hall 4 for remote talks
12:30–14:00	Lunch break		
14:00–14:45	IS	Prof. Salah Badraoui Guelma University	Panoramic vision on global existence of some reaction-diffusion equations
14:45-15:00	Coffee break		
15:00-17:00	CT	Parallel Talks See page 11	Hall 2 and Halls 1, 3, 4 for remote talks

Wednesday, October 29

08:00–09:00	Reception & Registration		
09:00–10:00	IS	Prof. Nadjib Boussetila Guelma University, Algeria	A tutorial on inverse and ill-posed problems for anomalous diffusion phenomena
10:00–10:30	Coffee break		
10:30–13:45	CT	Parallel Talks online See page 11	Halls 1-4 for remote talks
14:00–17:00	Social trip		

Monday, October 27, 11:00 – 13:00

Hall 1: Fractional calculs — Chairman: Dr. Fatima Aissaoui

11:00–11:15	Mohamed Dalah,	A coupled Laplace transform (LT) and finite differenece scheme (FDS) for solving caputo type fractional wave equations
11:15–11:30	Allaoua Mehri,	Finite Element Analysis of a Multi-Term Nonlinear Time-Fractional Convection-Diffusion Equation with Caputo-Fabrizio Derivative
11:30–11:45	Amel Merghad,	Output Controllability of Fractional Linear Systems in Infinite-Dimensional Spaces
11:45–12:00	Souad Chentout,	Eigenvalue criteria for existence and nonexistence of positive solutions for -order fractional differential equations
12:00–12:15	Choukri Derbazi,	Some New Uniqueness Results for a System of Nonlinear Fractional Differential Equations in Spaces Endowed with Vector-Valued Norms...
12:15–12:30	Abdourazek Souahi,	Study of a fractional ...
12:30–12:45	Ghania Rebiai,	On the Iterative Learning Control
12:45–13:00	Frioui Assia,	Parametrized multiplicative integral inequalities

Hall 2: Numerical Analysis — Chairman: Prof. Nadjib Boussetila

11:00–11:15	Grara Kamila,	On the Properties of the Alpha Power Transformation of the Remkan Distribution
11:15–11:30	Baya Takhedmit,	Finite Difference Methods for Two-Asset Option Valuation
11:30–11:45	Kheireddine Belakroum,	An Operator Approach for Solving Nonlocal Third-Order Partial Differential Equation with a Numerical Investigation
11:45–12:00	Djaafer Mezhoud,	Variable-Order Fractional Differential Equations: Applications to RLC Circuits and Efficient Numerical Approaches
12:00–12:15	Romaissa Mellal,	A Novel Hybrid Conjugate Gradient Formula for Unconstrained Optimization Problems
12:15–12:30	Ali Ahmed,	Generalized expansive mappings and related common fixed point results in dislocated metric spaces
12:30–12:45	Youssouf Diaf,	Anomaly Detection and Failure Prediction in Angular Encoders for Satellite Tracking Systems
12:45–13:00	Nawel Haouas,	Estimating the second order regular variation parameter and bias reducing to tail index estimation under random truncation

Hall 3: ODE and PDE — Chairman: Prof. Khaireddine Fernane

11:00–11:15	Raghdi Mourad,	Global Solutions of Reaction-Diffusion Systems with Fractional Laplacian on Whole Space
11:15–11:30	Abderrezak Chaoui,	On the study of degenerate evolution p-Laplace equation with memory term and unknown boundary Dirichlet condition
11:30–11:45	Bouchelaghem Faycal,	Study dynamic equations using fixed points theorems
11:45–12:00	Dounia Belakroum,	Well-Posedness of a Fractional Parabolic Equation with p (.)-Growth and Functional Dependence
12:00–12:15	Louafi Meriem,	No-regret and low-regret control for a weakly coupled abstract hyperbolic system
12:15–12:30	Aymen Houamed,	Global Weak Solution of a 2 x 2 Hyperbolic System
12:30–12:45	Selma Ellaggoune,	First-Order Averaging Method for Analyzing Limit Cycles Bifurcation in Quadratic Isochronous Centers
12:45–13:00	Abdelkader Kerraci,	Mathematical Modeling and Robust Sine-Wave Trajectory Tracking Control of a Nonlinear Magnetic Levitation System

