AIMS

جامعة نيويورك أبوظبي

NYU ABU DHABI

14TH AIMS CONFERENCE

16 - 20 December 2024 | Abu Dhabi, UAE

PROGRAM

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SITE RESEARCH CENTER ON STABILITY, INSTABILITY, AND TURBULENCE

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Conference Coordinator

Xin Lu

Dear Distinguished Guests, Colleagues, and Friends,

It is with immense pleasure that we welcome you to the AIMS Conference 2024. The 14th AIMS Conference is a momentous occasion marking three decades of AIMS fostering collaboration and scholarly excellence in mathematical sciences through its conferences and publications.

The conference series reflects our shared commitment to pushing the boundaries of knowledge and exploring the intersections of mathematical research across disciplines. Together, we have been embarking on a journey through a diverse program featuring enlightening talks, illuminating research presentations, and thought-provoking communications.

This year's event is particularly special, as we introduce Thematic Sessions for the first time in the history of the AIMS Conference. The five themes and their respective 30 speakers were carefully selected by the Thematic Session Committee, offering a unique platform to delve deeper into specific areas of focus. These sessions will foster greater engagement and represent our commitment to continuously evolving and enhancing the conference experience.

As we reflect on the legacy of AIMS conferences spanning 30 years, we are reminded of the unwavering dedication of the AIMS community. Your continuous support and participation make this conference series possible. It is your passion, curiosity, and collaborative spirit that elevate the AIMS Conference into a premier platform for our international community.

This conference would not be possible without the tireless efforts of our organizers at NYU Abu Dhabi, the invaluable contributions of our plenary, thematic, special session, and contributed session speakers, the members of the various conference committees, and the enthusiastic participation of attendees like you. Our heartfelt gratitude goes out to each of you for shaping this historic gathering.

Welcome to Abu Dhabi, and welcome to AIMS 2024. Let us seize this opportunity to connect, renew friendships, and forge new ones.

On behalf of the entire team at AIMS, we wish you a productive and enjoyable conference experience.

Sincerely,

Shouchuan Hu
Xin Lu

Dear AIMS Conference Guests,

On behalf of NYU Abu Dhabi, it is a pleasure to welcome you to this 14th AIMS conference on Dynamical Systems, Differential Equations, and Applications. By uniting experts from so many facets of mathematical science, this premiere global forum will yield valuable insights, groundbreaking academic discourse, and, most importantly, a sense of international community.

As a university in and of Abu Dhabi, it is an honor to receive you here in the UAE. In just a short period of time, the region has become a hub for global collaboration and innovation, embodying a vision of progress that aligns so well with the spirit of the AIMS community. I am delighted that you will experience this firsthand. In the following days, the conference will feature an array of activities sure to stimulate intellectual curiosity and foster important collaborations. The schedule includes plenary lectures by distinguished scholars, thematic and special sessions, contributed talks, and poster presentations, providing a platform for sharing the latest advancements and exploring emerging challenges.

We encourage you to take advantage of this extraordinary opportunity to network with peers, forge new connections, and immerse yourself in the spirit of innovation that defines both the AIMS Conference and Abu Dhabi itself.

On behalf of the organizing committee and our university, I am thrilled to welcome you to an event that not only promises to inspire but also has the potential to transform your perspectives and approaches in the mathematical sciences.

Warm regards,

Arlie Petters
Provost
NYU Abu Dhabi

Dear Esteemed Colleagues and Scholars,

It is with great honor and anticipation that I extend a warm welcome to all participants of the 14th AIMS Conference, taking place here in Abu Dhabi, and marking a historic moment as we host this prestigious gathering of mathematicians and scientists in the Arab world for the first time.

We are delighted to welcome over 1,500 distinguished participants from around the globe, and with more than 1,350 scientific presentations on the program, this conference promises to be an extraordinary platform for the exchange of ideas and the advancement of knowledge across applied and computational mathematics.

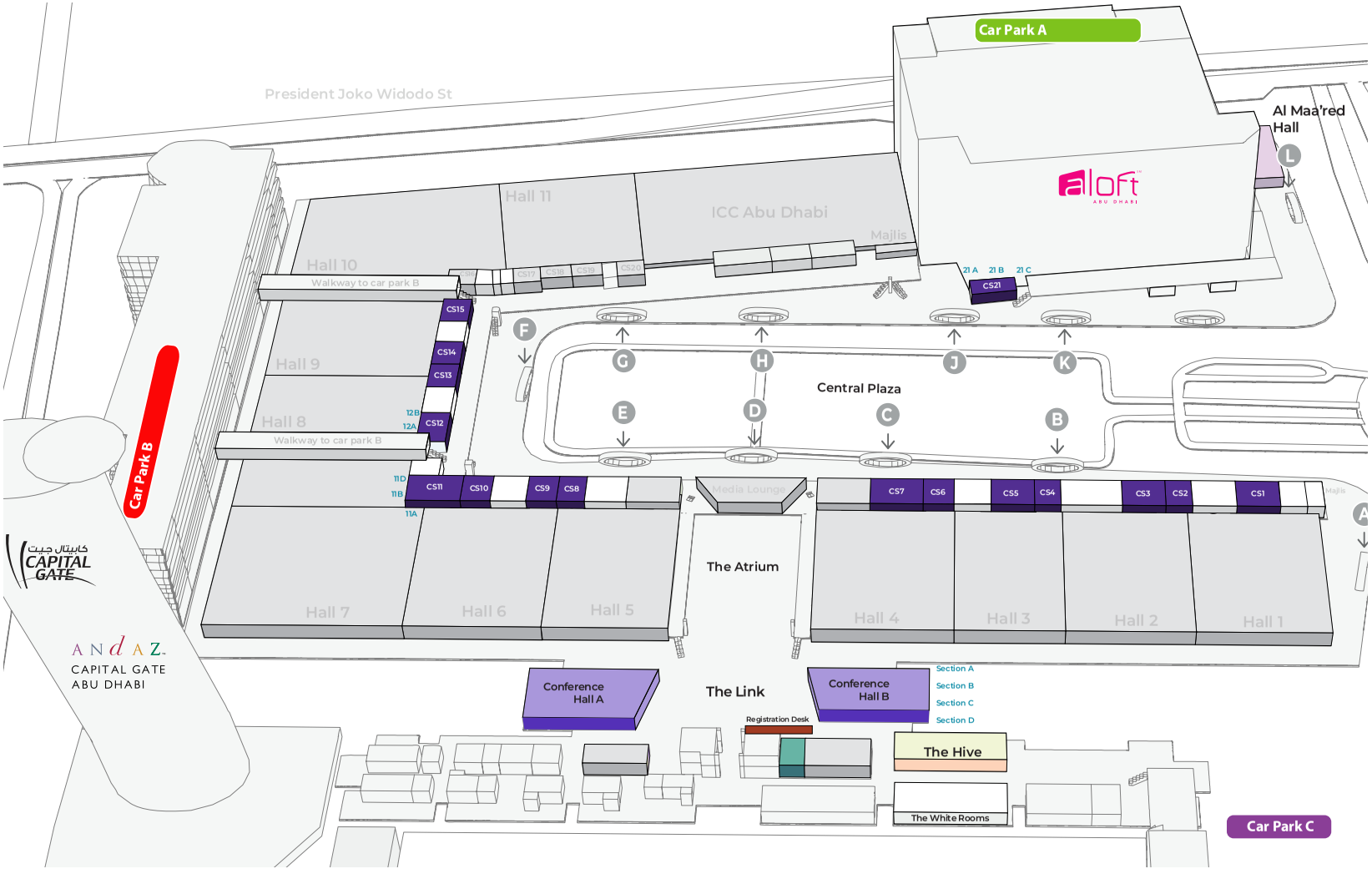
As the organizing partners, NYU Abu Dhabi is deeply committed to fostering an environment of intellectual rigor, scholarly exchange, and collaboration. Our home in Abu Dhabi is a gateway for diverse perspectives, bridging continents and cultures, and providing a fitting backdrop as we strive to expand scientific boundaries and empower a growing community of scientific thinkers and pioneers across the region.

In a city that promotes innovation and where the pursuit of knowledge is deeply valued, I hope this conference provides you with opportunities to explore new avenues of scientific inquiry and establish meaningful connections that inspire future progress. Beyond the scientific discussions, I also encourage you to take time to experience the United Arab Emirates' unique blend of modern innovation and rich cultural heritage. I am confident that your stay here will be both enriching and enjoyable.

As you embark on this exceptional week, I extend my heartfelt gratitude to the organizers, speakers, and participants whose contributions have made this conference possible. I look forward to seeing collaborations flourish and witnessing the advancements that emerge from this gathering. I wish you a productive and memorable conference.

With warm regards,

Marta Losada
Dean of Science
NYU Abu Dhabi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Invited Plenary Speakers

Robert Calderbank (USA)
Ingrid Daubechies (USA)
Svetlana Jitomirskaya (USA)
Nader Masmoudi (UAE)
Xavier Ros Oton (Spain)
Corinna Ulcigrai (Switzerland)
Jun-cheng Wei (Canada)

Invited Plenary Speaker

Dr. Robert Calderbank
Duke University
USA

Dr. Calderbank directs the Rhodes Information Initiative at Duke University, where he is a Distinguished Professor. He is known for contributions to voiceband modem technology, to quantum information theory, and for co-invention of space-time codes for wireless communication. His research papers have been cited more than 50,000 times, and his inventions are found in billions of consumer devices. Dr. Calderbank was elected to the National Academy of Engineering in 2005, to the National Academy of Inventors in 2015, and to the American Academy of Arts and Sciences in 2022. He has received a number of awards, including the 2013 IEEE Hamming Medal for contributions to information transmission, and the 2015 Claude E. Shannon Award.

Title:
Learning to Communicate

Abstract:
It is common knowledge that a time-domain pulse is well adapted to pure delay channels, and that a frequency domain pulse is well adapted to pure Doppler channels. In this talk we will explain why the Zak-OTFS waveform, a pulse in the delay-Doppler domain, is well adapted to the doubly spread channels that arise in wireless communication. We will describe how to design the Zak-OTFS waveform so that the input-output (IO) relation is predictable and non-fading, and we will explain how it is possible to learn the IO relation without needing to estimate the underlying channel. We will explore the possibility of a model-free mode of operation, which is especially useful when a traditional model-dependent mode of operation (reliant on channel estimation) is out of reach. We will also describe how the Zak-OTFS waveform supports combined communication and sensing by enabling unambiguous delay-Doppler estimation. This is joint work with Saif Mohammed, Ananthanarayanan Chockalingam, and Ronny Hadani.

Invited Plenary Speaker

Dr. Ingrid Daubechies
Duke University
USA

Ingrid Daubechies has a Ph.D. in Theoretical Physics. She has spent most of her career on bringing mathematical techniques and analysis to bear on applications not only from physics, but also in signal processing, brain imaging, geophysics, biological morphology, and art conservation and analysis, as well as on research in mathematics. She is presently a professor at Duke University. During the isolation caused by the pandemic, she has spent part of her time on the realization, together with 3 other mathematicians and artists, of an art installation that seeks to communicate the wonder, the beauty and the whimsy of mathematics – see mathemalchemy.org

Title:

Discovering low-dimensional manifolds in high-dimensional data

Abstract:

This talk reviews diffusion methods to identify low-dimensional manifolds underlying high-dimensional datasets, and illustrates that by pinpointing additional mathematical structure, improved results can be obtained. Much of the talk draws on a case study from a collaboration with biological morphologists, who compare different phenotypical structures to study relationships of living or extinct animals with their surroundings and each other. This is typically done from carefully defined anatomical correspondence points (landmarks) on e.g. bones; such landmarking draws on highly specialized knowledge. To make possible more extensive use of large (and growing) databases, algorithms are required for automatic morphological correspondence maps, without any preliminary marking of special features or landmarks by the user.

Invited Plenary Speaker

Dr. Svetlana Jitomirskaya
UC Berkeley
USA

Svetlana Jitomirskaya is a Goldman Distinguished Chair Professor at UC Berkeley. She grew up in Kharkiv, Ukraine; both her parents were Holocaust survivors. She obtained Ph.D. at Moscow State University in 1991, and then worked at UC Irvine, from 1991 until 2023, rising there through the ranks from a part-time lecturer to Distinguished Professor. She has also held the inaugural Hubbard Chair at Georgia Tech in 2022-23. Svetlana's research in mathematical physics has been recognized by various prizes, including the AMS Satter Prize (2005), APS & AIP Heineman Prize (2019), the inaugural Ladyzhenskaya Prize (2022), and the inaugural Barry Prize (2023). She was an invited session (2002) and plenary (2023) speaker at the ICM. She is an elected member of the AAAS, NAS, and AASL.

Title:

Dual Lyapunov exponents and the robust ten martini problem

Abstract:

The Hofstadter butterfly, a plot of the band spectra of almost Mathieu operators at rational frequencies, has become a pictorial symbol of the field of quasiperiodic operators and has gained renewed prominence through experimental study of moire materials. It is visually clear from this plot that for all irrational frequencies the spectrum must be a Cantor set, a statement that has been dubbed the ten martini problem. It has been established for the almost Mathieu operators, exploiting various special features of this family, in a work that has become a part of Artur Avila's Fields medal citation. We will discuss a recently developed robust method allowing to establish it for a large class of one-frequency quasiperiodic operators, including nonperturbative analytic neighborhoods of several popular explicit families. The proof builds on the recently developed duality approach to Avila's global theory and partial hyperbolicity of the dual cocycles. The talk is based on works joint with Lingrui Ge, Jiangong You, and Qi Zhou.

Invited Plenary Speaker

Dr. Nader Masmoudi
Courant Institute of Mathematical Sciences
New York University
USA

Nader Masmoudi received his BS in Mathematics from the École Normale Supérieure Paris in 1996, his PHD from Paris Dauphine University in 1999 and his HDR in 2000. He was a CNRS researcher from 1998 till 2000. Since 2000, he is a Professor at the Courant Institute of Mathematical Sciences at New York University. He is currently spending few years at NYUAD in Abu Dhabi as an affiliated faculty where he is the director of the center Stability, Instability and weak turbulence. His research lies in the iterface between fluid mechanics, partial differential equations and dynamical system. His honors include a gold medal at the International Mathematic Olympiads in 1992, a Sloan Fellowship from 2001 to 2003, a Senior Clay Math Scholar in 2014, a chair of excellence from the Foundation Sciences Mathématiques de Paris from 2016 to 2018, a chair position from the Institut des hautes études scientifiques in Paris from 2018 to 2020. He was the recipient of the Fermat prize in 2017, of the Kuwait prize in 2019 of the King Faisal Prize in Sciences in 2022. He was elected to the the American Academy of Arts and sciences in 2021.

Title:
Prandtl System: Reversed flows and the Zero Viscosity Limit

Abstract:
The Prandtl system describes the flow in the boundary layer that forms near the boundary when taking the inviscid limit in the Navier-Stokes system. It was first derived in 1904 by Prandtl. Many important questions related to the Prandtl system and the inviscid limit are still open. We will review some recent advances in the study of the well-posedness of the Prandtl system, the separation of the boundary layer, as well as the study of the inviscid limit of the Navier-Stokes system.

Reversal flows occur after the separation, and are characterized by regions in which the velocity changes sign. The classical point of view of regarding the stationary Prandtl system as an evolution equation in the horizon variable x completely breaks down. Instead, we view the problem as a quasilinear, mixed-type, free-boundary problem.

This is a joint work with Sameer Iyer.

Invited Plenary Speaker

Dr. Xavier Ros Oton
Universitat de Barcelona
Spain

Xavier Ros-Oton is an ICREA Research Professor at the Universitat de Barcelona since 2020. Prior to that, he was an Assistant Professor at Universität Zürich, as well as an R. H. Bing Instructor at the University of Texas at Austin. He is a mathematician who works on PDE. He is the PI of an ERC Starting Grant (2019-2024), and has received several awards for young mathematicians in Spain, as well as the Scientific Research Award from the Fundación Princesa de Girona in 2019. Furthermore, in 2021 he was awarded the Stampacchia Gold Medal, an international prize awarded every three years in recognition of outstanding contributions to the Calculus of Variations. In 2022, he was elected member of the Spanish Royal Academy of Sciences.

Title:
The singular set in the Stefan problem

Abstract:
The Stefan problem, dating back to the XIXth century, is probably the most classical and important free boundary problem. The regularity of free boundaries in the Stefan problem was developed in the groundbreaking paper (Caffarelli, Acta Math. 1977). The main result therein establishes that the free boundary is C^∞ in space and time, outside a certain set of singular points. The fine understanding of singularities is of central importance in a number of areas related to nonlinear PDEs and Geometric Analysis. In particular, a major question in such a context was to establish estimates for the size of the singular set. The goal of this talk is to present some recent results in this direction for the Stefan problem, which we obtained in a joint work with A. Figalli and J. Serra.

Invited Plenary Speaker

Dr. Corinna Ulcigrai
Institute for Mathematics
Universität Zürich
Switzerland

Corinna Ulcigrai is a professor at Institute for Mathematics of the Universität Zürich, Switzerland. She grew up in Trieste, Italy and studied at Scuola Normale Superiore in Pisa. She obtained her PhD in Mathematics at Princeton University (USA). From 2008 to 2018 she worked at the School of Mathematics at the University of Bristol in the UK, where was initially hired as a research fellow and later became a full professor. Ulcigrai's research focusses on the mathematical investigation of chaos, in particular systems which are slowly chaotic or parabolic. For her achievements, Corinna Ulcigrai was awarded several prizes, including the European Mathematical Society prize, the Whitehead Prize, the Leverhulme Prize and the Brin Prize for Dynamical Systems. She was the receipient of an ERC Starting Grant and currently holds a SNSF Consolidator grant. Corinna Ulcigrai was a also a invited speaker at the International Congress of Mathematicians in 2022, in the Dynamical Systems session. Her research is in the area of dynamical systems and ergodic theory. She is one of the few international experts in Teichmüller dynamics in the UK and has studied dynamical and chaotic properties of polygonal billiards and flows on surfaces.

Title:

Slow chaos and deviations phenomena for surface flows

Abstract:

This talk will focus on locally Hamiltonian flows on surfaces, namely smooth two-dimensional flows which are local solution of Hamiltonian differential equations. The study of these flows and their extensions dates back to Poincare and is still an active topic of research, in particular since flows on surfaces provide a fundamental model of slowly chaotic systems. We will present a survey of results concerning the chaotic properties, in particular mixing properties and slow chaos features, for this class of flows. We will then also discuss the deviations phenomena exhibited by ergodic integrals of smooth functions.

Invited Plenary Speaker

Dr. Jun-cheng Wei
Department of Mathematics
Chinese University of Hong Kong
China

Fellow of the Royal Society of Canada, is a Chinese mathematician working in the area of nonlinear partial differential equations. He graduated from University of Minnesota in 1994 and joined the Chinese University of Hong Kong in 1995 after one-year post-doctoral fellowship at SISSA. In 2013 he joined the University of British Columbia as Canada Research Chair Professor. He has over 490 published articles in top journals since 1994. His scholarly work has been cited over 19800 times and he has an H-index of 72. Among his honors, he received a Silver Morningside Medal in 2010, and was an invited speaker at the 2014 International Congress of Mathematicians. In 2020, he was awarded the CMS Jeffery–Williams Prize and Simons Fellow in Mathematics.

Title:

Stability of Sobolev Inequalities

Abstract:

Sobolev inequalities play fundamental roles in all studies of PDE. In this talk, I will discuss recent results on their stability, both from functional inequalities and critical points. We prove optimal nonlinear quantitative estimates of Struwe's decomposition in higher dimensions, thereby confirming a conjecture of Figalli. I will mention recent advances on harmonic maps, Caffarelli-Kohn-Nirenberg inequalities and degenerate stabilities of Yamabe and Q-metrics.

Thematic Session Speakers

Reaction-Diffusion Equations and Aggregation, Chemotaxis and Nonlocal Dispersal

Jose Antonio Carrillo (UK)
Jian Fang (China)
Wenxian Shen (USA)
Michael Winkler (Germany)
Xiao-Qiang Zhao (Canada)

Monge-Ampère Type Equations and Their Applications

Shibing Chen (China)
Genggeng Huang (China)
Siyuan Lu (Canada)
Connor Mooney (USA)
Ravi Shankar (USA)
Bin Zhou (China)

Recent Advances in Singularity Analysis in Nonlinear Elliptic and Parabolic Equations

Manuel del Pino (UK)
Yihong Du (Australia)
Mouhamed Moustapha Fall (Senegal)
Joachim Krieger (Switzerland)
Monica Musso (UK)
Angela Pistoia (Italy)

Recent Progress on the Numerical Solution of Partial Differential Equations

Buyang Li (China)
Qin Li (USA)
Per-Olof Persson (USA)
Xiaofeng Yang (USA)
Lei Zhang (China)

Mathematical Analysis of Fluid Mechanics

Tej-eddine Ghoul (UAE)
Zineb Hassainia (UAE)
Sameer Iyer (USA)
Zhen Lei (China)
Zhifei Zhang (China)
Tarek ElGindi (USA)

Thematic Session Speaker

Reaction-Diffusion Equations and Aggregation, Chemotaxis and Nonlocal Dispersal

Dr. Jian Fang
Harbin Institute of Technology
China

Jian Fang is a professor at Harbin Institute of Technology, China. He obtained his Bachelor degree from Dalian University of Technology in 2005 and Ph.D. from Harbin Institute of Technology in 2011, with a joint doctoral training in Memorial University of Newfoundland from 2007 to 2010. He was a post-doc in York University and EHESS Paris from 2011 to 2015. His research interests are mainly in reaction-diffusion equations, delay differential equations and monotone dynamical systems.

Title:

A delay-induced nonlocal problem with free boundary

Abstract:

Incorporating time delay and Stefan type free boundary into reaction-diffusion equation yields a compatible condition, which guarantees the well-posedness of the initial value problem. Further, under a KPP type setting we establish a dichotomy on propagation or vanishing. When propagation happens, the spreading speed is shown to exist and it is determined nonlinearly by a delay-induced nonlocal elliptic problem in half line.

Thematic Session Speaker

Reaction-Diffusion Equations and Aggregation, Chemotaxis and Nonlocal Dispersal

Dr. Jose Antonio Carrillo
University of Oxford
UK

José Antonio Carrillo is a Professor at the University of Oxford, UK. He served as Chair of the Applied Mathematics Committee of the European Mathematical Society 2014-2017 and was Vice-President of the European Society for Mathematical and Theoretical Biology 2021-2023. He is member of the Scientific Committee of the Spanish National Science Agency 2021-2024. He has been a recipient of a Wolfson Research Merit Award 2012-17 of the Royal Society and was awarded the Echegaray Medal 2022 by the Royal Spanish Academy of Sciences for his contributions in PDEs and its applications. He received the Richard Von Mises prize of the GAMM and the SEMA prize for young researchers in 2006. He was elected to the European Academy of Sciences 2018 and Academia Europeaea 2023, and a SIAM Fellow Class 2019. He is a Foreign Member of the Royal Academy of Sciences of Spain since 2021. Web page: https://www.maths.ox.ac.uk/people/jose.carrillodelaplata

Title:

Nonlocal Aggregation-Diffusion Equations: fast diffusion and partial concentration

Abstract:

We will discuss several recent results for aggregation-diffusion equations related to partial concentration of the density of particles. Nonlinear diffusions with homogeneous kernels will be reviewed quickly in the case of degenerate diffusions to have a full picture of the problem. Most of the talk will be devoted to discuss the less explored case of fast diffusion with homogeneous kernels with positive powers. We will first concentrate in the case of stationary solutions by looking at minimisers of the associated free energy showing that the minimiser must consist of a regular smooth solution with singularity at the origin plus possibly a partial concentration of the mass at the origin. We will give necessary conditions for this partial mass concentration to and not to happen. We will then look at the related evolution problem and show that for a given confinement potential this concentration happens in infinite time under certain conditions. We will briefly discuss the latest developments when we introduce the aggregation term. This talk is based on a series of works in collaboration with M. Delgadino, J. Dolbeault, A. Fernandez, R. Frank, D. Gomez-Castro, F. Hoffmann, M. Lewin, and J. L, Vazquez.

Thematic Session Speaker

Reaction-Diffusion Equations and Aggregation, Chemotaxis and Nonlocal Dispersal

Dr. Michael Winkler
University of Paderborn
Germany

Michael Winkler is a professor at the University of Paderborn, Germany. He received his diploma in mathematics from the University of Paderborn in 1998, and his Ph.D. from the Aachen University of Technology in 2000. He was a post-doc at the Comenius University in Bratislava in 2003, 2004 and 2006, and he was a professor at the University of Duisburg-Essen from 2008 to 2011. His research interests are in the field of partial differential equations and systems, especially of parabolic type, with a particular focus on the spontaneous emergence of singularities, on effects of nonlinear and degenerate diffusion, and on qualitative behavior in cross-diffusion systems.

Title:

Facets of complexity in chemotactic aggregation

Abstract:

Keller-Segel type cross-diffusion systems have been playing an outstanding role in the understanding of various patterning phenomena in biology. Concentrating on issues of predominant application relevance, the description of taxis-driven explosions has been among the most challenging topics in their analysis, and a natural focus of the literature in this regard is on the characterization of solution behavior near collapse. The presentation aims at reporting both on classical and on some recent developments, with a particular focus on the identification of circumstances under which solutions either must blow up at single points only, or alternatively may form singularities throughout larger regions in space.

Thematic Session Speaker

Reaction-Diffusion Equations and Aggregation, Chemotaxis and Nonlocal Dispersal

Dr. Wenxian Shen
Auburn University
USA

Wenxian Shen is a professor at Auburn University, Alabama, USA. She received her Ph.D. from Georgia Institute of Technology in 1992. Her research interests are in diffusive differential equations, especially diffusive differential equations with random or nonlocal dispersal, dynamical systems, and their applications in applied sciences. She is particularly interested in qualitative behavior and spatial propagation dynamics in diffusive differential equations in heterogenous media and in cross-diffusion systems. Dr. Shen's website is at https://www.auburn.edu/ wenxish

Title:

Global existence and spatial spreading speeds in chemotaxis systems with logistic source on $\mathbb{R}^N$

Abstract:

This talk is concerned with the global existence and spatial spreading speeds in three primary chemotaxis systems with logistic source on the whole space $\mathbb{R}^N$. First, I will present a unified proof demonstrating global existence of positive classical solutions of these systems can be deduced from their uniform boundedness in $L^p_{\text{loc}}(\mathbb{R}^N)$ for some $p > \max\{1, \frac{n}{2}\}$. I will then provide sufficient conditions in terms of the parameters in the systems for the global existence and boundedness of classical solutions. Next, I will discuss the spatial spreading speeds of positive solutions with compactly supported or front-like initial functions. Special attention will be given to influence of the chemotaxis sensitivity on the propagation speeds of such solutions. It will be shown that chemotaxis does not slow down the spatial spreading no matter it is positive taxis or negative taxis. Some discussion will also be given on whether chemotaxis speeds up the spatial spreading.

Thematic Session Speaker

Reaction-Diffusion Equations and Aggregation, Chemotaxis and Nonlocal Dispersal

Dr. Xiao Qiang Zhao
Memorial University of Newfoundland
Canada

Xiao-Qiang Zhao is a University Research Professor at the Memorial University of Newfoundland, Canada. He obtained his PhD from the Chinese Academy of Sciences in 1990. His research interests are dynamical systems, differential equations and mathematical biology. A series of his works on monotone dynamics, uniform persistence, traveling waves and spreading speeds, principal eigenvalues, and basic reproduction numbers have received extensive attention and citations. His research monograph (Springer 2003, with second edition in 2017) systematically combines the theory of nonlinear dynamics and applications to biology. Dr. Zhao's website is at https://www.math.mun.ca/ zhao/

Title:

Basic Reproduction Numbers for Reaction-Diffusion Population Models

Abstract:

The basic reproduction number (or ratio) R0 is an important concept in population biology. As a threshold quantity for population dynamics, it is unquestionably one of the most valuable mathematical ideas brought to theoretical ecology and epidemiology. In this talk, I first review the definition, stability equivalence, numerical computation of R0 for reaction-diffusion systems with compartmental structure. Then I introduce a spatial model of Zika virus transmission with seasonality and establish a threshold type result on the global stability in terms of R0. Finally, I present numerical simulations for the Zika transmission in Rio de Janeiro Municipality, Brazil and briefly discuss the effects of some model parameters on R0.

Thematic Session Speaker

Monge-Ampère Type Equations and Their Applications

Dr. Bin Zhou
Peking University
China

Bin is an Associate Professor at School of Mathematical Sciences, Peking University in Beijing. He obtained his B.S. degree from Beijing Normal University in 2004, and a joint Ph.D. in Mathematics from The Australian National University and Peking University in 2010. He was a Simons Postdoctoral Fellow at Beijing International Center for Mathematical Research from 2010 to 2012 and an ARC DECRA research fellow at The Australian National University from 2012 to 2016. He was then an Associate Professor at Peking University since 2015. Bin's research expertise is in differential geometry and complex Monge-Ampère equations.

Title:

On variational problems with a convexity constraint

Abstract:

In this talk, I will report the recent progress on variational problems with a convexity constraint, including the interior regularity of minimizers and the approximation by singular Abreu equations. The results apply to many problems which contains the principal-agent problems studied by Figalli-Kim-McCann. In particular, the famous Rochet-Chone mode is included.

Thematic Session Speaker

Monge-Ampère Type Equations and Their Applications

Dr. Connor Mooney
UC Irvine
USA

Connor is an Associate Professor and Chancellor's Fellow at Department of Mathematics, UC Irvine. He obtained his B.S. degree from Stanford University in 2011 and his Ph.D. from Columbia University in 2015. He was then NSF Postdoctoral Research Fellow at UT Austin in 2015-2016 and a postdoc researcher at ETH Zürich in 2016-2018. He moved to UC Irvine in 2018 until now. Connor's research expertise is in Calculus of variations, Minimal surfaces, and partial differential equations.

Title:

Optimal transport maps of non-convex domains

Abstract:

Optimal transport plays a central role in economics, meteorology, and geometry. The regularity theory of optimal transport maps is delicate, and for the most part has focused on the case that the source and target domains are convex. I will discuss some sharp regularity results for optimal transport maps of planar domains with concave boundary portions. This is joint work with A. Rakshit.

Thematic Session Speaker

Monge-Ampère Type Equations and Their Applications

Dr. Genggeng Huang
Fudan University
China

Genggeng is an Associate Professor at Fudan University, Shanghai, China. He obtained his B.S. degree from Fudan in 2008 and Ph.D. degree from Fudan in 2013 under the supervision of Prof. Jiaxing Hong. After then he held postdocs in National Taiwan University during 2013-2014, in Shanghai Jiao Tong University during 2014-2015, and in The Australian National University during 2015-2017. He commenced his professorship in Fudan from 2017 until now. Genggeng's research expertise is in nonlinear partial differential equations.

Title:

Long time regularity of the Gauss Curvature flow with flat sides

Abstract:

In this talk, we talk about the long time regularity of the interface in the $p-$Gauss curvature flow with flat sides in higher dimensions with $p > \frac{1}{n}$. This is a joint work with Prof. Wang Xu-Jia and Zhou Yang.

Thematic Session Speaker

Monge-Ampère Type Equations and Their Applications

Dr. Ravi Shankar
Princeton University
USA

Ravi is an Instructor in Department of Mathematics of Princeton University. He received his Ph.D. in 2021 at the University of Washington with advisors Gunther Uhlmann and Yu Yuan. His postdoctoral mentor is Alice Chang at Princeton. His research expertise is in PDEs including fully nonlinear elliptic PDEs without uniform ellipticity (sigma-k and special Lagrangian equations), as well as applied mathematics including numerical simulations and nonlocal operators with integrable kernels.

Title:

Lagrangian mean curvature PDEs

Abstract:

We discuss recent developments in the analysis of PDEs which arise from the study of mean curvature of Lagrangian graphs.

Thematic Session Speaker

Monge-Ampère Type Equations and Their Applications

Dr. Shibing Chen
University of Science and Technology of China
China

Shibing is a Professor at the School of Mathematical Sciences, University of Science and Technology of China (USTC). He was a Postdoc fellow at the MSRI (2013), MSI at The Australian National University (2014-2018). He obtained his Ph.D. in 2013 from the Department of Mathematics, University of Toronto, under the supervision of Prof. Robert McCann. Back in 2005 (resp. 2008), he received his B.S. degree (resp. M.S. degree) from the School of Mathematical Sciences, Peking University. His research expertise is in partial differential equations and applications in geometry and optimal transportation.

Title:

Singularities in optimal transport

Abstract:

In the optimal transport problem, singularities may arise when the target domain is non-convex. In this talk, we will discuss some recent results concerning the structure of singularities. In particular, we will show that the singular set is locally a smooth curve away from a finite number of points, provided the target domain is a non-convex polygon. This is based on joint work with Yuanyuan Li and Jiakun Liu.

Thematic Session Speaker

Monge-Ampère Type Equations and Their Applications

Dr. Siyuan Lu
McMaster University
Canada

Siyuan is an Assistant Professor at McMaster University, Canada. He obtained his Bachelor from University of Science and Technology of China (USTC) in 2012, and Ph.D. from McGill University in 2017. He was then a Hill Assistant Professor at Rutgers University, New Brunswick, NJ from 2017 to 2019, and moved to McMaster in 2019. His research expertise is in geometric analysis, partial differential equations, geometric flows and general relativity.

Title:

Interior C^2 estimate for Hessian quotient equations

Abstract:

In this talk, I will first review the history of interior C^2 estimate for fully nonlinear equations. I will then discuss my recent work on interior C^2 estimate for Hessian quotient equations and the main idea behind the proof.

Thematic Session Speaker

Recent Advances in Singularity Analysis in Nonlinear Elliptic and Parabolic Equations

Dr. Angela Pistoia
Sapienza University of Rome
Italy

Angela Pistoia is full professor in Sapienza University of Rome. She got her PhD in 1990 in the University of Pisa. In her career, she has been a researcher in the University of Pisa and in 1997, after she had twins, she has been an associate professor in Sapienza University of Rome. Her research interest are nonlinear partial differential equations, variational and topological methods in nonlinear analysis, conformal geometry. She is an expert in the analysis of bubbling phenomena in several critical nonlinear elliptic problems, such as the Yamabe equation, the Liouville equation and Keller-Segel equations. In particular, she got the first result concerning the existence of infinitely many sign changing solutions for the well known Yamabe equation on the sphere. She published almost 150 papers in high level international mathematical journals. She has a long list of collaborators. Among those, more than 15 are young researchers. She has organized more than 30 international conferences and has delivered more than 100 talks in her career. She has been invited as visiting professor in many italian and foreign universities. She has been the principal investigator of bilateral agreement grants between Sapienza and many universities worldwide. She is also very active in the gender equality field.

Title:

On some properties of Steklov eigenfunctions

Abstract:

I will focus on a couple of properties of the eigenfunctions of Steklov problem on a compact Riemannian manifold with boundary. First, we give a precise count of the interior critical points of a Steklov eigenfunction in terms of the Euler characteristic of the manifold and of the number of its sign changes the boundary. Based on a joint work with Luca Battaglia (University of Roma Tre) and Luigi Provenzano (Sapienza University of Roma) Next, we disprove the conjectured validity of Courant's theorem for the traces of Steklov eigenfunctions building a Riemannian metric for which the n-th eigenfunction has an arbitrary number of nodal domains on the boundary. Based on a joint work with Alberto Enciso (ICMAT Madrid) and Luigi Provenzano (Sapienza University of Roma) .

Thematic Session Speaker

Recent Advances in Singularity Analysis in Nonlinear Elliptic and Parabolic Equations

Dr. Joachim Krieger
EPFL
Switzerland

Joachim Krieger obtained his BA at Harvard University in 1999 and his Ph. D. at Princeton University in 2003. After 3 years as Benjamin Peirce Assistant Professor at Harvard University, he became Tenure Track Assistant Professor at the University of Pennsylvania, attaining tenure in 2009. In 2010 he moved to EPFL, where he has been Full Professor since 2014. He was the first Calabi Assistant Professor at UPenn, received a Sloan Fellowship in 2008, and became Fellow of the AMS in 2016.

Title:

Recent developments on type II singularities for dispersive PDE

Abstract:

I will discuss recent results on various type II singularity formations for different dispersive PDE, illustrating some apparently universal mechanisms. These results are sometimes in stark contrast to the parabolic counterparts of these equations.

Thematic Session Speaker

Recent Advances in Singularity Analysis in Nonlinear Elliptic and Parabolic Equations

Dr. Manuel del Pino
University of Bath
UK

Manuel del Pino is a Chilean mathematician, specialist in asymptotic patterns in nonlinear elliptic and parabolic PDEs. After obtaining his Ph.D. at the University of Minnesota he held postdoctoral positions at the Institute of Advanced Study and the University of Chicago. he became a professor at Universidad de Chile in 2002. In 2010 he was an invited speaker at the ICM Congress in Hyderabad and became a member of the Chilean Academy of Sciences. In 2018 he became a professor at the University of Bath and was awarded a University Research Professorship by The Royal Society. Furthermore, he was recently granted an ERC Advanced Grant. Among his main contributions are a counterexample to De Giorgi's conjecture in large dimensions and the construction of solutions with prescribed blow-up points in a planar domain for the harmonic map flow into the sphere. More recently, the construction of solutions with highly concentrated vorticity in incompressible Euler flows mathematically validating the leapfrogging phenomenon for vortex rings observed by Helmholtz in 1858.

