- JANO'14 Program -

KS: **Keynote Speakers**	**MS: Mini-symposium & S: Session**	**PO: Posters**

SCAN ME

MS & S:

MS1: Computing Algebra and Related topics	**MS2 : Numerical Analysis and Scientific computing**	**MS3 : Computer-aided Design and Shape Optimization**	**MS4 : Topological Data Analysis**
MS5 : Nonlinear PDE and its applications	**MS6 : Mathematics of Artificial Intelligence, Machine Learning and Data Analysis**	**MS7 : Data Assimilation, Inverse Problems, Recent advances in PDEs and their dynamics**	**MS8 : Computational and variational problems in Optimization with applications**
MS9 : Mathematical models in the life sciences, medicine and biology	**MS10 : Multivariate Approximation and Interpolation with Applications (MAIA)**	**MS11 : Mathematics applied to medicine, ecology and economics**	**MS12 : Auto-adaptive methods and applications**
MS13 : Image Processing, Improved Decision Aid and predictive models using ML and Optimisation	**MS14 : Multi-directional structure tensor with multiple applications**	**MS15 : Some concepts and numerical approaches in epidemiology**	**MS16 : Mathematical modeling and simulation applications in finance : *Conventional and Islamic* Finance**
MS17 : *Modelling, Control and optimisation : Theory and application*	**S18 : Control and systems theories**	**S19 : Numerical Method and delay differential equation**	

Classrooms of MS & S :

SC : Salle Conference	**A: Amphi**	**GS: Grande Salle**	**S: Salle**

Sunday Afternoon, February 19, 2023

17h-19h : Registration (Part 1)

Monday morning, February 20, 2023

08h15-9h00 : Registration (Part 2)						
09h00-09h30 Welcome and opening Ceremony						
9h30-10h15	**Plenary conference: Marc Dambrine** *University of Pau and, France* ***Chairman: El Haj Laamri*** ***"Robust shape optimization"***					
10h15-10h45	**Welcome Coffee**					
10h45-11h30	**Plenary conference: Abdelaziz Ghandi** *University of Salerno, Italy* *Chairman: Khalid Najib* "***Kolmogorov operators on noncompact metric graphs***"					
11h30-13h30	**Mini-symposium**					
MS 5: C1:C7 Chairmen: El Houssine Azroul & Mohamed Rhoudaf	**MS2 : C1:C6 Chairmen : Alain Brillard & Abderrahim Azouani**	**MS7 : C1:C6 Chairman: El Haj Laamri**	**MS9: C1:C6 Chairmen : Jorge Tiago & Oualid *Kafi***	**MS12 : C1:C6 Chairman : Boujemâa Achchab**	**MS14: C1:C7 Chairman : Abdeslem Hafid Bentbib**	**MS11 : C1:C6 Chairman : Khalid Hattaf**
SC	***A1***	***GS2***	***GS3***	***S10***	***S11***	***S12***
13h30- 14h50 : Lunch Break						

C : Communication

JANO'14-**ENSMR**-Rabat: https://jano14.sciencesconf.org/

Monday afternoon, February 20, 2023

15h-15h45	**Plenary conference : Jose Carmona Tapia** *University of Almeria, Spain* **Chairman: El Houssine Azroul** ***"Continua of solutions and multiplicity for elliptic boundary value problems"***					
15h45-16h30	**Plenary conference : Erkan Günpinar** *Istanbul Technical University* **Chairman: Badr Abou El Majd** ***"Generative CAD model sampling and Generative (additive manufacturing) print-path design"***					
16h30- 16h45	**Coffee Break**					
16h45-18h45	**Mini-symposium**					
MS 5: C8:C14 **Chairmen:** **El Houssine Azroul & Mohamed Rhoudaf**	**MS2 : C8:C14** **Chairmen :** **Alain Brillard & Abderrahim Azouani**	**MS7 : C7:C13** **Chairman :** **El Haj Laamri**	**MS8: C1:C7** **Chairmen :** **Rabie Zine & El Mostafa Kalmoun**	**MS3: C1:C8** **Chairmen :** **Erkan Gunpinar & Badr Abou El Majd**	**S18: C1:C6** **Chairman :** **Nourredine Moussaid**	**S19: C1:C7** **Chairman :** **Abdelaziz Timesli**
SC	***A1***	***GS2***	***GS3***	***S10***	***S11***	***S12***

