ICFDA'18 Conference Program

Monday, 16th July 2018	DAY 1	
07:00 – 09:00	**Registration**	
09:00 – 10:00	**Opening Ceremony** • National Anthem • Holy Quran • Professor Shaher Momani, Chair of ICFDA'18 • Professor Dumitru Baleanu, Chair of International Program Committee • Professor Imad Salah, President of The University of Jordan • Professor Azmi Mahafzah, Minister of Education • Honoring Ceremony	
10:00 – 10:45	**Poster Exhibition & Coffee Break 1**	Al Majles
Keynote Lectures	**Chair:** Reyad El-Khazali, Shaher Momani	
10:45 – 11:30	**YangQuan Chen: Fractional Calculus View of Complexity**	Main Hall
11:30 – 12:15	**Francesco Mainardi: On the Distinguished role of the Mittag-Leffler and Wright fractional Calculus**	Main Hall
12:15 – 13:00	**Hari M. Srivastava: Fractional Calculus and Associated Mittag-Leffler Type Functions**	Main Hall
13:00 – 14:30	**Lunch Break**	Hotel Restaurant

Time	Session	Location
14:30 – 15:00	**Chair:** J. A. Tenreiro Machado **Invited Lecture:** **Carla Pinto: A fractional mountain climb on epidemiology"**	Salon 4
15:00 – 15:30	**Session #1: Memorial Session** **Chairs:** E. Abdel-Rehim, Francesco Mainardi and S. Momani	
15:30 – 16:00	**Session #2:** Viscoelasticity and Materials **Chairs:** J. A. Tenreiro Machado and C. Torres-Torres	
14:30 – 14:45	**Chair:** Nasser Sweilam and Praveen Agarwal Systems Bio-mathematical Models and their Optimal Control	Salon 3
14:45 – 16:00	**Session #3:** Fractional Mechanical Modelling: From Theory to Applications I **Chairs:** Malgorzata Klimek, Duarte Valerio	
14:30 – 15:00	**Chair:** Mokhtar Kirane **Invited Lecture:** **Tasawar Hayat: Role of Hydromagnetics in Peristalsis**	Salon 2
15:00 – 16:00	**Session #4:** Fractional Dynamical Systems and Applications **Chairs:** Fawang Liu	
14:30 – 15:00	**Chair:** Patrick Lanusse **Invited Lecture:** **Clarivate Analytics**	Salon 1
15:00 – 16:00	**Session #5:** Special Topics in Fractional Differential Equations I **Chairs:** Mohammad Al-Khaleel and John P. Nolan	
14:30 – 15:00	**Chair:** Dumitru Baleanu **Invited Lecture:**	Suite 6 & 7

	Agacik Zafer: On Asymptotic and Oscillatory Behavior of Solutions of Integro-Differential Equations	
15:00 – 16:00	**Session #6:** Fractional Calculus of Variations: Theories, Applications and Numerical Solutions **Chairs:** Omar Abu Arqub, Mohammed Al-Smadi and Shaher Momani	
16:00 – 16:20	**Coffee Break 2**	Al Majles
16:20 – 17:20	**Chair:** Francesco Poalo Pinnola and Remi Leandre	Salon 4
	Session #7: Anomalous Diffusion: Theory, Numerical Methods and Applications I	
	Chair: Ibrahim M. Abu- Alshaikh and Piotr Ostalczyk	Salon 3
	Session #8: Fractional Mechanical Modelling: From Theory to Applications II	
	Chair: Imad Jaradat	Salon 2
	Session #9: Discrete Fractional Calculus and Applications	
16:20 – 17:20	**Chair:** Dorota Mozyrska and Matthew Harker	Salon 1
	Session #10: Special Topics in Fractional Differential Equations II	
	Chair: Jochen Merker and Mohammed Al-Refai	Suite 6 & 7
	Session #11: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems I	

Tuesday, 17th July 2018	DAY 2	
08:00 – 08:45	**Keynote Lectures Chair:** Francesco Mainardi	
	Dumitru Baleanu: 50 Years of Fractional Caputo Derivative, What is Next?	Main Hall
08:45 – 09:30	**J. A. Tenreiro Machado: Mission: Impossible**	Main Hall
09:30 – 10:00	**Coffee Break 1**	Al Majles
10:00 – 10:30	**Chair:** Tasawar Hayat	Salon 4
	Invited Lecture: Patrick Lanusse: **CRONE CSD methodology: 25 years of development, application and simplification**	
10:30 – 13:00	**Session #12:** Special Topics in Fractional Differential Equations III	
10:00 – 10:30	**Chair:** Hari M. Srivastava and Emmanuel Hanert	Salon 3
	Invited Lecture: Thiab Taha: **IST Numerical Schemes for Nonlinear Evolution Equations and their possible applications for Solving Related Fractional Differential Equations** **Chair:** Malgorzata Klimek	
10:30 – 13:00	**Session #13:** Control I **Chairs:** John Nolan and Omar Abu Arqub	
10:00 – 10:30	**Chair:** Eqab Rabei	Salon 2
	Invited Lecture: Reyad El- Khazali: **On the Realization of Fractional-Order Controllers**	
10:30 – 13:00	**Session #14:** Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems II **Chairs:** Georgios Georgiou and Mehmet Senol	
10:00 – 10:30	**Chair:** Dumitru Baleanu	