Title:

Delaunay-type compact equilibria in the liquid drop model

Abstract:

We deal with the *liquid drop model*, introduced by Gamow (1930) and Bohr- Wheeler (1939) in nuclear physics to describe the structure of atomic nuclei. The problem consists of finding a surface $\Sigma = \partial\Omega$ in $\mathbb{R}^3$ that is critical for the following energy of regions $\Omega \subset \mathbb{R}^3$:

$$\mathcal{E}(\Omega) = \mathrm{Per}(\Omega) + \frac{1}{2}\int_{\Omega\times\Omega} \frac{dx\,dy}{|x-y|}$$

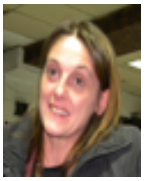
under the volume constraint $|\Omega| = m$. The associated Euler-Lagrange equation is

$$H_\Sigma(x) + \int_\Omega \frac{dy}{|x-y|} = \lambda \,\forall x \in \Sigma, |\Omega| = m,$$

where λ is a constant Lagrange multiplier. Round spheres enclosing balls of volume m are always solutions. They are minimizers for sufficiently small m. Since the two terms in the energy compete, finding non-minimizing solutions can be challenging. We find a new class of solutions with large volumes, consisting of "pearl collars with an axis located on a large circle, with a shape close to a Delaunay's unduloid surface with constant mean curvature. This is joint work with Monica Musso and Andrès Zùñiga.

Thematic Session Speaker

Recent Advances in Singularity Analysis in Nonlinear Elliptic and Parabolic Equations



Dr. Monica Musso
University of Bath
UK

Since February 2018, Monica Musso has been a Professor at the University of Bath. Her previous positions were at the Universidad Católica de Chile (since 2004, becoming a professor in 2012) and at the Politecnico di Torino (since 1999, holding a permanent position as Ricercatore). She earned her PhD in 1997 from the Università di Pisa and worked as a postdoctoral researcher at the International School for Advanced Studies (SISSA) in Trieste during 1998. Her research primarily focuses on Nonlinear Analysis and Partial Differential Equations. Some of the specific topics she explores include singularity formation in elliptic and parabolic equations, concentration phenomena in critical problems, the Fractional Yamabe problem, and vortex dynamics for the Euler equations.

Title:

Long time behavior for vortex dynamics in the 2 dimensional Euler equations

Abstract:

The evolution of a two-dimensional incompressible ideal fluid with smooth initial vorticity concentrated in small regions is well understood over finite time intervals: as these regions shrink to zero, the vorticity converges to a superposition of Dirac deltas centered on collision-free solutions of the point vortex system. Although the point vortex system exhibits globally smooth solutions for generic initial conditions, the long-term behavior of the fluid vorticity remains much less understood. We consider two scenarios: the case of two vortex pairs traveling in opposite directions and that of an expanding self-similar configuration of vortices. Using gluing methods we describe the global dynamics of this configuration. This work is in collaboration with J Davila, M. del Pino and S. Parmeshwar.

Thematic Session Speaker

Recent Advances in Singularity Analysis in Nonlinear Elliptic and Parabolic Equations

Dr. Mouhamed Moustapha Fall
AIMS Senegal Centre
Senegal

Professor Mouhamed Moustapha Fall is currently the President of the AIMS Senegal Centre and an Endowed Chair of Mathematics and its Applications of the institute. After following the Diploma program at the International Center for Theoretical physics (ICTP) in 2005, he defended his PhD in 2009 at the Institute for Advanced Studies (ISAS/SISSA) in Italy. From 2013 to 2021 he was appoint as the German Research chair funded by the Alexander von Humboldt foundation. Since 2013, he has been the Endowed Chair of Mathematics and its Applications of AIMS-Senegal and become a full Professor at AIMS in 2018.

Moustapha has served as:

- Member of the Scientific board of the London Mathematical Society.
- Member of the Scientific council of CIRM (Centre International de Rencontres Mathématiques), Marseille.
- Member of the EMS-CDC (European Mathematical Society-Committee of Developing Countries).
- Member of the Scientific board of the International Basic Science program of UNESCO.
- Member of the the Executive Bureau of International Mathematical Union (IMU).

His research has earned him international recognition. In 2018, Moustapha was an invited speaker at the 2018 International Congress of Mathematicians (ICM) in Rio. In 2023, he was rewarded the 2022 DST-ICTP-IMU Ramanujan prize.

Thematic Session Speaker

Recent Advances in Singularity Analysis in Nonlinear Elliptic and Parabolic Equations

Dr. Yihong Du
University of New England
Australia

Dr Yihong Du is a professor at the University of New England, Australia. He obtained his PhD in 1988 from Shandong University, China. He has been working at the University of New England since 1991, starting as a postdoctoral research fellow of Prof. E.N. Dancer, and becoming a full Professor in 2008. Dr Du is interested in mathematical problems arising from applications in other sciences, such as biology, invasion ecology and chemical reaction theory. Some of his recent works investigate mathematical models for propagation, such as spreading of diseases, or invasion of exotic species, which involve nonlinear elliptic and parabolic equations, often with a free boundary to represent the propagation front. For research achievements in this and other areas, he was elected a Fellow of the Australian Academy of Science in 2021.

Title:

On the KPP equation with nonlocal diffusion and free boundaries

Abstract:

A new phenomenon in nonlocal diffusion models is that accelerated propagation may happen, that is, the propagation speed could be infinite, which never occurs in the corresponding local diffusion model with compactly supported initial data. In this talk, we will first briefly review the history of the KPP model used to describe the propagation of biological/chemical species, and then look at some very recent results on the KPP equation with nonlocal diffusion and free boundaries. For several natural classes of kernel functions appearing in the nonlocal diffusion term, we will show how the exact rate of acceleration can be determined. The talk is based on joint works with Dr Wenjie Ni.

Thematic Session Speaker

Recent Progress on the Numerical Solution of Partial Differential Equations

Dr. Buyang Li
The Hong Kong Polytechnic University
China

Buyang Li received his Ph.D. degree from City University of Hong Kong in 2012. He was engaged in scientific research and teaching at Nanjing University, University of Tübingen (Germany), and The Hong Kong Polytechnic University. He is currently Full Professor at The Hong Kong Polytechnic University and Research Fellow of The Hong Kong Research Grants Council. His main research areas are scientific computing and numerical analysis for partial differential equations from geometry, physics and engineering problems, including finite element approximation of geometric partial differential equations and free boundary problems, numerical approximation of rough solutions of nonlinear dispersion and wave equations, numerical methods and analysis for incompressible Navier–Stokes equations, among others.

Title:

Convergent finite element approximations of surface evolution with artificial tangential motion

Abstract:

The finite element approximation of surface evolution under external velocity field is studied. A tangential motion is designed, by using harmonic map heat flow from a reference surface onto the evolving surface, to improve the mesh quality of the numerically computed surface. The convergence of evolving finite element approximations to the surface evolution driven by a specified vector field with the proposed tangential motion is proved for finite elements of degree $k \geq 3$. Numerical examples are provided to demonstrate the convergence of the algorithm and its effectiveness for improving the mesh quality of the numerically computed evolving surface.

Thematic Session Speaker

Recent Progress on the Numerical Solution of Partial Differential Equations

Dr. Lei Zhang
Peking University
China

Lei Zhang is Boya Distinguished Professor at Beijing International Center for Mathematical Research, Peking University. He is also a Principle Investigator at Center for Quantitative Biology, Center for Machine Learning Research. He obtained his Ph.D in Mathematics at Penn State University in 2009. His research is in the area of computational and applied mathematics and interdisciplinary science in biology, materials, and machine learning. He was awarded/funded by NSFC Innovation Research Group, NSFC Outstanding Youth Award, WangXuan Outstanding Youth Award, Royal Society Newton Advanced Fellowship, etc. He serves as vice Editor-in-Chief of Mathematica Numerica Sinica, and an Associate Editor for SIAM J. Appl. Math, Science China Mathematics, CSIAM Trans. Appl. Math, DCDS-B, The Innovation.

Title:

Construction of Solution Landscape for Complex Systems

Abstract:

Energy landscape has been widely applied to many physical and biological systems. A long standing problem in computational mathematics and physics is how to search for the entire family tree of possible stationary states on the energy landscape without unwanted random guesses? Here we introduce a novel concept Solution Landscape, which is a pathway map consisting of all stationary points and their connections. We develop a generic and efficient saddle dynamics method to construct the solution landscape, which not only identifies all possible minima, but also advances our understanding of how a complex system moves on the energy landscape. We then apply the solution landscape approach to target several problems, including the defect landscapes of nematic liquid crystals, the transition pathways connecting crystalline and quasicrystalline phases, and the excited states of rotational Bose-Einstein condensates.

Thematic Session Speaker

Recent Progress on the Numerical Solution of Partial Differential Equations

Dr. Per-Olof Persson
University of California, Berkeley
USA

Per-Olof Persson is a Professor of Mathematics at the University of California, Berkeley, since July 2008. Before then, he was an Instructor of Applied Mathematics at the Massachusetts Institute of Technology, from where he also received his PhD in 2005. In his thesis, Persson developed the DistMesh algorithm which is now a widely used unstructured meshing technique for implicit geometries and deforming domains. He has also worked for several years with the development of commercial numerical software, in the finite element package Comsol Multiphysics. His current research interests are in high-order discontinuous Galerkin methods for computational fluid and solid mechanics. He has developed new efficient numerical discretizations, scalable parallel preconditioners and nonlinear solvers, space-time and curved mesh generators, adjoint formulations for optimization, and IMEX schemes for high-order partitioned multiphysics solvers. He has applied his methods to important real-world problems such as the simulation of turbulent flow problems in flapping flight and vertical axis wind- turbines, quality factor predictions for micromechanical resonators, and noise prediction for aeroacoustic phenomena.

Title:

Half-Closed Discontinuous Galerkin Discretisations

Abstract:

We introduce the concept of half-closed nodes for nodal Discontinuous Galerkin (DG) discretisations. This is in contrast to more commonly used closed nodes in DG where in each element nodes are placed on every boundary. Half-closed nodes relax this constraint by only requiring nodes on a subset of the boundaries in each element, with this extra freedom in node placement allowing for increased efficiency in the assembly of DG operators. To determine which element boundaries half-closed nodes are placed on we outline a simple procedure based on switch functions. We examine the effect on operator sparsity from using the different types of nodes and show that in particular for the Laplace operator for there to be no difference in the sparsity from using half-closed or closed nodes. We also discuss in this work some linear solver techniques commonly used for Finite Element or Discontinuous Galerkin methods such as static condensation and block-based methods, and how they can be applied to half-closed DG discretisations. Finally we demonstrate its use on a range of test problems including in CFD, and benchmark its performance on these numerical examples.

Thematic Session Speaker

Recent Progress on the Numerical Solution of Partial Differential Equations

Dr. Qin Li
University of Wisconsin-Madison
USA

Qin Li is a professor of mathematics at University of Wisconsin-Madison. She holds an affiliation with Wisconsin Discovery Center and is a senior personnel of Institute of Foundation of Data Science housed at UW-Madison. She completed her PhD education at UW-Madison in year 2013, and worked as a von Karman instructor at Caltech till 2015. Li has received NSF Career Award in 2018, Vilas Early Career Investigator in 2017, and was provided a Simons Fellowship while visiting Cambridge in 2022. Her main research focuses lie on kinetic theory, multiscale analysis, interacting particle systems, and their applications to both physical sciences and machine learning.

Title:

Speeding up gradient flows on probability measure space

Abstract:

In the past decade, there has been a significant shift in the types of mathematical objects under investigation, moving from vectors and matrices in the Euclidean spaces to functions residing in Hilbert spaces, and ultimately extending to probability measures within the probability measure space. Many questions that were originally posed in the context of linear function spaces are now being revisited in the realm of probability measures. One such question is to the efficiently find a probability measure that minimizes a given objective functional. In Euclidean space, we devised optimization techniques such as gradient descent and introduced momentum-based methods to accelerate its convergence. Now, the question arises: Can we employ analogous strategies to expedite convergence within the probability measure space? In this presentation, we provide an affirmative answer to this question. Specifically, we present a series of momentum- inspired acceleration method under the framework of Hamiltonian flow, and we prove the new class of method can achieve arbitrary high-order of convergence. This opens the door of developing methods beyond standard gradient flow.

Thematic Session Speaker

Recent Progress on the Numerical Solution of Partial Differential Equations

Dr. Xiaofeng Yang
University of South Carolina
USA

Dr. Yang is currently the full professor in the Department of Mathematics at the University of South Carolina. He earned his Bachelor's degree in 1998 and Master's degree in 2001 from the University of Science and Technology of China, and received his Ph.D. in computational mathematics from Purdue University in 2007. Following a two-year postdoc at the UNC Chapel Hill, he joined the Math Department of University of South Carolina as the tenure-track assistant professor in 2009. He was then promoted to associate professor in 2013, and a full professor in 2018. Dr. Yang's research focused on the mathematical modeling, numerical analysis, scientific computing, for applications ranging from fluids, solids, and soft matter to cell dynamics. He has already published more than 150 papers in peer-reviewed SCI journals, with more than 8000 citations and H-index of 48, according to Google Scholar. Dr. Yang has been invited to give academic talks at numerous international and domestic conferences, including a plenary talk at ICOSAHOM held in Korea in 2023. Dr. Yang was also recognized as one of Stanford's top 2worldwide scientists consecutively from 2019 to 2022. Additionally, Dr. Yang serves as an associate editor for several journals, and his research has continuously received support from various federal agencies, including the National Science Foundation (NSF) of USA.

Title:

Some topics on gradient flow approach and its applications to various fields

Abstract:

Developing efficient numerical algorithms for highly nonlinear and coupled Partial Differential Equation (PDE) systems has been a longstanding challenge, prompting numerous efforts in this field over many years. We aim to construct a framework approach to address major weaknesses in nearly all existing numerical algorithms designed for solving coupled nonlinear gradient flow systems. These methods have been applied to some well-known systems, such as the anisotropic phase-field dendritic crystal growth model, yielding efficient numerical schemes characterized by linearity, a fully decoupled structure, unconditional energy stability, and second- order time accuracy. These features showcase the algorithms‘ considerable potential for practical applications.

Thematic Session Speaker

Mathematical Analysis of Fluid Mechanics

Dr. Sameer Iyer
UC Davis
USA

Sameer Iyer is an Assistant Professor in the Department of Mathematics, UC Davis. He obtained his Ph.D from Brown University in 2018. He was then an NSF Postdoctoral Research Fellow at Princeton University from 2018-2021. Since 2021, he has been at UC Davis. His research expertise is in nonlinear partial differential equations and asymptotic problems in fluid dynamics.

Title:

Uniform Inviscid Damping and Inviscid Limit of 2D Navier-Stokes with Navier Boundary Conditions

Abstract:

We present a recent series of works, joint with J. Bedrossian, S. He, F. Wang, in which we prove nonlinear inviscid damping, enhanced dissipation, and inviscid limit for the 2D Navier-Stokes equations near Couette. The domain is the periodic channel, $\mathbb{T} \times [-1, 1]$, and Navier Boundary Conditions are prescribed vertically.

Thematic Session Speaker

Mathematical Analysis of Fluid Mechanics

Dr. Tej-eddine Ghoul
NYU Abu Dhabi
UAE

Tej- eddine Ghoul is an associate Professor of mathematics at NYU Abu Dhabi . He works on blow-up dynamics and long time dynamics of Nonlinear Partial Differential Equations to obtain a qualitative description of singularity formation or the long time dynamics of the solutions and the stability of these dynamics.

Thematic Session Speaker

Mathematical Analysis of Fluid Mechanics

Dr. Zhen Lei
Fudan University
China

Professor Zhen Lei is currently Professor and Dean of School of Mathematical Sciences at Fudan University, Vice President of the China Society of Industrial and Applied Mathematics, and Director of Fudan Center for Applied Mathematics. He received his Ph.D. in mathematics from Fudan University in 2006. Since 2011, he has been Ph.D. Advisor and Professor of the School of Mathematical Sciences at Fudan University. He was Postdoc at Caltech in 2007 and became the Princeton IAS member in 2014. Over the years he has held various visiting positions at Peking University, Penn State University, Courant Institute of Mathematical Sciences in NYU, California Institute of Technology, the Institute of Mathematical Sciences in CUHK, Department of Mathematics in NUS, Brown University, and Harvard University. Professor Lei's research focuses on the mathematical theory of nonlinear wave and elastodynamic equations, Navier-Stokes equations and related PDEs arising in fluid dynamics. He introduces the concept of strong null condition and proves the global well-posedness of small amplitude solutions for incompressible elastodynamic systems in two dimensions. Professor Lei's awards and honors include the Second Prize of the National Natural Science of China (2020), the XPLORER Prize (2022), the Shanghai Science and Technology Elite (2022), the Shiing Shen Chern Mathematics Award (2023) and etc. He has delivered more than 10 plenary talks at various international conferences. His work is highly regarded by a large number of leading mathematicians and has also made a wide impact among the peers. He is now the Deputy Editors-in-Chief of Chinese Annals of Mathematics, a Board Member of Discrete and Continuous Dynamical Systems, Fundamental Research, Communications on Pure and Applied Analysis, Annals of Applied Mathematics, etc.

Title:
Global WP of Current-Vortex Sheets in 2D Ideal Incompressible MHD

Abstract:
I will talk about our recent work on the Global well-posedness of Current-Vortex Sheets in 2D Ideal Incompressible MHD. This is a joint work with Prof. Yuan Cai from Fudan University.

Thematic Session Speaker

Mathematical Analysis of Fluid Mechanics

Dr. Zhifei Zhang
Peking University
China

Zhifei Zhang is a Boya distinguished professor of School of Mathematical Sciences at Peking University. His research interest includes the qualitative theory of fluid dynamics equations, free interface problem, mathematical theory of liquid crystal, hydrodynamic stability and boundary layer theory. He is an invited speaker of ICM 2022.

Title:

Blow-up for the supercritical defocusing nonlinear wave equation

Abstract:

In this talk, we introduce our recent result on the finite time blow-up for the supercritical defocusing nonlinear wave equation(NLW) in $R^{d+1}, d \geq 4$. The proof of this result is based on a surprising connection between complex-valued NLW and relativistic Euler equations, and the construction of self-similar imploding solutions of the relativistic Euler equations.

Thematic Session Speaker

Mathematical Analysis of Fluid Mechanics

Dr. Zineb Hassainia
New York University Abu Dhabi
UAE

Zineb is a Research Scientist at New York University Abu Dhabi. She earned her PhD from Université de Rennes in 2015. Prior to her current role, she served as a Courant Instructor at the Courant Institute of Mathematical Sciences at New York University from 2015 to 2018, subsequently joining NYUAD in 2018 as a research scientist. Zineb's research primarily delves into Nonlinear Analysis and Partial Differential Equations within the realm of fluid dynamics.

Title:

On the desingularization of time-periodic vortex motion in bounded domains

Abstract:

In this talk, we will discuss vortex motions for Euler equations in planar domains. In this setting, the dynamics of a single vortex is governed by a Hamiltonian system, with most of its energy levels corresponding to time-periodic motion. We show that, under certain non-degeneracy conditions, it is possible to desingularize most of these trajectories into time-periodic concentrated vortex patches. The proof uses a Nash-Moser scheme and KAM techniques combined with complex geometry tools. Additionally, we will present a vortex duplication mechanism to generate synchronized time-periodic motion of multiple vortices. This is a joint work with Taoufik Hmidi and Emeric Roulley.setting, the dynamics of a single vortex is governed by a Hamiltonian system, with most of its energy levels corresponding to time-periodic motion.

Parallel Session 2 :: Monday, 12/16, 12:30-14:30

TS 5	**Mathematical analysis of fluid mechanics** Organizer(s): Nader Masmoudi	**Conference Hall A**
13:00-13:45	**Sameer Iyer** (UC Davis, USA) Uniform Inviscid Damping and Inviscid Limit of 2D Navier-Stokes with Navier Boundary Conditions	
13:45-14:30	**Tarek Elgindi** (Duke University, USA) Some aspects of the long-time behavior of 2d Euler flows	

SS 4	**Delay and Functional Differential Equations and Applications** Organizer(s): Fathalla Rihan , Ardak Kashkynbayev , Yang Kuang	**Capital Suite 5**
12:30-13:00	**Fathalla Rihan** (United Arab Emirates University, United Arab Emirates) DELAY DIFFERENTIAL EQUATIONS AND APPLICATIONS TO BIOLOGY	
13:00-13:30	**Hebatallah Alsakaji** (UAE University, United Arab Emirates) Stochastic epidemic model based on Markovian switching with time delay	
13:30-14:00	**Christian Budde** (University of the Free State, So Africa) Delay equations in sequentially complete locally convex vector spaces	
14:00-14:30	**Ahmed Elmwafy** (Universidade da Beira Interior, Portugal) Stability and Convergence in Asymptotic Systems of Neural Networks with Infinite Delays	

SS 14	**The recent progress on Allen-Cahn equation, Liouville equation and critical exponent equation** Organizer(s): Changfeng Gui , Wen Yang , Yeyao Hu	**Capital Suite 6**
12:30-13:00	**Juncheng Wei** (University of British Columbia, Canada) Bounded Morse Index Solutions of Allen-Cahn Equation on Riemann Surfaces	

13:00-13:30	**Fa Peng** (Beihang University, Peoples Rep of China) Regularity and Liouville property for stable solutions to semilinear elliptic equations
13:30-14:00	**Angela Pistoia** (Sapienza University of Roma, Italy) Free boundary problem and Liouville equation
14:00-14:30	**Xie Weihong** (Central South University, Peoples Rep of China) Mean field type equations and the applications in Aubin-Onofri type inequalities

SS 41	**Global and Blowup Solutions for Nonlinear Evolution Equations** Organizer(s): Shaohua Chen , Ming Mei , Runzhang Xu	**Capital Suite 10**
13:00-13:30	**Jorge A Esquivel-Avila** (Universidad Autonoma Metropolitana, Mexico) Global non-existence of a coupled parabolic-hyperbolic system of thermoelastic type with history	
13:30-14:00	**Junmiao Liu** (Harbin Engineering University, Peoples Rep of China) Qualitative properties of solution for a class of heat equations	

SS 73	**Nonlinear elliptic and parabolic equations and related functional inequalities** Organizer(s): Bernhard Ruf , Federica Sani , Futoshi Takahashi	**Capital Suite 1**
12:30-13:00	**Manuel del Pino** (, England) Singularity formation for the Keller-Segel system in the plane	
13:00-13:30	**Tohru Ozawa** (Waseda University, Japan) Proof of the Brezis-Gallouet inequality via heat semigroup	
13:30-14:00	**Filomena Pacella** (University of Roma Sapienza, Italy) Overdetermined problems in cylinders and related questions	
14:00-14:30	**Michinori Ishiwata** (Osaka university, Japan) On the asymptotic behavior of noncompact orbits for dynamical systems	

SS 82	**Recent Advances in Nonlinear PDEs and Free Boundary Problems** Organizer(s): José Miguel Urbano , Aelson Sobral , Rafayel Teymurazyan	**Capital Suite 4**
12:30-13:00	**Connor Mooney** (, USA) Free boundaries and the minimal surface system	
13:00-13:30	**Armin Schikorra** (University of Pittsburgh, USA) Regularity results for n-Laplace systems with antisymmetric potential	
13:30-14:00	**Tianling Jin** (The Hong Kong University of Science and Technology, Hong Kong) One bubble dynamics for the Sobolev critical fast diffusion equation in bounded domains	
14:00-14:30	**Diogo Gomes** (KAUST, Saudi Arabia) Regularity Results for Stationary Mean-Field Games with Logarithmic Couplings	

SS 84	**Regularity results of solutions of problems having nonstandard growth and nonuniform ellipticity** Organizer(s): Christopher Goodrich , Maria Alessandra Ragusa , Andrea Scapellato	**Capital Suite 15**
12:30-13:00	**Maria Alessandra Ragusa** (University of Catania, Italy) On regularity results of solutions of minimizers of systems having discontinuous coefficients	
13:00-13:30	**Emanuel Guariglia** (Wenzhou-Kean University, Peoples Rep of China) Fractional Sobolev spaces and zeta functions	
13:30-14:00	**Ahmad M Alghamdi** (Umm Al-Qura University, Saudi Arabia) Relationship Between Dynamical System and Algebra	
14:00-14:30	**Ahmad M Alghamdi** (Umm Al-Qura University, Saudi Arabia) Relationship Between Dynamical Systems and Algebra	

SS 85	**New Trends in The Mathematical Modeling of Epidemiology and Immunology** Organizer(s): Yang Kuang , Abdessamad Tridane	**Capital Suite 9**

12:30-13:00	**Yang Kuang** (Arizona State University, USA) Delay induced periodic solutions in a dendritic cell therapy model
13:00-13:30	**Stanca M Ciupe** (Virginia Tech, USA) The effect of model structure and data availability on virus dynamics at three biological scales
13:30-14:00	**Aisha Tursynkozha** (Nazarbayev University, Kazakhstan) Traveling Wave Speed and Profile of Rabies Model: Insights from the Go or Grow Hypothesis
14:00-14:30	**Ibrahim Nali** (University of Szeged, Hungary) Threshold Dynamics in a Within-Host Infection Model with Crowley-Martin Functional Response Considering Periodic Effects

SS 99	**Recent Advances in Mathematical Physics: A focus on (many-body) quantum systems and spectral theory.** Organizer(s): Houssam Abdul-Rahman	**Capital Suite 21 B**
13:00-13:30	**Simon Becker** (ETH Zurich, Switzerland) Mathematics of Moire materials	
13:30-14:00	**Jingxuan Zhang** (Tsinghua University, Peoples Rep of China) Propagation bounds for long-range interacting bosons	
14:00-14:30	**Bruno Nachtergaele** (University of California, Davis, USA) LTQO and spectral gap stability for the AKLT model on the hexagonal lattice	

SS 105	**Nonlinear Differential Problems on Flat and Curved Structures: Variational and Topological Methods** Organizer(s): Giuseppina D`Aguì , Alexandru Kristály , Patrick Winkert	**Capital Suite 8**
12:30-13:00	**Gabriele Bonanno** (University of Messina, Italy) Multiple Solutions for Nonlinear Elliptic Differential Inclusions	
13:30-14:00	**Jean-Pierre Eckmann** (University of Geneva, Switzerland) Tumbling Downhill along a Given Curve	

14:00-14:30	**Ida de Bonis** (Sapienza University of Rome, Italy) Existence and regularity results for a class of singular parabolic problems with L1 data

SS 110	**Evolution Equations with Applications to Control, Mathematical Modeling and Mechanics** Organizer(s): Nasir U. Ahmed , Stanislaw Migorski	**Capital Suite 14**
12:30-13:00	**Stanislaw Migorski** (Jagiellonian University in Krakow, Faculty of Mathematics and Computer Science, Chair of Optimization and Control, Poland) Constrained quasi-variational-hemivariational inequalities with applictions	
13:00-13:30	**Maria-Magdalena Boureanu** (University of Craiova, Romania, Romania) A priori estimates for anisotropic systems	
13:30-14:00	**Mariusz Michta** (University of Zielona Gora, Poland) Set-valued Young integrals and their properties	
14:00-14:30	**Jerzy Motyl** (University of Zielona Gora, Poland) Solution sets of Young differential inclusions	

SS 124	**Recent Advances in Hydrodynamic Stability Analysis** Organizer(s): Mohamed Ali , Nader Masmoudi , Peter Schmid	**Capital Suite 2**
12:30-13:00	**Malek ABID** (Aix-Marseille Universit\`e, France) A nonlinear Schr\{o}dinger equation for capillary waves on arbitrary depth with constant vorticity	
13:00-13:30	**Azam Gholami** (New York University, Abu Dhabi, UAE, United Arab Emirates) Symmetry Breaking in Chemical Systems: Engineering Complexity through Self-Organization and Marangoni Flows	
13:30-14:00	**Vahagn Nersesyan** (NYU Shanghai, Peoples Rep of China) Ergodicity of randomly forced PDEs via controllability	
14:00-14:30	**Francesco Paparella** (New York University Abu Dhabi, United Arab Emirates) Staircase formation in fingering convection: a peculiar case of instability in the mean fields.	

SS 134	**Recent advances in wavelet analysis, PDEs and dynamical systems - part II** Organizer(s): Emanuel Guariglia	**Capital Suite 7**
12:30-13:00	**Maria Alessandra Ragusa** (University of Catania, Italy) Regularity procedure for solutions of PDEs having discontinous coefficients	
13:00-13:30	**Andrea Scapellato** (University of Catania, Italy) Interior estimates for elliptic equations in Morrey-type spaces	
13:30-14:00	**Anna L Mazzucato** (Penn State University, USA) Global existence for the 2D Kuramoto-Sivashinsky equation	
14:00-14:30	**Giusi Vaira** (University of Bari Aldo Moro, Italy) Blow up solutions on critical problems	

SS 139	**New Developments in Computational Imaging, Learning, and Inverse Problems** Organizer(s): Kui Ren	**Capital Suite 11 A**
12:30-13:00	**Thorsten Hohage** (University of Goettingen, Germany) On computational passive imaging in the frequency domain	
13:00-13:30	**Lingyun Qiu** (Tsinghua University, Peoples Rep of China) Sediment Measurement: an Inverse Problem Formulation	
13:30-14:00	**Shukai Du** (Syracuse University, USA) Inverse radiative transfer via goal-oriented hp-adaptive mesh refinement	
14:00-14:30	**Zhi Zhou** (The Hong Kong Polytechnic University, Hong Kong) Numerical Analysis of Quantitative Photoacoustic Tomography in a Diffusive Regime	

CS 1	**ODEs and Applications**	**Capital Suite 11 B**
12:30-12:50	**Marwa Alrefai** (KU, United Arab Emirates) Fundamental Results on Discrete Waveform Relaxation Algorithms for RLC Transmission Line Circuits	
12:50-13:10	**Georgios Fotopoulos** (Abu Dhabi Polytechnic, United Arab Emirates) The discrete nonlinear Schr{\o}dinger equation with linear gain and nonlinear loss	

13:10-13:30	**BHOLANATH KUMBHAKAR** (INDIAN INSTITUTE OF TECHNOLOGY ROORKEE, India) Approximate Controllability of Nonconvex-valued Semilinear Differential Inclusions with Nonlocal Conditions
13:30-13:50	**Madhukant Sharma** (Dhirubhai Ambani Institute of Information and Communication Technology Gandhinagar, Gujarat, India) Fractional logistic equation with variable kernel in the Caputo sense
13:50-14:10	**ARUN KUMAR akt TRIPATHY** (Sambalpur University, India) ON OSCILLATORY NONLINEAR 2-D NEUTRAL DYNAMIC SYSTEMS ON TIME SCALES

CS 3	**Modeling, Math Biology and Math Finance**	**Conference Hall B (C)**
12:30-12:50	**Mo`tassem Al-arydah** (Khalifa University, United Arab Emirates) Optimal Control Approaches for Managing Infectious Diseases with Behavioral Dynamics	
12:50-13:10	**YOUNGSEOK CHANG** (Gyeongsang National University, Korea) Lotka-Volterra Competitive Systems with Certain Type Nonuniform Diffusion	
13:10-13:30	**Yu-Chen Miao** (Northwestern Polytechnical University, Peoples Rep of China) Correlating the Cellular Microenvironment with Cell Fate Decisions: The Efficiency differences of In Vitro and In Vivo for Directed Differentiation	
13:30-13:50	**Siti Maghfirotul Ulyah** (Khalifa University, United Arab Emirates) On the Impact of Smoking on Microbiome-Metabolism-Brain Interaction	
13:50-14:10	**Qing Xue** (Northwestern Polytechnical University, Peoples Rep of China) A Density-Based Manifold Learning to Reconstruct High-Dimensional Dynamical Systems with Outliers	
14:10-14:30	**Mahendra N/A** (Indian Institute of Technology Roorkee, India) Dynamics of autonomous Leslie-Gower model for the impacts of fear and its carry-over effects including predator harvesting	

Parallel Session 3 :: Monday, 12/16, 14:45-16:45

TS 5	**Mathematical analysis of fluid mechanics** Organizer(s): Nader Masmoudi	**Conference Hall A**

15:00-15:45	**Zineb Hassainia** (New York University at Abu Dhabi, United Arab Emirates) On the desingularization of time-periodic vortex motion in bounded domains
15:45-16:30	**Zhifei Zhang** (Peking University, Peoples Rep of China) Blow-up for the supercritical defocusing nonlinear wave equation

SS 4	**Delay and Functional Differential Equations and Applications** Organizer(s): Fathalla Rihan , Ardak Kashkynbayev , Yang Kuang	**Capital Suite 5**
14:45-15:15	**Dinesh Kumar Subramani** (Vellore Institute of Technology Vellore, India) Non polynomial spline approach on an adaptive mesh for a weakly coupled system of singularly perturbed delay differential equations of convection diffusion type with large delay	
15:15-15:45	**Kathiresan Sivakumar** (Nazarbayev University, Kazakhstan) Synchronization of Fuzzy Reaction-Diffusion Neural Networks via Semi-intermittent Hybrid control and its application to Medical Image Encryption	
15:45-16:15	**Soundararajan Ganesan** (Nazarbayev University, Kazakhstan) Refined Caputo Fractional Derivative for Non-Singular Nonlinear Systems with Delay: Its Application to Suppress the Aedes Aegypti Mosquitoes via Wolbachia	

SS 9	**Recent Progress in Mathematical Theory of Stability and Instability in Fluid Dynamics** Organizer(s): Weiren Zhao , Nader Masmoudi , Zhifei Zhang	**Capital Suite 21 A**
14:45-15:15	**Chen Qi** (Zhejiang University School of mathematical sciences, Peoples Rep of China) Nonlinear Inviscid damping for 2-D inhomogeneous incompressible Euler equations	
15:15-15:45	**Christian Zillinger** (Karlsruhe Institute of Technology, Germany) On Resonances in Dissipative Magnetohydrodynamics	
15:45-16:15	**Michele Dolce** (EPFL, Switzerland) The long way of a viscous vortex dipole	
16:15-16:45	**Jerry Bona** (University of Illinois at Chicago, USA) Model for bore propagation with dynamic boundary conditions	

SS 14	**The recent progress on Allen-Cahn equation, Liouville equation and critical exponent equation** Organizer(s): Changfeng Gui , Wen Yang , Yeyao Hu	**Capital Suite 6**
14:45-15:15	**Susanna Terracini** (University of Turin, Italy) Singularly perturbed elliptic systems modeling partial separation and their free boundaries	
15:15-15:45	**Aleks Jevnikar** (University of Udine, Italy) On the bifurcation diagram for free boundary problems arising in plasma physics	
15:45-16:15	**Ali Hyder** (TIFR-CAM Bangalore, India) The limiting case of the fractional Caffarelli-Kohn-Nirenberg inequality	
16:15-16:45	**Lu Chen** (Beijing Institute of Technology, Peoples Rep of China) The optimal stability of geometric inequality with the dimension-dependent or order-dependent constants.	