Hall 4: Online Presentation (Numerical analysis and PDE) — Chairman: Dr. Badreddine Meftah

11:00–11:15	Youssouf Chahma,	Sign-changing solution for some elliptic problems involving p-Laplacian operator (remote)
11:15–11:30	Messikh Chahrazed,	On the Exponential Decay of the ReissnerMindlinTimoshenko System with Delay Terms. (remote)
11:30–11:45	Beyoud Samira,	Effect of streambed geometry on long waves evolution: A computational approach using a third order differential equation (remote)
11:45–12:00	Zineb Khalili,	Energy decay for a Thermodiffusion Laminated Beam with localized nonlinear damping (remote)
12:00–12:15	Atmani Amel,	SPATIAL ANALYTICITY OF SOLUTIONS FOR MODIFIED KDV EQUATIONS (remote)
12:15–12:30	Lamouri Boubakr,	Global behavior of a diffusive host-pathogen system with generalized nonlinear incidence . (remote)
12:30–12:45	Soufiane Benkouider,	Blow-Up in Finite Time for Variable-Source Equations (remote)
12:45–13:00	Ibtissam Fekrache,	On the exponential stabilization of a Timoshenko system subject to thermodiffusion effects (remote)

Monday, October 27, 15:30 – 17:15

Hall 1: Probability, Statistics and Theory of Computation — Chairman: Prof. Salah Badraoui

15:30–15:45	Karima Kimouche,	Parameters Estimation of a Spatio-temporal ARCH Model with Location Dependent Parameters
15:45–16:00	Meriem Bouhadjar,	Modeling the Economic dataset using the Bouhadjar Distribution: Improved Estimation and Statistical Analysis
16:00–16:15	Nesrine Idiou,	Numerical estimation of the extreme value index under censored data using an adaptive likelihood and root-finding approach
16:15–16:30	Ahlem Djebar,	Generalized Markov Inequality: Extensions, Numerical Illustrations, and Multivariate Chernoff Bounds
16:30–16:45	Chima Hedadji,	Statistical Estimation of Traffic Intensity in M/M/1 Retrial Queues with Break Probability
16:45–17:00	Hiba Aiachi,	Bayesian Inference on Traffic Intensity of M/M/1: Detailed Prior Comparison and Simulation Study.
17:00–17:15	Smail Yousfi,	Exploring Gene Expression Profiles Through Density-based Dimensionality Reduction Techniques

Hall 2: Stochastic calculs and Probability, Statistics — Chairman: Prof. Assia Frioui

15:30–15:45	Abbest Benchaabane,	Existence solutions of second-order neutral stochastic differential equations driven by Rosenblatt process
15:45–16:00	Slimane Bouhadjar,	On the comparison between the divisor function to its value at Euler's phi function
16:00–16:15	Fetima Ladjimi,	On the asymptotic behaviour of a class of multi-dimensional Markov Chains
16:15–16:30	Chaabane Benatmane,	Self-Switching and Threshold-Driven Lindley Distributions: Applications to Seismicity in North Occidental of Algeria (17902016
16:30–16:45	Aymen Leslous,	Almost Periodicity of Solutions in Distribution of Second-Order Stochastic Differential Equations
16:45–17:00	Aissaoui Fatima,	Fractional Weighted Midpoint-Type Inequalities for s-Convex Functions
17:00–17:15	Hamid Boulares,	A New Technique for the Solvability of a Class of Fractional Pantograph Problems

Hall 3: Mathematical Modeling and Differential Equations — Chairman: Dr. Abdelali Ezzebsa

15:30–15:45	Sana Chouia,	Identifying Diabetes Risk from Diagnostic Data: A Statistical Modeling Approach
15:45–16:00	Abdelali Ezzebsa,	Price dynamics with interactive agents
16:00–16:15	Abbaci Leila,	An Exact Algorithm for Interval Fractional Optimization under Chance-Constrained Multi-Objective Stochastic Programming
16:15–16:30	Mouhamed Esalih Aries,	Study the existence and uniqueness of the strong and weak solutions, and the exponential decay of the Petrovsky problem
16:30–16:45	Mohammed EL-arbi Khalfallah,	An Extended Polynomial Exponential Model: Statistical Properties and Applications
16:45–17:00	Hamed Abderrahmane Bouraoui,	Stability of some Thermoelastic systems