C : Communication

Tuesday morning, February 21, 2023

09h00- 9h45	**Plenary conference :** ***Rabia Djellouli*** *California State University Northridge, USA* **Chairman: Mohamed Amara** ***"An Inversion Strategy for Fully Characterizing Acoustic Elastic Scatterers"***						
9h45-10h30	**Plenary conference :** ***Frederic Chazal*** *Paris-Saclay University, France* **Chairman: Driss Bennis** ***"Learning and exploiting the shape of data: a brief introduction to Topological Data Analysis"***						
10h30-11h00	**Coffee Break**						
	Mini-symposium						
MS 5 : C15:C17 **Chairmen :** **El Houssine Azroul & Mohamed Rhoudaf**	**MS9: C7:C12** **Chairman :** **Jorge Tiago & Oualid *Kafi***	**MS8: C8:C13** **Chairmen :** **El Mostafa Kalmoun**	**MS10 : C1:C6** **Chairman :** **Mohamed Addam**	**MS6: C1:C5** **Chairman :** **Tawfik Masrour**	**MS 15: C1:C7** **Chairman :** **Abdessamad Bernoussi**	**MS4 : C1:C6** **Chairman :** **Bertrand Michel**	**MS13 : C1-C7** **Chairmen :** **Omar Souissi & Youssef Lamrani Alaoui**
SC	***A1***	***GS2***	***GS3***	***S10***	***S11***	***S12***	***S6***
– Start at 12h 00-	***Plenary conference for MS5 :*** **Raffaella Servadei** *University of Urbino Carlo Bo, Italy* ***"Nonlocal problems with critical nonlinearities"***						
13h30- 14h50 : Lunch Break							

C : Communication

Tuesday afternoon, February 21, 2023

Panel **"STEM education in Moroccan universities : opportunities and challenges"** **- MathICs as an example-** **14h30-16h30** **Chairman : Khalid Najib**	
Title	**Auteurs**
Experience of the MathICs project.	***Luis Oyonarte Alcalá;*** *University of Almeria* ***& Dr. Driss Bennis;*** *University Mohammed V-* ***Rabat (MathICs project coordinators***)
The importance of pedagogical approaches in distance learning	***Fouad Bennis;*** *Ecole Centrale de Nantes (Actor of the MathICs project)*
Contribution of pedagogical robotics in STEM education	***Abdelkrim El Marrakchi****; Ministry of Education (Président de l'association ATDTec)*
OER, Open licensing and Open Science	***Khalid Berrada;*** *University Mohammed V in Rabat*
Popularization of mathematics and the science caravan experiment.	***Naceur Achtaich****; University Hassan II in Casablanca (Founder of ABC MathInfo Association)*
Le Digital Learning pour une performance educative des EPEF	***Hanane Sadeq;*** *ENSMR*

16h30- 17h00 : Coffee Break and Poster session of pedagogy

Wednesday Morning, February 22, 2023

9h00-09h45	**Plenary conference : *EL-Haj LAAMRI*** *Lorraine University* **Chairwoman: Rajae Aboulaich** ***"Existence globale pour une classe de systèmes de réaction-diffusion : un survey"***						
9h45-10h15	**Coffee Break & Poster Session**						
10h15-12h30	**Mini-symposium**						
MS 5: C18-C23 **Chairmen :** **El Houssine Azroul & Mohamed Rhoudaf**	**MS11: C6-C12** **Chairman :** **Khalid Hattaf**	**MS6: C6-C10** **Chairman :** **Hassan Ramchoun**	**MS 10: C6:C11** **Chairman :** **Mohamed Addam**	**MS 17: C1-C6** **Chairman :** **Imad El Harraki**	**MS 1: C1-C8** **Chairmen :** **Ibrahim Fahid & Driss Bennis**	**MS16: C1 :C7** **Chairwomen :** **Khawla Dahani & Ibtissam Medarhri**	
SC	***A1***	***GS2***	***GS3***	***S10***	***S11***	***S12***	
Closing Ceremony							

C : Communication

	MINISYMPOSIUM	
MS1	**Computing Algebra and Related topics**	**Organizers: Driss Bennis & Brahim Fahid**
MS1-1	**A New Approach On Phantom Morphisms**	Mourad Khattari, Driss Bennis
MS1-2	**Fault-Tolerent Metric Dimension Of The I-Extended Zero-Divisor Graphs Of Commutative Rings**	Adil Fouimtizi, Brahim Fahid, Driss Bennis
MS1-3	**Minimal Lambda Dimension In An Abelian Category**	Abderrazak Nassir, Driss Bennis
MS1-4	**N-Gr-Coherent Rings And Gorenstein Graded Modules**	Soumia Mamdouhi
MS1-5	**On I-Extended Zero-Divisor Graphs Of Commutative Rings**	Brahim El Alaoui
MS1-6	**On S-Coherent Rings**	Ayoub Bouziri
MS1-7	**Solving A Variant Of Lvov-Kaplansky Conjecture Using $\Mathcal{G}_N$-Derivations**	Abderrahim Adrabi, Driss Bennis, Brahim Fahid
MS1-8	**Weak U-S-Flat Modules And Dimensions**	Refat Assaad
MS2	**Numerical Analysis And Scientific Computing**	**Organizer: Alain Brillard**
MS2-1	**A Hybrid Fe-Meshless Method For Modeling And Studying Fgm Structures**	*Redouane El Kadmiri, Abdelaziz Timesli, My. Saddik Kadiri*
MS2-2	**Reactive Solute Transport With Degenerate Parabolic Equation In Porous Media**	*Sadiq Hamidi, Mustapha Elossmani, Abdelaziz Taakili*
MS2-3	**A Meshless Method For Solving The Nonlinear Hyperbolic Equation With Variable Coefficients**	*Abdelali Mohib*
MS2-4	**The Approximate Solution By Meshless Method Of Volterra Integro-Differential Equation**	*Said Elbostani*
MS2-5	**DDFV Scheme For Nonlinear Parabolic Problems On General Meshes**	*Zaroual Bazirha, Lahcen Azrar*
MS2-6	**Acceleration Of A Higher Order Compact Difference Scheme For Solving Plate Vibrations Problem**	*Yassin Khali, Samir Khallouq, Nabila Nagid*