SS 30	**Recent Development in Advanced Numerical Methods for Partial Differential Equations** Organizer(s): Yanping Chen , Jian Huang , Liwei Xu	**Conference Hall B (D)**
14:45-15:15	**Wenjun Ying** (Shanghai Jiao Tong University, Peoples Rep of China) An Alternating Direction Implicit Method for Mean Curvature Flows	
15:15-15:45	**Hui Liang** (Harbin Institute of Technology, Shenzhen, Peoples Rep of China) A general collocation analysis for weakly singular Volterra integral equations with variable exponent	
15:45-16:15	**Xiaobo Yin** (Central China Normal University, Peoples Rep of China) Error estimates of finite element methods for nonlocal problems with exact or approximated interaction neighborhoods	
16:15-16:45	**Yin Yang** (Xiangtan University, Peoples Rep of China) Multiscale Model Reduction for Heterogeneous Perforated Domains based on CEM-GMsFEM	

SS 41	**Global and Blowup Solutions for Nonlinear Evolution Equations** Organizer(s): Shaohua Chen , Ming Mei , Runzhang Xu	**Capital Suite 10**

14:45-15:15	**Jingyu Li** (Northeast Normal University, Peoples Rep of China) Nonlinear stability of shock profiles to Burgers equation with critical fast diffusion and singularity
15:15-15:45	**Yanan Li** (Harbin Engineering University, Peoples Rep of China) Longtime dynamics for a class of strongly damped wave equations with variable exponent nonlinearities
15:45-16:15	**Deng Zhang** (Shanghai Jiao Tong University, Peoples Rep of China) Recent progresses on stochastic Zakharov systems
16:15-16:45	**Yuxuan Chen** (Heilongjiang University, Peoples Rep of China) High energy blowup and blowup time for a class of semilinear parabolic equations with singular potential on manifolds with conical singularities

SS 73	**Nonlinear elliptic and parabolic equations and related functional inequalities** Organizer(s): Bernhard Ruf , Federica Sani , Futoshi Takahashi	**Capital Suite 1**
14:45-15:15	**Monica Musso** (University of Bath, England) Delaunay-like compact equilibria in the liquid drop model	
15:15-15:45	**Norisuke Ioku** (Tohoku University, Japan) Existence of solutions to a semilinear heat equation in uniformly local weak Zygmund type spaces	
15:45-16:15	**Daniele Cassani** (University of Insubria & RISM, Italy) Fine bounds for best constants in subcritical Sobolev`s embeddings and applications	
16:15-16:45	**Daisuke Naimen** (Muroran Institute of Technology, Japan) Concentration and oscillation analysis of semilinear elliptic equations with exponential growth in a disc	

SS 79	**Delayed Reaction-Diffusion Equations and Applications** Organizer(s): Jian Fang , Yijun Lou , Lei Zhang	**Capital Suite 12 B**
14:45-15:15	**Weihua Jiang** (Harbin Institute of Technology, Peoples Rep of China) Steady-state bifurcation and spike pattern in the Klausmeier-Gray-Scott model with non-diffusive plants	

15:15-15:45	**Shi-Liang Wu** (Xidian University, Peoples Rep of China) Spatial dynamics for time-periodic partially degenerate reaction-diffusion systems
15:45-16:15	**Chuncheng WAN WANG** (Harbin Institute of Technology, Peoples Rep of China) Dynamics of reaction diffusion equations with memory-based diffusions
16:15-16:45	**Hao Kang** (Tianjin University, Peoples Rep of China) Global dynamics and asymptotic spreading of a diffusive age-structured model in spatially periodic media

SS 82	**Recent Advances in Nonlinear PDEs and Free Boundary Problems** Organizer(s): José Miguel Urbano , Aelson Sobral , Rafayel Teymurazyan	**Capital Suite 4**
14:45-15:15	**Sun-Sig Byun** (Seoul National University, Korea) Nonlinear gradient estimates for degenerate elliptic equations with nonstandard growth	
15:15-15:45	**Boyan Sirakov** (PUC-Rio, Brazil) Elliptic regularity estimates with optimized constants and applications	
15:45-16:15	**Aram Karakhanyan** (The University of Edinburgh, Scotland) The Well-posedness of Cylindrical Jets with Surface Tension	
16:15-16:45	**Hayk Mikayelyan** (University of Nottingham Ningbo China, Peoples Rep of China) A Free Boundary Problem with Nonlocal Obstacle	

SS 84	**Regularity results of solutions of problems having nonstandard growth and nonuniform ellipticity** Organizer(s): Christopher Goodrich , Maria Alessandra Ragusa , Andrea Scapellato	**Capital Suite 15**
14:45-15:15	**Angela Sciammetta** (University of Palermo, Italy) Multiplicity of solutions for certain types of nonlinear p-laplacian problems	

15:15-15:45	**Sergio Polidoro** (Dipartimento FIM - Universit\`{a} di Modena e Reggio Emilia, Italy) Strong maximum principle and Harnack inequality for classical solutions to subelliptic partial differential equations
15:45-16:15	**Andrea Scapellato** (University of Catania, Italy) Existence results for some classes of nonlinear problems
16:15-16:45	**Alessia Kogoj** (University of Urbino, Italy) A rigidity result for Kolmogorov-type operators

SS 85	**New Trends in The Mathematical Modeling of Epidemiology and Immunology** Organizer(s): Yang Kuang , Abdessamad Tridane	**Capital Suite 9**
14:45-15:15	**Abdessamad Tridane** (United Arab Emirates University, United Arab Emirates) Mathematical analysis of a generalized nonlocal dispersion epidemic model	
15:15-15:45	**Dipo Aldila** (Universitas Indonesia, Indonesia) Unraveling Dengue Dynamics with Data Calibration from Palu and Jakarta: Optimizing Active Surveillance and Fogging Interventions	
15:45-16:15	**M\`onika Polner** (Bolyai Institute, University of Szeged, Hungary) Stability switches induced by immune system boosting in an SIRS model with delays	
16:15-16:45	**Ghilmana Sarmad** (UAE University, United Arab Emirates) Mathematical Modeling of addiction with frequency of contact incidence term	

SS 89	**DYNAMICS AND SPECTRA OF QUASIPERIODIC SCHRODINGER OPERATORS** Organizer(s): Qi Zhou , Lingrui Ge , Ilya Kachkovskiy	**Conference Hall B (B)**
14:45-15:15	**Zhenghe Zhang** (UC Riverside, USA) Anderson localization for potentials generated by hyperbolic transformations	
15:15-15:45	**Fan Yang** (Tsinghua University, Peoples Rep of China) Delocalization of a general class of random block Schrodinger operators	
15:45-16:15	**Ao Cai** (Soochow University, Peoples Rep of China) Regularizing effect of randomness on quasiperiodic dynamics	

16:15-16:45	**Simon Becker** (ETH Zurich, Switzerland) Semiclassical limits of quasiperiodic media

SS 97	**New Advances in Structured Signal Recovery** Organizer(s): Xuemei Chen , Zhiqiang Xu	**Capital Suite 21 C**
14:45-15:15	**Jian-Feng Cai** (The Hong Kong University of Science and Technology, Hong Kong) Weighted Riemannian Optimization for Phase Retrieval	
15:15-15:45	**Xuemei Chen** (University of North Carolina Wilmington, USA) A Generalized Matrix Separation Problem	
15:45-16:15	**Ke Wei** (Fudan University, Peoples Rep of China) Leave-One-Out Analysis for Nonconvex Robust Matrix Completion with General Thresholding Functions	
16:15-16:45	**Yu Xia** (Hangzhou Normal University, Peoples Rep of China) Sparse Phase Retrieval under Fourier-based Measurements	

SS 99	**Recent Advances in Mathematical Physics: A focus on (many-body) quantum systems and spectral theory.** Organizer(s): Houssam Abdul-Rahman	**Capital Suite 21 B**
14:45-15:15	**Kazuyuki Wada** (Hokkaido University of Education, Japan) A weak limit theorem for quantum walks in 1-dimension	
15:15-15:45	**Ramis Movassagh** (Google Quantum AI, USA) Super-critical entanglement in strongly interacting simple models	
15:45-16:15	**Wolfgang Spitzer** (FernUniversitaet in Hagen, Germany) Entanglement entropy in the ground state of non-interacting massless Dirac fermions in dimension one	
16:15-16:45	**Albert H. Werner** (QMATH - University of Copenhagen, Denmark) Exponential tail estimates for quantum lattice dynamics	

SS 105	**Nonlinear Differential Problems on Flat and Curved Structures: Variational and Topological Methods** Organizer(s): Giuseppina D`Aguì , Alexandru Kristály , Patrick Winkert	**Capital Suite 8**
14:45-15:15	**Francesca Faraci** (University of Catania, Italy) Ordered solutions for degenerate Kirchhoff problems	
15:15-15:45	**Pasquale Candito** (Mediterranean University of Reggio Calabria, Italy) Two positive solutions for parametric singular p-Laplacian type problems	
15:45-16:15	**Eleonora Amoroso** (University of Messina, Italy) Nonlinear differential equations in the whole space	
16:15-16:45	**Valeria Morabito** (University of Messina, Italy) Nonsmooth analysis for boundary value problems with discontinuous nonlinearities	

SS 110	**Evolution Equations with Applications to Control, Mathematical Modeling and Mechanics** Organizer(s): Nasir U. Ahmed , Stanislaw Migorski	**Capital Suite 14**
14:45-15:15	**Fei Wang** (Xi`an Jiaotong University, Peoples Rep of China) Divergence-Free Randomized Neural Networks for Solving Incompressible Magnetohydrodynamics Equations	
15:15-15:45	**Jacek Banasiak** (Lodz University of Technology/University of Pretoria, Poland) Migrations in epidemiological context-a multiscale point of view	
15:45-16:15	**Adam Bloch** (Institute of Mathematics, Lodz University of Technology, Poland) Network models for infection dynamics	
16:15-16:45	**Katarzyna Szymanska-Debowska** (Institute of Mathematics Lodz University of Technology, Poland) Modeling the spread of infection during war	

SS 113	**New Achievements in Nonlinear PDEs and Applications** Organizer(s): Vincenzo Ambrosio , Giuseppina Autuori , Teresa Isernia	**Capital Suite 13**
14:45-15:15	**Changfeng Gui** (University of Macau, Macau) On a classification of steady solutions to two-dimensional Euler equations	
15:15-15:45	**Monica Musso** (University of Bath, England) Nearly parallel helical vortex filaments in the three dimensional Euler equations	
15:45-16:15	**DEBDIP GANGULY** (Indian Institute of Technology Delhi, India) Poincare-Sobolev equations with the critical exponent and a potential in the hyperbolic space	
16:15-16:45	**Roberta Filippucci** (University of Perugia, Italy) ON A CLASS OF QUASILINEAR CRITICAL SCHR\H ODINGER EQUATIONS IN $\mathbb R^N$	

SS 124	**Recent Advances in Hydrodynamic Stability Analysis** Organizer(s): Mohamed Ali , Nader Masmoudi , Peter Schmid	**Capital Suite 2**
14:45-15:15	**Immanuvel Paul** (Khalifa University of Science and Technology, United Arab Emirates) Stability Analysis of Two-Dimensional Laminar Elliptic Cylinder Wakes Using Reduced-Order Galerkin Models	
15:15-15:45	**Haithem Taha** (University of California, Irvine, USA) Towards a Variational Theory of Hydrodynamic Stability	
15:45-16:15	**Amjad Tuffaha** (American University of Sharjah, United Arab Emirates) Well-posedness of Free Boundary Inviscid Flow-Structure Interaction models	

SS 134	**Recent advances in wavelet analysis, PDEs and dynamical systems - part II** Organizer(s): Emanuel Guariglia	**Capital Suite 7**
14:45-15:15	**Jihoon Lee** (Chonnam National University, Korea) Geometrical equivalence of global attractors of reaction diffusion equations under Lipschitz perturbations	

15:15-15:45	**Kazuyuki Wada** (Hokkaido University of Education, Japan) Generalized eigenvalue problem of quantum walks in 1-dimension
15:45-16:15	**Athanasios Tzavaras** (King Abdullah University of Science and Technology, Saudi Arabia) Axisymmetric flows with swirl for Euler and Navier-Stokes equations
16:15-16:45	**Adisak Seesanea** (Sirindhorn International Institute of Technology, Thammasat University, Thailand) Homogenization of elliptic operators with coefficients in variable exponent Lebesgue spaces

SS 135	**Latest Developments in Computational Methods for Differential Equations Arising in Fluid Dynamics with Multi-scale and Boundary Layer Behaviour** Organizer(s): Natesan Srinivasan	**Capital Suite 12 A**
14:45-15:15	**Natesan Srinivasan** (Indian Institute of Technology Guwahati, India) An Efficient Robust Computational Method for Singularly Perturbed 1D Parabolic PDEs	
15:15-15:45	**Gautam Singh** (National Institute of Technology Tiruchirappalli, India) Direct discontinuous Galerkin method for two parameter singular perturbation problems	
15:45-16:15	**Anuradha Jha** (Indian Institute of Information Technology Guwahati, India) A parameter uniform hybrid approach for singularly perturbed two-parameter parabolic problem with discontinuous data	
16:15-16:45	**Anirban Majumdar** (Indian Institute of Information Technology Design and Manufacturing Kurnool, India) Layer-Resolving Numerical Methods for Degenerate Singular Perturbations Problems with Two Parameters	

SS 139	**New Developments in Computational Imaging, Learning, and Inverse Problems** Organizer(s): Kui Ren	**Capital Suite 11 A**
14:45-15:15	**Christian Klingenberg** (Wuerzburg University, Germany) Parameter Reconstruction in Kinetic Equations: an Inverse Problem for Chemotaxis	

15:15-15:45	**Tran Nguyen** (Max Planck Institute for Solar System Research, Germany) Bi-level iterative regularization for inverse problems in nonlinear PDEs
15:45-16:15	**Yoonsang Lee** (Dartmouth College, USA) LEARNING IN-BETWEEN IMAGERY DYNAMICS VIA PHYSICAL LATENT SPACES

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
14:45-15:05	**Ahmed Zayed** (Depaul University, USA) Pseudo-Differential Operators Associated with the Coupled Fractional Fourier Transform	
15:05-15:25	**Helmi Temimi** (Abdullah Al Salem University, Kuwait) Iterative Finite Difference Method for Solving the Nonlinear Gordon-type Problems	
15:25-15:45	**Theodore Adriano** (Khalifa University, United Arab Emirates) Exponential asymptotics for the stability of discrete Schr\{o}dinger solitons	
15:45-16:05	**Rajan Arora** (Indian Institute of Technology Roorkee, India) Semi-analytical solutions of (2+1)-dimensional KdV-Burgers equation using Homotopy Analysis Method	
16:05-16:25	**Aldona Dutkiewicz** (Adam Mickiewicz Univesity in Poznan, Faculty of Mathematics and Computer Science, Poland) Fractional derivatives with respect to another function in modeling anomalous diffusion processes.	
16:25-16:45	**Priyank Kumar** (Nazarbayev University, Kazakhstan) Boundary Regularity of Solutions to Variable-exponent Gradient Degenerate PDEs	

Parallel Session 4 :: Monday, 12/16, 17:00-19:30

TS 5	**Mathematical analysis of fluid mechanics** Organizer(s): Nader Masmoudi	**Conference Hall A**
17:00-17:45	**Tej-eddine Ghoul** (, United Arab Emirates) Boundary layer separation	
17:45-18:30	**Zhen Lei** (Fudan University, Peoples Rep of China) Global WP of Current-Vortex Sheets in 2D Ideal Incompressible MHD	

SS 4	**Delay and Functional Differential Equations and Applications** Organizer(s): Fathalla Rihan , Ardak Kashkynbayev , Yang Kuang	**Capital Suite 5**
17:00-17:30	**RAJAGOPAL S** (Research Scholar, India) A fitted numerical technique using a cubic spline in compression for the singularly perturbed Fredholm integro differential equation	
17:30-18:00	**Madina Otkel** (Nazarbayev University, Kazakhstan) Finite-Time Synchronization of Complex-Valued Fractional Order Memristive Neural Networks with Time-Varying Delays	
18:00-18:30	**Mehmet Gumus** (Zonguldak Bulent Ecevit University, Turkey) On the qualitative behavior of a Hepatitis B epidemic model with a non-standard finite difference scheme	
18:30-19:00	**Akhila Mariya Regal** (Vellore Institute of Technology, Vellore, India) Numerical approximation for singularly perturbed differential equations exhibiting significant positive shift arising in neuronal activity	

SS 9	**Recent Progress in Mathematical Theory of Stability and Instability in Fluid Dynamics** Organizer(s): Weiren Zhao , Nader Masmoudi , Zhifei Zhang	**Capital Suite 21 A**
17:00-17:30	**Daniel Lear** (Universidad de Cantabria, Spain) Traveling waves near shear flows for 2D Euler	
17:30-18:00	**Daniel Sinambela** (NYUAD, United Arab Emirates) THE TRANSITION TO INSTABILITY FOR STABLE SHEAR FLOWS IN INVISCID FLUIDS	
18:00-18:30	**Hui Li** (New York University Abu Dhabi, United Arab Emirates) Viscosity driven instability of shear flows without boundaries	
18:30-19:00	**Ruizhao Zi** (Central China Normal University, Peoples Rep of China) Asymptotic stability of Couette flow for the Stokes-transport equations	
19:00-19:30	**Zhao Yang** (Academy of Mathematics and Systems Science, Peoples Rep of China) Small-amplitude finite-depth Stokes waves are transversally unstable	

SS 30	**Recent Development in Advanced Numerical Methods for Partial Differential Equations** Organizer(s): Yanping Chen , Jian Huang , Liwei Xu	**Conference Hall B (D)**
17:00-17:30	**Zhen Zhang** (Southern University of Science and Technology, Peoples Rep of China) An operator/direction splitting approach to a class of dissipative systems	
17:30-18:00	**Meng Li** (Zhengzhou University, Peoples Rep of China) Parametric finite element methods for anisotropic axisymmetric flows	
18:00-18:30	**Chaoyu Quan** (The Chinese University of Hong Kong (Shenzhen), Peoples Rep of China) Maximum bound principle and original energy dissipation of arbitrarily high-order rescaled exponential time differencing Runge--Kutta schemes for Allen--Cahn equations	
18:30-19:00	**Xiangcheng Zheng** (Shandong University, Peoples Rep of China) Addressing complex boundary conditions of miscible flow and transport with application to optimal control	
19:00-19:30	**Jian Huang** (Xiangtan University, CHINA, Peoples Rep of China) Characteristic block-centered finite difference methods for Darcy-Forchheimer compressible miscible displacement problem	
19:00-19:30	**Nuo Lei** (Academy of Mathematics and Systems Science, CAS, Peoples Rep of China) High order conservative arbitrary Lagrangian-Eulerian schemes for two-dimensional radiation hydrodynamics equations	

SS 32	**Propagation Dynamics in Nonlocal Dispersal Systems** Organizer(s): Wan-Tong Li , Zhi-Cheng Wang , Shi-Liang Wu	**Capital Suite 2**
17:00-17:30	**Wan-Tong Li** (Lanzhou University, Peoples Rep of China) Dynamics of Nonlocal Dispersal SIS Models in Heterogeneous Environments	
17:30-18:00	**Shi-Liang Wu** (Xidian University, Peoples Rep of China) Spatial dynamics for a time-periodic epidemic model in discrete media	
18:00-18:30	**Yun-Rui Yang** (Lanzhou Jiaotong University, Peoples Rep of China) The stability of monostable traveling waves for a class of asymmetric diffusion system with nonlocal effects and delay	

18:30-19:00	**Yan Li** (Xidian University, Peoples Rep of China) The propagation dynamics for three species competitive-cooperative reaction-diffusion systems

SS 41	**Global and Blowup Solutions for Nonlinear Evolution Equations** Organizer(s): Shaohua Chen , Ming Mei , Runzhang Xu	**Capital Suite 10**
17:00-17:30	**Yurij Salmaniw** (University of Oxford, England) Global existence for aggregation-diffusion systems with irregular kernels	
17:30-18:00	**Runzhang Xu** (Harbin Engineering University, Peoples Rep of China) Global quantitative stability of wave equations with strong and weak dampings	
18:00-18:30	**Shaohua Chen** (Cape Breton University, Canada) Blow-up solutions for nonlinear parabolic equations	

SS 44	**The theory of cluster algebras and its applications** Organizer(s): Fang Li , Xueqing Chen , Min Huang	**Conference Hall B (C)**
18:00-18:30	**Fang Li** (Zhejiang University, Peoples Rep of China) Cluster symmetry and Diophantine equations	
18:30-19:00	**Xueqing Chen** (University of Wisconsin-Whitewater, USA) On the acyclic quantum cluster algebras with principle coefficients	
19:00-19:30	**Michael Shapiro** (Michigan State University, USA) Cluster algebras for Symplectic groupoid and Teichhmuller space of closed genus 2 surfaces	

SS 66	**Advances in discrete-time dynamical systems with applications** Organizer(s): Ziyad AlSharawi , Jose Canovas	**Capital Suite 6**
17:00-17:30	**Ziyad AlSharawi** (American University of Sharjah and Universidad Politecnica de Cartagena, United Arab Emirates) Strong local asymptotic stability enhances global stability techniques	

17:30-18:00	**Jose Canovas** (Department of Applied Mathematics and Statistics, Technical University of Cartagena, Spain) Enveloping in difference equations of order greater than one
18:00-18:30	**Victor Jimenez Lopez** (Universidad de Murcia, Spain) The simplest neural network does solve the simplest classification problem
18:30-19:00	**Mo`tassem Al-arydah** (Khalifa University, United Arab Emirates) Optimal Control Approaches for Managing Infectious Diseases with Behavioral Dynamics

SS 73	**Nonlinear elliptic and parabolic equations and related functional inequalities** Organizer(s): Bernhard Ruf , Federica Sani , Futoshi Takahashi	**Capital Suite 1**
17:00-17:30	**Marta Calanchi** (Universit\`a degli Studi di Milano, Italy) Nonlinearities and singularities	
17:30-18:00	**Masato Hashizume** (Osaka University, Japan) Relationship between maximizers of maximization problems and ground state solutions of semilinear elliptic equations	
18:00-18:30	**Qi Guo** (Renmin University of China, Peoples Rep of China) Recent developments in the study of nonrelativistic limit of nonlinear Dirac equations	
18:30-19:00	**Prosenjit Roy** (Indian Institute of Technology, Kanpur, India) Critical cases of Boundary Hardy and applcation to Moser-Trudinger inequality	
19:00-19:30	**Jie Wan** (Beijing Institute of Technology, Peoples Rep of China) Recent progress in the study of concentrated helical vortices of 3d incompressible Euler equations	

SS 79	**Delayed Reaction-Diffusion Equations and Applications** Organizer(s): Jian Fang , Yijun Lou , Lei Zhang	**Capital Suite 12 B**
17:00-17:30	**Xiao-Qiang Zhao** (, Canada) Global Dynamics of a Time-delayed Nonlocal Reaction-Diffusion Model of Within-host Viral Infections	

17:30-18:00	**Yijun Lou** (The Hong Kong Polytechnic University, Hong Kong) A reaction-diffusion model with spatially inhomogeneous delays
18:00-18:30	**Yifei Li** (Harbin Institute of Technology, Peoples Rep of China) Lattice-based stochastic models motivate non-linear diffusion descriptions of memory-based dispersal
18:30-19:00	**Xun Cao** (Harbin Institute of Technology, Peoples Rep of China) Bogdanov-Takens bifurcation and multi-peak spatiotemporal staggered periodic patterns in a nonlocal Holling-Tanner predator-prey model

SS 82	**Recent Advances in Nonlinear PDEs and Free Boundary Problems** Organizer(s): José Miguel Urbano , Aelson Sobral , Rafayel Teymurazyan	**Capital Suite 4**
17:30-18:00	**Sukjung Hwang** (Chungbuk National University, Korea) Existence of weak solutions of nonlinear drift-diffusion equations	
18:00-18:30	**seunghyun Kim** (Seoul National University, Korea) Sharp regularity for singular/degenerate fully nonlinear free boundary problems with singular absorption terms	
18:30-19:00	**Levon Nurbekyan** (Emory University, USA) Variational principles in mean-field games and related problems	

SS 85	**New Trends in The Mathematical Modeling of Epidemiology and Immunology** Organizer(s): Yang Kuang , Abdessamad Tridane	**Capital Suite 9**
17:00-17:30	**Wei Feng** (University of North Carolina Wilmington, USA) On Differential Equation Models for Shared Resource Competition	
17:30-18:00	**Jasmina \DJ or\dj evi\`c** (Faculty of Sciences and Mathematics, University of Nis, Yugoslavia) Modelling of the spread of diseases with time-change processes	
18:00-18:30	**Mahmoud A Ibrahim** (Bolyai Institute, university of Szeged, Hungary) Threshold dynamics in a periodic epidemic model with imperfect quarantine, isolation and vaccination	

18:30-19:00	**Ayham Zaitouny** (UAEU, United Arab Emirates) Differential Expression Network Analysis to unravel important questions about cancer immunotherapy
19:00-19:30	**Manoj Kumar** (IIT Madras Zanzibar, Tanzania) Analysis of Malaria Model Using Deep Learning

SS 89	**DYNAMICS AND SPECTRA OF QUASIPERIODIC SCHRODINGER OPERATORS** Organizer(s): Qi Zhou , Lingrui Ge , Ilya Kachkovskiy	**Conference Hall B (B)**
17:00-17:30	**Disheng Xu** (Great Bay University, Peoples Rep of China) Lyapunov spectrum and hyperbolicity of one frequency quasi-periodic Sp(4)-cocycle.	
17:30-18:00	**Yi Pan** (Institute of Science and Technology Austria, Austria) Reducibility of quasi-periodic symplectic cocycles	
18:00-18:30	**Fernando Argentieri** (University of Zurich, Switzerland) Reducibility without KAM	
18:30-19:00	**Jing Wang** (Nanjing University of Science and Technology, Peoples Rep of China) Absolute continuity and Holder continuity of the integrated density of states (IDS) for the analytic quasiperiodic Schrodinger operators	
19:00-19:30	**Xianzhe Li** (Nankai University, Peoples Rep of China) Exact local distribution of the absolutely continuous spectral measure	

SS 91	**Advances on Explainable Artificial Intelligence and related Mathematical Modeling** Organizer(s): Massimiliano Ferrara	**Capital Suite 15**
17:00-17:30	**Massimiliano Ferrara** (University Mediterranea of Reggio Calabria, Italy) Explainable Artificial Intelligence and Mathematical Modeling: New Challenges of Research on	
17:30-18:00	**Giuseppe Caristi** (University of Messina, Italy) On Duality for Nonsmooth Mathematical Problems with Vanishing Constraints	

18:00-18:30	**Davide La Torre** (SKEMA Business School, Cote d`Azur University, France) Cellular Automata on Probability Measures: Induced Dynamics on Random Graphs and Applications in Explainable AI
18:30-19:00	**Luca Grilli** (University of Foggia, Italy) EvoFolio: a portfolio optimization method based on multi-objective evolutionary algorithms

SS 97	**New Advances in Structured Signal Recovery** Organizer(s): Xuemei Chen , Zhiqiang Xu	**Capital Suite 21 C**
17:00-17:30	**Xiaoye Fu** (Central China Normal University, Peoples Rep of China) Exponential type bases in L^2(\mu) with phase funtions	
17:30-18:00	**Kasso Okoudjou** (Tufts University, USA) Uniqueness of STFT Phase Retrieval for wide band functions	
18:00-18:30	**Shi Lei** (Fudan University, Peoples Rep of China) Learning Operators with Stochastic Gradient Descent in General Hilbert Spaces	
18:30-19:00	**Cheng Cheng** (SUN YAT-SEN University, Peoples Rep of China) Conjugate Phase Retrieval in Shift-invariant Spaces	
19:00-19:30	**Peng Li** (Lanzhou University, Peoples Rep of China) Sparse Recovery using Expanders via Hard Thresholding Algorithm	

SS 99	**Recent Advances in Mathematical Physics: A focus on (many-body) quantum systems and spectral theory.** Organizer(s): Houssam Abdul-Rahman	**Capital Suite 21 B**
17:00-17:30	**Mostafa Sabri** (New York University Abu Dhabi, United Arab Emirates) Atypical spectra and dynamics of non-locally finite crystals	
17:30-18:00	**Benjamin Hinrichs** (Paderborn University, Germany) Ground States of Spin Boson Models and Long Range Order in 1D Ising Models	
18:00-18:30	**Egor Tiunov** (Technology Innovation Institute, Abu Dhabi, UAE, United Arab Emirates) Quantum-inspired framework for computational fluid dynamics	

SS 100	**Roots and trends in number theory** Organizer(s): Tianxin Cai , Ivan Fesenko , Preda Mihailescu , Wenpeng Zhang	**Capital Suite 3**
17:00-17:30	**Yingnan Wang** (Shenzhen University, Peoples Rep of China) On the first sign change of Fourier coefficients of cusp forms	
17:30-18:00	**Shuai Zhai** (Shandong University, Peoples Rep of China) Rational points on elliptic curves and BSD conjecture	
18:00-18:30	**Feng Zhao** (North China University of Water Resources and Electric Power, Peoples Rep of China) On a sum involving the sum-of-divisors function	
18:30-19:00	**Haigang Zhou** (School of Mathematical Sciences, Tongji University, Peoples Rep of China) The classification and representations of positive definite ternary quadratic forms of level 4N	
19:00-19:30	**Tianxin Cai** (Zhejiang University, Peoples Rep of China) A new generalization of Fermat`s Last Theorem	

SS 105	**Nonlinear Differential Problems on Flat and Curved Structures: Variational and Topological Methods** Organizer(s): Giuseppina D`Aguì , Alexandru Kristály , Patrick Winkert	**Capital Suite 8**
17:00-17:30	**Agnes Mester** (University of Bern, Switzerland) Sharp Morrey-Sobolev inequalities on Finsler manifolds with nonnegative Ricci curvature	
17:30-18:00	**Alexandru Kristaly** (Babes-Bolyai University, Romania) Sharp Sobolev inequalities on noncompact Riemannian manifolds	
18:00-18:30	**Carlo Morpurgo** (University of Missouri, USA) Sharp inequalities on Riemannian manifolds with Euclidean volume growth	
18:30-19:00	**Csaba Farkas** (Sapientia Hungarian University of Transylvania, Romania) Singular (N,q)-Lapacian equation on Riemannian manifolds.	

19:00-19:30	**S\`andor Kaj\`ant\`o** (Babes-Bolyai University, Cluj-Napoca, Romania) Riccati pairs: an alternative approach to Hardy inequalities

SS 106	**Data-Driven Multiscale Modeling and Model Reduction Techniques in Biomedicine: Bridging Scales and Complexity** Organizer(s): Haralampos Hatzikirou , Dimitrios Goussis , Nikolaos Kavallaris	**Capital Suite 11 A**
17:00-17:30	**Andreas Deutsch** (Centre for Interdisciplinary Digital Sciences, Dresden University of Technology, Germany) Mechanisms of cancer invasion and progression: insights from agent-based models	
17:30-18:00	**Jacob G Scott** (Cleveland clinic, USA) Reinforcement learning informs optimal treatment strategies to limit antibiotic resistance	
18:00-18:30	**Haralampos Hatzikirou** (Khalifa University, United Arab Emirates) How to make clinical predictions when we do not know everything? Synergies between dynamic modelling and AI	
18:30-19:00	**Andrei Macarie** (University of Dundee, Scotland) Modelling Post-Operative Glioblastoma Relapse	

SS 110	**Evolution Equations with Applications to Control, Mathematical Modeling and Mechanics** Organizer(s): Nasir U. Ahmed , Stanislaw Migorski	**Capital Suite 14**
17:00-17:30	**Anna Ochal** (Jagiellonian University, Poland) Time-dependent variational-hemivariational inequalities with applications	
17:30-18:00	**Zhangir Nuriyev** (Nazarbayev University, Kazakhstan) Finite-time synchronization for fuzzy shunting inhibitory cellular neural networks	
18:00-18:30	**Hassan Saoud** (Gulf University for Science and Technology, Kuwait) Geometric Approach to Stability of Sets in Differential Inclusions with Maximally Monotone Operators	

SS 113	**New Achievements in Nonlinear PDEs and Applications** Organizer(s): Vincenzo Ambrosio , Giuseppina Autuori , Teresa Isernia	**Capital Suite 13**
17:00-17:30	**Armin Schikorra** (University of Pittsburgh, USA) On Calderon-Zygmund theory for the p-Laplacian	
17:30-18:00	**Laura Baldelli** (University of Granada, Spain) Normalized solutions to the Born-Infeld and related problems	
18:00-18:30	**Bartosz Bieganowski** (University of Warsaw, Poland) Travelling waves for nonlinear Schrodinger equations	
18:30-19:00	**Francesca Faraci** (University of Catania, Italy) Positive and nodal solutions for a quasi-linear equation depending on the gradient	
19:00-19:30	**Patrick Winkert** (University of Technology Berlin, Germany) Least energy sign-changing solution for degenerate Kirchhoff double phase problems	

SS 134	**Recent advances in wavelet analysis, PDEs and dynamical systems - part II** Organizer(s): Emanuel Guariglia	**Capital Suite 7**
17:00-17:30	**Emanuel Guariglia** (Wenzhou-Kean University, Peoples Rep of China) Fractality in prime distribution	
17:30-18:00	**Rowan Juneman** (University of Bath, England) Vortex dynamics for the Gross-Pitaevskii equation	
18:00-18:30	**Yuanze Wu** (China University of Mining and Technology, Peoples Rep of China) Stability of the Caffarelli-Kohn-Nirenberg inequality	
18:30-19:00	**Masakazu Yamamoto** (Niigata University, Japan) Parabolic-scalings on asymptotic expansion of the incompressible Navier-Stokes flow	
19:00-19:30	**Gabriela Planas** (Universidade Estadual de Campinas, Brazil) Dynamics of the Navier-Stokes equations in critical spaces	

SS 135	**Latest Developments in Computational Methods for Differential Equations Arising in Fluid Dynamics with Multi-scale and Boundary Layer Behaviour** Organizer(s): Natesan Srinivasan	**Capital Suite 12 A**
17:00-17:30	**Abhijit Biswas** (king Abdullah University of Science and Technology, Saudi Arabia) Stiff Order Conditions in Runge-Kutta Methods for Linear and Semi-Linear Problems	
17:30-18:00	**Shuo Zhang** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Robust conservative finite element methods for incompressible flows: with lower degrees	
18:00-18:30	**Vivek Kumar Aggarwal** (Delhi Technological University, India) Data Driven Approach to Estimate Perturbation Parameter for Singularly Perturbed Problems using Differential Evolution	
18:30-19:00	**Natesan Srinivasan** (Indian Institute of Technology Guwahati, India) Numerical Solution of Two-Parameter Singularly Perturbed Differential Equations by Efficient Physics-Informed Neural Networks	

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
17:00-17:20	**Yuta Ishii** (National Institute of Technology, Ibaraki College, Japan) Existence of one-peak stationary solutions for the Gierer-Meinhardt model with advection term on the Y-shaped metric graph	
17:20-17:40	**Martin Kalousek** (Institute of Mathematics, Czech Academy of Sciences, Czech Rep) Existence of weak solutions to a Baer--Nunziato type system	
17:40-18:00	**Hicham Kouhkouh** (University of Graz, Austria) Ergodic HJB equation: existence via duality	
18:00-18:20	**Muhammed Ali Mehmood** (Imperial College London, England) Duality solutions and the hard-congestion model	
18:20-18:40	**Johannes Lawen** (Hamburg University of Technology, Germany) Dynamic wind fields and the method of manufactured solutions for surface flow	

18:40-19:00	**Khanat Kenzhebai** (Institute of Mathematics and Mathematical Modeling, Almaty, Kazakhstan, Kazakhstan) BOUNDARY VALUE PROBLEMS WITH AN INTEGRO-DIFFERENTIAL NONLOCAL CONDITION FOR DIFFERENTIAL EQUATIONS OF COMPOSITE TYPE OF THE FOURTH ORDER
19:00-19:20	**Lana Abdelhaq** (United Arab Emirates University, United Arab Emirates) Fractional-Order Operational Matrix Method for Eigenvalue Analysis of Nonsingular Second-Order Sturm-Liouville Problems

Parallel Session 5 :: Tuesday, 12/17, 8:00-10:00

SS 4	**Delay and Functional Differential Equations and Applications** Organizer(s): Fathalla Rihan , Ardak Kashkynbayev , Yang Kuang	**Capital Suite 5**
8:00-8:30	**Dany Joy** (Vellore Institute of Technology, Vellore, India) Numerov Method for a Weakly Coupled System of Singularly Perturbed Delay Differential Equations	
8:30-9:00	**Ateq Alsaadi** (Taif university, Saudi Arabia) Artificial Neural Networks for Stability Analysis and Simulation of Delayed Rabies Spread Models	
9:00-9:30	**Jan Haskovec** (King Abdullah University of Science and Technology, Saudi Arabia) Non-Markovian models of collective motion	
9:30-10:00	**Muner Abou Hasan** (emirates aviation university, United Arab Emirates) Delay on time of Fractional Diabetes Model with Optimal Control, Numerical Treatments	

SS 12	**Hyperbolic Partial Differential Equations and Applications** Organizer(s): Yachun Li , Ming Mei , Ronghua Pan	**Conference Hall B (D)**
8:30-9:00	**Ronghua Pan** (Georgia Institute of Technology, USA) Rayleigh-Taylor instability and beyond	
9:00-9:30	**Yoshihiro Ueda** (Kobe University, Japan) Stability of stationary solutions for viscoelastic fluids in half-space	

9:30-10:00	**Runmei Du** (Changchun University of Technology, Peoples Rep of China) Local existence and uniqueness of the strong solution to the heat and moisture transport system in fibrous porous media

SS 14	**The recent progress on Allen-Cahn equation, Liouville equation and critical exponent equation** Organizer(s): Changfeng Gui , Wen Yang , Yeyao Hu	**Capital Suite 6**
9:00-9:30	**Lei Zhang** (University of Florida, USA) Uniqueness of blowup solutions and non-degeneracy for singular Liouville equations.	
9:30-10:00	**Amir Moradifam** (University of California at Riverside, USA) The Sphere Covering Inequality and Applications	

SS 22	**Recent advances in mean field games for crowd dynamics** Organizer(s): Mohamed Ghattassi , Diogo Gomes , Nader Masmoudi	**Conference Hall B (A)**
8:00-8:30	**Fabio Camilli** (Sapienza Universita` di Roma, Italy) On quasi-stationary Mean Field Games of Controls	
8:30-9:00	**Levon Nurbekyan** (Emory University, USA) Monotone inclusion methods for a class of second-order non-potential mean-field games	
9:00-9:30	**Elisabetta Carlini** (Sapienza University, Italy) Algorithm for Deterministic Mean Field Games	
9:30-10:00	**Yohance Osborne** (Durham University, England) Analysis and Numerical Approximation of Mean Field Game Partial Differential Inclusions	

SS 44	**The theory of cluster algebras and its applications** Organizer(s): Fang Li , Xueqing Chen , Min Huang	**Conference Hall B (C)**
8:00-8:30	**jie xiao** (beijing normal university, Peoples Rep of China) The multiplication formulas of quantum cluster algebras	

8:30-9:00	**Yilin Wu** (University of Science and Technology of China, Peoples Rep of China) Group actions on relative cluster categories and Higgs categories
9:00-9:30	**Shengfei Geng** (Sichuan University, Peoples Rep of China) Cluster-concealed algebras and intersection matrix Lie algebras

SS 67	**Fractional Differential Equations: Theory, Methods and Applications** Organizer(s): Mokhtar Kirane , Ahmad Fino , Berikbol Torebek	**Capital Suite 21 C**
8:00-8:30	**Ricardo Almeida** (University of Aveiro, Portugal) Applications of FDE to Real-World Problems	
8:30-9:00	**Durvudkhan Suragan** (Nazarbayev University, Kazakhstan) Inverse coefficient problems for fractional heat equations	
9:00-9:30	**Sofwah Ahmad** (Khalifa University, United Arab Emirates) Stability analysis of of Fractional Reaction Diffusion Systems	
9:30-10:00	**Salem Ben Said** (United Arab Emirates University, United Arab Emirates) A fractional Laplacian and its extension problem	