Hall 4: Online Presentation (Fractional calculs) — Chairman: Dr. Faycel Bouchelaghem

15:30–15:45	Abdelghani Lakhdari,	On Fractional G-Calculus (remote)
15:45–16:00	Azzouz Belqassim,	Solvability of fractional differentail equations involving derivative the ($\mathbf{k}$,)-Hilfer (remote)
16:00–16:15	Ramsha Shafqat,	Forecasting Monkeypox Transmission Using Fractional Models Integrated with Machine Learning Approaches (remote)
16:15–16:30	Korbaa Fatima Zohra,	On the fractional derivative of distributions (remote)
16:30–16:45	Said Mekhdoua,	Solvability and stability of a general class of FDEs via method of upper and lower solutions coupled with fixed-point theorems (remote)
16:45–17:00	Farid Chabane,	Existence and UlamHyers Stability theory of Variable-Order Multi-Term Φ-Caputo Fractional Boundary Value Problems via Bie... (remote)
17:00–17:15	Djihad Aimene,	Existence and optimal control for fractional mixed Volterra-Fredholm-type integrodifferential dispersion system (remote)

Tuesday, October 28, 10:30 – 12:30

Hall 1: Fractional calculus — Chairman: Dr. Lilia Zenkoufi

10:30–10:45	Sami Segni,	Analytical and Numerical Study of Fractional Delay Differential Equations with Relaxed Lipschitz Conditions
10:45–11:00	Nesrine Kamouche,	Asymptotic Expansion of Laplace Integrals in the case of two critical points
11:00–11:15	Lilia Zenkoufi,	Solvability of a Nonlinear Hadamard Fractional Differential Equations with Integral Boundary Condition
11:15–11:30	Ghoul Wissam,	Stability for a class of fractional stochastic time delayed systems
11:30–11:45	Abdelmounaim Hamdi,	Regional Optimal Control Of Almeida-Caputo Fractional Bilinear Systems
11:45–12:00	Nasri Nassima,	PARAMETERIZED NEWTON TYPE INEQUALITIES FOR DIFFERENTIABLE PREINVEX FUNCTIONS VIA RIEMANN-LIOUVILLE INTEGRAL OPERATORS
12:00–12:15	Souhila Boudjema,	Almost periodic solution of Fractional Lienard equation
12:15–12:30	Sarra Leulmi,	Recursive kernel estimator of Rgression for functional data

Hall 2: ODE, Dynamics and Lie Theory — Chairman: Dr. Saliha Djenaoui

10:30–10:45	El Ouahma Bendib,	On the existence of centers of 3-dimensional polynomial differential systems
10:45–11:00	Yousfi Abla,	study of the phase plane of a discrete dynamic system in the plane
11:00–11:15	Fernane Khaireddine,	The number of limit cycles bifurcating from the periodic orbits of an isochronous center
11:15–11:30	Soumya Leulmi,	AN EFFICIENT TECHNIQUE FOR STEP SIZE DETERMINATION IN SOLVING OPTIMIZATION PROBLEMS
11:30–11:45	Nabil Sellami,	On the periodic orbits for a class of fifth-order differential equations
11:45–12:00	Abdelkader Bouadi,	variattional approach to almost periodic ans almost atmorphic types solutions for Damped Euler-Lagrange Equation.
12:00–12:15	Noureddine Benhamidouche,	Inverse problem and contour enhancement in image processing
12:15–12:30	Saliha Djenaoui,	The Generic Limit Set of Dynamical Systems: Links with Equicontinuity

Hall 3: Fixed Point Theory and Operator Theory — Chairman: Prof. Abbes Benchaabane