	Invited Lecture: **Praveen Agarwal: On a New Generalization of Fractional Derivative Operators**	Salon 1
10:30 – 13:00	**Session #15:** Control II **Chairs:** Celaleddin Yeroglu and Fathalla A. Rihan	
10:00 – 10:30	**Chairs:** Naser Sweilam	Suite 6 & 7
	Invited Lecture: **Mokhtar Kirane: An inverse problem for a fractional differential equation**	
10:30 – 13:00	**Session #16:** A Fractional Order Perspective on Recent Advancements in Biological **Chairs:** Dumitru Baleanu and Carla Pinto	
13:00 – 14:30	**Lunch Break**	Hotel Restaurant
14:30 – 15:00	Chair: Yingjie Liang	Salon 4
	Invited Lecture: **Arran Fernandez: Generalisation and Reduction of Fractional Models**	
15:00 – 16:00	**Session #17:** Ultraslow Dynamics and Applications **Chairs:** Dorota Mozyrska and Yingjie Liang	
14:30 – 15:00	**Chair:** Maamar Bettayeb	Salon 3
	Entsar Abdel-Rehim: From Power Laws to Fractional Diffusion Process with and without External Forces	
15:00 – 16:00	**Session #18:** Anomalous Diffusion: Theory, Numerical Methods and Applications II **Chairs:** HongGuang Sun and Dominik Sierociuk	
14:30 – 16:00	**Chairs:** Tayfun Babadagli and Nasser Sweilam	Salon 2
	Session #19: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems III	
	Chairs: Vedat Erturk and Piotr Sakrajda	

14:30 – 16:00	**Session #20:** Fractional Mechanical Modelling: From Theory to Applications III		Salon 1
14:30 – 16:00	**Chairs:** Wei Zhu and Marie-Christine Neel		Suite 6 & 7
	Session #21: Stochastic Dynamics and Fractional Calculus		
16:00 – 16:20	**Coffee Break 2**		Al Majles
16:20 – 17:20	**Chairs:** Zaid Odibat and Ibrahim Abu- Alshaikh		Salon 4
	Session #22: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems IV		
	Chairs: Zaid Odibat and Ibrahim Abu- Alshaikh		Salon 3
	Session #23: Application of Fractional Differential Equations in Mechanical Engineering		
	Chairs: Wei Zhu and Eman Abuteen, Asad		Salon 2
	Session #24: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems V		
16:20 – 17:20	**Chairs:** Eqab Rabei and A.K. Alomari		Salon 1
	Session #25: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems VI		
	Chairs: Yousef Zurigat and Arran Fernandez		Suite 6 & 7
	Session #26: Special Topics in Fractional Differential Equations IV		

Wednesday, 18th July 2018   Day 3

	Chairs: Shaher Momani, Dumitru Baleanu and J. A. Tenreiro Machado
08:00 – 09:00	Closing Ceremony
09:00 – 09:15	**Speech** Mr. Wael Al Rousan, Jordan Tourism Board
09:15 – 21:00	Social Program: Trip to Petra

Round Table

Round Table #1

Fractional Calculus's Adventures in Wonderland

Date	Organizer	Time	Location
July 16	J. A. Tenreiro Machado Virginia Kiryakova Shaher Momani	15:00 – 17:00	Suite 5

Round Table #2

50 Years of Caputo Derivative

Date	Organizer	Time	Location
July 17	Dumitru Baleanu	11:00 – 13:00	Suite 5

Round Table #3

Towards a Healthy Research Field of Fractional Calculus

Date	Organizer	Time	Location
July 17	Dumitru Baleanu	11:00 – 13:00	Suite 5

Technical Sessions

DAY 1 - 16th July 2018

<table>
<tr><td colspan="4" align="center">Session #1:
MEMORIAL SESSION</td></tr>
<tr><td></td><td colspan="3">Chairs: E. Abdel-Rehim, Francesco Mainardi and S. Momani
Location: Salon 4</td></tr>
<tr><td>Date</td><td>Time</td><td>Titles</td><td>Authors</td></tr>
<tr><td rowspan="2">July 16</td><td rowspan="2">15:00 – 15:30</td><td>Special Session in Memory of Professor Rudolf Gorenflo</td><td>Entsar Abdel-Rehim, Ehrhard Behrends, F. Mainardi</td></tr>
<tr><td>Fractional Calculus in Dynamics of Solids and Structures and Professor Yury Rossikhin Contribution in the Field.</td><td>Marina Shitikova</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Session #2:
Viscoelasticity and Materials</td></tr>
<tr><td></td><td colspan="3">Chairs: C. Torres-Torres
Location: Salon 4</td></tr>
<tr><td>Date</td><td>Time</td><td>Titles</td><td>Authors</td></tr>
<tr><td rowspan="2">July 16</td><td>15:30 – 15:45</td><td><strong style="color:red">P52 – Self-diffraction beams by plasmonic nanoparticles in fractional Schrödinger equation</td><td>M. A. Hernández-Acosta, L. Soto-Ruvalcaba, C. L. Martínez-González, M. Trejo-Valdez, C. Torres-Torres</td></tr>
<tr><td>15:45 – 16:00</td><td><strong style="color:red">P115 – A non-linear stress-strain relation endowed with fractional derivative elements</td><td>Francesco Paolo Pinnola, Giorgio Zavarise</td></tr>
</table>