MS2-7	**Analytical Solution Of Newtonian Poiseuille Flow In A Channel Of Rectangular Cross-Section With Dynamic Wall Slip**	*Meryieme El Farragui, Otmane Souhar, Georgiou Georgios*
MS2-8	**On The Monotonicity Of Finite Volume Scheme For Parabolic Equations With Anisotropy**	*Moha Aberrah*
MS2-9	**Isogeometric Analysis Applied To 2d Brinkman Problem**	*Lahcen El Ouadefli*
MS2-10	**The Singular Function Boundary Integral Method For 3-D Laplacian Problems With Conical Vertex Singularities**	*Hind Lamsikine, Otmane Souhar, Georgios Georgiou*
MS2-11	**A Parallel Preconditioning Schur Complement For Large Scale Industrial Problems**	*Saad Hassouna, Abdelaziz Timesli, Abderrahim Azouani, Abderrazak Ramadan*
MS2-12	**Burgers' Equation Resolution Using Node Averaged Nodal Integral Method**	*Meryem Chahir, Najib Guessous*
MS2-13	**Reliable And Accurate Method For Modelling And Simulations Of Parameterized Partial Differential Equations**	*Hasna Essaouidi, Otmane Souhar, Georgios Georgiou*
MS2-14	**Investigation Of Transient Nonlinear Heat Transfer Using Fem In Metal Plate With Variable Thickness**	*Taibi Mohammed, Younes Abouelhanoune, Fouad Dimane*
MS3	**Advanced Materials And Shape Optimization**	**Organizer: Erkan Gunpinar & Badr Abou El Majd**
MS3-1	**Model Reduction Using Artificial Neural Networks For Parametric Shape Optimization**	Youness Karafi, Badr Abou El Majd, Mesri Youssef
MS3-2	**A Meshfree Approach Based On Tsdt Theory For Cnt Reinforced Concrete Skew Plate**	Youssef Bouchaouata, Timesli Abdelaziz
MS3-3	**On A New Numerical Approach For Solving Shape Optimization Eigenvalue Bi-Laplacian Problems Under Convexity Constraint**	Ibrahim Khalil, Abdelkrim Chakib
MS3-4	**Optimization Of The Makespan For A Permutation Flow Shop Problem Under The Constraint Of A Sequence-Independent Setup Time**	Oualid Elissaouy, Karam Allali
MS3-5	**Geometrical Design, Numerical Modeling And Control Of A Magnetic Levitation Train**	Wissal Assassi, Said Guedira, Samira Chebli, Soumia El Hani
MS3-6	**New Optimization Of Q For A General Class Of The Fractional Zener Model**	Mohamed Ait Ichou, Ezziani Abdelaaziz

MS3-7	**Robust Shape Optimization. Application To The Optimization Of An Aircraft Wing Profile.**	Zakaria Moussaoui, Youness Karaf, Badr Abou El Majd
MS3-8	**Mechanical Energy Absorption Capacity Of Porous Fgm Materials During A Progressive Collision**	Mohamed Jananae Allah, Abdelaziz Timesli
MS4	**Topological Data Analysis**	**Organizers: Bertrand Michel & Driss Bennis**
MS4-1	**A Simplified Algorithm For Identifying Abnormal Changes In Dynamic Networks**	Bouchaib Azamir, Driss Bennis, Bertrand Michel
MS4-2	**Topological Measurement Of Deep Neural Network**	Fatimatou El Baihi
MS4-3	**Big Data Approaches To Knot Theory**	Imane Fahmi
MS4-4	**The Categorical Aspect Of Subprojectivity Domains**	Hanane Ouberka
MS5-5	**Linear Codes Associated To Zero-Divisor Graphs**	Raja L'hamri
MS6-6	**Precover Completing Domains And Approximations**	Houda Amzil
MS5	**Nonlinear PDE And Its Applications**	Organizer: El Houssine Azroul
MS5-1	**On A Class Of Kirchhoff Type Problem Involving The General Nonlocal Integro-Differential Operator**	Nezha Kamali, Azroul Elhoussine, Maria Alessandra Ragusa, Mohammed Shimi
MS5-2	**Nonnegative Solution Of A Class Of Double Phase Problems With Logarithmic Nonlinearity**	Mhamed Elmassoudi, Ahmed Aberqi, Omar Benslimane, Maria Alessandra Ragusa
MS5-3	**Dynamics Modes Of Fractional Order Model For Fluid Membranes**	Sara Bouda, Elhoussine Azroul, Ghizlane Diki, Mohamed Guedda
MS5-4	**Existence Of Radial Solutions For A Semilinear Problem On Exterior Domains With Boundary Conditions**	Boubker Azeroual
MS5-5	**Existence Of Weak Solutions For Quasilinear Elliptic Systems In Sobolev Spaces With Weak Monotonicity And Rafined Conditions**	Daife Abdelali, Azroul Elhoussine