10:30–10:45	Rabah Debbar,	Some Spectral Properties of the operators defined on various classes of exotic Banach spaces
10:45–11:00	Hamza Guebbai,	A Backward Finite DifferenceNyström Scheme for Linear Fredholm Integro-Differential Equations
11:00–11:15	Kamel Ali Khelil,	Fixed point theorem for delay dynamic equations on time scale
11:15–11:30	Abdellah Gherbi,	Kaufman's Theorem for closed linear relations
11:30–11:45	Hadjira Lalili,	Fixed-Point Approaches for strongly Sublinear $p(x)$-Laplacian Problem
11:45–12:00	Safia Leulmi,	THE ADAPTIVE RECURSIVE KERNEL ESTIMATOR OF THE DENSITY AND ITS ASYMPTOTIC PROPRETIES WITH RIGHT CENSORED INDEPENDENT DATA
12:00–12:15	Saadia Mahideb,	On generalized expansive mappings and common fixed point theorems in metric spaces with an application
12:15–12:30	Farid Leulmi,	Improved Step-Size Strategy for Linear Programming

Hall 4: Online Presentations (Probability, Statistics and Stochastic Calculus) — Chairman: Prof. Kamel Khelil

10:30–10:45	Aicha Bareche,	Impact of large claims on stability bounds of a univariate classical risk model (remote)
10:45–11:00	Roumaissa Elbay,	A new estimator of the cumulative hazard function under double truncated data (remote)
11:00–11:15	Allal Mehazzem,	Connecting Schrödinger and Kolmogorov Equations: A Monte Carlo Method for Periodic Electromagnetic Potentials (remote)
11:15–11:30	Boustila Ranya,	Nonparametric kernel quantile regression estimation for censored data with a functional regressor (remote)
11:30–11:45	Isma Debbah,	Dependent Data: A Note on Stationarity and Ergodicity (remote)
11:45–12:00	Khelifa Berkane,	Modeling Infectious Disease Spread Using a Fractional Stochastic SIRDS Framework (remote)
12:00–12:15	Rania Khallout,	Stochastic Optimal Control in High-Dimensional Systems: Actor-Critic Methods with Risk Penalty via Relaxed DBSDEs (remote)
12:15–12:30	Soumaya Boukhari,	A Milstein-type numerical scheme for stochastic delay differential equations with time-dependent delay (remote)

Tuesday, October 28, 15:00 – 17:00

Hall 1: Online representation (PDE and ODE) — Chairman: Prof. Rabah Debbar

15:00–15:15	Kina Abdelkrim,	DEGENERATE SINGULARITIES, FIRST INTEGRALS, AND NON-ALGEBRAIC LIMIT CYCLES IN PLANAR DIFFERENTIAL SYSTEMS (remote)
15:15–15:30	Meriem Ladjimi,	Zero-Hopf bifurcation in a new five dimentional differential system (remote)
15:30–15:45	Zineb Beghou,	A High-Order Unconditionally Stable Finite Difference Scheme for One-Dimensional Linear Hyperbolic Equations (remote)
15:45–16:00	Nacer Mahi,	General Decay for the Wave Model with Nonlinear Dissipation and a Localized Memory (remote)
16:00–16:15	Selmane schehrazad,	JOINPOINT REGRESSION ANALYSIS OF TUBERCULOSIS IN ALGERIA OVER THREE DECADES
16:15–16:30	Sabrina Ralem,	Lp-Regularity for Transmission Problems with Abstract Robin Interface Conditions in Complete Elliptic Equations (remote)
16:30–16:45	Leila Abbaci,	An Exact Algorithm for Interval Fractional Optimization under Chance-Constrained Multi-Objective Stochastic Programming (remote)

Hall 2: Topics — Chairman: Dr. Meriem Merad

15:00–15:15	Haithem Hawari,	Existence of the directional tangent cone to a positive current
15:15–15:30	Djeridi Zohra,	From P-Values to Predictions: A Novel Framework for Multistage Testing and Control.
15:30–15:45	Ghouar Ahlem,	Modeling With the modified Extension Lindley Distribution
15:45–16:00	Zineb Sabbagh,	Exponential stability of a flexible marine riser coupled with internal fluid dynamics
16:00–16:15	Bachir Barrouk,	An improved version of the PRP conjugate gradient method for optimization purposes
16:15–16:30	Zineb Azouz,	Benford's Law vs Normal Law and Application to Fraud Detection.
16:30–16:45	Badreddine Meftah,	Some new tempered Gronwall type integral inequalities with applications
16:45–17:00	Meriem Merad,	New Ostrowski type inequalities for differentiable harmonically quasi-convex functions