		Session #3: Fractional Mechanical Modelling: From Theory to Applications I	
	Chairs: Malgorzata Klimek and Duarte Valerio Location: Salon 3		
Date	**Time**	**Titles**	**Authors**
July 16	15:00 – 15:15	**P40** – Homogeneous Robin Boundary Conditions and Discrete Spectrum of Fractional Eigenvalue Problem	Malgorzata Klimek
	15:15 – 15:30	**P41** – On a generalization of Sobolev-Slobodecki spaces and an associated fractional derivative	Jochen Merker
	15:30 – 15:45	**P55** – Fractional Calculus in Economic Growth Modelling of the Group of Seven	In´es Tejado, Emiliano Perez, Duarte Valerio
	15:45 – 16:00	**P75** – Pseudo-state-space fractional system identification	Elena Ivanova, Rachid Malti, Xavier Moreau

		Session #4: Fractional Dynamical Systems and Applications	
	Chairs: Fawang Liu and Minling Zheng Location: Salon 2		
Date	**Time**	**Titles**	**Authors**
July 16	15:00 – 15:15	**P20** – Numerical Approximation of the multi-term time-space fractional Bloch-Torrey equations on irregular convex domains	Fawang Liu, Libo Feng, Vo Anh
	15:15 – 15:30	**P30** – Stability Analysis for a class of Non-Commensurate Fractional- Order Systems	Lu Liu, Shuo Zhang
	15:30 – 15:45	**P31** – The Analysis on the Collocation Method for Time Fractional Schrodinger Equation	Minling Zheng, Fawang Liu, Zhengmeng Jin
	15:45 – 16:00	**T1** – Finite element method for two-dimensional unsteady MHD couette flow of a generalized Oldroyd-B fluid	Libo Feng, Fawang Liu, Ian Turner

		Session #5: Special Topics in Fractional Differential Equations	
	Chairs: Mohammad Al-Khaleel and John P. Nolan **Location:** Salon 1		
Date	**Time**	**Titles**	**Authors**
July 16	15:00 – 15:15	**P123** – NEW PROOF FOR THE THEOREM OF EXISTENCE AND UNIQUENESS OF A CLASS OF FRACTIONAL STOCHASTIC DIFFERENTIAL EQUATIONS	Mohammed Alhagyan, Masnita Misiran, Zurni Omar
	15:15 – 15:30	**P43** – Local stable manifolds for nonlinear planar fractional dynamical systems of order $1 < \alpha < 2$	Binghui Liao, Caibin Zeng
	15:30 – 15:45	**P79** – Conformable fractional derivative based exact solutions of some fractional differential equation	Mohammad Al-Khaleel
	15:45 – 16:00	**P58** – Stable distributions and Green's functions for fractional diffusions	John P. Nolan

		Special Session #6: Fractional Calculus of Variations: Theories, Applications and Numerical Solutions	
	Chairs: Omar Abu Arqub, Mohammed Al-Smadi and Shaher Momani **Location:** Suite 6 & 7		
Date	**Time**	**Titles**	**Authors**
	15:00 – 15:15	**A46:** Monotonicity results of nabla *h*-fractional differences with discrete exponential kernels	Iyad Suwan, Shahd Owies, Thabet Abdeljawad

Date	Time	Titles	Authors
July 16	15:15 – 15:30	**A45** – Dynamics of a Fractional-Order SAIQR Model	Abdullah Abu-Rqayiq, Haneen Alayed, Shaher Momani
	15:30 – 15:45	**APP4** – An assortment of analytical solution schemes for system of FDEs with multi-memory indices	Rowaa Abdalmohsen, Imad Jaradat, Marwan Alquran, Shaher Momani
	15:45 – 16:00	**APP5** – A Powerful Scheme for Handling the Fractional-Order Lorenz System	Iqbal M. Batiha, Reyad El-Khazali, Shaher Momani

Session #7: Anomalous Diffusion: Theory, Numerical Methods and Applications I			
Chairs: Francesco Poalo Pinnola and Remi Leandre **Location:** Salon 4			
Date	**Time**	**Titles**	**Authors**
July 16	16:20 – 16:35	**P15** – Nonlocal conditions for semilinear fractional differential equations With Hilfer derivative	Hedia Benaouda
	16:35 – 17:05	**P16** – Bismut's way of the Malliavin Calculus for elliptic pseudodifferential operators on a Lie group	Remi Leandre
	16:50 – 17:05	**P18** – A Fractional-Order Noise-Shaping Integrator for Sigma-Delta Modulator	Chi Xu, Yu Jin, Duli Yu
	16:05 – 17:20	**P19** – A Speculative Investigation of the Acoustic Wave Propagation in Marine Sediment via the Generalized Fractional Kelvin Viscoelastic Model	Wei Cai, Jianfang Zhou, Hua Chen

		Session #8: Fractional Mechanical Modelling: From Theory to Applications II		
	Chairs: Ibrahim M. Abu- Alshaikh and Piotr Ostalczyk **Location:** Salon 3			
Date	**Time**	**Titles**		**Authors**
July 16	16:20 – 16:35	**P85** – Cylinderically Isotropic Fractional Helmholtz Equation		Mazen S. Nairat, Mohammed Shqair
	16:35 – 17:05	**P88** – FRACTIONAL-ORDER VALUE IDENTIFICATION FROM a NOISED SIGNAL. Part I		Piotr Ostalczyk, Dominik Sankowski, Marcin Bąkała
	16:50 – 17:05	**P89** – FRACTIONAL-ORDER VALUE IDENTIFICATION FROM a NOISED SIGNAL. Part II		Dominik Sankowski, Marcin Bąkała, Jacek Nowakowski
	16:05 – 17:20	**P110** – Fractional calculus variations and the brachistochrome problem		Bhadra Man Tuladhar

