



**INTERNATIONAL WORKSHOP ON NUMERICAL ANALYSIS AND MODELING  
DOCTORAL TRAINING SCHOOL (3rd EDITION)  
"IWNAM: 3DTS25"**

**April 7-11, 2025**

**Faculty of Sciences Dhar El Mahraz, Fez**

| <b>Planning</b>             |                                                             |                                                     |
|-----------------------------|-------------------------------------------------------------|-----------------------------------------------------|
| <b>Monday 07 April 2025</b> |                                                             |                                                     |
| <b>Time</b>                 | <b>Videoconference room/Salle de visioconférence</b>        |                                                     |
| 08 :30-09 :00               | Registration and welcome                                    |                                                     |
| 09 :00-10 :00               | Opening Ceremony                                            |                                                     |
| 10 :00-11 :00               | <b>Course : Prof. Mohammed Seaid</b>                        | <b>Chair : Prof. E. Azroul, Prof. A. Azzouzi</b>    |
|                             | <b>Title : Finite element methods for the wave equation</b> |                                                     |
| 11 :00-11 :30               | Coffee break                                                |                                                     |
| 11 :30-12 :45               | <b>Course: Prof. Mohammed Seaid</b>                         | <b>Chair : Prof. E. Azroul, Prof. A. Azzouzi</b>    |
|                             | <b>Title : Finite element methods for the wave equation</b> |                                                     |
| 13 :00-14:30                | <b>Course: Prof. Driss Yakoubi</b>                          | <b>Chair : Prof. M. Elmassoudi, Prof. L. Lafhim</b> |
|                             | <b>Title : Some numerical methods in fluid mechanics</b>    |                                                     |

| <b>Tuesday 08 April 2025</b> |                                                             |                                                                                                          |
|------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 09 :00-10 :45                | <b>Course : Prof. Driss Yakoubi</b>                         | <b>Chair : Prof. Y. Akdim, Prof. A. Barbara</b>                                                          |
|                              | <b>Title : Some numerical methods in fluid mechanics</b>    |                                                                                                          |
| 10 :45-12 :30                | <b>Course : Prof. Mohammed Seaid</b>                        | <b>Chair : Prof. A. Aberqi, Prof. M. Mekhour</b>                                                         |
|                              | <b>Title : Finite element methods for the wave equation</b> |                                                                                                          |
| 12 :30– 13 :00               | Break                                                       |                                                                                                          |
| <b>Session 1</b>             | <b>Chair : Prof. M. Seaid &amp; Prof. D. Yakoubi</b>        | <b>Video-conference room</b>                                                                             |
| 13:00-13 :15                 | S. Alqarouach                                               | Modelling wave refraction-diffraction problems using time domain Bernstein-Bézier finite element solver  |
| 13 :15-13:30                 | B. Boutqlmount                                              | A new radial basis function based on sinc function for data approximation                                |
| 13:30-13:45                  | O. El Banne                                                 | Space-time Sinc collocation method for solving hyperbolic equations with variable coefficients           |
| 13:45-14:00                  | M. E. Bassir                                                | Mesh Optimization Using Anisotropic A Posteriori Error Estimators for Interpolation                      |
| 14:00-14:15                  | I. Bassir                                                   | Numerical Solution of Diffusion Problems with the Generalized Finite Element Method                      |
| <b>Session 2</b>             | <b>Chairs : Prof. A. Khazari &amp; Prof. M. Serhani</b>     | <b>Room : S2</b>                                                                                         |
| 13:00-13 :15                 | Y. Elkhalfi                                                 | A sufficient condition for Extinction and persistence of a Stochastic SIRS Model under Jump perturbation |
| 13 :15-13:30                 | K. El Bakkioui                                              | Influence of Stochastic Jumps on the Dynamics of SIRS Systems                                            |
| 13:30-13:45                  | A. Ouhmid                                                   | Modeling Memory Effects in Supply Chain Dynamics via Fractional Calculus Frameworks                      |
| 13:45-14:00                  | M. Menchih                                                  | Chaotic and Hypercyclic Behavior of Certain Spatiotemporal Conformable PDEs                              |
| <b>Session 3</b>             | <b>Chairs : Prof. D. Kiouach &amp; Prof. M. Shimi</b>       | <b>Room : S5</b>                                                                                         |
| 13:00-13 :15                 | M. El Fatry                                                 | Renormalized Solutions for Elliptic Problems in Two-Component Domains with Unbounded Heat Conduction     |
| 13 :15-13:30                 | A. El-Allaly                                                | Multiplicity of solutions for discrete boundary value problem involving the p-Laplacian                  |
| 13:30-13:45                  | M. Knifda                                                   | A Study of Double Phase Problems with Potential Terms on a Complete Manifold                             |
| 13:45-14:00                  | M. Berraho                                                  | An application of Los's Theorem                                                                          |