Hall 3: Online representation (Fractional calculs) **Chairman: Dr. Narimene Aissaoui**

15:00–15:15	Assia Boudjerida,	Ulam-Hyers Stability Results for a Class of χ-Caputo Fuzzy Fractional Integro-differential Equations with Time Delay (remote)
15:15–15:30	Meriem Boukhobza,	The Stability of Solutions of the Fractional Optimal Control Model for the COVID-19 Epidemic in Discrete Time (remote)
15:30–15:45	Amar Chidouh,	Mathematical analysis of a time-delayed viscoelastic problem (remote)
15:45–16:00	Lotfi Bachouche,	IVPs for Caputo-power Impulsive Fractional Differential Equations with non local condition (remote)
16:00–16:15	Samia Youcefi,	Existence and Uniqueness of Solutions for Fractional Differential Equations with Nonlinear Variable-Order Riemann-Liouville Deriva... (remote)
16:15–16:30	Souad Bounouiga,	Insights into Malaria Transmission using Fractional Models and Numerical Simulation (remote)
16:30–16:45	Sarra Guechi,	Équations logistiques fractionnaires et leurs applications (remote)

Hall 4: Online representation (PDE and Mathematical modelling) **Chairman: Dr. Ridha Dida**

15:00–15:15	Yazid Bensid,	The effect of stochastisity on a model related to Alzheimer disease. (remote)
15:15–15:30	Amina Guerrouma,	Development of Robust Hybrid Metaheuristics for Multi-Objective Quadratic Knapsack Problem (remote)
15:30–15:45	Feriel Boudersa,	The Schrodinger Korteweg de Vries System in analytic Gevrey spaces (remote)
15:45–16:00	Sif Eddine BELKADI,	On the Blow-up Phenomenon for Nonlinear Variants of the Heat Equation (remote)
16:00–16:15	Bouizem Nacera,	Leukemia mathematical model (remote)
16:15–16:30	Khireddine Houd,	Mathematical Analysis of a Dynamic Frictional Contact Problem for Viscoelastic Materials with Long-Term Memory (remote)
16:30–16:45	Mustapha Dilmi,	Solution of Emden-Fowler Type Differential Equations (remote)

Wednesday, October 29, 10:30–13:30

Hall 1: Online Presentation (Numerical Analysis and Fractional analysis) — Chairman: Dr. Roumaissa Mellal

10:30–10:45	Hafida Guendouz,	NUMERICAL STUDY OF HYPERBOLIQUE EQUATION WITH DIVIATED BOUNDARY CONDITIONS (remote)
10:45–11:00	Abdeldjalil Remili,	Numerical method to approximate solutions of stochastic differential equations (remote)
11:00–11:15	Assia Khassani,	Well posedness for the homogeneous ideal Magnetohydrodynamics system using Elsässer variables in Besov spaces (remote)
11:15–11:30	Nouha Moussaoui,	An interior-point algorithm for convex quadratic optimization based on modified search directions (remote)
11:30–11:45	Hanane Kessal,	EXISTENCE RESULT FOR EVOLUTIONARY FRACTIONAL DIFFERENTIAL VARIATIONAL INEQUALITIES (remote)
11:45–12:00	Amina Khirani,	Genocchi Collocation Method for Solving Integral Equations (remote)
12:00–12:15	Chaima Boutiba,	New Operational Matrix Based on Genocchi Polynomials for Solving Linear Fractional Differential Equations (remote)
12:15–12:30	Guefassa Imane,	A Modified Conjugate Gradient Algorithm with Improved Descent Properties for Robust Regression Function Estimation (remote)
12:30–12:45	Kamilia Chettouh,	Mathematical and Numerical Study of Stability in a Nonlinear age-structured Tumor Cell Population Model (remote)
12:45–13:00	Meriem Barkat,	On the limit cycles of discontinuous piecewise differential centers (remote)
13:00–13:15	Chenna Nasreddine,	Comparing the Extended Spectrum of Invertible and Groups-Invertible Operators (remote)
13:15–13:30	Amira Hamdi,	New iterative conjugate gradient method for nonlinear unconstrained optimization (remote)
13:30–13:45	DJAMILA ZIREM,	Performance Evaluation of an MX/G/1 Retrial Queueing System with Dual-Phase Service(remote)