		Session #9: Discrete Fractional Calculus and Applications		
	Chairs: Imad Jaradat **Location:** Salon 2			
Date	**Time**	**Titles**		**Authors**
July 16	16:20 – 16:35	**P17** – Necessary conditions for existence of solutions to a nonlinear fractional derivative system		Belgacem Rebiai
	16:35 – 17:05	**P35** – Approximating Hadamard Derivative and Fractional Differential Equation via the Finite Part Integral		Chuntao Yin, Changpin Li, Qinsheng Bi

	16:50 – 17:05	**P36** – The numerical implementation of discrete Mittag-Leffler Functions	Ang Li, Yiheng Wei, Zongyang Li, Jiachang Wang, Yong Wang
	16:05 – 17:20	**P37** – Subspace-based fractional order systems identification in presence of outliers	Rongzhi Cui, Zongyang Li, Yiheng Wei, Yong Wang

Session #10: Special Topics in Fractional Differential Equations II			
Chairs: Dorota Mozyrska and Matthew Harker **Location:** Salon 1			
Date	**Time**	**Titles**	**Authors**
July 16	16:20 – 16:35	**P25** – On the Solution of Mixed Order Fractional Integro-Differential Equations with Integral Boundary Conditions	Shayma Adil Murad, Samir B. Hadid
	16:35 – 17:05	**P92** – Regularized Fractional Order Integration and Differentiation via Discrete Orthogonal Polynomials	Matthew Harker, Paul O'Leary
	16:50 – 17:05	**P59** – Wiener nonlinear system Identification using fractional model	Lamia Sersour, Tounsia Djamah, Maamar Bettayeb
	16:05 – 17:20	**P68** – Hankel Integral Transform for Solving Poisson Equation with Mixed Conditions	N. A. Hoshan, Yousef Al-Jarrah

		Session #11: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems I	
	Chairs: Jochen Meker and Mohammed Al-Refai **Location:** Suite 6 & 7		
Date	**Time**	**Titles**	**Authors**
July 16	16:20 – 16:35	**P116** – Existence of solutions for a nonlinear system of fractional differential equations	Fatma Al-Musalhi
	16:35 – 17:50	**A11** – Sinc-Galerkin method for solving nonlinear fractional fourth-order boundary value problems	Kamel Al-Khaled
	16:50 – 17:05	**A13** – An Accurate Method for Solving a class of Fractional Sturm-Liouville Eigenvalue Problems	Muhammad I. Syam
	16:05 – 17:20	**A15** – Estimates of Fractional Derivatives at Extreme Points: Summary of Recent Results and Applications	Mohammed Al-Refai

DAY 2 – 17th July 2018

		Session #12: Special Topics in Fractional Differential Equations III	
		Chairs: Hari M. Srivastava and Emmanuel Hanert **Location:** Salon 4	
Date	**Time**	**Titles**	**Authors**
July 17	10:30 – 10:45	**P54** – Existence of solution for fractional impulsive differential equations with nondense domain	K. Hilal, Y. Allaoui
	10:45 – 11:00	**P72** – On asymptotic and oscillatory behavior of solutions of integro-differential equations	Said R. Grace, Agacik Zafer
	11:00 – 11:15	**P87** – Global Nonexistence for the Cauchy Problem of Nonlinear Fractional Hyperbolic Equations and Systems	Kamel Haouam, Belgacem Rebiai
	11:15 – 11:30	**P125** – Reduced-Increased Synchronization Between Fractional Chaotic Systems	Adel Ouannas, Zaid Odibat
	11:30 – 11:45	**P99** – New definitions of attractive and repulsive fractional potential fields for robust path planning	Jean-Baptiste Receveur, St´ephane Victor, Pierre Melchior
	11:45 – 12:00	**P101** – CONVERGENCE THEORMS OF ITERATION PROCESS Via nz SPREADING MAPPINGS	Zena Hussein Maibed
	12:00 – 12:15	**P105** – Homogenization and convergence of monotone operators with respect to measures	Mohamed Mamchaoui
	12:15 – 12:30	**P120** – Subclasses of analytic functions of complex order involving Jackson's (p, q)-derivative	Tariq Al-Hawary, Feras Yousef, B.A. Frasin
	12:30 – 12:45	**P93** – Discrete Variational Method for Sturm-Liouville Problems with Fractional Order Derivatives	Matthew Harker

Date	Time	Titles	Authors
	12:45 – 13:00	**A40 –** Extremum principle for the Hadamard derivatives and its application to the nonlinear fractional PDEs	Berikbol T. Torebek