MS5-6	**Existense Of Solutions For Strongly Nonlinear Anisotropic Parabolic Unilateral Equations With Variable Exponents And Involving An Obstacle Depending On Time**	Mohammed Bouziani, Elhoussine Azroul
MS5-7	**Existence Of Renormalized Solutions For Elliptic Problem With Neumann Boundary Condition.**	Hayat Benkhalou, Mohamed Badr Benboubker, Hassane Hjiaj
MS5-8	**On The Existence And Positivity Of A Cell Population Balance Model**	Abdellaziz Binid, Nadia Beniich
MS5-9	**Modular Fixed Point Theorem In The Variable Exponent Spaces L^P(.)**	Amnay El Amri
MS5-10	**A Strongly Non-Linear Elliptic Problem With L 1 -Data In Musielak-Orlicz Spaces**	Rachid Bouzyani, Badr El Haji, Mostafa El Moumni
MS5-11	**Fractional Eigenvalue System With Variable Exponents**	Houria El-Yahyaoui
MS5-12	**On The Existence Of A Solution To A Strongly Nonlinear Coupled System In Anisotropic Orlicz-Sobolev Spaces**	Hakima Ouyahya, Mohamed Rhoudaf, Fransisco Ortegon Gallego
MS5-13	**Existence Result For Strongly Nonlinear Elliptic Unilateral Problems With Mesure Data In The Setting Of Musielak-Orlicz Spaces**	Nourdine El Amarty, Badr El Haji, Mostafa El Moumni
MS5-14	**A Strongly Nonlinear Anisotropic Elliptic System: Analysis And Numerical Simulation**	Hajar Talbi, Francisco Ortegon Gallego, Mohamed Rhoudaf
MS5-15	**Mathematical Analysis Of Electro-Thermo-Fluid Model For Cardiac Radio-Frequency Ablation**	Yassine Ouzrour, Mostafa Bendahmane, Youssef Ouakrim
MS5-16	**Solving A Coupled Elliptic-Hyperbolic System: Existence And Unicity**	Elabbassi Mariam, Cherif Ziti
MS5-17	**Mathematical And Numerical Analysis Of A New Fractional Model Of Acquired Immune Deficiency Syndrome.**	Nassira Madani, Elhoussine Azroul, Zakia Hammouch
MS5-18	**Modelling And Analysis Of The Caputo Fractional Differential System Describing Vesicle Dynamics Mapped Into The Rigid Sphere**	Ghizlane Diki, Elhoussine Azroul, Mohamed Guedda
MS5-19	**On The Study Of Some Noncoercive Elliptic Equations In Weighted Sobolev Spaces**	Inssaf Raiss, Arij Bouzelmate, Hassane Hjiaj
MS5-20	**Fractional Model And Numerical Algorithms For Analyzing The Impact Of Hiv/Aids Migration**	Safae L'kima

MS5-21	**Renormalized Solutions For Some Non-Coercive Singular Quasilinear Elliplic Problems**	El Janathi Aymane, Hassane Hjiaj
MS5-22	**Weak Periodic Solution For Strongly Nonlinear Parabolic Problems Without Sign Condition And Nonlinear Boundary Conditions**	Abdelghani Az-Edine, Mostafa El Moumni
MS5-23	**Solving Fractional Differential Equations**	Abdellatif Semmouri, Mostafa Jourhmane
MS6	**Mathematics of Artificial Intelligence, Machine Learning and Data Analysis**	Organizers: Tawfik Masrour & Hassan RAMCHOUN
MS6-1	**Bayesian Neural Networks**	Mostafa Bakhouya, Hassan Ramchoun, Mohammed Hadda, Tawfik Masrour
MS6-2	**Bellman Activation Function: An Activation Function That Satisfies A 1-Dimensional Projection Of The Bellman Equation**	Elmehdi Amhraoui
MS6-3	**Hyper-Parameter Optimization For Convolutional Neural Network Based On Genetic Algorithm**	Khalid Elghazi, Hassan Ramchoun, Tawfik Masrour
MS6-4	**Machine Learning For Forecasting Some Stock Market Index**	Mohammed Benmoumen
MS6-5	**Distributed Artificial Intelligence Model For Optimizing The Medical Waste Management Process**	Ahmed Chtioui, Abla Chaouni Benabdellah, Imane Bouhaddou, Asmaa Benghabrit
MS6-6	**Deep Learning For Solving Pdes That Simulate Nuclear Waste Disposal**	Idriss Barbara, Tawfik Masrour, Mustapha El Ossmani,, Mohammed Hadda
MS6-7	**Improving Pedestrian Segmentation With Detection-Based Region Proposals: An Experimental Study**	Mohamed Jaouad Lahgazi, Abdelilah Hakim, Pierre Argoul
MS6-8	**Lithium-Ion Battery Behavior Simulation Based On Pdes Models Solution**	Hind El Ouazzani, Ibtissam Elhassani, Tawfik Masror
MS6-9	**Simple Convergent Procedure To Estimate Exploratory Factor Analysis Model**	Seyid Abdellahi Ebnou Abdem, Zouhair El Hadri, M'barek Iaousse
MS6-10	**The Convergence Analysis Of Batch Gradient Method With Smoothing Mask For Pruning Hidden Nodes Of Feedforward Neural Networks.**	Mohamed Quasdane, Hassan Ramchoun,Tawfik Masrour
MS6-11	**A Study of Network Roads Landslides and their Stabilization Methods in the North of Morocco**	Basheer Al Qadami