SS 73	**Nonlinear elliptic and parabolic equations and related functional inequalities** Organizer(s): Bernhard Ruf , Federica Sani , Futoshi Takahashi	**Capital Suite 1**
8:00-8:30	**Elide Terraneo** (University of Milano, Italy) Some nonlinear heat equations with exponential non-linearity and with singular data in two dimensions	
8:30-9:00	**Michiaki Onodera** (Tokyo Institute of Technology, Japan) Concentrations in Bernoulli`s free boundary problem	
9:00-9:30	**Gabriele Mancini** (University of Bari Aldo Moro, Italy) N-Euclidean Logarithmic Moser-Trudinger-Onofri inequality and some geometrical variants	

9:30-10:00	**Takeshi Suguro** (Kumamoto University, Japan) Deficit estimates for an entropic form of Gagliardo-Nirenberg inequalities related to nonlinear diffusion equations and their application

SS 74	**Recent Advances in Local and Non-local Elliptic PDEs** Organizer(s): Anoop T V , Prosenjit Roy , Sarath Sasi	**Capital Suite 12 A**
8:30-9:00	**Anna Balci** (Charles University, Bielefeld University, Germany) Hodge decomposition in variable exponent spaces with applications to regularity theory	
9:00-9:30	**Simon Nowak** (Bielefeld University, Germany) Nonlinear nonlocal potential theory at the gradient level	
9:30-10:00	**Mohan Kumar Mallick** (VNIT Nagpur, India) Optimal harvesting for a logistic model with grazing	

SS 78	**Special Session on Mathematics of Data Science and Applications** Organizer(s): Ding-Xuan Zhou , Xiang Zhou	**Capital Suite 21 A**
8:00-8:30	**Jianbin Yang** (Hohai University, China, Peoples Rep of China) Approximation from Noisy and Blurring Data	
8:30-9:00	**Yu Cao** (Shanghai Jiao Tong University, Peoples Rep of China) Exploring the Optimal Choice for Generative Processes in Diffusion Models	
9:00-9:30	**Ting Hu** (Xi`an Jiaotong University, Peoples Rep of China) Pairwise learning problems with regularization networks and Nystrom subsampling approach	
9:30-10:00	**Zhongjian Wang** (Nanyang Technological University, Singapore) Towards generative diffusion models in infinite dimension	

SS 91	**Advances on Explainable Artificial Intelligence and related Mathematical Modeling** Organizer(s): Massimiliano Ferrara	**Capital Suite 15**

8:30-9:00	**Nicolo Pecora** (Catholic University, Italy) Dynamics of a New Keynesian model with heterogeneous expectations: the role of monetary policy
9:00-9:30	**David Barilla** (Messina, Italy) Quasivariational Inequalities for Dynamic Competitive Economic Equilibrium Problems in Discrete Case
9:30-10:00	**Ramsha Shafqat** (Thammasat University, Rangsit Campus, Thailand, Thailand) Developing Neural Network Approaches for Analyzing Piecewise Functions in Tuberculosis Treatment Outcomes

SS 95	**Nonlinear analysis and elliptic boundary value problems** Organizer(s): Pasquale Candito , Kanishka Perera , Said El Manouni	**Capital Suite 14**
8:00-8:30	**Shalmali Bandyopadhyay** (The University of Tennessee at Martin, USA) Maximal and minimal weak solutions for elliptic coupled systems with non-linearity on the boundary	
8:30-9:00	**Silvia Frassu** (University of Cagliari, Italy) Dissipation through combinations of nonlocal and gradient nonlinearities in chemotaxis models	
9:00-9:30	**Mousomi Bhakta** (Indian Institute of Science Education and Research Pune (IISER Pune), India) Multiplicity of Solutions for a Class of Critical Exponent Problems in the Hyperbolic Space	
9:30-10:00	**Giuseppe Failla** (University of Palermo, Italy) Nonlocal degenerate variable exponent elliptic problem: existence and multiplicity of solutions	

SS 100	**Roots and trends in number theory** Organizer(s): Tianxin Cai , Ivan Fesenko , Preda Mihailescu , Wenpeng Zhang	**Capital Suite 3**
8:00-8:30	**Zhenyu Guo** (Xi`an Jiaotong University, Peoples Rep of China) Improvements on exponential sums related to Piatetski-Shapiro primes	

8:30-9:00	**Aiken Kazin** (SDU University, Kazakhstan) Semi-Regular Continued Fractions with Fast-Growing Partial Quotients
9:00-9:30	**Sheng-Chi Liu** (Washington State University, USA) Random matrices and L-functions
9:30-10:00	**Huaning Liu** (Northwest University, Peoples Rep of China) Binary sequence family with both small cross-correlation and large family complexity

SS 105	**Nonlinear Differential Problems on Flat and Curved Structures: Variational and Topological Methods** Organizer(s): Giuseppina D`Aguì , Alexandru Kristály , Patrick Winkert	**Capital Suite 8**
8:00-8:30	**Franziska Borer** (Technical University of Berlin, Germany) A Variant Prescribed Curvature Flow on Closed Surfaces with Negative Euler Characteristic	
8:30-9:00	**Gianluca Vinti** (Department of Mathematics and Informatics, University of Perugia, Italy) Discrete and semi-discrete sampling type operators and applications to image segmentation	
9:00-9:30	**AUGUSTA RATIU** (LUCIAN BLAGA UNIVERSITY OF SIBIU, Romania) A Cauchy problem and a semigroup of positive operators	
9:00-9:30	**Sergio Polidoro** (Dipartimento FIM - Universit\`{a} di Modena e Reggio Emilia, Italy) A study of the Kuramoto model for synchronization phenomena based on a degenerate partial differential equation	
9:30-10:00	**Arianna Travaglini** (University of Florence, Italy) Nonlinear sampling Durrmeyer operators in functional spaces	

SS 123	**New trends in elliptic and parabolic PDEs** Organizer(s): Hongjie Dong , Zongyuan Li	**Capital Suite 11 A**
8:00-8:30	**Jongkeun Choi** (Pusan National University, Korea) Green functions for stationary Stokes systems in two dimensions	

8:30-9:00	**Seick Kim** (Yonsei University, Korea) Harnack inequality for parabolic equations in double-divergence form with singular lower order coefficients
9:00-9:30	**Longjuan Xu** (Capital Normal University, Peoples Rep of China) Resonant modes of two hard inclusions within a soft elastic material and their stress estimates
9:30-10:00	**Jun Geng** (Lanzhou University, Peoples Rep of China) The Stokes System on Convex Domains

SS 134	**Recent advances in wavelet analysis, PDEs and dynamical systems - part II** Organizer(s): Emanuel Guariglia	**Capital Suite 7**
8:00-8:30	**Anar Assanova** (Institute of Mathematics and Mathematical Modeling, Kazakhstan) HYPERBOLIC PARTIAL DIFFERENTIAL EQUATIONS WITH DISCRETE EFFECT MEMORY AND BOUNDARY VALUE PROBLEMS FOR ITS	
8:30-9:00	**Christian Budde** (University of the Free State, So Africa) Perturbations of non-autonomous second-order abstract Cauchy problems	
9:00-9:30	**Yifu Zhou** (Wuhan University, Peoples Rep of China) Singularity formation for the heat flow of the H-system	
9:30-10:00	**Ronghua Pan** (Georgia Institute of Technology, USA) Incompressible MHD Without Resistivity: Structure and regularity	

SS 138	**Recent advances in Fractal Geometry, Dynamical Systems, and Positive Operators** Organizer(s): Saurabh Verma , Anuj Kumar , Narendra Singh Yadav	**Capital Suite 4**
8:00-8:30	**Ekta Agrawal** (Indian Institute of Information Technology Allahabad, India) Dimension of set-valued functions and their distance sets	
8:30-9:00	**Yunping Jiang** (The City University of New York, Queens College and Graduate Center, USA) Holder vs Dini in Transfer Operators	

9:00-9:30	**Ken Golden** (University of Utah, USA) Fractals in sea ice dynamics

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
8:00-8:20	**Johannes Lawen** (Hamburg University of Technology, Germany) Iterative corrector scheme for modified NS PDE with and without sweeping	
8:20-8:40	**Assane Lo** (University of Wollongong in Dubai, United Arab Emirates) Advancements in Active Vibration Control of Shear Beams Using Piezoelectric Actuators	
8:40-9:00	**Aniruddha Kumar Sharma** (Indian Institute of Technology Roorkee, India) Analysis of Wave Propagation and Conservation Laws for A Shallow Water Model with Two Velocities Via Lie Symmetry	
9:00-9:20	**Jaya Agnihotri** (Indian Institute of technology, Delhi., India) Second order divergence constraint preserving entropy stable finite difference schemes for two-fluid plasma flow equations	
9:20-9:40	**Akshita Bhardwaj** (Indian Institute of Technology Roorkee, India) ANALYSIS OF MAGNETOGASDYNAMIC SHOCK WAVE IN A SELF-GRAVITATING NON-IDEAL DUSTY GAS USING LIE GROUP THEORY	
9:40-10:00	**Yuanji Cheng** (Malmo University, Sweden) On a new singular and degenerate extension of the p-Laplace operator	

Parallel Session 6 :: Tuesday, 12/17, 12:30-14:30

TS 3	**Recent advances in singularity analysis in nonlinear elliptic and parabolic equations** Organizer(s): Manuel Del Pino , Jun-cheng Wei	**Conference Hall A**
13:00-13:45	**Manuel del Pino** (, England) Delaunay-type compact equilibria in the liquid drop model	
13:45-14:30	**Yihong Du** (University of New England, Australia) On the KPP equation with nonlocal diffusion and free boundaries	

SS 2	**Recent advances in nonlinear Schrodinger systems** Organizer(s): Juncheng Wei , Yuanze Wu	**Capital Suite 10**
12:30-13:00	**Nicola Soave** (Universit\` a degli Studi di Torino, Italy) Normalized solutions of L^2-supercritical NLS equations on metric graphs	
13:00-13:30	**Yeyao Hu** (Central South University, Peoples Rep of China) Self-organizing pheonomena in Schrodinger type systems	
13:30-14:00	**Shaohua Chen** (Cape Breton University, Canada) Self-similar Blow-up Solutions of the Nonlinear Schrodinger Equation with Moving Mesh methods	
14:00-14:30	**Giusi Vaira** (University of Bari Aldo Moro, Italy) An Overview on Nonlinear Schrodinger systems	

SS 8	**Recent Progress on Mathematical Analysis of PDEs Arising in Fluid Dynamics** Organizer(s): Huanyao Wen , Huijiang Zhao , Changjiang Zhu	**Capital Suite 2**
12:30-13:00	**Shuangqian Liu** (Central China Normal University, Peoples Rep of China) Recent progress on the 3D kinetic shear flow via the Boltzmann equation in the diffusive limit	
13:00-13:30	**Li Li** (Ningbo University, Peoples Rep of China) Existence of solutions to Dirichlet boundary value problems of the relativistic Boltzmann equation	
13:30-14:00	**Lei Yao** (Northwestern Polytechnical University, Peoples Rep of China) Initial boundary value problem for 3D non--conservative compressible two--fluid model	
14:00-14:30	**Ruizhao Zi** (Central China Normal University, Peoples Rep of China) Stability threshold of Couette flow for the 3D MHD equations	

SS 11	**Eigenvalue problems in reaction-diffusion equations and applications** Organizer(s): Shuang Liu , King-Yeung Lam , Yuan Lou , Maolin Zhou	**Capital Suite 21 A**

12:30-13:00	**Marek Kryspin** (Wroclaw University of Science and Technology, Poland) Systems of parabolic equations with delays: Continuous dependence on parameters
13:00-13:30	**Maolin Zhou** (Nankai University, Peoples Rep of China) The nonexistence on the limit of elliptic operators with large drift
13:30-14:00	**Xueli Bai** (Northwestern Polytechnical University, Peoples Rep of China) Asymptotic behavior of the principal eigenvalue for cooperative periodic-parabolic systems and applications
14:00-14:30	**Hongze Wang** (Chinese university of Hong Kong (Shenzhen), Peoples Rep of China) Nonradial boundary spiky steady states of chemotaxis systems in a symmetric convex planar domain.

SS 12	**Hyperbolic Partial Differential Equations and Applications** Organizer(s): Yachun Li , Ming Mei , Ronghua Pan	**Conference Hall B (D)**
12:30-13:00	**Yachun Li** (Shanghai Jiao Tong University, Peoples Rep of China) Non-uniqueness in law of Leray solutions to 3D forced stochastic Navier-Stokes equations	
13:00-13:30	**Raffaele Folino** (Universidad Nacional Autonoma de Mexico, Mexico) Spectral stability of weak dispersive shocks in quantum hydrodynamics with nonlinear viscosity	
13:30-14:00	**Xulong Qin** (Sun Yat-sen University, Peoples Rep of China) Vanishing Shear Viscosity and Boundary Layer for the Navier-Stokes Equations with Cylindrical Symmetry and Planar MHD system	
14:00-14:30	**Zhaoyang Shang** (Shanghai Lixin University of Accounting and Finance, Peoples Rep of China) Global Existence and Convergence of Large Strong Solutions to the 3D Full Compressible Navier Stokes Equations	

SS 22	**Recent advances in mean field games for crowd dynamics** Organizer(s): Mohamed Ghattassi , Diogo Gomes , Nader Masmoudi	**Conference Hall B (A)**

13:00-13:30	**David M. Ambrose** (Drexel University, USA) Nonseparable mean field games with pseudomeasure initial distributions
13:30-14:00	**Indranil Chowdhury** (Indian Institute of Technology, Kanpur, India) Degenerate Fully Nonlinear Mean Field Game with Nonlocal Diffusion
14:00-14:30	**Hicham Kouhkouh** (University of Graz, Austria) One`s experience vs. population`s knowledge in mean field games and control

SS 44	**The theory of cluster algebras and its applications** Organizer(s): Fang Li , Xueqing Chen , Min Huang	**Conference Hall B (C)**
12:30-13:00	**Pin Liu** (Southwest Jiaotong University, Peoples Rep of China) Denominator Conjecture and string algebras	
13:00-13:30	**Antoine de Saint Germain** (the University of Hong Kong, Hong Kong) Fixed points of the Fomin-Zelevinsky twist	
13:30-14:00	**Ivan Chi Ho Ip** (Hong Kong University of Science and Technology, Hong Kong) Casimir Actions of Parabolic Positive Representations	

SS 53	**Mathematical Theory on the Klein-Gordon Equation and Related Models** Organizer(s): Zhen Lei , Yifei Wu , Jie Liu	**Capital Suite 6**
12:30-13:00	**Maxime Van de Moortel** (Rutgers University, USA) Late-time asymptotics for the Klein-Gordon equation on a Schwarzschild black hole	
13:00-13:30	**Baoping Liu** (Peking University, Peoples Rep of China) Scattering for defocusing energy sub-critical wave equation with inverse square potential	
13:30-14:00	**Lifeng Zhao** (University of Science and Technology of China, Peoples Rep of China) Long time behaviors for damped Klein-Gordon and wave equations	
14:00-14:30	**Maolin Zhou** (Nankai University, Peoples Rep of China) Some recent results on vortex patch problems	

SS 60	**Nonlinear Evolution Equations and Related Topics** Organizer(s): Goro Akagi , Michinori Ishiwata , Mitsuharu Otani	**Conference Hall B (B)**
12:30-13:00	**Yuya Tanaka** (Department of Mathematical Sciences, Kwansei Gakuin University, Japan) Boundedness of solutions to a chemotaxis system with a Robin boundary condition	
13:00-13:30	**Yutaro Chiyo** (Tokyo University of Science, Department of Mathematics, Japan) Boundedness and stabilization in some degenerate parabolic-elliptic-elliptic attraction-repulsion chemotaxis system	
13:30-14:00	**Yoshifumi YM Mimura** (Nihon University, Japan) A chimera gradient flow approach to chemotaxis systems with indirect signal production	
14:00-14:30	**Akisato Kubo** (Fujita Health University, Japan) Non-linear evolution equations with non-local coefficients and smoothing effect	

SS 67	**Fractional Differential Equations: Theory, Methods and Applications** Organizer(s): Mokhtar Kirane , Ahmad Fino , Berikbol Torebek	**Capital Suite 21 C**
12:30-13:00	**Makhmud A. Sadybekov** (Institute of Mathematics and Mathematical Modeling, Kazakhstan) Inverse boundary value problem with integral condition for a hyperbolic equation of fractional order	
13:00-13:30	**Natalia Martins** (University of Aveiro, Portugal) Optimality conditions for control problems involving generalized fractional derivatives	
13:30-14:00	**Mohamed Ali Hamza** (Imam Abdulrahman Bin Faisal University, Saudi Arabia) Blow-up and lifespan estimate of the solution of the wave equation with critical damping	

SS 73	**Nonlinear elliptic and parabolic equations and related functional inequalities** Organizer(s): Bernhard Ruf , Federica Sani , Futoshi Takahashi	**Capital Suite 1**
12:30-13:00	**Cristina Tarsi** (Universit\`a degli Studi di Milano, Italy) Bifurcation into spectral gaps for Schr\odinger equations: from local to non local case	
13:00-13:30	**Tatsuya Miura** (Kyoto Univeristy, Japan) Uniqueness and minimality in Euler`s elastica problem	
13:30-14:00	**Luca Battaglia** (Universita degli Studi Roma Tre, Italy) New solutions for the Lane-Emden problem in planar domains	
14:00-14:30	**Jyotshana Prajapat** (University of Mumbai, India) : Global existence of solutions of a class of system of reaction-diffusion equations on evolving domains.	

SS 74	**Recent Advances in Local and Non-local Elliptic PDEs** Organizer(s): Anoop T V , Prosenjit Roy , Sarath Sasi	**Capital Suite 12 A**
13:00-13:30	**Ratnasingham Shivaji** (University of North Carolina at Greensboro, USA) Uniqueness of positive solutions for a class of nonlinear elliptic equations with Robin boundary conditions	
13:30-14:00	**Sheela Verma** (Indian Institute of Technology (BHU) Varanasi, India) Shape optimization problem for Steklov Dirichlet eigenvalues	
14:00-14:30	**Kaushik Bal** (Indian Institute of Technology, Kanpur, India) Multiplicity of solutions for mixed local-nonlocal elliptic equations with singular nonlinearity	

SS 75	**Stochastic Evolution Systems Across Scales: Theory and Applications** Organizer(s): Hao Tang , Panpan Ren , Feng-Yu Wang	**Capital Suite 13**
12:30-13:00	**Tusheng Zhang** (University of Science and Technology of China, Peoples Rep of China) Metastability of Random Dynamical Systems	

13:00-13:30	**Helge Holden** (Norwegian University of Science and Technology, Norway) The Camassa-Holm equation with transport noise
13:30-14:00	**Xue-Mei Li** (EPFL, Switzerland) Fluctuations of SHE
14:00-14:30	**Xiangdong Li** (AMSS, Chinese Academy of Sciences, Peoples Rep of China) On the Lagrange multiplier method to the Euler and Navier-Stokes equations

SS 87	**Large Population Optimization, Stochastic Filtering and Mathematical Finance** Organizer(s): Zhen Wu , Guangchen Wang , Shujun Wang	**Capital Suite 3**
12:30-13:00	**Zhuo Jin** (Macquarie University, Australia) Cyber Risk Management Through Investment in Cybersecurity Technology	
13:00-13:30	**Jun Moon** (Hanyang University, Korea) Zero-Sum Differential Games in the Wasserstein Space	
13:30-14:00	**Chenchen Mou** (City University of Hong Kong, Peoples Rep of China) On Well-posedness of Mean Field Game Master Equations: a Unified Approach	
14:00-14:30	**Kaihua K Xi** (Shandong University, Peoples Rep of China) Synchronous Stability Analysis of Power Systems Under Stochastic Disturbances	

SS 88	**Recent developments in stochastic analysis and related topics** Organizer(s): Xicheng Zhang , Jian Wang , Wei Liu	**Capital Suite 21 B**
12:30-13:00	**Yingchao Xie** (Jiangsu Normal University, Peoples Rep of China) The first eigenvalue of one-dimensional elliptic operators with killing	
13:00-13:30	**Yanyan Liu** (Wuhan University, Peoples Rep of China) Kernel Variable Importance Measure with Applications	
13:30-14:00	**Yichao Huang** (Beijing Institute of Technology, Peoples Rep of China) Moments and tails of the Gaussian multiplicative chaos	
14:00-14:30	**Xiaobin Sun** (Jiangsu Normal University, Peoples Rep of China) Asymptotic behavior of multi-scale stochastic systems	

SS 91	**Advances on Explainable Artificial Intelligence and related Mathematical Modeling** Organizer(s): Massimiliano Ferrara	**Capital Suite 15**
12:30-13:00	**Marta Biancardi** (Univerity of Bari, Italy) Environmental Policy: The Coevolution of Pollution and Compliance	
13:00-13:30	**Domenico Santoro** (University of Foggia, Italy) More or Less. A comparison between Machine and Deep Learning Models on high stationarity data	
13:30-14:00	**Giacinto Angelo GA Sgarro** (University of studies of Foggia, Italy) Ant colony optimization for Chinese postman problem	

SS 94	**Computational and Mathematical Approaches to Understanding Complex Biological Systems** Organizer(s): Michael Li , Samares Pal , Zhisheng Shuai	**Capital Suite 9**
12:30-13:00	**Samares Pal** (University of Kalyani, India) Deterministic and stochastic analysis of eco-epidemic models, focusing on fear, refuge, and selective predation dynamics	
13:00-13:30	**Arwa Baabdulla** (United Arab Emirates University, United Arab Emirates) Oscillations in a Spatial Oncolytic Virus Model	
13:30-14:00	**Junping Shi** (College of William & Mary, USA) Spatial movement with temporally distributed memory	
14:00-14:30	**TAPAN KAR** (Indian Institute of Engineering Science and Technology, Shibpur, India) Explicit impacts of harvesting in food chain models	

SS 95	**Nonlinear analysis and elliptic boundary value problems** Organizer(s): Pasquale Candito , Kanishka Perera , Said El Manouni	**Capital Suite 14**
12:30-13:00	**Maria-Magdalena Boureanu** (University of Craiova, Romania, Romania) Homogenization of a variable exponent problem	
13:00-13:30	**Valeria Morabito** (University of Messina, Italy) Variational methods for nonlinear differential problems with discontinuous reaction terms	

13:30-14:00	**Alessandro Columbu** (Universit\`a degli Studi di Cagliari, Italy) Dissipative gradient nonlinearities prevent blow-up in a class of Keller--Segel models.
14:00-14:30	**Elisabetta Tornatore** (University of Palermo, Italy) On the existence of solutions of degenerate Dirichlet problems with unbounded coefficient

SS 105	**Nonlinear Differential Problems on Flat and Curved Structures: Variational and Topological Methods** Organizer(s): Giuseppina D`Aguì , Alexandru Kristály , Patrick Winkert	**Capital Suite 8**
12:30-13:00	**Rafael D\`iaz Fuentes** (University of Cagliari, Italy) Tumor-inmune cell interactions by a chemotaxis system with logistic source	
13:00-13:30	**Valentina Taddei** (Department of Sciences and Methods for Engineering, University of Modena and Reggio Emilia, Italy) On multiplicative time-dependent perturbations of semigroups and cosine families generators	
13:30-14:00	**Monica Marras** (University of Cagliari, Italy) On some properties of solutions to a class of parabolic system	
14:00-14:30	**Giuseppina D`Agui** (University of Messina, Italy) Existence results for nonlinear differential problems and applications to neural networks	

SS 106	**Data-Driven Multiscale Modeling and Model Reduction Techniques in Biomedicine: Bridging Scales and Complexity** Organizer(s): Haralampos Hatzikirou , Dimitrios Goussis , Nikolaos Kavallaris	**Capital Suite 11 A**
12:30-13:00	**Dimitris Goussis** (Khalifa University, United Arab Emirates) COVID-19 in Greece: the dynamics of the 4th, 5th and 6th waves	
13:00-13:30	**Dimitris Manias** (Khalifa University, United Arab Emirates) Data-Driven Identification of Regions for Model Reduction in Multiscale Biomedical Data	

13:30-14:00	**Ghada Ben Othman** (Ghent University, Belgium) Data-Driven Models for Extended Reality Solutions in General Anesthesia Management.
14:00-14:30	**Nuha Loling Othman** (Osaka University, Japan) Spatio-temporal Dynamics of MMK4 Function for JNK Pathway from Analog to Digital Converter in Response to Stress Intensities

SS 117	**Advances on nonlinear elliptic PDEs** Organizer(s): Laura Baldelli , Roberta Filippucci	**Capital Suite 12 B**
12:30-13:00	**Daniele Cassani** (University of Insubria & RISM, Italy) Limiting cases in Choquard type equations and Schroedinger-Poisson systems	
13:00-13:30	**Jaroslaw Mederski** (Institute of Mathematics, Polish Academy of Sciences, Poland) Travelling waves for Maxwell`s equations in nonlinear and symmetric media	
13:30-14:00	**Julia Henninger** (KIT Karlsruhe, Germany) Special wave forms for a generalized semilinear wave equation	
14:00-14:30	**Rafael Lopez-Soriano** (Universidad de Granada, Spain) On some doubly critical elliptic systems	

SS 134	**Recent advances in wavelet analysis, PDEs and dynamical systems - part II** Organizer(s): Emanuel Guariglia	**Capital Suite 7**
12:30-13:00	**Mahmoud A Ibrahim** (Bolyai Institute, university of Szeged, Hungary) Global dynamics of a tumor growth model with three mechanisms	
13:00-13:30	**Mani MM Mehra** (Department of Mathematics, Indian Institute of Technology Delhi, IITD, India, India) Extension of wavelets/PDEs to topologically complicated domains	
13:30-14:00	**Lianglin Li** (Wenzhou-Kean University, Peoples Rep of China) On the generalization of IFSs	
14:00-14:30	**Jiayi Wei** (Wenzhou-Kean University, Peoples Rep of China) Chaos and convergence in 3D H\`{e}non maps	

SS 138	**Recent advances in Fractal Geometry, Dynamical Systems, and Positive Operators** Organizer(s): Saurabh Verma , Anuj Kumar , Narendra Singh Yadav	**Capital Suite 4**
12:30-13:00	**Narendra Singh Yadav** (Indian Institute of Information Technology, Sri City, Chittoor, India) An Innovative Implicit-Explicit Fitted Mesh Higher-Order Scheme for 2D Singularly Perturbed Semilinear Parabolic PDEs with Non-Homogeneous Boundary Conditions	
13:00-13:30	**Christian Wolf** (CUNY Graduate Center, USA) Ergodic theory on coded shift spaces	
13:30-14:00	**Puneet Sharma** (Indian Institute of Technology Jodhpur, India) Some Results on Graph Induced Symbolic Systems	

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
12:30-12:50	**Shilpa Gupta** (Indian Institute of Technology Kanpur, India) Generalized concentration compactness principle and its applications to fractional problems with critical growth in $\mathbb{R}^N$	
12:50-13:10	**Khumoyun Jabbarkhanov** (Institute of Mathematics and Mathematical Modeling, Kazakhstan) Dynamics of nonlinear anomalous reaction-diffusion models: global existence and blow-up of solutions	
13:10-13:30	**Kush Kinra** (NOVA University of Lisbon, Portugal) Non-uniqueness of H\older continuous solutions to 3D stochastic Euler equations on torus	
13:30-13:50	**Nitu Kumari** (Indian Institute of Technology Mandi, India) Understanding the dynamics of reaction diffusion equation using Transformer-based Koopman Autoencoder	
13:50-14:10	**Atanu Manna** (Indian Institute of Technology Hyderabad, India) Existence and multiplicity of non-radial sign-changing solutions for a semilinear elliptic equation in hyperbolic space	
14:10-14:30	**Yingting Miao** (Xi'an Jiaotong-Liverpool University, Peoples Rep of China) Some Recent Results on Stochastic Camass-Holm Type Equations: Global Existence, Blow-Up and Stability	

Parallel Session 7 :: Tuesday, 12/17, 14:45-16:45

TS 3	**Recent advances in singularity analysis in nonlinear elliptic and parabolic equations** Organizer(s): Manuel Del Pino , Jun-cheng Wei	**Conference Hall A**
15:00-15:45	**Mouhamed Moustapha Fall** (, Senagal) On some overdetermined boundary value problems and the Schiffer conjecture.	
15:45-16:30	**Joachim Krieger** (, Switzerland) Recent developments on type II singularities for dispersive PDE	

SS 2	**Recent advances in nonlinear Schrodinger systems** Organizer(s): Juncheng Wei , Yuanze Wu	**Capital Suite 10**
14:45-15:15	**Isabella Ianni** (Sapienza Universita di Roma, Italy) New solutions for the Lane-Emden problem in planar domains	
15:15-15:45	**Jaroslaw Mederski** (Institute of Mathematics, Polish Academy of Sciences, Poland) Multiple normalized solutions to a system of nonlinear Schroedinger equations	
15:45-16:15	**Seunghyeok Kim** (Hanyang University, Korea) Bubbling solutions of slightly subcritical and critical Lane-Emden systems	
16:15-16:45	**Norihisa Ikoma** (Keio University, Japan) The existence of L^2-normalized solutions in the L^2-critical setting	

SS 8	**Recent Progress on Mathematical Analysis of PDEs Arising in Fluid Dynamics** Organizer(s): Huanyao Wen , Huijiang Zhao , Changjiang Zhu	**Capital Suite 2**
14:45-15:15	**Haiyang Jin** (South China University of Technology, Peoples Rep of China) Nonlinear stability of traveling waves to a parabolic-hyperbolic system modeling chemotaxis with periodic perturbations	
15:15-15:45	**Qingqing Liu** (South China University of Technology, Peoples Rep of China) Stability of hyperbolic wave for the viscous vasculogenesis model	

15:45-16:15	**Jinrui Huang** (Wuyi University, Peoples Rep of China) Some recent progress on mathematical analysis of nematic liquid crystals
16:15-16:45	**Guangyi HONG** (South China University of Technology, Peoples Rep of China) Optimal decay rates of compressible Navier-Stokes equations and the related model

SS 11	**Eigenvalue problems in reaction-diffusion equations and applications** Organizer(s): Shuang Liu , King-Yeung Lam , Yuan Lou , Maolin Zhou	**Capital Suite 21 A**
14:45-15:15	**Yuan Lou** (Shanghai Jiao Tong University, Peoples Rep of China) Principal eigenvalues for elliptic operators with large drift	
15:15-15:45	**Lu Chen** (Beijing Institute of Technology, Peoples Rep of China) A scattering theory on hyperbolic spaces	
15:45-16:15	**Lei Zhang** (Shaanxi Normal University, Peoples Rep of China) Basic reproduction ratios for time-periodic homogeneous evolution systems	
16:15-16:45	**Lingling Hou** (College of Mathematics and System Science Xinjiang University, Peoples Rep of China) Investigating receptor-based models with hysteresis	

SS 12	**Hyperbolic Partial Differential Equations and Applications** Organizer(s): Yachun Li , Ming Mei , Ronghua Pan	**Conference Hall B (D)**
14:45-15:15	**Richard Yue-Jun RYJ Peng** (University of Clermont Auvergne, France) Global large smooth solutions and relaxation limit of isothermal Euler equations	
15:15-15:45	**Debora Amadori** (University of L`Aquila, Italy) Unconditional flocking for weak solutions to self-organized systems of Euler-type	
15:45-16:15	**Haitong Li** (Changchun University of Technology, Peoples Rep of China) Large Time Behaviors of Solutions to the Euler / Euler-Poisson Equations with Time-dependent Damping	

16:15-16:45	**Lv Cai** (Shanghai University, Peoples Rep of China) Sharp lifespan estimate for the compressible Euler system with critical time-dependent damping in $\R^2$

SS 16	**Recent Development of Stochastic Optimal Control and Differential Games** Organizer(s): Jingrui Sun , Hongwei Mei , Jiongmin Yong	**Capital Suite 15**
14:45-15:15	**Qing Zhang** (University of Georgia, USA) Pairs Trading: An Optimal Selling Rule with Constraints	
15:15-15:45	**Huanshui Zhang** (Shandong University of Science and Technology, Peoples Rep of China) Optimization Methods Based on Optimal Control	
15:45-16:15	**Bingchang Wang** (Shandong University, Peoples Rep of China) Mean field LQG games and teams	
16:15-16:45	**Jonas Schiessl** (University of Bayreuth, Germany) Strict Dissipativity in Stochastic Optimal and Predictive Control	

SS 22	**Recent advances in mean field games for crowd dynamics** Organizer(s): Mohamed Ghattassi , Diogo Gomes , Nader Masmoudi	**Conference Hall B (A)**
15:15-15:45	**Ziad Kobeissi** (Inria Saclay, CentraleSupelec, University Paris-Saclay, France) A mean-field-game approach to overfishing	
15:45-16:15	**AbdulRahman M Alharbi** (Islamic University at Al-Madinah / King AbdUllah University of Science and Technology, Saudi Arabia) A Stationary First-Order Mean-Field Games with Novel Mixed Boundary Conditions	
16:15-16:45	**Eliot Pacherie** (CNRS & Cergy University, France) Stability Analysis of a Non-Separable Mean-Field Games for Pedestrian Flow in Large Corridors	

SS 44	**The theory of cluster algebras and its applications** Organizer(s): Fang Li , Xueqing Chen , Min Huang	**Conference Hall B (C)**

14:45-15:15	**Ming Lu** (Sichuan University, Peoples Rep of China) Dual canonical bases of quantum groups
15:15-15:45	**Shizhuo Yu** (Nankai University, Peoples Rep of China) Bott-Samelson atlas and Lusztig`s total positivity on a flag variety
15:45-16:15	**Jinfeng Song** (National University of Singapore, Singapore) Cluster realizations of i-quantum groups
16:15-16:45	**Gleb Koshevoy** (IITP Russian Academy of Sciencies, Russia) Maximal green sequences and q-characters of Kirillov-reshetikhim modules

SS 45	**Partial differential equations from fluids and waves** Organizer(s): Ming Chen , Runzhang Xu , Dehua Wang	**Capital Suite 5**
14:45-15:15	**Marta Lewicka** (University of Pittsburgh, USA) Flexibility results for the Monge-Ampere system	
15:15-15:45	**Wei Lian** (Lund university, Sweden) Transverse instability of line periodic waves to the KP-I equation	
15:45-16:15	**Yitian Wang** (Harbin Engineering University, Peoples Rep of China) Well-posedness for p(x)-Laplacian parabolic equations with multiple regime on an annulus	
16:15-16:45	**Zhuang Han** (Harbin Engineering University, Peoples Rep of China) The qualitative behavior for one-dimensional sixth-order Boussinesq equation with logarithmic nonlinearity	

SS 53	**Mathematical Theory on the Klein-Gordon Equation and Related Models** Organizer(s): Zhen Lei , Yifei Wu , Jie Liu	**Capital Suite 6**
14:45-15:15	**Charles Collot** (CY Cergy Paris Universite, France) Asymptotic stability of traveling waves for one-dimensional nonlinear Schrodinger equations	
15:15-15:45	**Masahito Ohta** (Tokyo University of Science, Japan) Instability of standing waves for cubic-quintic NLS with delta potential	

15:45-16:15	**Nobu Kishimoto** (Kyoto University, Japan) Modified scattering for a non-local derivative NLS
16:15-16:45	**Chunmei Su** (Tsinghua University, Peoples Rep of China) Numerical study of the logarithmic Schrodinger equation with repulsive harmonic potential

SS 54	**Nonlocal dynamics and complex patterns in phase-separation** Organizer(s): Andrea Signori , Lara Trussardi , Luca Scarpa	**Capital Suite 11 B**
14:45-15:15	**Maurizio Grasselli** (Politecnico di Milano, Italy) Nonlocal Cahn-Hilliard-Darcy systems	
15:15-15:45	**Charles Elbar** (Sorbonne Universite, France) Nonlocal to local convergence of the degenerate Cahn-Hilliard equation	
15:45-16:15	**Andrea Di Primio** (Politecnico di Milano, Italy) Stochastic diffuse interface models with conservative noise	
16:15-16:45	**Pierluigi Colli** (University of Pavia, Italy) A sixth-order Cahn--Hilliard equation for curvature effects in pattern formation	

SS 60	**Nonlinear Evolution Equations and Related Topics** Organizer(s): Goro Akagi , Michinori Ishiwata , Mitsuharu Otani	**Conference Hall B (B)**
14:45-15:15	**Tomoyuki Oka** (Fukuoka Institute of Technology, Japan) Construction of distance functions for topology optimization	
15:15-15:45	**Shun Uchida** (Oita University/Faculty of Science and Technology, Japan) Optimal control problem of evolution equation governed by hypergraph Laplacian	
15:45-16:15	**Tatsuya Watanabe** (Kyoto Sangyo University, Japan) Standing waves for the nonlinear Schr\odinger-Poisson system with a doping profile	

16:15-16:45	**Katsuyuki Ishii** (Kobe University, Japan) A threshold type algorithm for fourth order geometric motions

SS 67	**Fractional Differential Equations: Theory, Methods and Applications** Organizer(s): Mokhtar Kirane , Ahmad Fino , Berikbol Torebek	**Capital Suite 21 C**
14:45-15:15	**Ravshan R. Ashurov** (Institute of Mathematics, Academy of Scienses of Uzbekistan, Uzbekistan) ON A NEW FORMULATION OF THE INVERSE PROBLEM OF DETERMINING THE ORDER OF FRACTIONAL DERIVATIVES IN PARTIAL DERIVATIVE EQUATIONS	
15:15-15:45	**Suleyman Ulusoy** (American University of Ras Al Khaimah, United Arab Emirates) Determination of the flux terms in a time fractional viscoelastic equation	
15:45-16:15	**Muhammad R Fadillah** (Khalifa University, United Arab Emirates) Blowing-up Solution of a System of Fractional Differential Equations with Variable Order	