<div align="center">

Session #13:
Control I

</div>

Chairs: John Nolan and Omar Abu Arqub **Location:** Salon 3	

Date	Time	Titles	Authors
July 17	10:30 – 10:45	**P10** – Frictionel Contact of an Anisotropic Piezoelectric Shel	Mohammed El Hadi Mezabia, Djamel Ahmed Chacha
	10:45 – 11:00	**P23** – Asymptotic behavior for generalized fractional integrals with orders varying in time arising in image processing mathematical models	Eduardo Cuesta, Rodrigo Ponce
	11:00 – 11:15	**P26** – Synchronization for Riemann-Liouville incommensurate fractional-order competitive neural networks with different time scales	Yajuan Gu, Hu Wang, Yongguang Yu
	11:15 – 11:30	**P29** – Simplified fractional-order design of a MIMO robust controller	Patrick Lanusse, Massinissa Tari
	11:30 – 11:45	**P32** – Design of robust fractional-order PI controllers for a class of fractional-order delayed processes based on frequency specifications	Gharab Saddam, Vicente Feliu Batle, Laabdi Kaouther
	11:45 – 12:00	**P33** – On the regional controllability for Hadamard-Caputo fractional ultra-slow diffusion processes	Ruiyang Cai, YangQuan Chen, Fudong Ge, Chunhai Kou
	12:00 – 12:15	**P42** – Secure color image transmission scheme based on synchronization of fractional-order discrete-time hyperchaotic systems	Sarah Kassim, Hamid Hamiche, Sa¨ıd Djennoune, Ma'amar Bettayeb

Date	Time	Titles	Authors
	12:15 – 12:30	**P44** – Fractional Dynamics for Coupled CTRW Optimal Random Search Algorithm	Guojian Ren, Yongguang Yu, YangQuan Chen
	12:30 – 12:45	**P48** – PI-PD Controllers Design Using Bode's Ideal Transfer Function	Tufan Dogruer, Nusret Tan
	12:45 – 13:00	**P69** – Optimal Control of Linear Systems of Arbitrary Fractional Order	Ivan Matychyn, Viktoriia Onyshchenko

<p style="text-align:center; color:blue">

Session #14:
Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems II

</p>

Date	Time	Titles	Authors
	Chairs: Georgios Georgiou, Mehmet Senol **Location:** Salon 2		
Date	**Time**	**Titles**	**Authors**
July 17	10:30 – 10:45	**P22** – Tutorial Proposal: Numerical Methods for Fractional Calculus and Fractional Order Differential Equations	Matthew Harker, Paul O'Leary
	10:45 – 11:00	**P13** – High-Precision Numerical Algorithms for Calculating Fractional-Order Derivatives and Integrals	Dingy¨u Xue, Lu Bai
	11:00 – 11:15	**A37** – The controlled Picard method with Simpson rule applied to the fractional version of a BVP arising in structural engineering	Vedat Suat Erturk, Shaher Momani
	11:15 – 11:30	**P70** – Comparison of Two Reliable Methods to Solve Fractional Rosenau-Hyman Equation	Mehmet Senol, Orkun Tasbozan, Ali Kurt
	11:30 – 11:45	**P45** – Explicit solutions of Fuzzy Time Fractional Diffusion Equations in double parametric form of fuzzy number	Hamzeh Zureigat, Ahmad Izani Ismail, Saratha Sathasivam

	11:45 – 12:00	**P46** – Computational analysis of the new approach for studying non-linear dynamics response of a thin fractionally damped cylindrical shell with combinational internal resonance of the second order	Yury A. Rossikhin, Marina V. Shitikova, and Basem Ajarmah
	12:00 – 12:15	**P67** – Optimization of the FO[PI] Controller for MTDS using MAPO with Multi Objective Function	Abdullah Ates, Jie Yuan, Celaleddin Yeroglu, YangQuan Chen, Serdar Ethem Hamamci
	12:15 – 12:30	**P56** – Fractional Reduced Differential Transform Method for Solving Fractional Linear and Nonlinear Partial Differential Equations	Salah Abuasad, Ishak Hashim
	12:30 – 12:45	**P12** – High-precision Numerical Algorithms for Linear Caputo Fractional-order Differential Equations	Lu Bai, Dingy¨u Xue
	12:45 – 13:00	**P49** – Exact Impulsive Observer with Predetermined Finite-Time Convergence of Fractional-Order Systems with Unknown Input	Said Djennoune Maamar Bettayeb Ubaid-Mohsein Al-Saggaf

		Session #15: Control II		
Chairs: Celaleddin Yeroglu and Fathalla A. Rihan				
Location: Salon 1				
Date	**Time**	**Titles**		**Authors**
July 17	10:30 – 10:45	**P78** – EXPONENTIAL DECAY OF ENERGY FOR LINEAR WAVE EQUATIONS OF MOORE.GIBSON.THOMPSON (MGT) TYPE WITH A WEAK FRACTIONAL DAMPING		DRAIFIA ALA EDDINE
	10:45 – 11:00	**P81** – A Set-point Filter Type 2DOF Fractional Order PID Control System Design Scheme for Improved Disturbance Rejection Control		Necati Özbey, Celaleddin YEROGLU, Baris Baykant ALAGOZ
	11:00 – 11:15	**P83** – Relationship between controllability and observability of standard and fractional different orders discrete-time linear system		Tadeusz Kaczorek Lukasz Sajewski
	11:15 – 11:30	**P86** – Optimal searching strategies for different target distributions		Yuquan Chen, Tiebiao Zhao, Yong Wang, YangQuan Chen
	11:30 – 11:45	**P90** – Fuzzy Neural Network Sliding Mode Control Based Chaos Synchronization for a Class of Fractional Order Chaotic System		Renming Wang, Hao Lin, YunNing Zhang, YangQuan Chen
	11:45 – 12:00	**P98** – Fractional control of an offshore wind system		Rui Melicio, Duarte Val´erio, Victor M. F. Mendes
	12:00 – 12:15	**P64** – An Approach for the stabitlity of fractional order system via two feedback controllers		Bilal Senol, Ugur Demiroglu, Radek Matusu
	12:15 – 12:30	**P91** – Closed-Form Discretization of Fractional-Order Differential and Integral Operators		Reyad El-Khazali, Tenreiro Machado