Hall 2: Online Presentation (Operator theory and Topics) — Chairman: Dr. Kamila GRARA

10:30–10:45	Rafik Belhadef,	On the Mahler Expansion of the generalized p-adic gamma function (remote)
10:45–11:00	Imine Chahinez,	On the Symmetry Parameters of Graphs (remote)
11:00–11:15	Samira Zahar,	A multiplicity result for a BVP via fixed point theory (remote)
11:15–11:30	Mohammed Abdelmalek,	Generalized Weingarten hypersurfaces embedded in space forms (remote)
11:30–11:45	Kamel Eddine Mokhtari,	Some integral formulae on hypersurfaces immersed in weighted manifold and applications (remote)
11:45–12:00	Mediani Mhammed,	Stochastic Dynamics and Threshold Analysis of a Network-Structured SIR Epidemic Model with Saturated Treatment (remote)
12:00–12:15	Hassane Bouremel,	Compatibility of Single-Valued Neutrosophic Relations (remote)

12:15–12:30	Walid Wannes,	ON THE FREQUENCY OF THE DIGITS OF THE LARGEST PRIME FACTOR OF AN INTEGER (remote)
12:30–12:45	Yahi Rachid,	An overview on (p, σ)-Absolutely Lipschitz mappings (remote)
12:45–13:00	Dyhia Fedala,	On the Resolution of Exponential Diophantine equations. (remote)
13:00–13:15	Fatiha Bouabdallah,	On the Stability of Weyls Theorem Under Non-Compact Perturbations (remote)
13:15–13:30	Naziha Belhkir,	Exponential Stability for a Truncated Porous Thermoelastic System (remote)
13:30–13:45	Ridha Dida,	Analysis and Numerical Solutions of Fractional Delay Differential Equations with Mixed CaputoRiemannLiouville Derivatives Using . . .

Hall 3: Online Presentation (Mathematical modeling and PDE) **Chairman: Dr. Nabil Sellami**

10:30–10:45	Houdeifa Melki (oral in person),	QUALITATIVE ANALYSIS AND GLOBAL PHASE PORTRAIT OF A NONLINEAR SHIP ROLLING MODEL
10:45–11:00	Djamel-eddine Hettadj,	Analysis of Caputo-Type Sequential Fractional Differential Equations with Mixed Boundary Conditions (remote)
11:00–11:15	Naas Adjimi,	Modeling Rabies Transmission Dynamics Using Fractional Calculus: A Framework for Evaluating Intervention Strategies (remote)
11:15–11:30	Imane Aouina,	Existence Results and Ulam Hyers Stability of Solutions in a System of n-Nonlinear Caputo q-Fractional Differential Equations (remote)
11:30–11:45	Fadila Leslous,	Global Optimization of Multiplicative Nonlinear Problems via Number-Theoretic Techniques (remote)
11:45–12:00	Soumia Bessafi,	Mathematical Modelling of Epidemic Spread: Traveling Wave Solutions in a Diffusive SIR Model with Saturated Incidence (remote)
12:00–12:15	Halima Benhbireche,	Enhancing Mathematical Modeling through Ontology-Based Mathematical Knowledge Management (remote)
12:15–12:30	Houssameddine Hamache,	Performance Analysis and Cost Optimization of a Single-Server Queue with Hybrid Vacation and Customer Impatience (remote)
12:30–12:45	Sabiha Djebara,	On the Existence and Computation of Nash Equilibria in Constrained Bi-Matrix Games with Fuzzy Random Linear Constraints (remote)
12:45–13:00	Abdellah Meskine,	Uniform Stability of Neutral Type Fourth-Order Vector Differential Equations with Delays (remote)
13:00–13:15	Oussama Boussoufa,	Poincaré Friedrichs Type Inequalities For Broken Sobolev And Polynomial Spaces (remote)
13:15–13:30	Adel Bounabeb,	Tensorial representations of positive multilinear operators (remote)
13:30-13:45	Fatma Zohra Daoud,	Data-dependence and Existence Results for Fractional Impulsive Systems (remote)

Hall 4: Online Presentation (Functional Analysis) **Chairman: Dr. Abdourazek Souahi**