SS 74	**Recent Advances in Local and Non-local Elliptic PDEs** Organizer(s): Anoop T V , Prosenjit Roy , Sarath Sasi	**Capital Suite 12 A**
14:45-15:15	**Maya Chhetri** (The University of North Carolina at Greensboro, USA) An interpolation approach to L^{∞} a priori estimates for elliptic problems with nonlinearity on the boundary	
15:15-15:45	**Firoj Sk** (University of Oldenburg, Germany) On logarithmic p-Laplacian	
15:45-16:15	**Lakshmi Sankar Kalappattil** (Indian Institute of Technology Palakkad, India) Semilinear elliptic boundary value problems on the exterior of a ball in R^{n}, $n \\geq 2$	
16:15-16:45	**Abhishek Sarkar** (Indian Institute of Technology Jodhpur, India) Degenerate Schr{\o}dinger-Kirchhoff (p, N)-Laplacian problem with singular Trudinger-Moser nonlinearity in $\mathbb{R}^N$	

SS 75	**Stochastic Evolution Systems Across Scales: Theory and Applications** Organizer(s): Hao Tang , Panpan Ren , Feng-Yu Wang	**Capital Suite 13**
14:45-15:15	**Kenneth H. Karlsen** (Department of Mathematics, University of Oslo, Norway) Compactness of Solutions to Stochastic Kinetic Equations	
15:15-15:45	**Jie Xiong** (Southern University of Science and Technology, Peoples Rep of China) On the empty balls of super-Brownian motion and branching random walk	
15:45-16:15	**Nikolai V. Chemetov** (University of Sao Paulo, Brazil) Well-posedness of stochastic Degasperis-Procesi equation	
16:15-16:45	**Dejun Luo** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) 2D Smagorinsky-Type Large Eddy Models as Limits of Stochastic PDEs	

SS 87	**Large Population Optimization, Stochastic Filtering and Mathematical Finance** Organizer(s): Zhen Wu , Guangchen Wang , Shujun Wang	**Capital Suite 3**
14:45-15:15	**Yonghui Zhou** (Guizhou Normal University School of Big Data and Computer Science, Peoples Rep of China) Optimal control of LQ problem with anticipative partial observations	
15:15-15:45	**Fuke Wu** (Huazhong University of Science and Technology, Peoples Rep of China) Diffusion Approximation and Stability of Stochastic Differential Equations with Singular Perturbation	
15:45-16:15	**Jianjun Zhou** (Northwest A&F University, Peoples Rep of China) Viscosity Solutions for HJB Equations on the Process Space: Application to Mean Field Control with Common Noise	
16:15-16:45	**Detao Zhang** (School of Economics, Shandong University, Peoples Rep of China) On optimal carbon tax in China: implications for net-zero emissions and development	

SS 88	**Recent developments in stochastic analysis and related topics** Organizer(s): Xicheng Zhang , Jian Wang , Wei Liu	**Capital Suite 21 B**
14:45-15:15	**Xicheng Zhang** (Beijing Institute of Technology, Peoples Rep of China) Singular McKean-Vlasov equations	
15:15-15:45	**Andrea Pascucci** (University of Bologna, Italy) Existence and uniqueness results for strongly degenerate McKean-Vlasov equations with rough coefficients	
15:45-16:15	**Wei Liu** (Wuhan University, Peoples Rep of China) Long time behaviors of mean field interacting particle systems and McKean-Vlasov equations	
16:15-16:45	**Mengyu Cheng** (Beijing Institute of Technology, Peoples Rep of China) Random Attractors for McKean-Vlasov S(P)DEs	

SS 94	**Computational and Mathematical Approaches to Understanding Complex Biological Systems** Organizer(s): Michael Li , Samares Pal , Zhisheng Shuai	**Capital Suite 9**
14:45-15:15	**Yuan Yuan** (Memorial University of Newfoundland, St. John`s, Canada) Threshold dynamics of an age-structured HIV model	
15:15-15:45	**Gergely Rost** (University of Szeged / HCEMM, Hungary) Asymptotic stability for non-autonomous linear delay differential equations representing birth-death dynamics	
15:45-16:15	**Liancheng Wang** (Kennesaw State University, USA) Bifurcation Analysis for an OSN Model with Two Delays	
16:15-16:45	**Roberto Barrio** (University of Zaragoza, Spain) Mathematical study of Early Afterdepolarizations in realistic cardiomyocyte models	

SS 95	**Nonlinear analysis and elliptic boundary value problems** Organizer(s): Pasquale Candito , Kanishka Perera , Said El Manouni	**Capital Suite 14**
15:15-15:45	**Anna Maria Candela** (Universita' degli Studi di Bari Aldo Moro, Italy) Existence results for a borderline case of a class of p-Laplacian problems	

15:45-16:15	**Paolo Piersanti** (The Chinese University of Hong Kong Shenzhen, Peoples Rep of China) Mixed finite element methods for fourth order obstacle problems in linearised elasticity
16:15-16:45	**Bruno BV Vassallo** (University of Messina, Italy) Multiple critical point results to Sturm-Liouville-type differential problems with highly discontinuous reaction term

SS 117	**Advances on nonlinear elliptic PDEs** Organizer(s): Laura Baldelli , Roberta Filippucci	**Capital Suite 12 B**
14:45-15:15	**Vincenzo Ambrosio** (Universita' Politecnica delle Marche, Italy) Nonlinear scalar field (p_{1}, p_{2})-Laplacian equations in $\mathbb{R}^{N}$: existence and multiplicity	
15:15-15:45	**Francisco Javier Reyes Sanchez** (Universidad de Granada, Spain) The problem of prescribing non-constant curvatures in a disk	
15:45-16:15	**Mousomi Bhakta** (Indian Institute of Science Education and Research Pune (IISER Pune), India) Fractional Schrodinger equations with mixed nonlinearities	
16:15-16:45	**Teresa Isernia** (Universita` Politecnica delle Marche, Italy) Least energy solutions for nonlinear fractional Choquard-Kirchhoff equations in $\mathbb{R}^{N}$	

SS 123	**New trends in elliptic and parabolic PDEs** Organizer(s): Hongjie Dong , Zongyuan Li	**Capital Suite 11 A**
14:45-15:15	**Doyoon Kim** (Korea University, Korea) Parabolic equations with a half-order time derivative and their application to boundary value problems	
15:15-15:45	**Junhee Ryu** (Korea University, Korea) Sobolev estimates for degenerate linear equations on the upper half space	
15:45-16:15	**Jinping Zhuge** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Scale separation in multiscale elliptic homogenization	

16:15-16:45	**Wei Wu** (NYU Shanghai, Peoples Rep of China) The scaling limit of the continuous solid-on-solid model

SS 130	**kinetic theory, analysis and application** Organizer(s): Qin Li	**Capital Suite 8**
14:45-15:15	**Seung Yeal Ha** (Seoul National University, Korea) A mean-field approach for the asymptotic tracking of continuum target clouds	
15:15-15:45	**Changhui Tan** (University of South Carolina, USA) The sticky particle dynamics with alignment interactions	
15:45-16:15	**Cheng Yu** (University of Florida, USA) Infinitely many solutions to the isentropic system of gas dynamics	
16:15-16:45	**Dominic L Wynter** (University of Texas at Austin, USA) Shock Profiles for the Long-Range Boltzmann Equation	

SS 131	**Recent progress on singularities formations of some evolution partial differential equations** Organizer(s): Mohamed Ali Hamza , Nejla Nouaili , Hatem Zaag	**Capital Suite 1**
14:45-15:15	**Pavol Quittner** (Comenius University, Bratislava, Slovak Rep) A priori estimates of solutions of local and nonlocal superlinear parabolic problems	
15:15-15:45	**Slim Tayachi** (University of Tunis El Manar, Tunisia) Life-span of solutions for some nonlinear parabolic problems	
15:45-16:15	**Tatsuki Mori** (Musashino University, Japan) Representation formulas for eigenvalues and eigenfunctions concerning a phase-field model	
16:15-16:45	**Yuta Wakasugi** (Hiroshima University, Japan) Blow-up of solutions of semilinear wave equations in Friedmann-Lemaitre-Robertson-Walker spacetime	

SS 134	**Recent advances in wavelet analysis, PDEs and dynamical systems - part II** Organizer(s): Emanuel Guariglia	**Capital Suite 7**

14:45-15:15	**Ricardo L Ribeiro** (KAUST, Saudi Arabia) Algorithmic detection of conserved quantities for finite- difference schemes
15:15-15:45	**Xiang Wang** (Jilin University, Peoples Rep of China) Exponential spectral process (ESP): High order temporal discretization for semilinear PDEs
15:45-16:15	**Yaoyu Zhang** (Shanghai Jiao Tong University, Peoples Rep of China) Optimistic Sample Size Estimate for Deep Neural Networks
16:15-16:45	**Slim cho Chokri** (Mocfine laboratory ISCAE Manouba University, Tunisia) Support Vector Regression Estimator with Kalman Filtering for Testing Chaotic dynamic System via lyapunov Exponents

Parallel Session 8 :: Tuesday, 12/17, 17:00-19:30

TS 3	**Recent advances in singularity analysis in nonlinear elliptic and parabolic equations** Organizer(s): Manuel Del Pino , Jun-cheng Wei	**Conference Hall A**
17:00-17:45	**Monica Musso** (University of Bath, England) Long time behavior for vortex dynamics in the 2 dimensional Euler equations	
17:45-18:30	**Angela Pistoia** (Sapienza University of Roma, Italy) On some properties of Steklov eigenfunctions	

SS 2	**Recent advances in nonlinear Schrodinger systems** Organizer(s): Juncheng Wei , Yuanze Wu	**Capital Suite 10**
17:00-17:30	**Xiaojun Chang** (Northeast Normal University, Peoples Rep of China) Normalized solutions for a class of gradient-type Schrodinger systems under Neumman boundary condition	
17:30-18:00	**Jiankang Xia** (Northwestern Polytechnical University, Peoples Rep of China) Symmetric non-radial solutions for nonlinear Schr\odinger systems with mixed couplings	
18:00-18:30	**Jianyi Chen** (Qingdao Agricultural University, Peoples Rep of China) Time periodic solutions of the wave equations in a ball	
18:30-19:00	**Sarika G** (Netaji Subhas University of Technology Dwarka Delhi India, India) Quasilinear Schrodinger Equations Involving Stein-Weiss Convolution Type exponential Critical Nonlinearity	

SS 8	**Recent Progress on Mathematical Analysis of PDEs Arising in Fluid Dynamics** Organizer(s): Huanyao Wen , Huijiang Zhao , Changjiang Zhu	**Capital Suite 2**
17:00-17:30	**Huancheng Yao Huancheng Yao** (South China Agricultural University, Peoples Rep of China) Nonlinear stability of viscous contact wave for the isentropic MHD equations with free boundary	

17:30-18:00	**Xinhua Zhao** (Guangdong Polytechnic Normal University, Peoples Rep of China) Vanishing shear viscosity limit for the compressible planar MHD system with boundary layer
18:00-18:30	**Liu Sili** (Changsha University of Science and Technology, Peoples Rep of China) The Cauchy problem for an inviscid Oldroyd-B model in three dimensions: global well posedness and optimal decay rates
18:30-19:00	**Huanyao Wen** (South China University of Technology, Peoples Rep of China) Some recent progress on blowup criteria for compressible Navier-Stokes equations

SS 11	**Eigenvalue problems in reaction-diffusion equations and applications** Organizer(s): Shuang Liu , King-Yeung Lam , Yuan Lou , Maolin Zhou	**Capital Suite 21 A**
17:00-17:30	**Di Wu** (South China University of Technology, Peoples Rep of China) Linear viscous instability of boundary layer flow	
17:30-18:00	**Hao Zhu** (Nanjing University/University of Vienna, Peoples Rep of China) Linear stability/instability and nonlinear dynamics of the 3-jet zonal flow	
18:00-18:30	**Hao Kang** (Tianjin University, Peoples Rep of China) The global dynamics of an age-structured model with spatial structure	
18:30-19:00	**Shuang Liu** (Beijing Institute of Technology, Peoples Rep of China) On principal eigenvalue for time-periodic parabolic operators	

SS 16	**Recent Development of Stochastic Optimal Control and Differential Games** Organizer(s): Jingrui Sun , Hongwei Mei , Jiongmin Yong	**Capital Suite 15**
17:00-17:30	**Jiongmin Yong** (University of Central Florida, USA) Linear-Quadratic Optimal Control Problem for Mean-Field SDEs With Certain Random Coefficients	
17:30-18:00	**Jun Moon** (Hanyang University, Korea) Advances in Linear-Quadratic Stochastic Differential Games	

18:00-18:30	**Matoussi Anis** (Risk and Insurance Institute, Le Mans University, France) Optimal investment and consumption under forward performance criteria with relative concerns

SS 20	**Stochastic analysis, inverse problems and related topics** Organizer(s): Hongyu Liu , Minghui Song	**Capital Suite 4**
17:00-17:30	**Bernd Hofmann** (TU Chemnitz, Germany) Aspects of the ill-posed inverse problem of deautoconvolution	
17:30-18:00	**Bastian Harrach** (Goethe University Frankfurt, Germany) Monotonicity and Convexity in inverse coefficient problems	
18:00-18:30	**HU YUEGUANG** (City University of HONG KONG, Hong Kong) Generating customized field concentration via surface transmission resonance	
18:30-19:00	**Yukun Guo** (Harbin Institute of Technology, Peoples Rep of China) Solving the phaseless inverse source problem of the biharmonic equation	

SS 22	**Recent advances in mean field games for crowd dynamics** Organizer(s): Mohamed Ghattassi , Diogo Gomes , Nader Masmoudi	**Conference Hall B (A)**
17:00-17:30	**Rita Ferreira** (KAUST, Saudi Arabia) Weak-strong uniqueness for solutions to MFGs	
17:30-18:00	**Melih Ucer** (King Abdullah University of Science and Technology, Saudi Arabia) Existence of Solutions to MFG Problems via Monotone Operators	
18:00-18:30	**Chenchen Mou** (City University of Hong Kong, Peoples Rep of China) Minimal solutions of master equations for extended mean field games	
18:30-19:00	**Mathieu Lauriere** (NYU Shanghai, Peoples Rep of China) Machine Learning For Master Equations in Mean Field Games	

SS 45	**Partial differential equations from fluids and waves** Organizer(s): Ming Chen , Runzhang Xu , Dehua Wang	**Capital Suite 5**
17:00-17:30	**Dongjuan Niu** (Capital Normal University, Peoples Rep of China) Global well-posedness of 3D inhomogenous Navier-Stokes system with variable viscosity	
17:30-18:00	**Sumit SKV Vishwakarma** (Birla Institute of Technology and Science, Pilani, India) A Cell-Centered Implicit Finite Difference Scheme to Study Wave Propagation in Acoustic Media	
18:00-18:30	**Sunita Kumawat** (BITS-Pilani, Hyderabad, India) Characteristics of wave propagation in Pre-stressed Viscoelastic Timoshenko Nanobeams with Surface Stress and Magnetic Field Influences	
18:30-19:00	**Hongxia Lin** (Chendu University of Technology, Peoples Rep of China) Stability on 3D anisotropic incompressible MHD system near the background magnetic field	

SS 53	**Mathematical Theory on the Klein-Gordon Equation and Related Models** Organizer(s): Zhen Lei , Yifei Wu , Jie Liu	**Capital Suite 6**
17:00-17:30	**Buyang Li** (The Hong Kong Polytechnic University, Hong Kong) Numerical approximation of discontinuous solutions of the semilinear wave equation	
17:30-18:00	**Zhaojie Yang** (Fudan University, Peoples Rep of China) Energy Transfer and Radiation in Hamiltonian Nonlinear Klein-Gordon Equations	

SS 54	**Nonlocal dynamics and complex patterns in phase-separation** Organizer(s): Andrea Signori , Lara Trussardi , Luca Scarpa	**Capital Suite 11 B**
17:00-17:30	**Andrea Giorgini** (Politecnico di Milano, Italy) New results for the Cahn-Hilliard equation	
17:30-18:00	**Patrik Knopf** (University of Regensburg, Germany) Nonlocal-to-local convergence rates for a Navier-Stokes-Cahn-Hilliard system	

18:00-18:30	**Margherita Zanella** (Politecnico di Milano, Italy) Long time behavior of the solution to a stochastic Allen-Cahn-Navier-Stokes system with logarithmic potential.
18:30-19:00	**Shunsuke Kurima** (Tokyo University of Science, Japan) Convergence of a nonlocal to a local phase field system with inertial term
19:00-19:30	**Giulio Schimperna** (University of Pavia, Italy) A Cahn-Hilliard-Darcy system with dynamic boundary conditions

SS 60	**Nonlinear Evolution Equations and Related Topics** Organizer(s): Goro Akagi , Michinori Ishiwata , Mitsuharu Otani	**Conference Hall B (B)**
17:00-17:30	**Yoshihiro Ueda** (Kobe University, Japan) Stability of non-zero equilibrium states for the viscous conservation laws with delay effect	
17:30-18:00	**Jihoon Lee** (Chonnam National University, Korea) Non-autonomous singular perturbations of semilinear problems with dynamic boundary conditions	
18:00-18:30	**Riccardo Voso** (University of Vienna, Austria) Weighted Energy-Dissipation approach to semilinear gradient flows with state-dependent dissipation	
18:30-19:00	**Yoshihito Nakajima** (Tohoku University, Japan) Existence of time-fractional gradient flows for nonconvex energies in Hilbert spaces	
19:00-19:30	**Goro Akagi** (Tohoku University, Japan) Existence of distributional solutions to elliptic systems of p-Laplacian type for locally integrable forcing	

SS 67	**Fractional Differential Equations: Theory, Methods and Applications** Organizer(s): Mokhtar Kirane , Ahmad Fino , Berikbol Torebek	**Capital Suite 21 C**

17:00-17:30	**Batirkhan Turmetov** (Khoja Akhmet Yassawi International Kazakh-Turkish University, Kazakhstan) On the solvability of some inverse problems for a high-order nonlocal parabolic equation with multiple involution
17:00-17:30	**Meiirkhan Borikhanov** (Khoja Akhmet Yassawi International Kazakh--Turkish University, Kazakhstan) On the solvability of some inverse problems for a high-order nonlocal parabolic equation with multiple involution
17:30-18:00	**Samir Karaa** (Sultan Qaboos University, Oman) Positivity properties of discrete time-fractional operators on uniform and nonuniform meshes
18:00-18:30	**Nurdaulet Tobakhanov** (Nazarbayev University, Kazakhstan) Nonexistence of global solutions for an inhomogeneous semiliniar heat equation

SS 74	**Recent Advances in Local and Non-local Elliptic PDEs** Organizer(s): Anoop T V , Prosenjit Roy , Sarath Sasi	**Capital Suite 12 A**
17:00-17:30	**Dhanya Rajendran** (IISER Thiruvananthapuram, India) Asymptotic Estimates for (p,q) Laplace Problems with Singular and Indefinite Sign Non-linearity and some applications	
17:30-18:00	**Saikat Mazumdar** (Indian Institute of Technology Bombay, India) High energy solutions for non-compact variational problems	
18:00-18:30	**Purbita Jana** (Madras School of Economics, India) ANISOTROPIC p-LAPLACE EQUATIONS ON LONG CYLINDRICAL DOMAIN	
18:30-19:00	**Indranil Chowdhury** (Indian Institute of Technology, Kanpur, India) Rate of Convergence of Approximations to Nonlocal HJB Equations	
19:00-19:30	**Anisa M H Chorwadwala** (IISER Pune, India) Sharp bounds for higher Steklov-Dirichlet Eigenvalue	

SS 75	**Stochastic Evolution Systems Across Scales: Theory and Applications** Organizer(s): Hao Tang , Panpan Ren , Feng-Yu Wang	**Capital Suite 13**

17:00-17:30	**Jianhai Bao** (Tianjin University, Peoples Rep of China) L^2-Wasserstein ergodicity of modified Euler schemes for SDEs with high diffusivity and applications
17:30-18:00	**Fernanda F. Cipriano** (NOVA University of Lisbon, Portugal) Invariant measures for a class of stochastic third grade fluid equations in 2D and 3D bounded domains
18:00-18:30	**Siran Li** (Shanghai Jiao Tong University, Peoples Rep of China) Restricted path characteristic function determines the law of stochastic processes
18:30-19:00	**Simon Wittmann** (The Hong Kong Polytechnic University, Hong Kong) Stochastic extrinsic derivative flows on the space of absolutely continuous measures
19:00-19:30	**Manil T. Mohan** (Indian Institute of Technology Roorkee, India) Existence and uniqueness of weak solutions for the generalized stochastic Navier-Stokes-Voigt equations

SS 87	**Large Population Optimization, Stochastic Filtering and Mathematical Finance** Organizer(s): Zhen Wu , Guangchen Wang , Shujun Wang	**Capital Suite 3**
17:00-17:30	**Hua Xiao** (Shandong University, Peoples Rep of China) A Mean-Field Game for a Forward-Backward Stochastic System With Partial Observation and Common Noise	
17:30-18:00	**Pengyan Huang** (Shandong University of Finance and Economics, Peoples Rep of China) Pareto game of stochastic differential system with terminal state constraint	
18:00-18:30	**Zhuangzhuang Xing** (Henan Normal University, Peoples Rep of China) Recursive stochastic differential games with non-Lipschitzian generators and viscosity solutions of Hamilton-Jacobi-Bellman-Isaacs equations	
18:30-19:00	**Zhiyuan Dong** (Harbin Institute of Technology, Shenzhen, Peoples Rep of China) On Poles and Zeros of Linear Quantum Systems	

SS 88	**Recent developments in stochastic analysis and related topics** Organizer(s): Xicheng Zhang , Jian Wang , Wei Liu	**Capital Suite 21 B**

17:00-17:30	**Jian Wang** (Fujian Normal University, Peoples Rep of China) Exponential contractivity of modified Euler schemes for SDEs with super-linearity
17:30-18:00	**Lu-Jing Huang** (Fujian Normal University, Peoples Rep of China) Symmetry and functional inequalities for stable Levy-type operators
18:00-18:30	**Xiaolong Zhang** (Beijing Institute of Technology, Peoples Rep of China) W_d-convergence rate of EMs for invariant measures of supercritical stable SDEs
18:30-19:00	**Zhenyao Sun** (Beijing Institute of Technology, Peoples Rep of China) Wright-Fisher stochastic heat equations with irregular drifts

SS 94	**Computational and Mathematical Approaches to Understanding Complex Biological Systems** Organizer(s): Michael Li , Samares Pal , Zhisheng Shuai	**Capital Suite 9**
17:00-17:30	**Michael Li** (University of Alberta, Canada) Transient Oscillations in Immune Response to Viral Infections due to Delay and Functional Forms	
17:30-18:00	**Zhuolin Qu** (University of Texas at San Antonio, USA) Assessing the impact of the Wolbachia-based control of malaria	
18:00-18:30	**Abdullah A Al-Shammari** (Kuwait University, Kuwait) Estimating strain-specific intrinsic transmissibility through invasion-timescale thresholding	
18:30-19:00	**Lihong Zhao** (Kennesaw State University, USA) Modeling the Dynamics of Legionnaires` Disease	
19:00-19:30	**Sabrina Streipert** (University of Pittsburgh, USA) An evolutionary epidemic model to study the impact of tolerance on disease-induced recoveries	

SS 95	**Nonlinear analysis and elliptic boundary value problems** Organizer(s): Pasquale Candito , Kanishka Perera , Said El Manouni	**Capital Suite 14**

17:00-17:30	**Patrick Winkert** (University of Technology Berlin, Germany) Singular Kirchhoff problems with unbalanced-growth operators
17:30-18:00	**Rafael D\`iaz Fuentes** (University of Cagliari, Italy) Global existence and blow-up lower bounds in a class of tumor-immune cell interactions chemotaxis systems
18:00-18:30	**Eleonora Amoroso** (University of Messina, Italy) Existence and multiplicity of solutions for different Sturm-Liouville problems
18:30-19:00	**Angela Sciammetta** (University of Palermo, Italy) Existence of multiple solutions for specific classes of nonlinear anisotropic problems

SS 111	**Partial Differential Equations and Material Sciences** Organizer(s): Haigang Li , Longjuan Xu	**Conference Hall B (D)**
17:00-17:30	**Meiyue Jiang** (School of Mathematical Sciences, Peking University, Peoples Rep of China) Bruun-Minkowski Inequalities in Some Variational Problems	
17:30-18:00	**Huan-Song Zhou** (Wuhan University of Technology, Peoples Rep of China) Some results on Kirchhoff type elliptic equation on $\mathbb R^N$	
18:00-18:30	**Xiaoyu Zeng** (Wuhan University of Technology, Peoples Rep of China) Properties of ground states for two-component attractive Bose-Einstein condensates	
18:30-19:00	**Peihao Zhang** (Beijing Normal University, Peoples Rep of China) Optimal higher derivative estimates for solutions of the Lam\`e system with closely spaced hard inclusions	

SS 117	**Advances on nonlinear elliptic PDEs** Organizer(s): Laura Baldelli , Roberta Filippucci	**Capital Suite 12 B**
17:00-17:30	**Giuseppina Autuori** (Universita` Politecnica delle Marche, Italy) Existence results for quasilinear Choquard equations in $\mathbb{R}^N$	
17:30-18:00	**Bartosz Bieganowski** (University of Warsaw, Poland) Multiplicity of solutions to stronglu indefinite problems with sign-changing nonlinearities	

18:00-18:30	**Miguel Martinez-Teruel** (University of Granada, Spain) Quasilinear Schr\odinger Equation: a bifurcational approach
18:30-19:00	**Chao Ji** (East China University of Science and Technology, Peoples Rep of China) Some recent results on normalized solutions for $(2,q)$-Laplacian equations

SS 123	**New trends in elliptic and parabolic PDEs** Organizer(s): Hongjie Dong , Zongyuan Li	**Capital Suite 11 A**
17:00-17:30	**Liuwei Gong** (The Chinese University of Hong Kong, Hong Kong) Conformal metrics of constant scalar curvature with unbounded volumes	
17:30-18:00	**Mingxiang Li** (Chinese University of Hong Kong, Hong Kong) Some Liouville type theorems about Q-curvature	
18:00-18:30	**Yeyao Hu** (Central South University, Peoples Rep of China) Blow up phenomena of mean field type equations	
18:30-19:00	**Xianpeng Hu** (The Hong Kong Polytechnic University, Peoples Rep of China) Concentration of weak solutions in compressible flows	
19:00-19:30	**Xiaoqian Xu** (Duke Kunshan University, Peoples Rep of China) On the fast growth of some active scalar equations	

SS 130	**kinetic theory, analysis and application** Organizer(s): Qin Li	**Capital Suite 8**
17:00-17:30	**Alexander Kurganov** (Southern University of Science and Technology, Peoples Rep of China) A Hybrid Finite-Difference-Particle Method for Chemotaxis Models	
17:30-18:00	**Christian Klingenberg** (Wuerzburg University, Germany) On the dynamical low-rank numerical method for kinetic equations	
18:00-18:30	**WEIQI CHU** (University of Massachusetts Amherst, USA) Model Reduction for Multiscale Dynamics on Networks	
18:30-19:00	**Ruhui Jin** (University of Wisconsin-Madison, USA) Unique identification for discretized inverse problems	

19:00-19:30	**Alina Chertock** (North Carolina State University, USA) An asymptotic preserving scheme for kinetic models with singular limit

SS 131	**Recent progress on singularities formations of some evolution partial differential equations** Organizer(s): Mohamed Ali Hamza , Nejla Nouaili , Hatem Zaag	**Capital Suite 1**
17:00-17:30	**Hiroyuki Takamura** (Tohoku University, Japan) General theory and its optimality for nonlinear wave equations in one apace dimension	
17:30-18:00	**Tetsuya Ishiwata** (Shibaura Institute of Technology, Japan) Mathematical and Numerical Studies on Blow-up Rate of Solutions to Some Quasilinear Parabolic Equation	
18:00-18:30	**Mohamed Ali Hamza** (Imam Abdulrahman Bin Faisal University, Saudi Arabia) The blow-up rate for some nonlinear evolution equations in the log non-scaling invariance case	
18:30-19:00	**David Wallauch-Hajdin** (EPFL, Switzerland) On optimal blowup stability for wave equations	
19:00-19:30	**Kai Yang** (Chongqing University, Peoples Rep of China) Numerical and analytical approaches for the blow-up dynamics for some nonlinear dispersive equations	

Parallel Session 9 :: Wednesday, 12/18, 8:00-10:00

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
8:00-8:30	**Changwook Yoon** (Chungnam National University, Korea) Ratio-dependent motility in biological diffusion models	
8:30-9:00	**Jagmohan Tyagi** (Indian Institute of Technology Gandhinagar, India) Existence and blow-up results to quasilinear chemotaxis-haptotaxis system	
9:00-9:30	**Simone Fagioli** (University of L`Aquila, Italy) On a chemotaxis model with nonlinear diffusion modelling multiple sclerosis	

9:30-10:00	**Mario Fuest** (Leibniz University Hannover, Germany) Finite-time blow-up in fully parabolic quasilinear Keller--Segel systems with supercritical exponents

SS 10	**Analysis of diffuse and sharp interface models** Organizer(s): Alain Miranville , Andrea Giorgini , Maurizio Grasselli	**Conference Hall B (A)**
8:00-8:30	**Cecilia Cavaterra** (University of Milan, Italy) An optimal distributed control problem for a Cahn-Hilliard-Darcy system	
8:30-9:00	**Luca Scarpa** (Politecnico di Milano, Italy) The random separation property for stochastic phase-field models	
9:00-9:30	**Jingning He** (Hangzhou Normal University, Peoples Rep of China) On a Navier-Stokes-Cahn-Hilliard system with chemotaxis, active transport and reaction	
9:30-10:00	**Andrea Signori** (Politecnico di Milano, Italy) Active droplet formation in Cahn-Hilliard models with chemical reactions	

SS 13	**Propagation Phenomena in Reaction-Diffusion Systems** Organizer(s): Hirokazu Ninomiya , Masaharu Taniguchi	**Capital Suite 13**
8:00-8:30	**Masaharu Taniguchi** (Research Institute for Interdisciplinary Science, Okayama University, Japan) Entire solutions with and without radial symmetry in balanced bistable reaction-diffusion equations	
8:30-9:00	**Lingling Hou** (College of Mathematics and System Science Xinjiang University, Peoples Rep of China) Traveling Wave Analysis in Receptor-Mediated Models Incorporating Hysteresis Effects	
9:00-9:30	**Ryo Ito** (Kanagawa University, Japan) Unbounded traveling wave solutions for reaction-diffusion equations	
9:30-10:00	**Harunori Monobe** (Osaka Metropolitan University, Japan) Compact traveling wave solutions to a mean-curvature flow with driving force	

SS 15	**On the dynamics of hyperbolic partial differential equations: theory and applications** Organizer(s): Salim Messaoudi , Athanasios Tzavaras , Tej Eddine Ghoul	**Capital Suite 21 A**
8:00-8:30	**Athanasios Tzavaras** (King Abdullah University of Science and Technology, Saudi Arabia) Sustained Oscillations in Hyperbolic-Parabolic Systems	
8:30-9:00	**Majed Sofiani** (King Abdullah University of Science and Technology (KAUST), Saudi Arabia) STATIONARY SHEAR FLOW OF NEMATIC LIQUID CRYSTALS: MULTIPLICITY, STABILITY, AND BIFURCATION	
9:00-9:30	**Aseel AlNajjar** (King Abdullah University of Science and Technology, Saudi Arabia) Asymptotic Limits for Strain-Gradient Viscoelasticity with Nonconvex Energy	
9:30-10:00	**Agnieszka Swierczewska-Gwiazda** (University of Warsaw, Poland) Cahn-Hillard and Keller-Segel systems as high-friction limits of gas dynamics	

SS 16	**Recent Development of Stochastic Optimal Control and Differential Games** Organizer(s): Jingrui Sun , Hongwei Mei , Jiongmin Yong	**Capital Suite 15**
8:00-8:30	**George Yin** (University of Connecticut, USA) Computational Nonlinear Filtering Using A Deep Learning Approach	
8:30-9:00	**Jie Xiong** (Southern University of Science and Technology, Peoples Rep of China) Stochastic maximum principle for weighted mean-field system with application to ambiguity filtering	
9:00-9:30	**Omar Kebiri** (BTU Cottbus-Senftenberg, Germany) Deep learning methods to solve some stochastic optimal control problems	
9:30-10:00	**Xun Li** (HK PolyU, Hong Kong) Discrete-Time Mean-Variance Strategy Based on Reinforcement Learning	

SS 19	**New trends in inverse problems for partial differential equations** Organizer(s): Elena Beretta , Fioralba Cakoni	**Capital Suite 4**

8:00-8:30	**Eva Sincich** (University of Trieste, Italy) Stable determination of the Winkler subgrade coefficient in a nanoplate
8:30-9:00	**Andrea Aspri** (University of Milan, Italy) Lipschitz-Stable Identification of Polyhedral Inclusions via Local Boundary Measurements
9:00-9:30	**Romina Gaburro** (University of Limerick, Ireland) Uniqueness and stability in anisotropic inverse problems.
9:30-10:00	**Catalin I Carstea** (National Yang Ming Chiao Tung University, Taiwan) Uniqueness in the inverse boundary value problem for the weighted p-Laplacian in the plane

SS 20	**Stochastic analysis, inverse problems and related topics** Organizer(s): Hongyu Liu , Minghui Song	**Capital Suite 2**
8:30-9:00	**Mourad Sini** (Austrian Academy of Sciences, Austria) Time Behavior of Acoustic Resonators and Applications to Inverse Problems	
9:00-9:30	**Yuhang Zhang** (Harbin Institute of Technology Zhengzhou Research Institute, Peoples Rep of China) Propagation of chaos rate across dimensions and the L^p convergence rate of the numerical approximation for super-linear MV-SDEs	
9:30-10:00	**Catharine WK Lo** (City University of Hong Kong, Hong Kong) Inverse problems in population models	

SS 23	**New trends in pattern formations and dynamics for dissipative systems and related topics** Organizer(s): Yoshihisa Morita , Junping Shi	**Capital Suite 15**
8:00-8:30	**Inkyung Ahn** (Korea University, Korea) Coexistence of two strongly competitive species in a reaction-advection-diffusion system	
8:30-9:00	**Ken-Ichi Nakamura** (Meiji University, Japan) The speed of bistable traveling fronts in the Lotka-Volterra competition-diffusion system	

9:00-9:30	**Yihong Du** (University of New England, Australia) A free boundary model for super invaders
9:30-10:00	**Toshiko Ogiwara** (Josai University, Japan) Forced waves for an epidemic model of West-Nile virus with climate change effect

SS 29	**Mean field stochastic control problems and related topics** Organizer(s): Juan Li , Rainer Buckdahn	**Capital Suite 10**
8:00-8:30	**Rainer Buckdahn** (Universite de Bretagne Occidentale, France) Optimal control problems with generalized mean-field dynamics and viscosity solution to Master Bellman equation	
8:30-9:00	**Laurent Denis** (Le Mans University, France) Stochastic PDEs driven by $G-$Brownian motion and the associated Backward Doubly Stochastic Differential Equations	
9:00-9:30	**Juan Li** (Shandong University, Peoples Rep of China) Mean field stochastic control problems under sublinear expectation	
9:30-10:00	**Brahim BM Mezerdi** (King Fahd University of Petroleum and Minerals, Saudi Arabia) On Some Generic Properties of Mean-Field Stochastic Differential Equations	

SS 44	**The theory of cluster algebras and its applications** Organizer(s): Fang Li , Xueqing Chen , Min Huang	**Capital Suite 14**
8:00-8:30	**Bernhard Keller** (Universite Paris Cite, France) On the categorifications of Goncharov--Shen`s basic triangle	
8:30-9:00	**Matthew Pressland** (Universit\\\\'{e} de Caen-Normandie, France) Additive categorification of positroid cluster structures	
9:00-9:30	**Yu Qiu** (Tsinghua University, Peoples Rep of China) Deformed 3-Calabi-Yau categories and Euclidean Artin braid groups	

SS 49	**Stochastic Control, Filtering and Related Fields** Organizer(s): Jingtao Shi , Jie Xiong	**Capital Suite 21 C**
8:30-9:00	**Weidong Zhao** (Shandong University, Peoples Rep of China) Extrapolation Methods for Solving Backward Stochastic Differential Equations	
9:00-9:30	**Na Li** (School of Statistics and Mathematics, Shandong University of Finance and Economics, Peoples Rep of China) Policy Iteration Reinforcement Learning Method for Continuous-time Linear-Quadratic Mean-Field Control Problem	
9:30-10:00	**Hamza Ruzayqat** (King Abdullah University of Science and Technology, Saudi Arabia) Sequential Markov Chain Monte Carlo for Filtering	