MS7	**Data Assimilation, Inverse Problems, Recent Advances In Pdes And Their Dynamics**	Organizers: El Haj Laamri
MS7-1	**A Class Of Parabolic Fractional Reaction-Diffusion Systems With Polynomial Growth: Theory And Numerics**	Maha Daoud, El Haj Laamri, Azeddine Baalal
MS7-2	**On Global Existence For Parabolic Reaction-Diffusion Systems Modeling Reversible Chemical Reactions: A Numerical Study**	Rajae Malek, El Haj Laamri, Chérif Ziti
MS7-3	**Numerical Study For A Thermistor Problem Using Discrete Duality Finite Volume Scheme**	Manar Lahrache, Mohamed Rhoudaf
MS7-4	**Nečas Identity For The Biharmonic Operator In Lipschitz Domains**	Ouejdane Baali, Abdellatif Chaira
MS7-5	**Controllability Of Bilinear Systems, Survey And Some New Results.**	Yassine Hdach, Imad El Harraki, Ilyasse Lamrani
MS7-6	**Feedback Stabilization For Prey Predator General Model With Diffusion Via Multiplicative Controls**	Ilyasse Lamrani, Imad El Harraki, M.A Aziz-Alaoui, Fatima Zahrae El Alaoui
MS7-7	**Solving Steady State Richards Equation With A Truly Local Meshless Method**	Hani Hafidi, Ahmed Naji, Abdelkrim Aharmouch
MS7-8	**Parameter Recovery Of An Epidemic Model With Continuous Data Assimilation**	Mohammed Azoua, Abderrahim Azouani, Imad Hafidi
MS7-9	**A Comparative Study On The Application Of The Method Of Fundamental Solutions To The Inverse Problem Of Heat Conduction**	Mohammed Baati
MS7-10	**Numerical Simulation Of Mhd Non-Newtonian Effects On Elastic Lubricated Contacts**	Mohammed Kardoudi, Mohamed Nabhani, Mohamed El Khlifi
MS7-11	**A Novel Method To Restore Noisy Piecewise Linear Signals**	Zakariae Drabech, Mohammed Douimi, Elmoukhtar Zemmouri
MS7-12	**Reference Model Tracking For Markovian Jump Systems With Partially Unknown Transition Rates**	Fatima Ezzahra Wasfi, Abdelmoula El Bouhtouri, Nadia Beniich
MS7-13	**Stochastic Rayleigh Diffusion Process Related On The Rayleigh Density Function: Inference Aspects And Simulation**	Yassine Chakroune, Ahmed Nafidi
MS8	**Computational and variational problems in Optimization with applications**	Organizers: Rabie Zine & El Mostafa Kalmoun

MS8-1	**Fast Computational Methods In Image Processing**	El Mostafa Kalmoun **(Special Guest)**
MS8-2	**A Sequential Upper Parametric Approximation Method For Generalized Fractional Programs**	Abdessamad Fadil, Ahmed Roubi, Karima Boufi
MS8-3	**An Improved Method In Shape Optimization Problem For Stokes Equation**	Azeddine Sadik
MS8-4	**Bayesian Optimization For Rfid Network Planning**	Ait Lhadj Lamin Samir, Badr Abou El Majd, Abdelkader Raghib
MS8-5	**Relationships Between Bilevel Variational Inequalities And Bilevel Optimization Problems**	Mohsine Jennane
MS8-6	**Optimality Conditions For Vector Fractional Programming Problems With Ratios Of Convex Functions**	Abdelouafi Ghazi
MS8-7	**Optimum Design For Slip/No-Slip Configuration Of Hydrodynamic Fluid Film Using Gradient Method**	Mouna Hilal, Mohamed El Alaoui Talibi, Guy Bayada
MS8-8	**Proximal Point Algorithm For Equilibrium Problems**	Ahmed Roubi, Karima Boufi, Abdessamad Fadil
MS8-9	**Scheduling Trucks In A Multi-Door Cross-Docking System With Storage Zones**	Kawtar Riyad, Nawal Bourquia, Soulaimane Kalou
MS8-10	**Stochastic Vehicle Routing Problem**	Elouali Khayya, Ibtissam Medarhri, Rabie Zine
MS8-11	**Successive Upper Approximations Methods For Generalized Fractional Programs**	Karima Boufi, Abdessamad Fadil, Ahmed Roubi
MS8-12	**A combined Ant Colony Optimization with Levy flight mechanism for the Probabilistic Traveling Salesman Problem**	Fadoua El Asri, Chakir Tajani, Hanane Fakhouri
MS8-13	**Birth Allocation Problem In A Container Terminal : Real Case Study**	Ilham Kissani, Rabie Zine
MS9	**Mathematical Models In The Life Sciences, Medicine And Biology**	Organizers: Jorge Tiago & Oualid Kafi
MS9-1	**Near-Synchronization Of Predator-Prey Complex Networks**	Cristiana J. Silva **(Special Guest)**
MS9-2	**Asymptotic Behaviour Of A Delayed System Describing Immune Response To Virus Infection Spreading**	Fatima Boudchich, Jaafar El Karkri, Rajae Aboulaich