### Wednesday 09 April 2025

|                |                                                      |                                                   |
|----------------|------------------------------------------------------|---------------------------------------------------|
| 09 :00 -10 :00 | Course : <b>Prof. Mohammed Seaid</b>                 | Chair : Prof. J. Bennouna & Prof. O. El Barrimi   |
|                | Title : Finite element methods for the wave equation |                                                   |
| 10 :00 -11 :00 | Course : <b>Prof. Driss Yakoubi</b>                  | Chair : Prof. M. Elmassoudi & Prof. M. El Khalifi |
|                | Title : Some numerical methods in fluid mechanics    |                                                   |
| From 11 :00    | Tribute to Professor J. Bennouna                     |                                                   |

### Thursday 10 April 2025

|                  |                                               |                                                                                                                                      |
|------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 09 :00 – 11:00   | Course : <b>Prof. Mohamed Rhoudaf</b>         | Chair : Prof. E. Azroul & Prof. Y. Akdim                                                                                             |
|                  | Title : Finite-volume method in Orlicz spaces |                                                                                                                                      |
| 11 :00 – 12:30   | Course : <b>Prof. Mohamed Rhoudaf</b>         | Chair : Prof. L. Lafhim & Prof. H. Hamzaoui                                                                                          |
|                  | Title : Finite-volume method in Orlicz spaces |                                                                                                                                      |
| 12 :30 – 13 :00  | Break                                         |                                                                                                                                      |
| <b>Session 4</b> | Chairs: Prof. A. Aberqi & Prof. M. Rhoudaf    | Video-conference room                                                                                                                |
| 13:00-13:15      | H. Aghdaoui                                   | Optimal control for certain integer and fractional epidemiological models                                                            |
| 13:15-13:30      | A. Elaoula                                    | Stabilization for a class of unbounded bilinear control system in Banach space                                                       |
| 13:30-13:45      | Z. Dardour                                    | Necessary Optimality Conditions for Bilevel Programs: A New Approach                                                                 |
| 13:45-14:00      | R. El Idrissi                                 | Approximate Strong Optimality Conditions in Multiobjective Generalized Nash Equilibrium Problems                                     |
| <b>Session 5</b> | Chairs : Prof. Y. Akdim & Prof. A. Barbara    | Room : S5                                                                                                                            |
| 13:00-13:15      | E. Rami                                       | Existence of a $w-\mu + g-(n; m)$ solution of a quasilinear elliptic system with weight                                              |
| 13:15-13:30      | A.Elyamani                                    | Study and modeling of the semiconductor optical amplifier using the finite difference method                                         |
| 13:30-13:45      | M. Zakaria                                    | On Galerkin spectral element method for solving Riesz fractional diffusion equation based on Legendre polynomials                    |
| 13:45-14:00      | M. Allou                                      | Multiple solutions in fractional Musielak spaces for a class of nonlocal Kirchhoff systems                                           |
| <b>Session 6</b> | Chairs : Prof. A. Azzouzi & Prof. O. Hammouti | Room : S8                                                                                                                            |
| 13:00-13:15      | B. ElAlami                                    | Analysis of a singular double-phase equation with homogeneous Choquard term                                                          |
| 13:15-13:30      | O. El Alami                                   | Multiple solutions for a Neumann problem involving the fractional $p(\cdot, \cdot)$ -Laplacian                                       |
| 13:30-13:45      | A. EL Ouardani                                | On a Neumann parabolic systems with singular reaction-diffusion applied in Quenching in Musielak spaces                              |
| 13:45-14:00      | Y. Ahakkoud                                   | Renormalised solutions for a nonlinear elliptic systems in Musielak-Orlicz spaces                                                    |
| <b>Session 7</b> | Chairs: Prof. M. mekkour & Prof. A. Zafrar    | Room : S9                                                                                                                            |
| 13:00-13:15      | K. Fenza                                      | On the stabilization in finite time of a class of linear systems under multiplicative or additive controls                           |
| 13:15-13:30      | Z. Ech-chaffani                               | Existence of Solutions and Controllability for Neutral Semilinear Evolution Equations                                                |
| 13:30-13:45      | W. Ghandor                                    | The controllability of fractional differential system with state and control delay by using Riemann-Liouville fractional derivatives |
| 13:45-14:00      | A. BEN MOUSSA                                 | Deep Reinforcement Learning for Autonomous Driving : Optimization Strategies and Methodologies                                       |

### Friday 11 April 2025

|                 |                                                                                      |                                    |
|-----------------|--------------------------------------------------------------------------------------|------------------------------------|
| 09 :00 – 11:00  | Course : <b>Prof. Ahmed Aberqi</b>                                                   | Chairs: E. Azroul & M. Ait Hammou  |
|                 | Title : Numerical solution of parabolic equations with lower term in Musielak spaces |                                    |
| 11 :00 – 12 :30 | Course : <b>Prof. Mohamed Rhoudaf</b>                                                | Chair : M. Elmassoudi & M. Mekhour |
|                 | Title : Finite-volume method in Orlicz spaces                                        |                                    |

### Saturday 12 April 2025

|                |             |
|----------------|-------------|
| 09 :00 – 11:00 | Round table |
| 11:30– 12:00   | Closing     |