	12:30 – 12:45	**P73** – Robust Control of an Artificial Mouth for a Wind Musical Instrument	Gaby ABOU HAIDAR, Xavier MOREAU, Roy ABI ZEID DAOU
	12:45 – 13:00	**P74** – On the Design of the Integer and Fractional PID Controllers Using Particle Swarm Optimization	Zaer S. Abo-Hammour, Malek Alkayyali, Hussam J. Khasawneh, Mohammad I. Al Saaideh

		Session #16: Fractional Order Bio-mathematical Models and their Optimal Control	
	Chairs: Dumitru Baleanu, Carla Pinto and Nasser Sweilam **Location**: Suite 6 & 7		
Date	**Time**	**Titles**	**Authors**
July 17	10:30 – 10:45	**P96** – Bone Remodelling, Tumour Growth, and Fractional Order Therapy Predictive Control	Raquel Miranda, Duarte Val´erio, Susana Vinga
	10:45 – 11:00	**P47** – A nonlinear Model of Coronavirus (CoV) individuals and Stability Analysis	Manar Alqudah
	11:00 – 11:15	**P51** – A mesoscale fractional model for the stationary blood flow in capillary vessels	Gioacchino Alotta, Emanuela Bologna, Mario Di Paola, Massimiliano Zingales
	11:15 – 11:30	**P76** – Dynamical behaviour of fractional order HIV/AIDS model with drug therapy	Praveen Kumar Gupta, Ajoy Dutta
	11:30 – 11:45	**P24** – Immune response in HIV epidemics for distinct transmission rates and for saturated CTL response	Ana R.M. Carvalho, Carla M.A. Pinto
	11:45 – 12:00	**P102** – Fractional Order Savitzky–Golay Differentiator based Approach for Mammogram Enhancement	Koushlendra K Singh*, Debpriyo, Binod Kumar Singh, Manish Kumar Bajpai
	12:00 – 12:15	**P104** – TWO-SIDED IMPLICIT EULER BASED SUPER-DIFFUSIVE MODEL FOR BENIGN TUMOR SEGMENTATION	Saroj Kumar Chandra, Manish Kumar Bajpai
	12:15 – 12:30	**P108** – Dynamics of a Three Species Predator-Prey Delay Differential Model with Allee Effect and Holling	Hebatallah J. Alsakaji Fathalla A. Rihan, Rajivganthi Chinnathambi

		Type-II Functional Response	
	12:30 – 12:45	**P111** – Optimizing Fractional Bloch Equation Anomalous Diffusion Parameters	Yahia Z. Rawash, Richard Magin
	12:45 – 13:00	**P95** – Analytical Scheme for Fractional Dengue Virus Model	Farah Aini Abdullah

<table>
<tr><td colspan="4" align="center">Session #17:
Ultraslow Dynamics and Applications</td></tr>
<tr><td colspan="4">Chairs: Dorota Mozyrska and Yingjie Liang
Location: Salon 4</td></tr>
<tr><td>Date</td><td>Time</td><td>Titles</td><td>Authors</td></tr>
<tr><td rowspan="4">July 17</td><td>15:00 – 15:15</td><td>P27 – Stability of linear discrete-time systems with the Caputo fractional-, variable-order h-difference operator of convolution type</td><td>Dorota Mozyrska, Małgorzata Wyrwas</td></tr>
<tr><td>15:15 – 15:30</td><td>P28 – Fractional order sliding mode control via disturbance observer for a class of fractional order systems with mismatched disturbance</td><td>Jing Wang, Changfeng Shao, YangQuan Chen</td></tr>
<tr><td>15:30 – 15:45</td><td>A27 – Mechanics models for the characterization of ultraslow diffusion in heterogeneous media</td><td>Yingjie Liang, Wen Chen</td></tr>
<tr><td>15:45 – 16:00</td><td>T2 – Eigenvalue Interval for Singular Fractional-order Elastic Beam Equation</td><td>Neda Khodabakhshi</td></tr>
</table>

Session #18: Anomalous Diffusion: Theory, Numerical Methods and Applications II			
Chairs: HongGuang Sun and Dominik Sierociuk **Location:** Salon 3			
Date	**Time**	**Titles**	**Authors**
July 17	15:00 – 15:15	**P34** – Observer design for semilinear time fractional diffusion systems with spatially varying parameters	Fudong Ge, YangQuan Chen
	15:15 – 15:30	**P53** – Symmetric fractional variable-type and –order Differences	Wiktor Malesza, Dominik Sierociuk
	15:30 – 15:45	**P63** – A survey on the variable-order fractional differential equations: mathematical foundations, models, numerical methods and its applications	HongGuang Sun, Ailian Chang, Yong Zhang, Wen Chen
	15:45 – 16:00	**A19** – A fractional-order diffusion model to predict transgenic pollen dispersal	Emmanuel Hanert, Valentin Vallaeys, Rebecca Tyson, David Lane, Eric Deleersnijder