MS9-3	**A Mathematical Model For Trichoderma Fungi Kinetics**	Asmae Hardoul, Zoubida Mghazli
MS9-4	**Dynamics Of A Fishery On Two Fishing Zones With Nonlinear Harvesting: Control And Price Variation**	Ismail El Hakki, Rachid Mchich, Amal Bergam
MS9-5	**Spatio-Temporal Epidemic Model With Non-Linear Robin Boundary Condition**	Omar Elamraoui, El Hassan Essoufi
MS9-6	**The Dynamical Behavior Of A Fractional-Order Prey-Predator Model In The Presence Of The Harvesting, Competition And Toxicity**	Chaimaa Assila
MS9-7	**Optimal Control Strategy In Blood Flow Modelling**	Jorge Tiago **(Special Guest)**
MS9-8	**Mathematical Model Of Anaerobic Digestion With Hydrolytic Process By Means Of Leachate Recirculation In Landfills**	Oumaima Laraj, Noha El Khattabi, Alain Rapaport, Jérôme Harmand
MS9-9	**Numerical Methods Applied To A Fractional Seiqhr Epidemic Model**	Mohamed Reda Lemnaouar, Younes Louartassi, Rabie Zine
MS9-10	**Remediability Problem In Linear Fractional Order Time-Invariant Disturbed Systems**	Chadi Amissi
MS9-11	**Control To Covid-19 Spread With Vaccination -A Viability Aproach-**	Hassania Abou-Nouh
MS9-12	**Fractional-Order Sir Mathematical Model Of Covid-19 Pandemic**	Marya Sadki, Karam Allali
MS10	**Multivariate Approximation And Interpolation With Applications (Maia)**	Organizer: Mohamed Addam
MS10-1	**Mathematical Modeling Of A Fractal Contact Law In Granular Materials**	Younes Abouelhanoune
MS10-2	**A Numerical Methods For All Kind Fredholm Integro-Differential Equation Using Higher-Order Splines Interpolants**	Imad El Barkani And Mohamed Addam
MS10-3	**Modeling Beam Displacements Governing By Coupled Timoshenko Vibrating Equations Based On Galerkin Variational Projection**	Ahmed Ben Abdellah And Mohamed Addam
MS10-4	**A Novel Quantum Information Based Computational Approximate Solution Of The Schrödinger Partial Differential Equation**	Imane Elhadouti And Mohamed Addam
MS10-5	**Smoothing Splines Galerkin Approxiamation For Solving Black-Scholes Pde As A Model In Asiatic Option**	Salima Belkouz And Mohamed Addam

MS10-6	**Study Of Numerical Stability And Bifurcation Analysis In A System Of Neutral Differential Equations**	Ahmed Moussaid
MS10-7	**Scattered Data Interpolation On The 2-Dimensional Surface Through Shepard-Like Technique**	Benaissa Zerroudi
MS10-8	**Estimation Of The Bivariate Distribution Function By Using Spline Approximation**	Nezha Mohaoui, Abdelilah Monir, Hamid Mraoui
MS10-9	**Generalized Solutions For Fractional Heat Equation With Singular Potentials**	Abdelmjid Benmerrous, Lalla Saadia Chadli, Abdelaziz Moujahid, M'hamed Elomari, Said Melliani
MS10-10	**New Method For Reversing The Symetric Tridiagonal Quasi-Toeplitz Matrices**	Fouad Aoulad Omar, Chakir Tajani
MS10-11	**On The Use Of The Spectral Element Method For The Modeling Of Fluid-Structure Interaction Problems**	Drissi Mohamed, Mohamed Mansouri, Mesmoudi Said
MS11	**Mathematics Applied To Medicine, Ecology And Economics**	Organizer: Khalid Hattaf
MS11-1	**Mathematical Modeling Of Cancer Under Combined Therapy Using Oncolytic Viruses And Inhibitors**	Majda El Younoussi, Khalid Hattaf, Noura Yousfi
MS11-2	**Modeling The Dynamics Of Hiv-1 Infection Under Highly Active Anti-Retroviral Therapy**	Zakaria Hajhouji, Khalid Hattaf, Noura Yousfi
MS11-3	**Global Properties Of A Generalized Ebola Virus Disease Model With Death Transmission And Vaccination**	Zineb El Rhoubari
MS11-4	**A Mathematical Model Of Economic Cycle Using New Fractional Order Derivative**	Sara Lasfar, Maha Elkarmouchi, Khalid Hattaf, Noura Yousfi
MS11-5	**Mathematical Analysis Of A Spatio-Temporal Dynamics Of A Delayed Is-Lm Model In Economics**	Maha Elkarmouchi, Sara Lasfar, Khalid Hattaf, Noura Yousfi
MS11-6	**A Generalized Age-Structured Hbv Infection With Two Treatments : Pegylated Interferon And Lamivudine Drugs**	El Mehdi Warrak, Khalid Hattaf, Noura Yousfi
MS11-7	**Global Dynamics Of A Diffusive Sars-Cov-2 Model With Antiviral Treatment And Fractional Laplacian Operator**	Abdelaziz El Hassani, Benyounes Bettioui, Khalid Hattaf, Naceur Achtaich