SS 77	**Recent developments in variational problems and geometric analysis** Organizer(s): Mousomi Bhakta , Debdip Ganguly	**Conference Hall B (B)**
8:00-8:30	**Kanishka Perera** (Florida Institute of Technology, USA) An abstract multiplicity result with applications to critical growth elliptic problems	
8:30-9:00	**Alessio Fiscella** (Universidade Estadual de Campinas, Brazil) (p,q)-fractional problems involving a sandwich type perturbation and a critical Sobolev nonlinearity	
9:00-9:30	**Rakesh Arora** (Indian Institute of Technology (IIT-BHU), India) Some new results on elliptic equations involving Logarithmic Laplacian	
9:30-10:00	**Roberta Filippucci** (University of Perugia, Italy) EXISTENCE AND NONEXISTENCE OF SOLUTIONS FOR QUASILINEAR EQUATIONS WITH WEIGHTS	

SS 78	**Special Session on Mathematics of Data Science and Applications** Organizer(s): Ding-Xuan Zhou , Xiang Zhou	**Capital Suite 6**
8:00-8:30	**Yunwen Lei** (The University of Hong Kong, Peoples Rep of China) Stochastic Gradient Methods: Bias, Stability and Generalization	

8:30-9:00	**Shuyang Ling** (NYU Shanghai, Peoples Rep of China) Beyond Unconstrained Features: Neural Collapse for Shallow Neural Networks with General Data
9:00-9:30	**Tao Luo** (Shanghai Jiao Tong University, Peoples Rep of China) The Theory of Parameter Condensation in Neural Networks
9:30-10:00	**JIA CAI** (Guangdong University of Finance and Economics, Peoples Rep of China) Enhanced Efficient Heterogeneous Graph Neural Networks

SS 80	**Nonlinear dynamics of particle systems and fluids** Organizer(s): Hyeong-Ohk Bae , Doheon Kim , Seung-yeon Cho	**Conference Hall B (C)**
8:00-8:30	**Hantaek Bae** (Ulsan National Institute of Science and Technology, Korea) Mathematical Analysis of Some Models of Active Matter	
8:30-9:00	**Jin Woo Jang** (POSTECH, Korea) Vanishing angular singularity limit for the Boltzmann equation without angular cutoff	
9:00-9:30	**Gi-Chan Bae** (Seoul National University / Research institute of Mathematics, Korea) High Reynolds number limit of 2D Boltzmann equation	
9:30-10:00	**Seung Yeon Cho** (Department of Mathematics, Gyeongsang National University, Korea) High order conservative semi-Lagrangian schemes for the ES-BGK model of the Boltzmann equation	

SS 94	**Computational and Mathematical Approaches to Understanding Complex Biological Systems** Organizer(s): Michael Li , Samares Pal , Zhisheng Shuai	**Capital Suite 9**
8:00-8:30	**Zhisheng Shuai** (University of Central Florida, USA) Lyapunov Functions for Large-Scale Dynamical Systems	
8:30-9:00	**Connell McCluskey** (Wilfrid Laurier University, Canada) Lyapunov Functions for Disease Models and Their Modifications	

9:00-9:30	**Yoichi Enatsu** (Tokyo University of Science, Japan) A prey-predator model with cooperative hunting among predators
9:30-10:00	**Xueying Wang** (Washington State University, USA) Mathematical modeling of COVID-19

SS 96	**Evolutionary Equations Systems** Organizer(s): Irene Benedetti , Francesca Dalbono , Elisa Sovrano , Valentina Taddei	**Capital Suite 5**
8:30-9:00	**Anna Maria Candela** (Universita' degli Studi di Bari Aldo Moro, Italy) Chaos for degenerate parabolic equations	
9:00-9:30	**Ana Maria Acu** (Lucian Blaga University of Sibiu, Romania) Weakly convex and generalized subharmonic functions related to a C_0-semigroup	
9:30-10:00	**Erica Ipocoana** (Freie Universit\"{a}t Berlin, Germany) On multiplicative time-dependent perturbations of semigroups and cosine families generators	

SS 118	**Recent advances in mathematical finance** Organizer(s): Yerkin Kitapbayev , Giorgio Consigli , Jorge Zubelli	**Capital Suite 3**
8:00-8:30	**Michael Tehranchi** (University of Cambridge, England) No-arbitrage perturbations of implied volatility	
8:30-9:00	**Jorgen Blomall** (Linkoping university, Sweden) Optimal hedging of the interest rate swap book	
9:00-9:30	**Alessandro Milazzo** (University of Turin, Italy) An optimal stopping problem for variable annuities	
9:30-10:00	**Rakhymzhan Kazbek** (Astana IT University, Kazakhstan) Finite Element Method for HJB in Option Pricing with Stock Borrowing Fees	

SS 130	**kinetic theory, analysis and application** Organizer(s): Qin Li	**Capital Suite 8**

8:00-8:30	**Zhenning Cai** (National University of Singapore, Singapore) Fast spectral method for the linearized Boltzmann collision operator
8:30-9:00	**Anjali Nair** (University of Chicago, USA) From Schr\{o}dinger to diffusion- speckle formation of light in random media and the Gaussian conjecture
9:00-9:30	**Jaeyoung Yoon** (Technical University of Munich, Germany) Random Winfree dynamics with high-order couplings
9:30-10:00	**Shukai Du** (Syracuse University, USA) Forward and inverse computation for radiative transfer via hp-adaptive mesh refinement

SS 131	**Recent progress on singularities formations of some evolution partial differential equations** Organizer(s): Mohamed Ali Hamza , Nejla Nouaili , Hatem Zaag	**Capital Suite 1**
8:00-8:30	**Mokhtar KIRANE** (Khalifa University, United Arab Emirates) Hyperbolic inequalities in an exterior domain: A general blow-up result for degenerate hyperbolic inequalities in an exterior domain	
8:30-9:00	**Makram Hamouda** (Imam Abdlrahman Bin Faisal University, Saudi Arabia) Blow-up Dynamics in Coupled Wave Systems with Tricomi Effects and Scale-Invariant Damping	
9:00-9:30	**Eliot Pacherie** (CNRS & Cergy University, France) Orbital stability for the vortex pair of the Gross-Pitaevskii equation	
9:30-10:00	**Francisc Bozgan** (NYUAD, United Arab Emirates) Blow-Up Dynamics for the L^2 critical case of the 2D Zakharov-Kuznetsov equation	

CS 1	**ODEs and Applications**	**Capital Suite 12 B**
8:00-8:20	**Md Samshad Hussain Ansari** (Indian Institute of Technology Mandi, India) Controllability of ψ-Caputo fractional Langevin dynamical systems with impulsive effects	
8:20-8:40	**Indranil Ghosh** (Massey University, New Zealand) Resonant grazing bifurcations in simple impacting systems.	

8:40-9:00	**Joao Lopes Dias** (ISEG, University of Lisbon, Portugal) Billiards in generic convex bodies
9:00-9:20	**Bolat Seilbekov** (Research Center of Theoretical and Applied Mathematics, Department of Mathematics, M. Auezov South Kazakhstan University, Kazakhstan) Direct problem for the heat equation with fractional order and complex coefficient
9:20-9:40	**Muhammad Ismail Yunus** (Khalifa University of Science and Technology, Indonesia) Periodic Solution: Hopf Bifurcation or Hidden Attractor?

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
8:00-8:20	**Yousef Alamri** (King Abdullah University of Science and Technology (KAUST), Saudi Arabia) On the regularity for aggregation-confinement-diffusion models with saturation	
8:20-8:40	**Helin Gong** (Shanghai Jiao Tong University, Peoples Rep of China) Field reconstruction with noise and vibration tolerance: application to nuclear engineering	
8:40-9:00	**Saddam Hussain** (Birla Institute of Technology and Science Pilani, Pilani Campus, India, India) An analytical treatment to spatially inhomogeneous population balance model	
9:00-9:20	**BONG-SIK KIM** (American University of Ras Al Khaimah, United Arab Emirates) Assessment of Leray-Type Regularization of Burgers Equation Using Physics-Informed Neural Networks	
9:20-9:40	**sahil kundu** (IIT Ropar, India) Well-Posedness of the Reactive Flow in Heterogeneous Porous Medium	
9:40-10:00	**Arpan Mukherjee** (Shenzhen MSU-BIT University, Peoples Rep of China) Dispersive Effective Model in the Time-Domain for Acoustic Waves Propagating in Bubbly Media	

	Ashish Yadav (Birla Institute of Technology and Science Pilani Pilani Campus Rajasthan India, India) Fixed Point Method for Solving Fractional Differential Equation in the Complex Domain with Mixed Boundary Condition

CS 3	Modeling, Math Biology and Math Finance	Capital Suite 11 A
8:00-8:20	**Sehrish Iftikhar** (Lahore College for Women University, Lahore, Pakistan., Pakistan) Beyond the Event Horizon: Mathematical Insights into Black Hole Shadows	
8:20-8:40	**Yue Guo** (National University of Singapore, Singapore) Learning Parametric Koopman Decompositions for Prediction and Control	
8:40-9:00	**Karlygash B. Nurtazina** (L.N. Gumilyov Eurasian National University, Kazakhstan) Neural network modeling in the inverse problem on a graph-tree	
9:00-9:20	**Yogesh Trivedi** (Birla Institute of Technology and Science, Pilani Goa Campus, India) THE EVOLUTIONARY STABILITY OF PARTIAL MIGRATION WITH ALLEE EFFECTS	
9:20-9:40	**Shiqi Wu** (National University of Singapore, Peoples Rep of China) Non-intrusive model combination in learning dynamics	
9:40-10:00	**Rubab Manzoor** (University of Management and Technology Lahore Pakistan, Pakistan) Modelling of Massive Stellar Structure in High Curvature Framework	
	Yogesh Kuntal (Birla Institute of Technology and Science Pilani, India) Concentration gradient driven flow of non-Newtonian fluid in a microchannel	

Parallel Session 10 :: Wednesday, 12/18, 12:30-14:30

TS 2	Monge-Ampere type equations and their applications Organizer(s): Jiakun Liu , Xu-Jia Wang	Conference Hall A
13:00-13:45	**Connor Mooney** (, USA) Optimal transport maps of non-convex domains	

13:45-14:30	**Shibing Chen** (, Peoples Rep of China) Singularities in optimal transport

TS 4	**Recent progress on the numerical solution of partial differential equations** Organizer(s): Jie Shen	**Capital Suite 7**
13:00-13:45	**Buyang Li** (The Hong Kong Polytechnic University, Hong Kong) Convergent finite element approximations of surface evolution with artificial tangential motion	
13:45-14:30	**Lei Zhang** (Peking University, Peoples Rep of China) Construction of Solution Landscape for Complex Systems	

SS 6	**Modeling and Data Analysis for Complex Systems and Dynamics** Organizer(s): Pengcheng Xiao , Jianzhong Su , Lixia Duan	**Capital Suite 14**
12:30-13:00	**PADMANABHAN SESHAIYER** (George Mason University, USA) Data-driven machine learning framework to predict dynamics of complex infectious disease models incorporating human behavior	
13:00-13:30	**Shirali Kadyrov** (New Uzbekistan University, Uzbekistan) Data Fitting in Fuzzy Epidemic Models Using Genetic Algorithms	
13:30-14:00	**Aigerim Kalizhanova** (Nazarbayev University, Kazakhstan) Forecasting the Long-Term Trends of Tuberculosis Using the Time-series Analysis and Susceptible-Infectious-Recovered (SIR) Model	
14:00-14:30	**Yerimbet Aitzhanov** (SDU university, Kazakhstan) Global stability analysis of a novel epidemic model with separate compartments for symptomatic and asymptomatic cases	

SS 10	**Analysis of diffuse and sharp interface models** Organizer(s): Alain Miranville , Andrea Giorgini , Maurizio Grasselli	**Conference Hall B (A)**
12:30-13:00	**Franco TOMARELLI** (Politecnico di Milano, Italy) Variational approach to pure traction and Signorini problem between linear and finite elasticity	

13:00-13:30	**Dalibor Prazak** (Charles University, Prague, Czech Rep) Navier-Stokes equations with dynamic boundary conditions and related problems
13:30-14:00	**Patrik Knopf** (University of Regensburg, Germany) Two-phase flows through porous media: A Cahn-Hilliard-Brinkman model with dynamic boundary conditions

SS 13	**Propagation Phenomena in Reaction-Diffusion Systems** Organizer(s): Hirokazu Ninomiya , Masaharu Taniguchi	**Capital Suite 13**
12:30-13:00	**Yoshihisa Morita** (Ryukoku Joint Research Center Sci & Tech, Japan) Front propagation for the bistable reaction-diffusion equation on unbounded metric graphs	
13:00-13:30	**rana parshad** (iowa state university, USA) Long time dynamics of a reaction-diffusion model of obesity-induced Alzheimers disease and its control strategies	
13:30-14:00	**Hiroshi Ishii** (Hokkaido University, Japan) Propagating front solutions to Fisher-KPP equation with time-fractional derivative	
14:00-14:30	**Masahiko Shimojo** (Tokyo Metropolitan University, Japan) Convergence to forced waves of the Fisher-KPP equation in a shifting environment by utilizing a relative entropy	

SS 19	**New trends in inverse problems for partial differential equations** Organizer(s): Elena Beretta , Fioralba Cakoni	**Capital Suite 4**
12:30-13:00	**Michael Vogelius** (Rutgers University, USA) Passive manipulation of electromagnetic fields	
13:00-13:30	**Shari Moskow** (Drexel University, USA) Nonlinearity helps convergence of the inverse Born series	
13:30-14:00	**Fioralba Cakoni** (Rutgers, The State University of New Jersey, USA) A Duality Between Scattering Poles and Interior Eigenvalues in Scattering Theory	

14:00-14:30	**Matteo Fornoni** (University of Pavia, Italy) Reconstructing early stages of prostate cancer growth

SS 23	**New trends in pattern formations and dynamics for dissipative systems and related topics** Organizer(s): Yoshihisa Morita , Junping Shi	**Capital Suite 15**
12:30-13:00	**Harunori Monobe** (Osaka Metropolitan University, Japan) Singular limit of mathematical models related to controlling invasive alien species	
13:00-13:30	**Fengqi Yi** (Dalian University of Technology, Peoples Rep of China) The dynamics of the coupled reaction-diffusion Lengyel-Epstein system with two layers modeling CIMA chemical reactions	
13:30-14:00	**Masaharu Nagayama** (Hokkadio University, Japan) Reaction-diffusion type modeling of the self-propelled motion.	
14:00-14:30	**Rossella RR Rizzo** (University of Palermo, Italy) Cytokine-induced coherent structures in a reaction-diffusion-chemotaxis model of Multiple Sclerosis	

SS 24	**Optimal control and parameter estimation in biological models** Organizer(s): Elisabetta Rocca , Elena Beretta , Cecilia Cavaterra	**Capital Suite 21 B**
12:30-13:00	**Barbara Kaltenbacher** (University of Klagenfurt, Austria) Coefficient identification in nonlinear reaction-diffusion systems	
13:00-13:30	**RICCARDO MONTALTO** (University of Milan, Italy) Nonlinear oscillations in Fluid Mechanics	
13:30-14:00	**Luca Scarpa** (Politecnico di Milano, Italy) Analysis and simulations of a stochastic phase-field model for tumour growth	
14:00-14:30	**Pierluigi Colli** (University of Pavia, Italy) Solvability and optimal control for an epidemic propagation model with heterogeneous diffusion	

SS 29	**Mean field stochastic control problems and related topics** Organizer(s): Juan Li , Rainer Buckdahn	**Capital Suite 10**
12:30-13:00	**Zhiyong Yu** (Shandong University, Peoples Rep of China) Exact Controllability for Linear Stochastic Game-Based Control Systems	
13:00-13:30	**Qi Zhang** (Fudan University, Peoples Rep of China) Some New Results on Entropy Regularized Backward Stochastic Control Systems	
13:30-14:00	**Qingmeng Wei** (Northeast Normal Univeristy, Peoples Rep of China) Linear-Quadratic Optimal Control Problem for Mean-Field Stochastic Differential Equations with a Type of Random Coefficients	
14:00-14:30	**Jing Zhang** (Fudan University, Peoples Rep of China) Backward Stochastic Partial Differential Equations with Conormal Boundary Conditions	

SS 36	**Complexity in dynamical systems and applications in biology** Organizer(s): Feng Jiao , Jianshe Yu , Bo Zheng	**Capital Suite 2**
12:30-13:00	**Christine M Kling** (University of California, Los Angeles (UCLA), USA) Investigating Multi-Disease Models with Coinfection Coupled with Networks	
13:00-13:30	**Dingyong Bai** (Guangzhou University, Peoples Rep of China) Impact of Intraspecific Competition of Predator on Coexistence of a Predator-prey Model with Additive Predation on Prey	
13:30-14:00	**Francesco Paparella** (New York University Abu Dhabi, United Arab Emirates) Light--scissor--paper: light--mediated intransitivity leads to phytoplankton coexistence	
14:00-14:30	**Sheng Ying** (Guangzhou university, Peoples Rep of China) Geometric theory of distribution shapes for autoregulatory gene circuits	

SS 43	**Hamiltonian Dynamics and Celestial Mechanics** Organizer(s): Zhifu Xie , Marian Gidea , Ernesto Perez-Chavela	**Capital Suite 21 A**

12:30-13:00	**Zhifu Xie** (The University of Southern Mississippi, USA) Investigation of Bifurcations of Central Configurations
13:00-13:30	**Kuo-Chang Chen** (National Tsing Hua University, Taiwan) On finiteness of central configurations by symbolic computations
13:30-14:00	**Yangshanshan Liu** (Chern Institute of Mathematics at Nankai University, Peoples Rep of China) On the uniqueness of the planar 5-body central configuration with a trapezoidal convex hull
14:00-14:30	**Anna Maria Cherubini** (University of Salento, Italy) Exploration of billiards with Keplerian potential

SS 49	**Stochastic Control, Filtering and Related Fields** Organizer(s): Jingtao Shi , Jie Xiong	**Capital Suite 21 C**
13:00-13:30	**Guangchen Wang** (Shandong University, Peoples Rep of China) Robust optimal control of Bi-objective LQ system with noisy observation	
13:30-14:00	**Jiayu Zheng** (Shenzhen MSU-BIT University, Peoples Rep of China) On Mean-field super-Brownian motions	
14:00-14:30	**Xu Wen** (Southern University of Science and Technology, Peoples Rep of China) Mean-field stochastic linear quadratic control problem with random coefficients	

SS 50	**Trends in Infinite Dimensional Topological Dynamics** Organizer(s): Keonhee Lee , Udayan Darji , Carlos Morales	**Capital Suite 9**
13:00-13:30	**Dong Han Kim** (Dongguk University - Seoul, Korea) Dynamical systems and the Diophantine approximation on the Hecke group H4	
13:30-14:00	**Sharan Gopal** (BITS-Pilani Hyderabad campus, India) Dynamics of Solenoidal Automorphisms	

14:00-14:30	**Jumi Oh** (Sungkyunkwan University, Korea) Spectral Decomposition and Topological Stability for Dynamical Systems on Non-metrizable Spaces

SS 59	**Backward Stochastic Volterra Integral Equations and Time Inconsistent Optimal Control Problems** Organizer(s): tianxiao wang , hanxiao wang	**Capital Suite 12 B**
12:30-13:00	**Yushi Hamaguchi** (Kyoto University, Japan) Maximum principle for optimal control problems of stochastic Volterra equations with singular kernels	
13:00-13:30	**Xuedong He** (The Chinese University of Hong Kong, Hong Kong) Asset Pricing with α-maxmim Expected Utility Model	
13:30-14:00	**Ali Lazrak** (UBC, Canada) Dynamic Portfolio Choice with Illiquid Securities: An Infinite-Horizon Stochastic LQ Framework	
14:00-14:30	**Yuanhua Ni** (Nankai University, Peoples Rep of China) Solving Coupled Nonlinear Forward-backward Stochastic Differential Equations: An Optimization Perspective with Backward Measurability Loss	

SS 71	**Pure and Applied Analysis, Local and Nonlocal** Organizer(s): Armin Schikorra , James Scott	**Capital Suite 11 A**
12:30-13:00	**Michiaki Onodera** (Tokyo Institute of Technology, Japan) A weighted Schauder estimate for an irregular oblique derivative problem	
13:00-13:30	**James Scott** (Columbia University, USA) Nonlocal boundary-value problems with local boundary conditions	
13:30-14:00	**José Miguel Urbano** (King Abdullah University of Science and Technology (KAUST), Saudi Arabia) Improved moduli of continuity for degenerate phase transitions	
14:00-14:30	**Ahmed Dughayshim** (University of Pittsburgh, USA) Asymptotic behaviour of three fractional spaces	

SS 72	**Nonlinear elliptic PDEs** Organizer(s): Florin Catrina , Rushun Tian , Zhi-Qiang Wang	**Capital Suite 12 A**
12:30-13:00	**Shalmali Bandyopadhyay** (The University of Tennessee at Martin, USA) Positive Solutions to Singular Second Order BVPs on Time Scales	
13:00-13:30	**Norihisa Ikoma** (Keio University, Japan) Monotonicity trick in nonsmooth critical point theory and its application	
13:30-14:00	**Kanishka Perera** (Florida Institute of Technology, USA) Variational methods for scaled problems with applications to the Schrodinger-Poisson-Slater equation	
14:00-14:30	**Shin-Hwa Wang** (National Tsing Hua University, TAIWAN, Taiwan) Structures and evolution of bifurcation diagrams of a p-Laplacian generalized logistic problem with constant yield harvesting	

SS 76	**Recent Developments in Nonlinear and Nonlocal Evolution Equations** Organizer(s): Hantaek Bae , Tak Kwong Wong , Yong Yu	**Conference Hall B (D)**
12:30-13:00	**Van Tien Nguyen** (National Taiwan University, Taiwan) Blowup solutions to the complex Ginzburg-Landau equation	
13:00-13:30	**Yuan Chen** (Chinese University of Hong Kong, Peoples Rep of China) Dynamics and Convergence Arising from Some Phase Field Models	
13:30-14:00	**Haitao Wang** (Shanghai Jiao Tong University, Peoples Rep of China) 3D hard sphere Boltzmann equation: explicit structure and the transition process from polynomial tail to Gaussian tail	
14:00-14:30	**Gi-Chan Bae** (Seoul National University / Research institute of Mathematics, Korea) The relativistic quantum Boltzmann equation near equilibrium	

SS 77	**Recent developments in variational problems and geometric analysis** Organizer(s): Mousomi Bhakta , Debdip Ganguly	**Conference Hall B (B)**
12:30-13:00	**Sandeep kunnath** (TIFR Centre for Applicable Mathematics, India) Symmetry of Sobolev Extremals in the Hyperbolic space	

13:00-13:30	**Jungang Li** (University of Science and Technology of China, Peoples Rep of China) Higher order semilinear equations on hyperbolic spaces
13:30-14:00	**Debabrata Karmakar** (TIFR Centre for Applicable Mathematics, India) Quantitative stability of the Poincar\`{e}-Sobolev inequality on the hyperbolic space
14:00-14:30	**Ali Hyder** (TIFR-CAM Bangalore, India) One-dimensional half-harmonic maps into the circle

SS 78	**Special Session on Mathematics of Data Science and Applications** Organizer(s): Ding-Xuan Zhou , Xiang Zhou	**Capital Suite 6**
12:30-13:00	**Yuqing Liu** (City University of Hong Kong, Hong Kong) Error Analysis of Shallow Neural Network on Korobov Space	
13:00-13:30	**Tong Mao** (King Abdullah University of Science and Technology, Saudi Arabia) Approximation Rates for Shallow ReLUk Neural Networks on Sobolev Spaces via the Radon Transform	
13:30-14:00	**Nathanael Tepakbong** (City University of Hong Kong, Hong Kong) Solving for the Mean Escape Time with Operator Learning and Deep Neural Networks	
14:00-14:30	**Ding-Xuan Zhou** (dingxuan.zhou@sydney.edu.au, Australia) The role of structures in neural networks	

SS 80	**Nonlinear dynamics of particle systems and fluids** Organizer(s): Hyeong-Ohk Bae , Doheon Kim , Seung-yeon Cho	**Conference Hall B (C)**
12:30-13:00	**Jongmin Han** (Kyung Hee University, Korea) Local bifurcation for the one dimensional Gray-Scott model	
13:00-13:30	**Hyeong-Ohk Bae** (Ajou University, Korea) Interaction of Rigid Ball and Incompressible Fluid	

13:30-14:00	**Hyunseok Kim** (Sogang University, Korea) Interpolation inequalities in Lorentz spaces and their applications to a Stokes-Magneto system with fractional diffusions
14:00-14:30	**Jeongho Kim** (Kyung Hee University, Korea) Asymptotic behavior toward viscous shock for impermeable wall and inflow problems of barotropic Navier-Stokes equations

SS 96	**Evolutionary Equations Systems** Organizer(s): Irene Benedetti , Francesca Dalbono , Elisa Sovrano , Valentina Taddei	**Capital Suite 5**
12:30-13:00	**Cristina Marcelli** (Marche Politechical University, Italy) Boundary value problems for integro-differential and singular higher order differential equations	
13:00-13:30	**Maya Chhetri** (The University of North Carolina at Greensboro, USA) Parabolic logistic equation with harvesting involving the fractional Laplacian	
13:30-14:00	**Federica Sani** (University of Modena and Reggio Emilia, Italy) Blow-up and Global Solutions for Parabolic Equations with Critical Nonlinearities	
14:00-14:30	**Yassine El Gantouh** (School of Mathematical Sciences, Zhejiang Normal University, Peoples Rep of China) Well-posedness and stability for a class of evolution systems	

SS 112	**Controllability and Stabilization of Partial Differential Equations** Organizer(s): Long Hu , Qi Lü , Zhiqiang Wang	**Capital Suite 11 B**
12:30-13:00	**Pierre Lissy** (Ecole nationales des ponts et chaussees, France) Null controllability of underactuated linear parabolic-transport system	
13:00-13:30	**Vahagn Nersesyan** (NYU Shanghai, Peoples Rep of China) Global controllability of the Boussinesq system by using a degenerate temperature control	
13:30-14:00	**Nicola N De Nitti** (EPFL, Switzerland) Feedback stabilization of entropy solutions to the p-system at a junction	

14:00-14:30	**Haisen Zhang** (School of Mathematical Science, Sichuan Normal University, Peoples Rep of China) Second-Order Necessary Conditions for Stochastic Optimal Control Problems with Final Point Constraints

SS 118	**Recent advances in mathematical finance** Organizer(s): Yerkin Kitapbayev , Giorgio Consigli , Jorge Zubelli	**Capital Suite 3**
12:30-13:00	**Massimiliano Ferrara** (University Mediterranea of Reggio Calabria, Italy) Deep prediction and XAI on Financial Market Sequence for Enhancing economic policies	
13:00-13:30	**Davide La Torre** (SKEMA Business School, Cote d`Azur University, France) An exploration of different machine learning algorithms for financial forecasting in crypto markets	
13:30-14:00	**Adil Reghai** (ADIA, United Arab Emirates) Algorithmic Differentiation - Artificial Intelligence	
14:00-14:30	**Jorge P Zubelli** (Khalifa University, United Arab Emirates) Reinforcement learning for optimal constant proportion portfolio management	

SS 130	**kinetic theory, analysis and application** Organizer(s): Qin Li	**Capital Suite 8**
12:30-13:00	**Zhennan Zhou** (Westlake University, Peoples Rep of China) Fokker-Planck equations of neuron networks: numerical simulation and dilating the blowup solution	
13:00-13:30	**XINYU WANG** (Seoul National University, Peoples Rep of China) On the exponential weak flocking for the kinetic Cucker-Smale model with non-compact support	
13:30-14:00	**Xuda Ye** (Peking University, Peoples Rep of China) Dimension-free ergodicity of path integral molecular dynamics: a generalized Gamma calculus approach	
14:00-14:30	**Yuhua Zhu** (University of California, Los Angeles, USA) A PDE-based model-free algorithm for Continuous-time Reinforcement Learning	

SS 131	**Recent progress on singularities formations of some evolution partial differential equations** Organizer(s): Mohamed Ali Hamza , Nejla Nouaili , Hatem Zaag	**Capital Suite 1**
12:30-13:00	**Hatem Zaag** (CNRS and Universite Sorbonne Paris Nord, France) Critical and subcritical blow-up for the nonlocal shadow limit of the Gierer-Meinhardt system	
13:00-13:30	**Van Tien Nguyen** (National Taiwan University, Taiwan) Blowup solutions to the complex Ginzburg-Landau equation	
13:30-14:00	**Tetsuji Tokihiro** (Musashino University, Japan) A Blow-up theorem for discrete semilinear wave equation	
14:00-14:30	**Berikbol T. Torebek** (Ghent University, Belgium) Critical exponents for the quasilinear heat equations with combined nonlinearities	

Parallel Session 11 :: Wednesday, 12/18, 14:45-16:45

TS 2	**Monge-Ampere type equations and their applications** Organizer(s): Jiakun Liu , Xu-Jia Wang	**Conference Hall A**
15:00-15:45	**Ravi Shankar** (, USA) Lagrangian mean curvature PDEs	
15:45-16:30	**Siyuan Lu** (, Canada) Interior C^2 estimate for Hessian quotient equations	

TS 4	**Recent progress on the numerical solution of partial differential equations** Organizer(s): Jie Shen	**Capital Suite 7**
15:00-15:45	**Per-Olof Persson** (University of California, Berkeley, USA) Half-Closed Discontinuous Galerkin Discretisations	
15:45-16:30	**Xiaofeng Yang** (, USA) Some topics on gradient flow approach and its applications to various fields	

SS 6	**Modeling and Data Analysis for Complex Systems and Dynamics** Organizer(s): Pengcheng Xiao , Jianzhong Su , Lixia Duan	**Capital Suite 14**
14:45-15:15	**Honghui Zhang** (Northwestern polytechnical university, Peoples Rep of China) The Stability of Memory Storage in the Hippocampus	
15:15-15:45	**Denggui Fan** (University of Science and Technology Beijing, Peoples Rep of China) The seizure classification of focal epilepsy based on the network motif analysis	
15:45-16:15	**Jianzhong Su** (University of Texas at Arlington, USA) Brain Complex Data Analytics To Identify Epileptic Activity Using EEG Source Localization Methods	
16:15-16:45	**Yuzhi Zhao** (Northwestern Polytechnical University, Peoples Rep of China) Dynamic analysis of beta oscillation in Parkinsonian neural networks with pedunculopntine nucleus under optogenetic control	

SS 10	**Analysis of diffuse and sharp interface models** Organizer(s): Alain Miranville , Andrea Giorgini , Maurizio Grasselli	**Conference Hall B (A)**
14:45-15:15	**Lorenzo Giacomelli** (Sapienza University of Rome, Italy) Droplet models with singular potentials: equilibria and travelling waves	
15:15-15:45	**Yutaka Terasawa** (Nagoya University, Japan) The convergence of a nonlocal to a local anisotropic Cahn-Hilliard equation	
15:45-16:15	**Ahmed Bonfoh** (KFUPM, Saudi Arabia) Existence and continuity of inertial manifolds for singularly perturbed conserved phase-field systems	

SS 13	**Propagation Phenomena in Reaction-Diffusion Systems** Organizer(s): Hirokazu Ninomiya , Masaharu Taniguchi	**Capital Suite 13**

14:45-15:15	**Raffaele Folino** (Universidad Nacional Autonoma de Mexico, Mexico) Transition layer structures in reaction-diffusion models with Perona-Malik diffusion
15:15-15:45	**Hiroshi Matsuzawa** (Kanagawa University, Japan) Asymptotic behavior of spreading fronts in an anisotropic multi-stable equation on $\mathbb{R}^N$
15:45-16:15	**Ryunosuke Mori** (Meiji University, Japan) Blocking and propagation in two-dimensional undulating cylinders with spatial periodicity
16:15-16:45	**Kousuke Kuto** (Waseda University, Japan) Large time behavior of solutions of a cooperative system with population flux by attractive transition

SS 19	**New trends in inverse problems for partial differential equations** Organizer(s): Elena Beretta , Fioralba Cakoni	**Capital Suite 4**
14:45-15:15	**Giovanni S. Alberti** (University of Genoa, Italy) Localization of Point Scatterers via Sparse Optimization on Measures	
15:15-15:45	**Bangti Jin** (The Chinese University of Hong Kong, Hong Kong) Direct sampling methods for elliptic inverse problems	
15:45-16:15	**Mikyoung Lim** (Korea Advanced Institute of Science and Technology, Korea) Construction of weakly neutral Inclusions via imperfect interfaces	
16:15-16:45	**Alessandro Felisi** (University of Genoa, Italy) Compressed sensing for photoacoustic tomography on the sphere	

SS 23	**New trends in pattern formations and dynamics for dissipative systems and related topics** Organizer(s): Yoshihisa Morita , Junping Shi	**Capital Suite 15**
14:45-15:15	**Yuan Lou** (Shanghai Jiao Tong University, Peoples Rep of China) Role of chemotaxis in some SIS PDE epidemic model with singular sensitivity	
15:15-15:45	**Shin-Ichiro Ei** (Josai University, Japan) Pulse dynamics on a star-shaped metric graph with different widths	

15:45-16:15	**Gaetana Gambino** (University of Palermo, Department of Mathematics and Computer Science, Italy) Pattern formation in IGP-communities with anti-predator behavior
16:15-16:45	**Yoshihisa Morita** (Ryukoku Joint Research Center Sci & Tech, Japan) Segregation pattern in a mass conserved reaction-diffusion system from a model of asymmetric cell division

SS 24	**Optimal control and parameter estimation in biological models** Organizer(s): Elisabetta Rocca , Elena Beretta , Cecilia Cavaterra	**Capital Suite 21 B**
14:45-15:15	**Gabriela Marinoschi** (Gheorghe Mihoc-Caius Iacob Institute of Mathematical Statistics and Applied Mathematics of the Romanian Academy, Romania) Optimal control for an epidemic model	
15:15-15:45	**Andrea Signori** (Politecnico di Milano, Italy) Optimal control of Cahn-Hilliard-Keller-Segel tumor growth models	
15:45-16:15	**Andrea Di Primio** (Politecnico di Milano, Italy) On a diffuse interface model for the electrically-driven self-assembly of copolymers	
16:15-16:45	**Andrea Poiatti** (University of Vienna, Austria) Lipid rafts formation on cell membranes: modeling and mathematical analysis	

SS 29	**Mean field stochastic control problems and related topics** Organizer(s): Juan Li , Rainer Buckdahn	**Capital Suite 10**
14:45-15:15	**Yunzhang Li** (Fudan University, Peoples Rep of China) Fractional BSPDEs with Applications to Optimal Control of Partially Observed Systems with Jumps	
15:45-16:15	**Wenqiang Li** (Shandong University, Peoples Rep of China) Mean Field Games of Major-Minor Agents with Recursive Functionals	
16:15-16:45	**Chuanzhi Xing** (Shandong University, Peoples Rep of China) Path-dependent controlled mean-field coupled forward-backward SDEs. The associated stochastic maximum principle	

SS 36	**Complexity in dynamical systems and applications in biology** Organizer(s): Feng Jiao , Jianshe Yu , Bo Zheng	**Capital Suite 2**
14:45-15:15	**Zhan Zhou** (Guangzhou University, Peoples Rep of China) Positive solutions for discrete boundary value problems involving the mean curvature operator	
15:15-15:45	**Zhiming Guo** (Guangzhou University, Peoples Rep of China) Longtime behavior for solutions to a temporally discrete diffusion equation with a free boundary	
15:45-16:15	**Huafeng Xiao** (Guangzhou University, Peoples Rep of China) Periodic solutions for differential equations with distributed delay	
16:15-16:45	**Genghong Lin** (Guangzhou University, Peoples Rep of China) Periodic solutions for second-order difference equations with continuous time	

SS 43	**Hamiltonian Dynamics and Celestial Mechanics** Organizer(s): Zhifu Xie , Marian Gidea , Ernesto Perez-Chavela	**Capital Suite 21 A**
14:45-15:15	**Agustin Moreno** (Heidelberg University, Germany) The symplectic geometry of the restricted three-body problem	
15:15-15:45	**Pablo Roldan** (Universitat Politecnica de Catalunya, Spain) Semi-analytical exploration of drift trajectories near L_1 in the Spatial RTBP	
15:45-16:15	**Otto van Koert** (Seoul National University, Department of Mathematics, Korea) Computational symplectic topology and the restricted three-body problem	
16:15-16:45	**Jianlu ZHANG** (Academy of Mathematics and Systems Science, Peoples Rep of China) Selection principle of generalized Hamilton-Jacobi equations	

SS 49	**Stochastic Control, Filtering and Related Fields** Organizer(s): Jingtao Shi , Jie Xiong	**Capital Suite 21 C**

14:45-15:15	**Tianyang Nie** (Shandong University, Peoples Rep of China) Indefinite linear-quadratic large population problem with partial observation
15:15-15:45	**Kai Du** (Shandong University, Peoples Rep of China) Partially observed mean-field game and related mean-field forward-backward stochastic differential equation
15:45-16:15	**Jingtao Shi** (Shandong University, Peoples Rep of China) A Risk-Sensitive Global Maximum Principle for Controlled Fully Coupled FBSDEs with Applications

SS 50	**Trends in Infinite Dimensional Topological Dynamics** Organizer(s): Keonhee Lee , Udayan Darji , Carlos Morales	**Capital Suite 9**
14:45-15:15	**Younghwan Son** (POSTECH, Korea) Joint ergodicity of piecewise monotone maps	
15:15-15:45	**Khundrakpam Binod KB Mangang** (Manipur University, India) Various Shadowing Properties in General Topological Spaces	
15:45-16:15	**Jeon-Yup Lee** (Catholic Kwandong University, Korea) Understanding cut-and-project sets on substitution tilings	
16:15-16:45	**Bomi Shin** (Sungkyunkwan University, Korea) Measurable spectral decomposition for homeomorphisms	