Chairs: Chairs: Tayfun Babadagli and Nasser Sweilam
Location: Salon 2

Date	Time	Titles	Authors
July 17	14:30 – 14:45	**P82** – Numerical solution of flows over a polygonal obstacle	Abdelkader Laiadi, Abdelkrim Merzougui
	14:45 – 15:00	**P94** – Runge-Heun-Kutta Methods for Nonlinear Fractional Order Differential Equations	Matthew Harker
	15:00 – 15:15	**P100** – Finite difference Scheme for a generalized time-fractional telegraph equation	Kamlesh Kumar, Rajesh K. Pandey, Swati Yadav
	15:15 – 15:30	**P106** – On a coupled system of fractional differential equations with integral boundary conditions	Areen Al-Khateeb, Sameer Bawane'h
	15:30 – 15:45	**P107** – Impulsive Multi-Order Fractional Differential Equation Involving Multipoint Fractional Integral Boundary Conditions in Banach Spaces	Djamila Seba, Hamza Rebai, Sadek Habani
	15:45 – 16:00	**P60** - Identification of fractional LPV systems	Lynda Amimer Tounsia Djamah Maamar Bettayeb

		Session #20: Fractional Mechanical Modelling: From Theory to Applications III	
	Chairs: Chairs: Vedat Erturk and Piotr Sakrajda **Location:** Salon 1		
Date	**Time**	**Titles**	**Authors**
July 17	14:30 – 14:45	**P97** – Fractional-Order Diffusion Model for Social Networks	Piotr Sakrajda, Michał Sławomir Wiraszka
	14:45 – 15:00	**P103** – Solutions of fractional Kinetic equation involving multi-variable mitting-leffler	Meher Chand, Aml M. Shloof, Daljeet Kaur
	15:00 – 15:15	**APP2** – Fractional-order impedance modeling and parameter identification of an electrical coil with Interchangable core	Tareq Abuaisha, Jana Kertzscher
	15:15 – 15:30	**A47** – On Fractional Constitutive Equations for Non-Newtonian Fluids	Sophia Kyritsi-Yiallourou, Georgios C. Georgiou
	15:30 – 15:45	**P61** – Differintegration with respect to functions in fractional models involving Mittag-Leffler functions	Arran Fernandez, Dumitru Baleanu
	15:45 – 16:00	**T3** – Existence of solutions of fractional-order neural network with proportional delay	Swati Tyagi, S.C. Martha

		Session #21: Stochastic Dynamics and Fractional Calculus	
	Chairs: Wei Zhu and Marie-Christine Neel **Location:** Suite 6 & 7		
Date	**Time**	**Titles**	**Authors**
	14:30 – 14:45	**P11**– Stochastic Integration W.R.T FBM for No Adapted Processes	Abdeldjebbar Kandouci
	14:45 – 15:00	**P50** – Optimal L´evy-flight foraging with a finite flight distance	Yuquan Chen, Yiheng Wei, Yong Wang, YangQuan Chen

Date	Time	Titles	Authors
July 17	15:00 – 15:15	**P80** – Lyapunov Inequality for Distributed Order Fractional Differential Equations	Shiva Eshaghi, Alireza Ansari, Reza Khoshsiar Ghaziani
	15:15 – 15:30	**P84** – Quantifying super/sub diffusion in Pulsed Field Gradient Nuclear Magnetic Resonance data	Marie-Christine Neel
	15:30 – 15:45	**A33** – Lagrangian mechanical system with four almost complex structures on symplectic geometry	Yousif Ibrahim Abd alrhman
	15:45 – 16:00	**APP3** – Computational Simulation for Time-Fractional Diffusion Equation with Neumann Boundary Conditions	A.S.V. Ravi Kanth, Neetu Garg

Session #23:
Application of Fractional Differential Equations in Mechanical Engineering

	Chairs: Zaid Odibat and Ibrahim Abu- Alshaikh		
	Location: Salon 3		
Date	**Time**	**Titles**	**Authors**
July 17	16:20 – 16:35	**A28** – Non- local structural derivative Maxwell model for characterizing ultra-slow rheology	Su Xianglong, Chen Wen, Liang Yingjie
	16:35 – 16:50	**A23** – Plane wave solution of the Schrödinger equation in the presence of a time-dependent linear potential	Mounira Berrehail
	16:50 – 17:05	**A39** – On Inverse Source Problems for Groundwater Modeling	Nasser Al-Salti, Erkinjon Karimov, Sebti Kerbal

Session #22: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems IV			
	Chairs: Kamel Al-Khaled and Yongguang Yu **Location:** Salon 4		
Date	**Time**	**Titles**	**Authors**
July 17	16:20 – 16:35	**A42** – On the oscillation of Hadamard fractional differential equations	Bahaaeldin Abdalla, Thabet Abdeljawad
	16:35 – 16:50	**A31** – Approximate solution of fractional order two-dimensional solute transport system using collocation approach	Shubham Jaiswal, Subir Das
	16:50 – 17:05	**A38** – An algorithm for solving the fractional version of Bratu-like equation arising in electrospinning process	Vedat Suat Erturk, Shaher Momani
	16:05 – 17:20	**APP1** – An adaptive cuckoo search algorithm with optional external archive for global numerical optimization	Jiamin Wei, Yongguang Yu

		Session #24: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems V	
	Chairs: Wei Zhu, Eman Abuteen and Asad Freihat Location: Salon 2		
Date	Time	Titles	Authors
July 17	16:20 – 16:35	**P71** – Solutions of Volterra singular time-fractional PIDEs	Mohammed Al-Smadi, Omar Abu Arqub, Shaher Momani
	16:35 – 16:50	**P118** – Analytic solution of spatial-temporal fractional Klein-Gordon equation arising in physical models	Feras Yousef, Shaher Momani, Rowaa Abdalmohsen
	16:50 – 17:05	**P121** – Numerical study to time-fractional Klein-Gordon equation by using fractional residual power series approach	Mohammad Alaroud, Mohammed Al-Smadi, Omar Abu Arqub, Rokiah Rozita Ahmad, Ma'mon Abu Hammad, S.Momani
	16:05 – 17:20	**A48** – Analytical and Numerical solution for fractional Gas dynamic equations Using Residual power Series Method	Eman Abuteen, Asad Freihet