MS11-8	**Dynamics Of An Ecological Prey-Predator Model Based On The Generalized Hattaf Fractional Derivative**	Fatima Assadiki, Majda El Younoussi, Khalid Hattaf, Noura Yousfi
MS11-9	**Multi-Criteria Decision Support Based On Artificial Intelligence Applied To The Problem Of Infertility**	Sanaa Badr, Noura Yousfi
MS11-10	**Modeling Of Atmospheric Dispersion By The Eulerian Models.**	Sara Hakim, Najma Laaroussi, Mohammed Garoum
MS11-11	**A Low-Cost Estimation Method For Conditional Probabilities In Resource-Constrained Environments**	Ali Labriji, Abdelkrim Bennar
MS11-12	**Technical And Economic Optimization Parameters In Pv Battery Systems**	Meriem Andam, Jamila El Alami, Younes Louartassi, Rabie Zine
MS12	**Auto-Adaptive Numerical Methods And Applications**	Organizer: Boujemâa Achchab
MS12-1	**Metrics And Qualities Of Simplexes.**	Abdellatif Agouzal **(Special Guest)**
MS12-2	**Computational Comparison Of Some A Posteriori Error Estimators For Nonconforming Finite Element Methods**	Boujemâa Achchab, Abdellatif Agouzal, Khalid Bouihat, Adil Majdoubi
MS12-3	**Constant Free A Posteriori Error Estimates In Finite Element Methods For General Friedrichs' Systems**	Khalid Bouihat, Boujemâa Achchab, Abdellatif Agouzal
MS12-4	**An Explicit A Posteriori Error Estimate To Multidimensional Cauchy Problem**	Abdeljalil Sakat, Boujemâa Achchab, Ali Souissi
MS12-5	**Comparison Of A Posteriori Error Estimators**	Ilyas Naji
MS12-6	**A New Approach For Linearizing Implicit Schemes For Keller-Segel Models**	Benzakour Amine
MS13	**Image Processing, Improved Decision Aid And Predictive Models Using Machine Learning And Optimization**	Organizers: Omar Souissi & Youssef Lamrani Alaoui
MS13-1	**A Fuzzy Holdout Method For Models' Selection In Cancer Prediction**	Youssef Lamrani Alaoui, Mohammed Benmir, Rajae Aboulaich
MS13-2	**A Comparative Study Of Game Theory Techniques For Blind Deconvolution**	Nora Nasr, Noureddine Moussaid, Omar Gouasnouane
MS13-3	**Multigrid Optimization: A Short Review**	Mohamed Ballouch, Omar Souissi, Mohammed Raiss El Fenni

MS13-4	**Similar Images Retrieval Using Nash Equilibrium And Machine Learning**	Fatima-Ezzahrae Salah, Noureddine Moussaid
MS13-5	**An Interactive Intuitionistic Fuzzy Approach For Socially Responsible Portfolios Selection: A Multi-Objective Optimization Approach**	Yahya Hanine, Mohamed Tkiouat, Younes Lahrichi
MS13-6	**Searching For Similar Images Using Nash Game And Machine Learning**	Fatima Zahra Semmane, Nouredinne Moussaid, Mohammed Ziani
MS13-7	**Deblurring Image By The Total Fractional Order Variation Using The Nash Game**	Soukaina Berhich, Noureddine Moussaid, Driss Meskine
MS14	**Multi-Directional Structure Tensor With Multiple Applications**	Organizer: Abdeslem Hafid Ben Tbib
MS14-1	**Acceleration Of Tensor Sequences Using Generalized Extrapolation Methods**	Ridwane Tahiri
MS14-2	**High-Order Stochastic Principal Component Analysis Algorithm**	Aoulaia Andahmou, Abdeslem Hafid Bentbib, Mehdi Zahid
MS14-3	**Multilayer Networks Analysis Using A Tensor Representation And The Einstein Product**	Smahane El Halouy, Lothar Reichel, Silvia Noschese
MS14-4	**Solving Tensor Compressed Sensing Problem Using The Einstein Product**	Ferdaous Ait Addi
MS14-5	**Tensor Decompositions For Missing Multi-Dimensional Data Completion And Its Application In Network**	Sanaa Khobizy, Abdeslem Hafid Bentbib, Khalide Jbilou
MS14-6	**Tensor Splitting And Krylov Subspace Methods For Multilinear Pagerank Computing**	Maryam Boubekraoui, Khalide Jbilou, Abdeslem Hafid Bentbib
MS14-7	**On Some Supersymmetric Tensor Properties**	Souad Baassou, Otmane Souhar
MS15	**Some Concepts And Numerical Approaches In Epidemiology**	Organizer: Abdessamad Bernoussi
MS15-1	**Viability, Co-Viability And Lifespan**	Abdessamad Bernoussi, Mina Amharref
MS15-2	**Total And Partial Observation-Detection For Linear Dynamical Systems**	Mohamed El Khalil Danine
MS15-3	**Time Delay And Nonlinear Incidence Effects On The Stochastic Sirc Epidemic Model**	Abdelaziz Ben Lahbib, Lahcen Azrar