SS 59	**Backward Stochastic Volterra Integral Equations and Time Inconsistent Optimal Control Problems** Organizer(s): tianxiao wang , hanxiao wang	**Capital Suite 12 B**
14:45-15:15	**Ludger Overbeck** (Justus-Liebig-University/Institute of Mathematics, Germany) Classical Differentiability of BSVIEs and Dynamic Capital Allocations	
15:15-15:45	**Chi Seng Pun** (Nanyang Technological University, Singapore) On the Solvability of Second-order Backward Stochastic Volterra Integral Equations and Equilibrium HJB Equations	

15:45-16:15	**Hanxiao Wang** (Shenzhen University, Peoples Rep of China) Optimal Controls for FBSDEs: Time-Inconsistency and Time-Consistent Solutions

SS 71	**Pure and Applied Analysis, Local and Nonlocal** Organizer(s): Armin Schikorra , James Scott	**Capital Suite 11 A**
14:45-15:15	**Simon Nowak** (Bielefeld University, Germany) Partial regularity in nonlocal systems	
15:15-15:45	**Adisak Seesanea** (Sirindhorn International Institute of Technology, Thammasat University, Thailand) Nonlocal Sublinear Elliptic Problems with Measure Coefficients and Data	
15:45-16:15	**Karthik Adimurthi** (TIFR-CAM, India) Harmonic functions are Lipschitz continuous	
16:15-16:45	**Siran Li** (Shanghai Jiao Tong University, Peoples Rep of China) Fundamental theorem of submanifold theory and isometric immersions with supercritical low regularity	

SS 72	**Nonlinear elliptic PDEs** Organizer(s): Florin Catrina , Rushun Tian , Zhi-Qiang Wang	**Capital Suite 12 A**
14:45-15:15	**Xiaojun Chang** (Northeast Normal University, Peoples Rep of China) Normalized solutions of Sobolev critical Schrodinger equations in bounded domains	
15:15-15:45	**Chao Ji** (East China University of Science and Technology, Peoples Rep of China) Some recent results on nonlinear PDEs on lattice graphs	
15:45-16:15	**Futoshi Takahashi** (Osaka Metropolitan University, Japan) One-dimensional boundary blow up problem with a nonlocal term	
16:15-16:45	**Jianxin Zhou** (Texas A&M University, College Station, TX, USA, USA) Towards Finding Multiple KKT Points: Part 1-Computing an Inequality/Equality Constrained Local Minimum Point	

SS 76	**Recent Developments in Nonlinear and Nonlocal Evolution Equations** Organizer(s): Hantaek Bae , Tak Kwong Wong , Yong Yu	**Conference Hall B (D)**
14:45-15:15	**Rafael Granero Belinchon** (Universidad de Cantabria, Spain) On the dynamics of surface waves for a fluid with odd viscosity	
15:15-15:45	**Billel Guelmame** (ENS Lyon, France) Singularity formation and global weak solutions to the Serre-Green-Naghdi equations with surface tension	
15:45-16:15	**Anthony Suen** (The Education University of Hong Kong, Hong Kong) Liouville-type theorems for the stationary ideal magnetohydrodynamics equations in multi-dimensional cases	

SS 77	**Recent developments in variational problems and geometric analysis** Organizer(s): Mousomi Bhakta , Debdip Ganguly	**Conference Hall B (B)**
14:45-15:15	**BHAKTI BHUSAN MANNA** (IIT HYDERABAD, India) Higher dimensional concentration for singularly perturbed coupled elliptic systems.	
15:15-15:45	**Vincenzo Ambrosio** (Universita' Politecnica delle Marche, Italy) Concentration phenomena for nonlinear fractional relativistic Schrodinger equations	
15:45-16:15	**Saikat Mazumdar** (Indian Institute of Technology Bombay, India) Compactness of conformal metrics with constant Q-curvature of higher order.	
16:15-16:45	**Teresa Isernia** (Universita` Politecnica delle Marche, Italy) Ground state solutions for a (p, q)--Choquard equation with a general nonlinearity	

SS 78	**Special Session on Mathematics of Data Science and Applications** Organizer(s): Ding-Xuan Zhou , Xiang Zhou	**Capital Suite 6**
14:45-15:15	**Ting Gao** (Huazhong University of Science and Technology, Peoples Rep of China) Critical transitions in brain: modelling and control	

15:15-15:45	**Huan Lei** (Michigan State University, USA) An energy-stable machine-learning model of non-Newtonian hydrodynamics with molecular fidelity
15:45-16:15	**Qianxiao Li** (National University of Singapore, Singapore) Learning, approximation and control
16:15-16:45	**Xiang ZHOU** (City University of Hong Kong, Hong Kong) StringNET: Neural Network based Variational Method for Transition Pathways

SS 80	**Nonlinear dynamics of particle systems and fluids** Organizer(s): Hyeong-Ohk Bae , Doheon Kim , Seung-yeon Cho	**Conference Hall B (C)**
14:45-15:15	**Seung Yeal Ha** (Seoul National University, Korea) Emergent dynamics of infinitely many Kuramoto oscillators	
15:15-15:45	**Dohyun Kim** (Sungkyunkwan University, Korea) Asymptotic convergence of the heterogeneous first-order aggregation models: from the sphere to the unitary group	
15:45-16:15	**Doheon Kim** (Hanyang University, Korea) Analysis of score-based diffusion models with multiplicative noise conditioning	
16:15-16:45	**Myeong-Su Lee** (Korea Advanced Institute of Science and Technology, Korea) Physics-informed Neural Networks for the Pseudo two dimensional model of Lithium ion battery	

SS 96	**Evolutionary Equations Systems** Organizer(s): Irene Benedetti , Francesca Dalbono , Elisa Sovrano , Valentina Taddei	**Capital Suite 5**
14:45-15:15	**Juan Campos** (Universidad de Granada, Spain) Singular traveling waves in parabolic operators with a divergence-shaped flow operator.	
15:15-15:45	**Giuseppe Viglialoro** (Universit \\`a degli Studi di Cagliari, Italy) Basic considerations about chemotactic models in penetrable habitats	

15:45-16:15	**matteo franca** (Bologna University, Italy) Some remarks on Melnikov chaos for smooth and piecewise smooth systems
16:15-16:45	**Paolo Piersanti** (The Chinese University of Hong Kong Shenzhen, Peoples Rep of China) On the justification of Koiter`s model for thermoelastic shells

SS 112	**Controllability and Stabilization of Partial Differential Equations** Organizer(s): Long Hu , Qi Lü , Zhiqiang Wang	**Capital Suite 11 B**
14:45-15:15	**Long Hu** (Shandong University, Peoples Rep of China) Minimal control time for the internal exact controllability of 1D linear hyperbolic balance laws	
15:15-15:45	**Felipe W. Chaves-Silva** (Federal University of Paraiba, Brazil) Controllability for parabolic equations with large parameters.	
15:45-16:15	**Hua-Cheng Zhou** (Central South University, Peoples Rep of China) Output regulation for a 1-D wave equation with velocity recirculation and disturbances	
16:15-16:45	**Wen Kang** (Beijing Institute of Technology, Peoples Rep of China) Disturbance rejection approaches of Korteweg-de Vries-Burgers equation under event-triggering mechanism	

SS 118	**Recent advances in mathematical finance** Organizer(s): Yerkin Kitapbayev , Giorgio Consigli , Jorge Zubelli	**Capital Suite 3**
14:45-15:15	**David Zoltan Szabo** (Corvinus University of Budapest, Hungary) Optimal trading with regime switching: Numerical and analytic techniques applied to valuing storage in an electricity balancing market	
15:15-15:45	**Hessah Al-Motairi** (Kuwait University, Kuwait) Irreversible Capital Accumulation with Economic Impact	
15:45-16:15	**Alexandre V Antonov** (ADIA, United Arab Emirates) Ergodic optimization	
16:15-16:45	**Yerkin Kitapbayev** (Khalifa University, United Arab Emirates) A Coupled Optimal Stopping Approach to Pairs Trading over a Finite Horizon	

SS 131	**Recent progress on singularities formations of some evolution partial differential equations** Organizer(s): Mohamed Ali Hamza , Nejla Nouaili , Hatem Zaag	**Capital Suite 1**
14:45-15:15	**Charles Collot** (CY Cergy Paris Universite, France) Singularity of the 2d Keller-Segel system formed by the collision of two collapsing solitons in interaction	
15:15-15:45	**Irfan Glogic** (Bielefeld University, Germany) Stable self-similar blowup for the Keller-Segel model in three dimensions	
15:45-16:15	**Nejla Nouaili** (CEREMADE Univesite Paris Dauphine PSL, France) Construction of type I-Log blowup for the Keller-Segel system in dimensions 3 and 4	
16:15-16:45	**Kohei Higashi** (Musashino University, Japan) Blow-up phenomena in an integrable system with a singular integral and its application to traffic flow	

SS 136	**Analysis and Applications of the Boltzmann equation** Organizer(s): Renjun Duan , Robert Strain	**Capital Suite 8**
14:45-15:15	**Anton Arnold** (Vienna University of Technology, Austria) Short- and long-time behavior in evolution equations: the role of the hypocoercivity index	
15:15-15:45	**Xuwen Chen** (University of Rochester, USA) Well/Ill-posedness separation of the Boltzmann equation with cut-off	
15:45-16:15	**Giacomo Lucertini** (University of Bologna, Italy) Precise boundary behavior of the kinetic Fokker-Planck equation	
16:15-16:45	**Dingqun Deng** (Pohang University of Science and Technology, Korea) The Non-cutoff Boltzmann Equation in Bounded Domains	

Parallel Session 12 :: Wednesday, 12/18, 17:00-18:30

TS 2	**Monge-Ampere type equations and their applications** Organizer(s): Jiakun Liu , Xu-Jia Wang	**Conference Hall A**

17:00-17:45	**Bin Zhou** (Peking University, Peoples Rep of China) On variational problems with a convexity constraint
17:45-18:30	**Genggeng Huang** (, Peoples Rep of China) Long time regularity of the Gauss Curvature flow with flat sides

TS 4	**Recent progress on the numerical solution of partial differential equations** Organizer(s): Jie Shen	**Capital Suite 7**
17:00-17:45	**Qin Li** (UW-Madison, USA) Speeding up gradient flows on probability measure space	

SS 6	**Modeling and Data Analysis for Complex Systems and Dynamics** Organizer(s): Pengcheng Xiao , Jianzhong Su , Lixia Duan	**Capital Suite 14**
17:00-17:30	**Andrey Dmitriev** (HSE Tikhonov Moscow Institute of Electronics and Mathematics, HSE University, Russia) Stock Exchange Critical States: Criticality Time Intervals and Avalanche-Like Dynamics	
17:30-18:00	**Hayriye Gulbudak** (University of Louisiana at Lafayette, USA) Bistability in a Model of Hepatitis B Virus Dynamics	
18:00-18:30	**Cameron Browne** (University of Louisiana at Lafayette, USA) Dynamics of prey-predator network model with application to virus and immune response evolution	

SS 10	**Analysis of diffuse and sharp interface models** Organizer(s): Alain Miranville , Andrea Giorgini , Maurizio Grasselli	**Conference Hall B (A)**
17:00-17:30	**Giulio Schimperna** (University of Pavia, Italy) On a Cahn-Hilliard-Brinkman-chemotaxis model with nonlinear sensitivity	
17:30-18:00	**Charles Elbar** (Sorbonne Universite, France) A Cahn-Hilliard-Navier-Stokes model for tumor growth	

18:00-18:30	**Andrea Aspri** (University of Milan, Italy) Phase-Field Approaches for Shape Reconstruction in Elastic Inverse Problems

SS 13	**Propagation Phenomena in Reaction-Diffusion Systems** Organizer(s): Hirokazu Ninomiya , Masaharu Taniguchi	**Capital Suite 13**
17:00-17:30	**Riccardo Muolo** (Tokyo Institute of Technology, Japan) Reaction-diffusion systems of topological signals coupled by the Dirac operator: a new framework for the emergence of stationary and dynamical Turing patterns.	
17:30-18:00	**Shuji Ishihara** (The University of Tokyo, Japan) Surface curvature drives propagation and chaos of Turing pattern	
18:00-18:30	**Hirokazu Ninomiya** (Meiji University, Japan) Propagation and Blocking of Bistable Waves by Variable Diffusion	

SS 19	**New trends in inverse problems for partial differential equations** Organizer(s): Elena Beretta , Fioralba Cakoni	**Capital Suite 4**
17:00-17:30	**Katya Krupchyk** (University of California, Irvine, USA) Calderon problem for fractional Schrodinger operators on closed Riemannian manifolds	
17:30-18:00	**Lauri Oksanen** (University of Helsinki, Finland) Optimality of stabilized finite element methods for elliptic unique continuation	
18:00-18:30	**Anna L Mazzucato** (Penn State University, USA) Direct and inverse problems for viscoelastic models of dislocations	

SS 23	**New trends in pattern formations and dynamics for dissipative systems and related topics** Organizer(s): Yoshihisa Morita , Junping Shi	**Capital Suite 15**
17:00-17:30	**Masahiko Shimojo** (Tokyo Metropolitan University, Japan) Stability of traveling waves in non-cooperative systems with nonlocal dispersal of equal diffusivities	

17:30-18:00	**Yi Li** (John Jay College of Criminal Justice, CUNY, USA) On hot spots conjecture for domain with n-axes of symmetry
18:00-18:30	**Tetsuya Ishiwata** (Shibaura Institute of Technology, Japan) Some blow-up problems in delay differential equations

SS 24	**Optimal control and parameter estimation in biological models** Organizer(s): Elisabetta Rocca , Elena Beretta , Cecilia Cavaterra	**Capital Suite 21 B**
17:00-17:30	**Matteo Fornoni** (University of Pavia, Italy) Maximal regularity and optimal control for a non-local Cahn-Hilliard tumour growth model	
17:30-18:00	**Jingning He** (Hangzhou Normal University, Peoples Rep of China) Global Well-posedness of a Navier-Stokes-Cahn-Hilliard System with Chemotaxis and Singular Potential	

SS 36	**Complexity in dynamical systems and applications in biology** Organizer(s): Feng Jiao , Jianshe Yu , Bo Zheng	**Capital Suite 2**
17:00-17:30	**Torsten A Lindstroem** (Linnaeus University, Sweden) Destabilization, stabilization, and multiple attractors in saturated mixotrophic environments	
17:30-18:00	**Bo Zheng** (Guangzhou University, Peoples Rep of China) wStri spread dynamics in Nilaparvata lugens via discrete mathematical models	
18:00-18:30	**Xiaoke Ma** (Harbin Institute of Technology, Peoples Rep of China) Threshold dynamics of a Wolbachia-driven mosquito suppression model on two patches	

SS 43	**Hamiltonian Dynamics and Celestial Mechanics** Organizer(s): Zhifu Xie , Marian Gidea , Ernesto Perez-Chavela	**Capital Suite 21 A**

17:00-17:30	**Shoya Motonaga** (Ritsumeikan University, Japan) Real-analytic nonintegrability of nearly integrable systems and Melnokov method
17:30-18:00	**Kazuyuki Yagasaki** (Kyoto University, Japan) Nonintegrability of the restricted three-body problem
18:00-18:30	**Marian Gidea** (Yeshiva University, USA) Geometric properties of normally hyperbolic invariant manifolds for conformally symplectic systems

SS 50	**Trends in Infinite Dimensional Topological Dynamics** Organizer(s): Keonhee Lee , Udayan Darji , Carlos Morales	**Capital Suite 9**
17:00-17:30	**Elias Rego** (AGH university of Science and Technology, Poland) Expansive Minimal Flows	
17:30-18:00	**Keonhee Lee** (Chungnam National University, Korea) Spectral decomposition and skew product for group actions	

SS 51	**Integrable Aspects and Asymptotics of Nonlinear Evolution Equations** Organizer(s): Changzheng Qu , Xingbiao Hu , Qingping Liu	**Conference Hall B (B)**
17:00-17:30	**SY Lou** (Ningbo University, Peoples Rep of China) On the progresses on some open problems related to infinitely many symmetries	

SS 59	**Backward Stochastic Volterra Integral Equations and Time Inconsistent Optimal Control Problems** Organizer(s): tianxiao wang , hanxiao wang	**Capital Suite 12 B**
17:00-17:30	**tianxiao wang** (Sichuan University, Peoples Rep of China) A general maximum principle for optimal control of stochastic differential delay systems	

17:30-18:00	**Xiaoli Wei** (Harbin Insitute of Technology, Peoples Rep of China) Extended mean-field control problems with Poissonian common noise: Stochastic maximum principle and Hamiltonian-Jacobi-Bellman equation
18:00-18:30	**Zhou Zhou** (The University of Sydney, Australia) Almost strong equilibria for time-inconsistent stopping problems under finite horizon in continuous time

SS 71	**Pure and Applied Analysis, Local and Nonlocal** Organizer(s): Armin Schikorra , James Scott	**Capital Suite 11 A**
17:00-17:30	**Tadele Mengesha** (The University of Tennessee, Knoxville, USA) Variational Analysis of a Parametrized Family of Transmission Problems Coupling Nonlocal and Fractional Models	
17:30-18:00	**Florin Catrina** (St. John`s University, USA) Pasting embeddings of pieces	
18:00-18:30	**Sun-Sig Byun** (Seoul National University, Korea) A global Calderon-Zygmund theory for nonlocal elliptic equations	

SS 76	**Recent Developments in Nonlinear and Nonlocal Evolution Equations** Organizer(s): Hantaek Bae , Tak Kwong Wong , Yong Yu	**Conference Hall B (D)**
17:00-17:30	**Ho Man Tai** (Dublin City University, Ireland) Mean Field Games, FBSDEs and Associated Master Equations	
17:30-18:00	**SOYEUN JUNG** (Kongju National University, Korea) Traveling waves for monostable reaction-diffusion-convection equations with discontinuous density-dependent coefficients	
18:00-18:30	**Dongkwang Kim** (Ulsan National Institute of Science and Technology, Department of Mathematical Sciences, Korea) Some results on a repulsive chemotaxis-consumption model	

SS 78	**Special Session on Mathematics of Data Science and Applications** Organizer(s): Ding-Xuan Zhou , Xiang Zhou	**Capital Suite 6**

17:00-17:30	**Chengyu LIU** (City University of Hong Kong, Hong Kong) A Generative Model-Based Variational Method for Wasserstein Gradient Flow
17:30-18:00	**Sho Sonoda** (RIKEN, Japan) Deep Ridgelet Transform: Harmonic Analysis for Deep Neural Network

SS 80	**Nonlinear dynamics of particle systems and fluids** Organizer(s): Hyeong-Ohk Bae , Doheon Kim , Seung-yeon Cho	**Conference Hall B (C)**
17:00-17:30	**Namkwon Kim** (Chosun university, Korea) Nontopological bubbling solutions for Chern-Simons system of rank 2	
17:30-18:00	**Bataa Lkhagvasuren** (Chonnam National University, Korea) Stability and optimal temporal decay result for the 3D Boussinesq equations with horizontal dissipation in anisotropic Sobolev spaces	
18:00-18:30	**Youseung Cho** (Yonsei University, Korea) Liouville-type theorems for the stationary Navier-Stokes equations	

SS 96	**Evolutionary Equations Systems** Organizer(s): Irene Benedetti , Francesca Dalbono , Elisa Sovrano , Valentina Taddei	**Capital Suite 5**
17:00-17:30	**Enzo Vitillaro** (Universit\\`a degli Studi di Perugia, Italy) Some evolution problems modeling the interaction between acoustic waves and non-locally reacting surfaces	
17:30-18:00	**Rafayel Teymurazyan** (King Abdullah University of Science and Technology (KAUST) and University of Coimbra, Saudi Arabia) Regularity for strongly coupled systems	
18:00-18:30	**Maria Michaela MM Porzio** (Sapienza Universit\`a di Roma, Italy) On the regularity of the solutions to some evolutionary equations of p-Laplacian type	

SS 103	**Elliptic, parabolic problems and functional inequalities** Organizer(s): Ida de Bonis , Gianpaolo Piscitelli	**Capital Suite 10**

17:00-17:30	**Anna Mercaldo** (University of Naples Federico II, Italy) Existence and uniqueness results for elliptic equations with general growth in the gradient
17:30-18:00	**Maria Rosaria M Posteraro** (Universita di Napoli Federico II, Italy) Isoperimetric sets for weighted twisted eigenvalues
18:00-18:30	**Salvatore D`Asero** (Diaprtimento di Matematica e Informatica - Catania University, Italy) Existence of bounded solutions for a class of fourth-order elliptic equations

SS 112	**Controllability and Stabilization of Partial Differential Equations** Organizer(s): Long Hu , Qi Lü , Zhiqiang Wang	**Capital Suite 11 B**
17:00-17:30	**Qiong Zhang** (Beijing Institute of Technolog, Peoples Rep of China) Stability Analysis of an Abstract System with Local Damping	

SS 118	**Recent advances in mathematical finance** Organizer(s): Yerkin Kitapbayev , Giorgio Consigli , Jorge Zubelli	**Capital Suite 3**
17:00-17:30	**ahmed alqubaisi** (khalifa university, United Arab Emirates) Investments in Mining Farms under Uncertainty: Real Options Approach	
17:30-18:00	**Giorgio Consigli** (Khalifa University of Science and Technology, United Arab Emirates) Dynamic portfolio risk budgeting through reinforcement learning	

SS 128	**Recent Advances in Kinetic Theory and Related Applications** Organizer(s): Mohamed Lazhar Tayeb , Mohamed Ghattassi , Nader Masmoudi	**Capital Suite 21 C**
17:00-17:30	**Pierre-Emmanuel Jabin** (Pennsylvania State University, USA) The mean-field Limit of sparse networks of integrate and fire neurons	
17:30-18:00	**Nicola N De Nitti** (EPFL, Switzerland) Optimal transport of measures via autonomous vector fields	

SS 131	**Recent progress on singularities formations of some evolution partial differential equations** Organizer(s): Mohamed Ali Hamza , Nejla Nouaili , Hatem Zaag	**Capital Suite 1**
17:00-17:30	**Takiko Sasaki** (Musashino Unversity, Japan) The lifespan of classical solutions of one dimensional wave equations with semilinear terms of the spatial derivative	
17:30-18:00	**Jie Liu** (New York University Abu Dhabi, United Arab Emirates) Blow-up phenomena in one-dimensional derivative nonlinear wave equations	
18:00-18:30	**Jean-Pierre Eckmann** (University of Geneva, Switzerland) Nonlinear wave equations in Cosmology: Some results, but mostly open problems	

SS 136	**Analysis and Applications of the Boltzmann equation** Organizer(s): Renjun Duan , Robert Strain	**Capital Suite 8**
17:00-17:30	**Ricardo Alonso** (Texas A&M, USA) Thermalization rate for solutions to the Landau-Fermi-Dirac equation	
17:30-18:00	**Hongjun Yu** (School of Mathematical Sciences, South China Normal University, Peoples Rep of China) The solution of the steady Boltzmann equation	
18:00-18:30	**Zongguang Li** (The Hong Kong Polytechic University, Hong Kong) Polynomial tail solutions for Boltzmann equation in the whole space	

Parallel Session 13 :: Thursday, 12/19, 8:00-9:30

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
8:00-8:30	**JAEWOOK AHN** (Dongguk University, Korea) Solution behaviors in chemotaxis-consumption systems with Dirichlet boundary conditions	
8:30-9:00	**Giuseppe Viglialoro** (Universit \\`a degli Studi di Cagliari, Italy) Some discussions regarding the seminal Keller-Segel model with positive total flux	

9:00-9:30	**Andrea Giorgini** (Politecnico di Milano, Italy) Analysis of a Navier-Stokes-Cahn-Hilliard system with unmatched densities and chemotaxis

SS 15	**On the dynamics of hyperbolic partial differential equations: theory and applications** Organizer(s): Salim Messaoudi , Athanasios Tzavaras , Tej Eddine Ghoul	**Capital Suite 21 A**
8:00-8:30	**Maurizio Grasselli** (Politecnico di Milano, Italy) A phase separation model for binary fluids with hereditary viscosity	
8:30-9:00	**Aissa Guesmia** (Lorraine University, France) On the well-posedness and stability for carbon nanotubes as coupled two Timoshenko beams with frictional dampings	
9:00-9:30	**Enzo Vitillaro** (Universit\\`a degli Studi di Perugia, Italy) The wave equation with acoustic boundary conditions on non-locally reacting surfaces	

SS 17	**New developments on nonlinear expectations** Organizer(s): Shige Peng , Juan Li	**Capital Suite 14**
8:00-8:30	**Shige Peng** (Shandong University, Peoples Rep of China) Nonlinear expectation algorithm in machine learning	
8:30-9:00	**Shuzhen Yang** (Shandong University, Peoples Rep of China) Value at risk model under sublinear expectation	
9:00-9:30	**Huilin Zhang** (Shandong University, Peoples Rep of China) A rough path approach to robust filtering	

SS 38	**Recent advances in the n-body problem** Organizer(s): Kuo-Chang Chen , Mitsuru Shibayama , Guowei Yu	**Capital Suite 15**
8:00-8:30	**Kuo-Chang Chen** (National Tsing Hua University, Taiwan) On behavior of solutions near collision singularities	

8:30-9:00	**Kazuyuki Yagasaki** (Kyoto University, Japan) Nonintegrability of dynamical systems near degenerate equilibria
9:00-9:30	**Shoya Motonaga** (Ritsumeikan University, Japan) Existence and nonexistence of first integrals near integral curves with finite time

SS 42	**High-order complex systems structure and modeling** Organizer(s): Zhiyuan Dong , Yi Zhao	**Capital Suite 11 A**
8:00-8:30	**Zhongke Gao** (Tianjin University, Peoples Rep of China) Complex network-based information fusion theory and its applications	
8:30-9:00	**Jiandong Zhu** (Nanjing Normal University, Peoples Rep of China) Synchronization of a high-dimensional Kuramoto model with nonidentical oscillators	
9:00-9:30	**Xuefang Li** (Sun Yat-sen University, Peoples Rep of China) Variable Convergence Rate Control of Nonlinear Impulsive Systems: A Fully Actuated System Approach	

SS 51	**Integrable Aspects and Asymptotics of Nonlinear Evolution Equations** Organizer(s): Changzheng Qu , Xingbiao Hu , Qingping Liu	**Conference Hall B (B)**
8:30-9:00	**Jing Kang** (Northwest University, Peoples Rep of China) Dispersive revival phenomena for two-dimensional dispersive evolution equations	
9:00-9:30	**Matteo Casati** (Ningbo University, Peoples Rep of China) Hamiltonian structures for differential-difference equations: classification and cohomology	

SS 56	**Local and nonlocal diffusion in mathematical biology** Organizer(s): Jakub Skrzeczkowski , Jose Antonio Carrillo , Yihong Du	**Capital Suite 9**
8:00-8:30	**Zhi-An Wang** (The Hong Kong Polytechnic University, Hong Kong) Boundary-layer problem for the singular Keller-Segel model	

8:30-9:00	**Hiroshi Matsuzawa** (Kanagawa University, Japan) Spreading phenomenon in a nonlinear Stefan problem with a certain class of multistable nonlinearity
9:00-9:30	**Junping Shi** (College of William & Mary, USA) Biological aggregations from spatial memory and nonlocal advection

SS 65	**Recent Progress in Free Boundary Problems in Fluid Flow and Fluid-Structure Interactions** Organizer(s): Amjad Tuffaha , Han Liu	**Capital Suite 12 B**
8:00-8:30	**Barbara Kaltenbacher** (University of Klagenfurt, Austria) On a Nonlinear Acoustics - Structure Interaction Model	
8:30-9:00	**Sourav Mitra** (IIT Indore, India) Variational theory of a incompressible heat conducting bi-fluid system involving an elastic interface.	
9:00-9:30	**Hantaek Bae** (Ulsan National Institute of Science and Technology, Korea) Global Well-posedness of Viscous Water-Waves	

SS 69	**New developments in symplectic dynamics** Organizer(s): Huagui Duan , Jun Zhang	**Conference Hall B (A)**
8:00-8:30	**Jun ZHANG** (University of Science and Technology of China, Peoples Rep of China) Givental`s non-linear Maslov index via Floer cones	
8:30-9:00	**Huagui Duan** (Nankai University, Peoples Rep of China) On the minimal number of closed geodesics on positively-curved spheres	
9:00-9:30	**Qi Feng** (University of Science and Technology of China, Peoples Rep of China) Spectrally-large scale geometry and symplectic squeezing in cotangent bundle of torus	

SS 72	**Nonlinear elliptic PDEs** Organizer(s): Florin Catrina , Rushun Tian , Zhi-Qiang Wang	**Capital Suite 12 A**

8:00-8:30	**Alessio Fiscella** (Universidade Estadual de Campinas, Brazil) The Br\`ezis-Nirenberg problem for mixed local-nonlocal quasilinear operators
8:30-9:00	**Jiankang Xia** (Northwestern Polytechnical University, Peoples Rep of China) Multi-bump solutions for the critical Choquard equation
9:00-9:30	**Yiqing Li** (Shandong University of science and technology, Peoples Rep of China) Critical planar Schrodinger-Poisson equations: existence, multiplicity and concentration

SS 81	**Reaction-(cross-)diffusion models in mathematical biology** Organizer(s): Xueli Bai , Suying Liu , Michael Winkler	**Capital Suite 13**
8:00-8:30	**Xiaoxin Zheng** (Beihang University, Peoples Rep of China) Localization in space and Cauchy problem of chemotaxis system with logistic source	
8:30-9:00	**Patrick Tolksdorf** (Karlsruhe Institute of Technology, Germany) The Keller-Segel-Navier-Stokes system in bounded Lipschitz domains	
9:00-9:30	**QIAN ZHANG** (Hebei University, Peoples Rep of China) Global well-posedness for the 2D chemotaxis-Euler system with logistic source for large initial data	

SS 93	**Recent trends in elliptic and parabolic equations** Organizer(s): Zu Gao , Cecilia Cavaterra	**Capital Suite 4**
8:00-8:30	**Nicola Soave** (Universit\`a degli Studi di Torino, Italy) On the boundary behavior of solutions to fractional elliptic problems	
8:30-9:00	**Luca Franzoi** (University of Milan, Italy) Quasi-periodic steady invariant structures in inviscid incompressible fluids	
9:00-9:30	**Said BENACHOUR** (Institut Elie Cartan - Universit\`e de Lorraine.fr, France) Very Singular Solution to nonlinear equation with absorption	

SS 96	**Evolutionary Equations Systems** Organizer(s): Irene Benedetti , Francesca Dalbono , Elisa Sovrano , Valentina Taddei	**Capital Suite 5**
8:00-8:30	**Anna Ochal** (Jagiellonian University, Poland) A convergence criterion for elliptic quasivariational inequalities	
8:30-9:00	**Nsoki Mavinga** (Swarthmore College, USA) Weak Solutions of Nonlinear Elliptic Problems with Growth up to Critical Exponents	
9:00-9:30	**Diego Berti** (University of Turin, Italy) Regularity results on 3D viscous Tropical Climate Models	

SS 103	**Elliptic, parabolic problems and functional inequalities** Organizer(s): Ida de Bonis , Gianpaolo Piscitelli	**Capital Suite 10**
8:00-8:30	**Alberto Cialdea** (University of Basilicata, Italy) Functional dissipativity of partial differential operators	
8:30-9:00	**Giuseppa Rita Cirmi** (University of Catania, Italy) Elliptic problems with W^{1,1}_0- solutions	
9:00-9:30	**Giorgio G Saracco** (Universit\\`{a} di Firenze, Italy) Existence of minimizers of Cheeger`s functional among convex sets	

SS 104	**Recent Developments in High-Order Numerical Methods for Multiscale/Multiphysics Partial Differential Equations** Organizer(s): Zheng Chen , Lin Mu , Yan Jiang	**Capital Suite 2**
8:00-8:30	**Jianxian QIU** (Xiamen University, Peoples Rep of China) A moment-based Hermite WENO scheme with unified stencils for hyperbolic conservation laws	
8:30-9:00	**Qiaolin He** (Sichuan University, Peoples Rep of China) Modelling of compressible multi-component two-phase flow with multi-component Navier boundary condition	
9:00-9:30	**Xiang Wang** (Jilin University, Peoples Rep of China) The Finite volume element method with global conservation law	

SS 109	**Differential, Difference, and Integral Equations: Techniques and Applications** Organizer(s): Jeffrey Lyons , Wenying Feng	**Conference Hall B (D)**
8:30-9:00	**Jeffrey Lyons** (The Citadel, USA) Differentiation of Solutions of Caputo Boundary Value Problems with Respect to Boundary Data	
9:00-9:30	**Ratnasingham Shivaji** (University of North Carolina at Greensboro, USA) On the effects of density-dependent emigration on ecological models with logistic and weak Allee type growth terms	

SS 114	**New developments in Analysis of Mathematical Fluid Dynamics** Organizer(s): Dongjuan Niu , Zhenhua Guo , Chunjing Xie	**Capital Suite 6**
8:00-8:30	**Mingjie LI** (Minzu University of China, Peoples Rep of China) Stability of Stationary Solutions to the Nonisentropic Euler--Poisson System in a Perturbed Half Space	
8:30-9:00	**Jitao Liu** (Beijing University of Technology, Peoples Rep of China) Asymptotic stability for n-dimensional magnetohydrodynamic equations	
9:00-9:30	**Yu Mei** (Northwestern Polytechnical University, Peoples Rep of China) Vanishing viscosity limits for the free boundary problem of compressible flows	

SS 118	**Recent advances in mathematical finance** Organizer(s): Yerkin Kitapbayev , Giorgio Consigli , Jorge Zubelli	**Capital Suite 3**
8:00-8:30	**Diogo Gomes** (KAUST, Saudi Arabia) Price Formation Models with Common Noise: A Variational Approach	
8:30-9:00	**Giulio Occhionero** (Al Ramz PSJC, United Arab Emirates) The Boltzmann Equation in Finance	
9:00-9:30	**Dmitry Muravey** (ADIA, United Arab Emirates) Multilayer heat equations and their solutions via oscillating integral transforms	

SS 121	**Recent developments on nonlinear geometric PDEs** Organizer(s): Angela Pistoia , Pierpaolo Esposito , Giusi Vaira	**Capital Suite 1**
8:00-8:30	**Susanna Terracini** (University of Turin, Italy) A priori regularity estimates for equations degenerating on nodal sets	
8:30-9:00	**Marcello Lucia** (City University of New York, USA) A mountain pass Theorem and moduli space of minimal immersions	
9:00-9:30	**Dimitri Mugnai** (Tuscia University, Italy) A new look at beams	

SS 127	**Recent Advances in Inverse Problems, Imaging, and Their Applications** Organizer(s): Gang Bao , Peijun Li	**Capital Suite 21 B**
8:00-8:30	**Josselin Garnier** (Ecole polytechnique, France) Reduced order model approach for imaging with waves	
8:30-9:00	**Ting Zhou** (Zhejiang University, Peoples Rep of China) INVERSE PROBLEMS FOR NON-LINEAR FRACTIONAL MAGNETIC SCHRODINGER EQUATIONS	
9:00-9:30	**Guanghui Hu** (Nankai University, Peoples Rep of China) Time-domain and frequency-domain methods to inverse moving source problems	

SS 128	**Recent Advances in Kinetic Theory and Related Applications** Organizer(s): Mohamed Lazhar Tayeb , Mohamed Ghattassi , Nader Masmoudi	**Capital Suite 21 C**
8:30-9:00	**Cheng Yu** (University of Florida, USA) Non-uniqueness for continuous solutions to 1D hyperbolic systems	
9:00-9:30	**Benjamin Anwasia** (New York University Abu Dhabi, United Arab Emirates) Derivation of the acoustic system for fermionic condensates from the Boltzmann-Fermi-Dirac equation	

SS 136	**Analysis and Applications of the Boltzmann equation** Organizer(s): Renjun Duan , Robert Strain	**Capital Suite 8**
8:00-8:30	**Shuangqian Liu** (Central China Normal University, Peoples Rep of China) The spatially inhomogeneous Vlasov-Nordstr\{o}m-Fokker-Planck system in the intrinsic weak diffusion regime	
8:30-9:00	**Robert Strain** (University of Pennsylvania, USA) Global regularity for the Rayleigh-Taylor unstable Muskat bubble problem with critical regularity	
9:00-9:30	**Qinghua Xiao** (Innovation Academy for Precision Measurement Science and Technology, CAS, Peoples Rep of China) Classical limit of the relativistic Cucker-Smale model	

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
8:00-8:20	**Gabriela Planas** (Universidade Estadual de Campinas, Brazil) Decay rate for 4D energy-critical nonlinear heat equation in critical Sobolev spaces	
8:20-8:40	**David Zoltan Szabo** (Corvinus University of Budapest, Hungary) Optimal trading with regime switching: Numerical and analytic techniques applied to valuing storage in an electricity balancing market	
8:40-9:00	**Minha Yoo** (National institute for mathematical sciences, Korea) Homogenization of non-divergence type equation with oscillating coefficients defined on a highly oscillating obstacles.	
9:00-9:20	**Anar Assanova** (Institute of Mathematics and Mathematical Modeling, Kazakhstan) HYPERBOLIC PARTIAL DIFFERENTIAL EQUATIONS WITH DISCRETE EFFECT MEMORY AND ITS APPLICATION	
	waldo w arriagada (Wenzhou-Kean University, Peoples Rep of China) Properties of a ϕ-Laplacian]{Asymptotic properties of a ϕ-Laplacian	