10:30–10:45	Soumia Boukhalkhal,	Structural and invariance properties of some Bloch-Type Maps (remote)
10:45–11:00	Belaala Maatougui,	On the summability of the linearization of Lipschitz mapping (remote)
11:00–11:15	Fares Bensaid,	Composition Operators on Triebel–Lizorkin-Type Spaces: The critical case (remote)
11:15–11:30	Said Benliman,	ISOMETRY OF A SKEW SYMMETRIC TOEPLITZ MATRICES. (remote)
11:30–11:45	Bellabes Zineb,	On the Uniqueness of Solutions for Kirchhoff-Type Equations Involving the Fractional Laplacian and Singular Nonlinearities (remote)
11:45–12:00	Abdelaziz Gherdaoui,	Some integral inequalities for Hardy-Steklov operator for quasi-monotone functions with $0 < p(x) < 1$ (remote)
12:00–12:15	Bab Asma,	Forced Oscillations in Hyperbolic-Parabolic Equations (remote)
12:15–12:30	Ahlem Benmakhlouf,	New upper bounds for the numerical radius of some 3 Œ 3 operator matrices (remote)
12:30–12:45	Aldjia Maatoug,	A Singular Integral Operator on Besov and Lizorkin-Triebel Spaces (remote)
12:45–13:00	Bochra Gheribi,	The John-Nirenberg inequality on homogeneous Besov spaces (remote)
13:00–13:15	Gherib Fatiha,	Continuos spectrum classification (remote)
13:15–13:30	Meriem Araour (oral in person),	Solution of fuzzy nonlinear integral equations using a new method based on fixed point theory

Poster Session 1, Monday morning, Chairman: Dr. Tarek Chiheb

Fares kamache,	Existence of three solutions for a nonlinear fractional p-Laplacian problem via critical point theory
Billel Gheraibia,	General decay of solution for a wave equation of p-Laplacian type
Youssouf Bekakra,	The Rothe Method for Time-Fractional Diffusion Equation: Convergence and Efficiency
Nor Elhouda Soltani,	Existence and multiplicity of solutions for singular fractional elliptic system via the Nehari manifold approach
Rania Nouadri,	Age-Structured SEIQR Model with Migration in Multi-Patch Environments
Mohamed Lamine Saada Khelkhal,	Analysis of a One-Dimensional ThermoPoroelastic Swelling Model with Finite Memory and Time Delay
Karima Benhamza,	Enhancing IoMT Security Through an Efficient XGBoost-Based Intrusion Detection System

Poster Session 2, Monday afternoon, Chairman: Dr. Ghania REBIAI

Hamida Leila Achoura,	Regularization of an Inverse Parabolic Problem with Memory via Spectral Truncation Method
Safia Mekhalfa,	Quelques Suites résultant dans la création de nouveaux Polynômes 2-Orthogonaux
Rochdi Nouadri,	Advances in Modeling Extreme Values through Weighted Distributions
Hamza Brahim Boulares,	Weighted type estimate of fractional integral operators on global weighted Herz spaces with variable exponent
Amel Benyettou,	Construction of New LCD cyclic codes over rings
Siham Kebaili,	Optimized Sampling of Dependent Variables via Iman and Conover
Zouhir Idriss Bouker,	Strong b-Metric spaces and some fixed point results for expansive mappings

Poster Session 3, Tuesday morning, Chairman: Dr. Tarek Chiheb

Amel Labadla,	Energy Methods and Blow-up Phenomena in Parabolic Equations
Asma Bouaziz,	Modeling and Estimating Failure Time under Competing Risk Structures
Wissame Selmani,	Regularization method for an elliptic problem
Manal Djaghout,	On the study of the hyperbolic $p-$Bilaplacian equation
Hayet Baiche,	Ostrowski's weighted inequalities for Holder continuous functions
Issam Abdennebi,	Numerical solution of nonlinear VolterraFredholm integral equations of the second kind based on fixed-point scheme
Lilia Mahmoudi,	CANARD CYCLES OF FINITE CODIMENSION WITH TWO BREAKING PARAMETERS
Hamed Abderrahmane Bouraoui,	Stability of Some Thermoelastic Systems