MS15-4	**Global Dynamics, Optimal Control And Numerical Simulations Of A Vaccination Age-Structured Sviqr Model For Chickenpox Disease With A Generalized Nonlinear Incidence.**	Abdellah Ouakka, Abdelouahed Alla Hamou, Abdelhai Elazzouzi
MS15-5	**Analysis Of A Multi Degree Of Freedom By Numerical Methods.**	Yousra EL HANKOURI, EL GHOULBZOURI Abdelouafi
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MS16	**Mathematical Modeling And Simulation Applications In Finance**	Organizer: Khawla Dahani & Ibtissam Medarhri
MS16-1	**Agent-Based Stock-Flow Consistent Modeling : A Survey**	Khawla Dahani, Rajae Aboulaich
MS16-2	**Predicting Stock Market Price Movement Using Machine Learning Techniques**	Ibtissam Medarhri, Mohamed Hosni
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MS17	**Modelling, Control And Optimization : Theory And Application**	Organizer: Imad El Harraki
MS17-1	**Integration And Optimization Workflow Of Heat Pump Through Pinch Method**	Ibaaz Khalid, Imad El Harraki, Moha Cherkaoui, Mustapha Oudani
MS17-2	**Mixed Integer Nonlinear Programming Approach For Optimal Placement And Size Of Capacitors In Distribution Systems For Voltage Profile Improvement And Power Loss Reduction**	Chaymae Makri, Said Guedira, Imad El Harraki, Soumia El Hani
MS17-3	**An Efficient Algorithm For Customer Churn Prediction Using Mathematical Programming**	Mohamed Barhdadi, Mohamed Ouzineb, Badreddine Benyacoub

MS17-4	**HMM-Based Supervised Classifier Algorithm Using Left Inverse**	Boutaina Ouriarhli, Badreddine Benyacoub, Benazza Hafida
MS17-5	**Controllability Result Of Caputo Fractional Semi-Linear System With Diffusion On A Boundary Subregion.**	Asmae Tajani, Fatima Zahrae El Alaoui
MS17-6	**Deep Learning For Solving Partial Differential Equations (Pdes)**	Ayoub Farkane
S18	**Control and systems theories**	
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S18-3	**A Review Of Flying Ad Hoc Networks: Main Applications, Wireless Technologies And The Routing Protocols**	Fatima Lmoudn
S18-4	**Theoretical And Numerical Study Of Regional Boundary Observability For Linear Time-Fractional Systems**	Khalid Zguaid, Fatima Zahrae El Alaoui
S18-5	**The Ahp-Method And Its Applications:Review**	Karkour Youssef
S18-6	**An Inverse Optimal Control Problem For Infinite-Dimensional Semilinear Systems**	Toufik Ennouari
S19	**Numerical Method And Delay Differential Equation**	
S19-1	**Energy Harvesting In A Delay-Induced Parametric Van Der Pol-Duffing Oscillator**	Zakaria Ghouli, Mohamed Belhaq
S19-2	**Cone-Bounded Feedback Laws For Linear Second Order Systems**	Ahmat Mahamat Taboye, Abdellaziz Binid, Mohamed Laabissi
S19-3	**On Nonlinear Elliptic Equations With Hardy Potential And L1-Data**	Bouchaib Ferrahi, Hassane Hjiaj, Rajae Zerouali
S19-4	**Exponential And Weak Stabilization For Constrained Delayed Semilinear Systems Using A Class Of Feedback Controls**	Ahmed Delbouh, Azzeddine Tsouli
S19-5	**The Fuzzy–Ahp Model For Energy Security Assessment Of Morocco**	Zakariyae Tajani

S19-6	**Solution Method For Intuitionistic Fuzzy Delay Differential Equations Under Generalized Differentiability**	Bouchra Ben Amma, Said Melliani, Lalla Saâdia Chadli
S19-7	**General Intuitionistic Fuzzy Linear Systems**	Hafida Atti, Bouchra Ben Amma, Said Melliani, Lalla Saâdia Chadli

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PO	**Posters of ANO**	
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