Session #25: Modeling, Numerical Methods, and Analysis of Fractional Differential Equations and Related Nonlocal Problems VI			
Chairs: A.K. Alomari and Ramzi Al-Badaraneh Location: Salon 1			
Date	**Time**	**Titles**	**Authors**
July 17	16:20 – 16:35	**A41** – Homotopy-Sumudu transforms for solving system of fractional partial differential equations	A.K. Alomari
	16:35 – 16:50	**A29** – Finite Difference Formulas for Caputo Derivative	Ramzi Al-Badaraneh
	16:50 – 17:05	**P85** – Cylinderically Isotropic Fractional Helmholtz Equation	Mazen S. Nairat, Mohammed Shqair
	16:05 – 17:20	**P124** – Numerical Solution for System of Fractional Obstacle Problem in the Reproducing Kernel Space	Shatha Hasan, Asad Freihet, Mohammed Al-Smadi, Shaher Momani
		P128 – On Residual Power Series Expansion for Solving Fractional Stiff System	S.Momani, Mohammad Al-Smadi, Mohamed Gaith, Shatha Hasan,Asad Freihet

		Session #26: Special Topics in Fractional Differential Equations IV	
	Chairs: Yousef Zurigat and Arran Fernandez **Location:** Suite 6 & 7		
Date	**Time**	**Titles**	**Authors**
July 17	16:20 – 16:35	**P126** – Existence of positive solutions of Hadamard fractional differential equations with integral boundary conditions	Amel Berhail, Nora Tabouche, Hamid Boulares
	16:35 – 16:50	**P66** – Dynamic Response of Functionally Graded Fractionally Damped Simply Supported Beam Subjected to Moving Mass	Amro A. Almbaidin, Ibrahim M. Abu-Alshaikh
	16:50 – 17:05	**P77** – Solutions to nonlinear diffusion equations with time delay and fractional integral forcing term	Md. Maqbul
	16:05 – 17:20	**A49** – Optimality of Bayesian Estimators: A Comparative Study Based on Exponential Progressive Type II Censored Data	Ma'mon Abu Hammad, Salemah A. Almutlak, Adnan M. Awad

POSTER PRESENTATIONS

POSTER PRESENTATIONS			
Date	Time	Title	Location
July 16	**P21 -** Numerical methods of Differential Equations by Using New Definition of Fractional Derivative	Bouguetof Khaoula Mezdoud Zaineb Belgacem Rebiai and Kamel Haouam	Al-Majles
	P38 - The simulation technique for fractional order systems with nonzero initial value	Yanting Zhao, Yiheng Wei, Jiachang Wang, Yong Wang	
	P39 - Fractional order system identification via Lebesgue sampling	Jiachang Wang, Yiheng Wei, Tianyu Liu, Yanting Zhao, Yong Wang	
	P62 - Blow-up of solution for a nonlinear hyperbolic system with a time fractional damping	Achouak Bekkai Belgacem Rebiai Kamel Haouam	
	P112 – ADOMIAN DECOMPOSITION METHOD COMBINED WITH NEW TRANSFORM TO SOLVE SYSTEM OF NONLINEAR FRACTIONAL DIFFERENTIAL EQUATIONS	MOUNTASSIR HAMDI CHERIF AND DJELLOUL ZIANE	
	P113 - Existence and uniqueness for multi-term sequential fractional integro-differential equations with non-local boundary conditions	Djamila Chergui Nacer Adjeroud	

	P114 - Existence results for multi-term nonlinear sequential fractional integro-differential equations with three-point nonlocal fractional boundary conditions	Rabiaa Aouafi Nacer Adjeroud	
	P117 - LOCAL FRACTIONAL SUMUDU DECOMPOSITION METHOD FOR SOLVING NONLINEAR LOCAL FRACTIONAL PARTIAL DIFFERENTIAL EQUATIONS	DJELLOUL ZIANE AND 2MOUNTASSIR HAMDI CHERIF	
July 16	**P122 -** Shell thickness dependent magnetic anisotropy of Fe_3O_4/γ-Fe_2O_3 core/shell nanoparticles	V. Narayanaswamy, C Nayek, M-Ali AL-Akhras, A Khaleel, and I M Obaidat	Al-Majles
	A22 - Stability analysis of conformable fractional-order nonlinear systems	Ghania Rebiai, Abdellatif Ben Makhlouf	
	A24- First principles calculations of Elastic and mechanic properties of Hafnium transiton metal perovskites AHfO $_3$ (A=Ba, Ca, Pb and Sr)	H. Krarcha, S. Krfaf	
	A32 - Impulsive Multi-Orders Fractional Differential Equation Involving Multipoint Fractional Integral Boundary Conditions in Banach Spaces	Djamila Seba, Hamza Rebai and Sadek Habani	
	T4 - Controllability of Impulsive Fractional Functional Evolution Equations with Infinite State-Dependent Delay in Banach Spaces	Djihad Aimene, Djamila SEBA and Karima Laoubi	