Parallel Session 14 :: Thursday, 12/19, 13:00-15:00

TS 1	**Reaction-diffusion equations and aggregation, chemotaxis and nonlocal dispersal** Organizer(s): Yihong Du , Michael Winkler	**Conference Hall A**
14:00-14:45	**Michael Winkler** (University of Paderborn, Germany) Facets of complexity in chemotactic aggregation	

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
13:00-13:30	**Tomomi Yokota** (Tokyo University of Science, Japan) Global existence and stabilization of weak solutions to a degenerate chemotaxis system arising from tumor invasion	
13:30-14:00	**Yan Li** (Nanjing University of Posts and Telecommunications, Peoples Rep of China) On a chemotaxis-May-Nowak Model for virus infection with superlinear dampening	
14:00-14:30	**Shohei Kohatsu** (Tokyo University of Science, Japan) Global solvability and immediate regularization of measure-type population densities in a flux-limited Keller--Segel system	
14:30-15:00	**Feng Dai** (Huazhong University of Science and Technology, Peoples Rep of China) Some results on Keller-Segel(-Navier)-Stokes model with indirect signal production	

SS 7	**Lie Symmetries, Conservation Laws, and Other Approaches in Solving Nonlinear Differential Equations** Organizer(s): Chaudry Masood Khalique , Wen-Xiu Ma , Maria Luz Gandariasa	**Conference Hall B (C)**
13:00-13:30	**Wen-Xiu Ma** (University of South Florida, USA) Nonlocal integrability and solitons	

13:30-14:00	**Sudipto Roy Choudhury** (University of Central Florida, USA) Distributed Position and Velocity Delay Effects in a Van der Pol System with Time-periodic Feedback
14:00-14:30	**Chaudry Masood Khalique** (North-West University, Mafikeng Campus, So Africa) A study of a generalized nonlinear (3+1)-D breaking soliton equation
14:30-15:00	**Javed I Siddique** (Penn State York, USA) Capillary rise in partially saturated rigid porous media

SS 17	**New developments on nonlinear expectations** Organizer(s): Shige Peng , Juan Li	**Capital Suite 14**
13:00-13:30	**Kai Du** (Fudan University, Peoples Rep of China) Sequential propagation of chaos: theory and algorithms	
13:30-14:00	**Falei Wang** (Shandong University, Peoples Rep of China) Quadratic Mean-Field Reflected BSDEs	
14:00-14:30	**Guomin Liu** (Nankai University, Peoples Rep of China) Maximum principle for recursive optimal control problem of stochastic delayed evolution equations	
14:30-15:00	**Xinpeng Li** (Shandong University, Peoples Rep of China) Upper and lower covariance under sublinear expectation	

SS 38	**Recent advances in the n-body problem** Organizer(s): Kuo-Chang Chen , Mitsuru Shibayama , Guowei Yu	**Capital Suite 15**
13:00-13:30	**Masaya Saito** (University of Nagasaki, Siebold, Japan) Longterm inspection of orbits of a highly inclined triples system: a hierarchy exchange process including the ZKL mechanism	
13:30-14:00	**Marian Gidea** (Yeshiva University, USA) Melnikov Method for Non-Conservative Perturbations of the Restricted Three-Body Problem	
14:00-14:30	**Ya-Lun Tsai** (National Chung Hsing University, Taiwan) Some results of the enumeration problems for point vortex equilibria	

14:30-15:00	**Zhifu Xie** (The University of Southern Mississippi, USA) Progress on four-body central configurations

SS 42	**High-order complex systems structure and modeling** Organizer(s): Zhiyuan Dong , Yi Zhao	**Capital Suite 11 A**
13:00-13:30	**Shujun Wang** (Shandong University, Peoples Rep of China) A Large-Population Stochastic Differential Game with Terminal State Constraint and Common Noise	
13:30-14:00	**Yingqi Zhu** (Harbin Institute of Technology, Shenzhen, Peoples Rep of China) Prescribed-time stabilization of a class of nonlinear systems based on fully actuated system approach	
14:00-14:30	**Zhiyuan Dong** (Harbin Institute of Technology, Shenzhen, Peoples Rep of China) On Poles and Zeros of Linear Quantum Systems	

SS 48	**Fluid dynamics and KAM theory** Organizer(s): Zineb Hassainia , Taoufik Hmidi , Riccardo Montalto	**Capital Suite 21 A**
13:00-13:30	**Angel Castro** (ICMAT-CSIC, Spain) Unstable vortices and non-uniqueness for 2D Euler and $\alpha-$SQG	
13:30-14:00	**Paolo Ventura** (Universita` degli Studi di Milano, Italy) Infinitely many isolas of modulational instability for Stokes waves	
14:00-14:30	**Emeric Roulley** (SISSA, Italy) Vortex patch motion in bounded domains	
14:30-15:00	**Haroune HH Houamed** (New York University Abu Dhabi, United Arab Emirates) Asymptotic behavior of perturbations of the Euler equations in Yudovics`s class	

SS 51	**Integrable Aspects and Asymptotics of Nonlinear Evolution Equations** Organizer(s): Changzheng Qu , Xingbiao Hu , Qingping Liu	**Conference Hall B (B)**

13:00-13:30	**Da-jun Zhang** (Shanghai University, Peoples Rep of China) The self-dual Yang-Mills equation: New solutions and related integrable structure
13:30-14:00	**Shoufu Tian** (China University of Mining and Technology, Peoples Rep of China) On the long-time asymptotic of the modified Camassa-Holm equation with nonzero boundary conditions in space-time solitonic regions
14:00-14:30	**Deng-Shan Wang** (Beijing Normal University, Peoples Rep of China) Self-similar Painlev\`{e} regions in long-time asymptotics of good Boussinesq equation and Sawada-Kotera equation
14:30-15:00	**Zhen Wang** (Beihang University, Peoples Rep of China) Numerical Computation for long time behavior for derivative nonlinear schrodinger eqution

SS 56	**Local and nonlocal diffusion in mathematical biology** Organizer(s): Jakub Skrzeczkowski , Jose Antonio Carrillo , Yihong Du	**Capital Suite 9**
13:00-13:30	**Piotr Gwiazda** (University of Warsaw, Poland) Stability of solutions of the porous medium equation with growth with respect to the diffusion exponent	
13:30-14:00	**Andrea Poiatti** (University of Vienna, Austria) A Navier-Stokes-Cahn-Hilliard system in 3D: well-posedness and nonlocal-to-local rates of convergence	
14:00-14:30	**Yuki Kaneko** (Kanto Gakuin University, Japan) Asymptotic behaviors of solutions to a reaction-diffusion equation with free boundaries	

SS 65	**Recent Progress in Free Boundary Problems in Fluid Flow and Fluid-Structure Interactions** Organizer(s): Amjad Tuffaha , Han Liu	**Capital Suite 12 B**
13:00-13:30	**Hui Li** (New York University Abu Dhabi, United Arab Emirates) Stability of the Stokes immersed boundary problem with bending and stretching energy	

13:30-14:00	**Omar Lazar** (New-York Abu Dhabi university, United Arab Emirates) On the dynamics of the interface between two incompressible fluids in a porous media

SS 69	**New developments in symplectic dynamics** Organizer(s): Huagui Duan , Jun Zhang	**Conference Hall B (A)**
13:00-13:30	**Jinxin Xue** (Tsinghua University, Peoples Rep of China) Dynamics of composite symplectic Dehn twists	
13:30-14:00	**Zhengyi Zhou** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Symplectic camel herd	
14:00-14:30	**Oliver Edtmair** (ETH Zurich, Austria) Symplectic packing stability	
14:30-15:00	**Richard Hind** (University of Notre Dame, USA) The shape invariant of toric domains	

SS 81	**Reaction-(cross-)diffusion models in mathematical biology** Organizer(s): Xueli Bai , Suying Liu , Michael Winkler	**Capital Suite 13**
13:00-13:30	**Yuxiang Li** (School of Mathematics, Southeast University, Peoples Rep of China) Critical blow-up exponent in a nonlinear chemotaxis system with indirect signal production	
13:30-14:00	**Chunhua Jin** (South China Normal University, Peoples Rep of China) Long time dynamics for the Cauchy problem of the predator-prey model with cross-diffusion	
14:00-14:30	**Jingyu Li** (Northeast Normal University, Peoples Rep of China) Traveling waves to a logarithmic chemotaxis model with fast diffusion and singularities	
14:30-15:00	**Leyun Wu** (South China University of Technology, Peoples Rep of China) Liouville theorem for the fractional reaction-diffusion equations	

SS 93	**Recent trends in elliptic and parabolic equations** Organizer(s): Zu Gao , Cecilia Cavaterra	**Capital Suite 4**
13:00-13:30	**Elena Beretta** (NYUAD, United Arab Emirates) On Some Inverse Boundary Value Problems Arising from Cardiac Electrophysiology	
13:30-14:00	**Aleks Jevnikar** (University of Udine, Italy) On the bifurcation diagram for free boundary problems arising in plasma physics	
14:00-14:30	**yanyan guo** (Central China Normal University, Peoples Rep of China) a system of superlinear elliptic equations in a cylinder	
14:30-15:00	**Dimitri Mugnai** (Tuscia University, Italy) Bounded solutions for Leray-Lions equations of $(p, q)-$type with potentials	

SS 96	**Evolutionary Equations Systems** Organizer(s): Irene Benedetti , Francesca Dalbono , Elisa Sovrano , Valentina Taddei	**Capital Suite 5**
13:00-13:30	**Calogero Vetro** (University of Palermo, Italy) On a second order periodic system with multivalued perturbation	
13:30-14:00	**Alina I Lazu** ("Gheorghe Asachi" Technical University of Iasi, Romania) Estimates for the minimum time function	
14:00-14:30	**Giulia Duricchi** (Universita` degli Studi di Firenze, Italy) Impulsive and Dirichlet problems driven by second order differential inclusions.	
14:30-15:00	**Giovanni Giliberti** (University of Modena and Reggio Emilia (Unimore), Italy) Delay evolution equations with nonlocal multivalued initial conditions	

SS 103	**Elliptic, parabolic problems and functional inequalities** Organizer(s): Ida de Bonis , Gianpaolo Piscitelli	**Capital Suite 10**
13:00-13:30	**Gloria Paoli** (University of Napoli Federico II, Italy) A stability result for the first Robin-Neumann eigenvalue: A double perturbation approach	

13:30-14:00	**Flavia Lanzara** (Mathematics Department, Sapienza University, Rome, Italy) Generic configurations in 2D strongly competing systems
14:00-14:30	**Raffaela Capitanelli** (Sapienza University of Roma, Italy) On the Laplace equation with non local dynamical boundary conditions
14:30-15:00	**Vincenzo Ferone** (Universit\`a di Napoli Federico II, Italy) Symmetrization results for general nonlocal linear elliptic and parabolic problems

SS 104	**Recent Developments in High-Order Numerical Methods for Multiscale/Multiphysics Partial Differential Equations** Organizer(s): Zheng Chen , Lin Mu , Yan Jiang	**Capital Suite 2**
13:00-13:30	**xinlong feng** (xinjiang university, Peoples Rep of China) Compact difference finite element method for high-dimensional convection-diffusion equations	
13:30-14:00	**Jilu Wang** (Harbin Institute of Technology (Shenzhen), Peoples Rep of China) Optimal L2 error estimates of unconditionally stable FE schemes for the Cahn-Hilliard-Navier-Stokes system	
14:00-14:30	**Ruishu Wang** (Jilin University, Peoples Rep of China) A penalty free weak Galerkin finite element method on quadrilateral meshes	
14:30-15:00	**Seulip Lee** (Tufts University, USA) Stabilized numerical simulations for the transport equation in a fluid	

SS 109	**Differential, Difference, and Integral Equations: Techniques and Applications** Organizer(s): Jeffrey Lyons , Wenying Feng	**Conference Hall B (D)**
13:00-13:30	**Wenying Feng** (Trent University Durham GTA, Canada) Existence and uniqueness of solutions for integral equations in b-metric and generalized b-metric spaces	
13:30-14:00	**Jelena Manojlovic** (University of Nis, Faculty of Science and Mathematics, Department of Mathematics, Yugoslavia) Asymptotic Analysis of Nonlinear Second Order Differential, Difference and Fractional Differential Equations in the Framework of Regular Variation	

14:00-14:30	**Yuya Tanaka** (Department of Mathematical Sciences, Kwansei Gakuin University, Japan) Finite-time blow-up in a three-dimensional chemotaxis-May--Nowak model
14:30-15:00	**Feliz M Minhos** (University of Evora, Portugal) Semi-linear impulsive higher-order coupled systems with generalized impulsive effects

SS 114	**New developments in Analysis of Mathematical Fluid Dynamics** Organizer(s): Dongjuan Niu , Zhenhua Guo , Chunjing Xie	**Capital Suite 6**
13:00-13:30	**Dongjuan Niu** (Capital Normal University, Peoples Rep of China) Stability and large-time behavior of nD tropical climate model with zero thermal dissipation	
13:30-14:00	**Tianyi Wang** (Wuhan University of Technology, Peoples Rep of China) Isothermal Limit of Entropy Solutions of the Euler Equations for Isentropic Gas Dynamics	
14:00-14:30	**Huimin Yu** (Shandong Normal University, Peoples Rep of China) Time-periodical solution to compressible Euler Equation	
14:30-15:00	**Qian Yuan** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Incompressible limit of viscous vortex sheets with large data	

SS 121	**Recent developments on nonlinear geometric PDEs** Organizer(s): Angela Pistoia , Pierpaolo Esposito , Giusi Vaira	**Capital Suite 1**
13:00-13:30	**Isabella Ianni** (Sapienza Universita di Roma, Italy) Uniqueness and nondegeneracy for fractional Dirichlet problems	
13:30-14:00	**Giovanni G Catino** (Politecnico di Milano, Italy) Rigidity results for critical elliptic equations	
14:00-14:30	**Rafael Lopez-Soriano** (Universidad de Granada, Spain) A double prescription curvature problem	

14:30-15:00	**Antonio J. Fernandez** (Universidad Autonoma de Madrid, Spain) Nonradial solutions to competitive critical elliptic systems in 3d

SS 126	**Machine Learning and New Framework for Solving Partial Differential Equations** Organizer(s): Jingrun Chen , Haijun Yu , Shuo Zhang	**Capital Suite 3**
13:00-13:30	**Maria K Cameron** (University of Maryland, College Park, USA) Learning coarse-grained models and quantifying transitions between metastable states in molecules and clusters of interacting particles	
13:30-14:00	**Wei Gong** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) A novel shape optimization approach for source identification in elliptic equations	
14:00-14:30	**Xia Ji** (Beijing institute of technology, Peoples Rep of China) A new method using C0IPG for the biharmonic eigenvalue problem	
14:30-15:00	**Nitu Kumari** (Indian Institute of Technology Mandi, India) Solving Reaction Diffusion Equation Using Transformer-based Koopman Autoencoder	

SS 127	**Recent Advances in Inverse Problems, Imaging, and Their Applications** Organizer(s): Gang Bao , Peijun Li	**Capital Suite 21 B**
13:00-13:30	**Xu Wang** (Chinese Academy of Sciences, Peoples Rep of China) Inverse random potential scattering for stochastic polyharmonic wave equations	
13:30-14:00	**Xiaodong Liu** (Academy of Mathematics and Systems Science of Chinese Academy of Sciences, Peoples Rep of China) Direct sampling methods for inverse source problems	
14:00-14:30	**Haiwen Zhang** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Iterative regularized contrast source inversion type methods for the inverse medium scattering problem	
14:30-15:00	**Heping Dong** (School of Mathematics, Jilin University, Peoples Rep of China) Uniqueness of an inverse cavity scattering problem for the time-harmonic biharmonic wave equation	

SS 128	**Recent Advances in Kinetic Theory and Related Applications** Organizer(s): Mohamed Lazhar Tayeb , Mohamed Ghattassi , Nader Masmoudi	**Capital Suite 21 C**
13:00-13:30	**Simone Fagioli** (University of L`Aquila, Italy) Small inertia limit for coupled kinetic swarming models	
13:30-14:00	**Changhui Tan** (University of South Carolina, USA) Kinetic and hydrodynamic flocking models with nonlocal velocity alignment	
14:00-14:30	**Weiren Zhao** (New York University Abu Dhabi, United Arab Emirates) Landau damping, collisionless limit, and stability threshold for the Vlasov-Poisson equation with nonlinear Fokker-Planck collisions	
14:30-15:00	**Jin Woo Jang** (POSTECH, Korea) Compactness and existence theory for a general class of stationary radiative transfer equations	

SS 129	**Inverse problems for nonlocal / nonlinear PDEs** Organizer(s): Barbara Kaltenbacher , William Rundell	**Capital Suite 12 A**
13:00-13:30	**Bangti Jin** (The Chinese University of Hong Kong, Hong Kong) Inverse problems for subdiffusion with an unknown terminal time	
13:30-14:00	**Zhi Zhou** (The Hong Kong Polytechnic University, Hong Kong) Numerical Reconstruction of Potential and Initial Data in Subdiffusion using Observations at Two Time Levels	
14:00-14:30	**Madi Yergaliyev** (Institute of Mathematics and Mathematical Modeling, Kazakhstan) Inverse problems for nonlinear parabolic equations in domains with moving boundaries	
14:30-15:00	**Khonatbek Khompysh** (Institute of Mathematics and Mathematical Modeling, Kazakhstan) Inverse problems for parabolic and pseudo-parabolic equations with p-Laplacian diffusion and damping	

SS 136	**Analysis and Applications of the Boltzmann equation** Organizer(s): Renjun Duan , Robert Strain	**Capital Suite 8**
13:00-13:30	**Satoshi Taguchi** (Kyoto University, Japan) Interplay of inertia and rarefaction in weakly nonlinear rarefied gas flow	
13:30-14:00	**Liu Liu** (Chinese University of Hong Kong, Peoples Rep of China) Analysis and numerical methods for the Boltzmann equation with uncertainties	
14:00-14:30	**Shuaikun WANG** (Shandong University, Peoples Rep of China) Convergence to self-similar solution of the Boltzmann equation with shear flow	
14:30-15:00	**Dongcheng Yang** (South China University of Technology, Peoples Rep of China) KdV limit for the Vlasov-Poisson-Landau system	

CS 3	**Modeling, Math Biology and Math Finance**	**Capital Suite 11 B**
13:00-13:20	**Rushi P Bhatt** (Montclair State University, USA) QUANTITATIVE PREVENTIVE APPROACHES TO DIABETES: MATHEMATICAL MODELING AND ANALYSIS	
13:20-13:40	**Ahuod Alsheri** (University of Bisha, Saudi Arabia) IMPACT OF SEASONALITY AND VERTICAL TRANSMISSION IN MOSQUITOES POPULATION IN THE DYNAMICS OF DENGUE DISEASE	
13:40-14:00	**Nora Juhasz** (University of Szeged, Hungary) Probability of early infection extinction depends linearly on the virus clearance rate	
14:00-14:20	**Ho Man Tai** (Dublin City University, Ireland) Inter-temporal Defined Contribution Pension Management	
14:20-14:40	**Yurui Wang** (Harbin Institute of Technology, Shenzhen, Peoples Rep of China) A reduced inversion ZNN method for solving discrete periodic Riccati matrix equations	
14:40-15:00	**Gulden Y. Murzabekova** (Seifullin University, Kazakhstan) Data-Driven Models for Wheat Yield Optimization	

Parallel Session 15 :: Thursday, 12/19, 15:15-17:15

TS 1	**Reaction-diffusion equations and aggregation, chemotaxis and nonlocal dispersal** Organizer(s): Yihong Du , Michael Winkler	**Conference Hall A**
15:00-15:45	**Jian Fang** (Harbin Institute of Technology, Peoples Rep of China) A delay-induced nonlocal problem with free boundary	
15:45-16:30	**Wenxian Shen** (, USA) Global existence and spatial spreading speeds in chemotaxis systems with logistic source on $\mathbb{R}^N$	

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
15:15-15:45	**Alessandro Columbu** (Universit\`a degli Studi di Cagliari, Italy) Boundedness in a class of Keller--Segel models with dissipative gradient terms	
15:45-16:15	**Wenji Zhang** (Hunan University of Science and Technology, Peoples Rep of China) On a Keller-Segel chemotaxis system with flux limitation and nonlinear signal production	
16:15-16:45	**Xueyan Tao** (Ocean University of China, Peoples Rep of China) Well-posedness results on an oncolytic virotherapy model	
16:45-17:15	**Silvia Frassu** (University of Cagliari, Italy) Properties of given and detected unbounded solutions to a class of chemotaxis models	

SS 3	**Recent Mathematical Progress in Boundary Layer Problems** Organizer(s): Zhifei Zhang , Nader Masmoudi , Weiren Zhao	**Capital Suite 12 B**
15:15-15:45	**Marco Sammartino** (University of Palermo, Italy) INTERACTIVE BOUNDARY LAYER THEORY	

15:45-16:15	**Tak Kwong Wong** (The University of Hong Kong, Hong Kong) On the characterization, existence and uniqueness of steady solutions to the hydrostatic Euler equations in a nozzle
16:15-16:45	**Xianpeng Hu** (The Hong Kong Polytechnic University, Peoples Rep of China) Incompressible limit of compressible systems in $\R^3$
16:45-17:15	**Mohamed Ghattassi** (New York University Abu Dhabi, United Arab Emirates) Boundary Layer Analysis in Diffusive Limits of Radiative Heat Transfer System

SS 38	**Recent advances in the n-body problem** Organizer(s): Kuo-Chang Chen , Mitsuru Shibayama , Guowei Yu	**Capital Suite 15**
15:15-15:45	**Yuika Kajihara** (Kyoto University, Japan) Braids, metallic ratios and periodic solutions of the 2n-body problem	
15:45-16:15	**Taiga T Kurokawa** (Kyoto University, Japan) Existence of transit orbits in the planar restricted 3-body problem via variational methods	
16:15-16:45	**Bo-Yu Pan** (Department of Applied Mathematics, National Chung Hsing University, Taiwan, Taiwan) Distance estimates for action-minimizing solutions of the n-body problem	
16:45-17:15	**Mitsuru Shibayama** (Kyoto University, Japan) Variational Construction of Orbits Realizing Symbolic Sequences in the Planar Sitnikov Problem	

SS 43	**Hamiltonian Dynamics and Celestial Mechanics** Organizer(s): Zhifu Xie , Marian Gidea , Ernesto Perez-Chavela	**Capital Suite 5**
16:45-17:15	**Fengying Li** (Southwestern University of Finance and Economics, Peoples Rep of China) A generalized mountain pass lemma with a closed subset for locally Lipschitz functionals	

SS 48	**Fluid dynamics and KAM theory** Organizer(s): Zineb Hassainia , Taoufik Hmidi , Riccardo Montalto	**Capital Suite 21 A**

15:15-15:45	**Mimi Dai** (University of Illinois at Chicago, USA) Onsager conjecture for SQG
15:45-16:15	**Liutang Xue** (Beijing Normal University, Peoples Rep of China) Doubly connected V-states for the active scalar equations
16:15-16:45	**Gennaro Ciampa** (University of L`Aquila, Italy) On the vanishing viscosity limit and propagation of regularity for the 2D Euler equations
16:45-17:15	**Shulamit Terracina** (SISSA, Italy) Large amplitude traveling waves for the nonresistive MHD system

SS 51	**Integrable Aspects and Asymptotics of Nonlinear Evolution Equations** Organizer(s): Changzheng Qu , Xingbiao Hu , Qingping Liu	**Conference Hall B (B)**
15:15-15:45	**Ji Lin** (Zhejiang Normal University, Peoples Rep of China) Variable Separation Approach and Abundant Nondegenerate Solitons	
15:45-16:15	**Chunxia Li** (Capital Normal University, Peoples Rep of China) Construction and solutions of the semi-discrete Toda and sine-Gordon equations	
16:15-16:45	**Ruomeng Li** (Zhengzhou University, Peoples Rep of China) Theta-function oscillatory solitons of integrable equations	
16:45-17:15	**Yunqing Yang** (Zhejiang University of Science and Technology, Peoples Rep of China) Nonlinear localized excitation on the elliptic periodic wave background	

SS 58	**Recent Advances in Numerical Methods for Partial Differential Equations** Organizer(s): Jun Hu , Weiying Zheng , Ran Zhang	**Capital Suite 21 C**
15:15-15:45	**Jun Hu** (Peking University, Peoples Rep of China) A Construction of C^r Conforming Finite Element Spaces in Any Dimension	
15:45-16:15	**Weying Zheng** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) A new p-multigrid method for elliptic problems	

16:15-16:45	**Limin Ma** (Wuhan University, Peoples Rep of China) High accuracy algorithm and analysis for nonconforming element of Stokes equation
16:45-17:15	**Qingyu Wu** (Peking University, Peoples Rep of China) The condition for constructing a finite element from a superspline

SS 62	**Mathematical problems arising in recognizing the data value chain efficiency** Organizer(s): Zhenghui Li , Zhehao Huang	**Conference Hall B (D)**
15:15-15:45	**Zhehao Huang** (Guangzhou University, Peoples Rep of China) The dark side of financial digitalization: Corporate digital finance and speculative financial investments	
15:45-16:15	**Zhenghui Li** (Guangzhou University, Peoples Rep of China) Modelling the data generating mechanism of Chinese commodity market by identifying hidden information fow regimes	
16:15-16:45	**Tinghui Li** (Guangzhou University, Peoples Rep of China) Volatility spillover between carbon market and related markets in time-frequency domain based on BEKK-GARCH and complex network analysis	
16:45-17:15	**Gaoke Liao** (Guangzhou University, Peoples Rep of China) Does Corporate Greenwashing Affect Investors` Decisions?	

SS 64	**Blow-ups and dynamics of nonlinear parabolic equations** Organizer(s): Juncheng Wei , Yifu Zhou	**Capital Suite 11 A**
15:15-15:45	**Pavol Quittner** (Comenius University, Bratislava, Slovak Rep) Liouville theorems and universal estimates for superlinear parabolic problems	
15:45-16:15	**Tatsuki Kawakami** (Ryukoku University, Japan) Existence of solutions to a fractional semilinear heat equation in uniformly local weak Zygmund type spaces	
16:15-16:45	**Jin Takahashi** (Institute of Science Tokyo, Japan) Critical norm blow-up rates for the energy supercritical nonlinear heat equation	

16:45-17:15	**Giacomo Ageno** (University of Cambridge, England) Infinite time blow-up for the energy critical heat equation on bounded domains in low dimension

SS 69	**New developments in symplectic dynamics** Organizer(s): Huagui Duan , Jun Zhang	**Conference Hall B (A)**
15:15-15:45	**Cheuk Yu Mak** (University of Sheffield, England) Lagrangian link quasimorphisms and the non-simplicity of Hameomorphism group of surfaces	
15:45-16:15	**Jungsoo Kang** (Seoul National University, Korea) Rabinowitz Floer homology for prequantization bundles	
16:15-16:45	**Matthias Meiwes** (Tel Aviv University, Israel) Barcode entropy of Lagrangian submanifolds	
16:45-17:15	**Pedro AS Salomao** (SUSTech, Peoples Rep of China) Symplectic Dynamics and the Spatial Isosceles Three-Body Problem	

SS 81	**Reaction-(cross-)diffusion models in mathematical biology** Organizer(s): Xueli Bai , Suying Liu , Michael Winkler	**Capital Suite 13**
15:15-15:45	**Zhi-An Wang** (The Hong Kong Polytechnic University, Hong Kong) An SIS epidemic model with cross-diffusion: applications to quarantine measures	
15:45-16:15	**Haiyang Jin** (South China University of Technology, Peoples Rep of China) Boundedness criterion for the three-species food chain model with taxis mechanisms: analysis and applications	
16:15-16:45	**Mario Fuest** (Leibniz University Hannover, Germany) Shrinking vs. expanding: the evolution of spatial support in degenerate Keller-Segel systems	
16:45-17:15	**Duan Wu** (Paderborn university, Peoples Rep of China) The qualitative analysis to a doubly degenerate chemotaxis-consumption system on non-convex domain	

SS 93	**Recent trends in elliptic and parabolic equations** Organizer(s): Zu Gao , Cecilia Cavaterra	**Capital Suite 4**
15:15-15:45	**Zhao Liu** (Jiangxi Science and Technology Normal University, Peoples Rep of China) Radial symmetry and sharp asymptotic behaviors of nonnegative solutions to critical quasi-linear static Schrodinger-Hartree equation involving p-Laplacian	
15:45-16:15	**Erica Ipocoana** (Freie Universit\"{a}t Berlin, Germany) On a non-isothermal phase-field model for tumor growth	
16:15-16:45	**Cristina Tarsi** (Universit\`a degli Studi di Milano, Italy) Recent results on planar Schr\odinger Poisson equations	
16:45-17:15	**Edoardo Giovanni Tolotti** (University of Pavia, Italy) Stability of the Von K\`arm\`an regime for thin plates under Neumann boundary conditions	

SS 103	**Elliptic, parabolic problems and functional inequalities** Organizer(s): Ida de Bonis , Gianpaolo Piscitelli	**Capital Suite 10**
15:15-15:45	**Sandra Carillo** (Sapienza University of Rome, Italy) Materials with memory: regular, singular and ageing problems in integrodifferential equations arising in viscoelasticity	
15:45-16:15	**Maria Rosaria Lancia** (Sapienza University of Rome, Italy) Non autonomous fractional equations in extension domains: results and open problems	
16:15-16:45	**Simone Creo** (Sapienza University of Rome, Italy) Asymptotics for inverse problems in irregular domains	
16:45-17:15	**Gioconda G. Moscariello** (University of Naples Federico II, Italy) On a class of non-coercive elliptic and parabolic equations	

SS 104	**Recent Developments in High-Order Numerical Methods for Multiscale/Multiphysics Partial Differential Equations** Organizer(s): Zheng Chen , Lin Mu , Yan Jiang	**Capital Suite 2**

15:15-15:45	**Afaf Bouharguane** (University of Bordeaux, France) Discontinuous Galerkin approximation of the stationary Boussinesq system with a Navier-type boundary condition
15:45-16:15	**Kailiang Wu** (Southern University of Science and Technology, Peoples Rep of China) Recent Advances in High-Order Bound-Preserving Schemes and Theory
16:15-16:45	**Jie Du** (East China Normal University, Peoples Rep of China) Well-balanced positivity-preserving high-order discontinuous Galerkin methods for Euler equations with gravitation
16:45-17:15	**Qi Tao** (Beijing University of Technology, Peoples Rep of China) A local discontinuous Galerkin method for the Novikov equation

SS 120	**Congestion Games on Networks and the Price of Anarchy: Theory and Applications** Organizer(s): Armen Bagdasaryan , Mansur Saburov	**Capital Suite 14**
15:15-15:45	**Armen Bagdasaryan** (American University of the Middle East, Kuwait) Discrete-time replicator equations on Wardrop optimal transport networks	
15:45-16:15	**Tigran Bakaryan** (Institute of Mathematics NAS of RA, Center For Scientific Innovation and Education, Armenia) Mean-Field Game Multi-Population Opinion Dynamics Model	
16:15-16:45	**Ricardo L Ribeiro** (KAUST, Saudi Arabia) Exact Solutions to Stationary Mean-Field Games on Networks	
16:45-17:15	**Ovidiu O Bagdasar** (University of Derby, England) Traditional selfish routing models in network flow	

SS 121	**Recent developments on nonlinear geometric PDEs** Organizer(s): Angela Pistoia , Pierpaolo Esposito , Giusi Vaira	**Capital Suite 1**
15:15-15:45	**Luisa Moschini** (Sapienza, University of Rome, Italy) Liouville type theorems for anisotropic degenerate elliptic equations on strips	
15:45-16:15	**Gabriele Mancini** (University of Bari Aldo Moro, Italy) Existence and non-degeneracy of Liouville bubbles in dimension one.	

16:15-16:45	**Luca Battaglia** (Universita degli Studi Roma Tre, Italy) A mean field approach for the double curvature prescription problem
16:45-17:15	**Jing Wu** (Autonomous University of Madrid, Spain) Modica type estimates and curvature results for overdetermined elliptic problems

SS 125	**Analysis, Algorithms, and Applications of Neural Networks** Organizer(s): Juncai He , Xinliang Liu , Jinchao Xu	**Capital Suite 9**
15:15-15:45	**Fei Wang** (Xi`an Jiaotong University, Peoples Rep of China) Adaptive Growing Randomized Neural Networks for Solving Partial Differential Equations	
16:15-16:45	**Ruchi Guo** (Sichuan University, Peoples Rep of China) Structure-conforming Operator Learning for Geometric Inverse Problems	
16:45-17:15	**Pengzhan Jin** (Peking University, Peoples Rep of China) A deformation-based framework for learning solution mappings of PDEs defined on varying domains	

SS 126	**Machine Learning and New Framework for Solving Partial Differential Equations** Organizer(s): Jingrun Chen , Haijun Yu , Shuo Zhang	**Capital Suite 3**
15:15-15:45	**Tiexiang Li** (Southeast University, Peoples Rep of China) Ball Mass-preserving Parameterizations with Applications on Brain Tumor Segmentations	
15:45-16:15	**Yuwen Li** (Zhejiang University, Peoples Rep of China) Reduced Krylov Basis Methods	
16:15-16:45	**Haiyan Su** (Xinjiang University, Peoples Rep of China) Dual-robust iterative analysis of divergence-conforming IPDG FEM for thermally coupled inductionless MHD system	
16:45-17:15	**Haijun Yu** (Academy of Mathematics and Systems Science, Chinese Academy of Science, Peoples Rep of China) Deep Neural Networks with Rectified Power Units: Efficient Training and Applications in Partial Differential Equations	

SS 127	**Recent Advances in Inverse Problems, Imaging, and Their Applications** Organizer(s): Gang Bao , Peijun Li	**Capital Suite 21 B**
15:15-15:45	**Liwei Xu** (University of Electronic Science and Technology of China, Peoples Rep of China) Unsupervised diffusion approach with null space learning for cloud removal in remote sensing images	
15:45-16:15	**Wangtao Lu** (Zhejiang University, Peoples Rep of China) A high-order fast sweeping method for eikonal and transport equations in attenuating media	
16:15-16:45	**Tao Yin** (Chinese Academy of Sciences, Peoples Rep of China) DtN-FEM for thermoelastic scattering problem	
16:45-17:15	**Xiaokai Yuan** (Jilin University, Peoples Rep of China) Convergence of the TBC/PML method for the biharmonic wave scattering problem in periodic structures	

SS 129	**Inverse problems for nonlocal / nonlinear PDEs** Organizer(s): Barbara Kaltenbacher , William Rundell	**Capital Suite 12 A**
15:15-15:45	**Teresa Rauscher** (University of Klagenfurt, Austria) Mathematical models for nonlinear ultrasound contrast imaging with microbubbles	
15:45-16:15	**Cong Shi** (University of Vienna, Austria) Inverse problems for some attenuated wave equations	
16:15-16:45	**Kui Ren** (Columbia University, USA) A policy iteration method for inverse mean field games	
16:45-17:15	**Mokhtar KIRANE** (Khalifa University, United Arab Emirates) An inverse source problem for a two dimensional time fractional diffusion equation with nonlocal boundary conditions	

SS 132	**Advances in Nonlinear PDE-based Models for Artificial Intelligence and Computer Vision** Organizer(s): Tudor Barbu	**Conference Hall B (C)**

15:15-15:45	**Tudor Barbu** (Institute of Computer Science of the Romanian Academy, Romania) Active Contour-based Image Segmentation Framework using a Nonlinear Second-order Diffusion-based Model
16:15-16:45	**Gabriela Marinoschi** (Gheorghe Mihoc-Caius Iacob Institute of Mathematical Statistics and Applied Mathematics of the Romanian Academy, Romania) The optical flow problem: an optimal control approach

SS 136	**Analysis and Applications of the Boltzmann equation** Organizer(s): Renjun Duan , Robert Strain	**Capital Suite 8**
15:15-15:45	**Fujun Zhou** (South China University of Technology, Peoples Rep of China) Diffusive limit of one-species VPB and VMB with angular cutoff	
15:45-16:15	**Anita Yang** (The Chinese University of Hong Kong, Hong Kong) The stability of the Boltzmann equation with deformation	

CS 1	**ODEs and Applications**	**Capital Suite 6**
15:15-15:35	**Shahin Ansari** (Indian Institute of Technology Mandi, India) Approximation of solutions to abstract neutral impulsive differential equations	
15:35-15:55	**Sasmita Das** (University of Hyderabad, India) The Lower and Upper Solutions Method for Three Points p-Laplacian Boundary Value Problems in Time Scales	
15:55-16:15	**Jianping Huang** (Hunan University of Science and Technology, Peoples Rep of China) Infinite horizon linear quadratic optimal control problems for fractional systems	
16:15-16:35	**Santosh Ruhil** (Indian Institute of Technology Mandi, India) Inverse Problem for Neutral Degenerate Differential Equation	
16:35-16:55	**Abdissalam Sarsenbi** (Research Center of Theoretical and Applied Mathematics, Department of Mathematics, M. Auezov South Kazakhstan University, Kazakhstan) Boundary value problems for a second-order differential equation with involution in the second derivative and their solvability	

16:55-17:15	**Sasikala Subramaniyam** (Vellore Institute of Technology, Vellore, India) Sampled-data control for Synchronization of N-Coupled Hindmarsh-Rose Neuronal Model

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
15:15-15:35	**Ibrahim Suleman** (Khalifa University, Nigeria) On global solutions of a fractional wave equation with nonlinear memory	
15:35-15:55	**Zhenhao Wang** (Huazhong University of Science and Technology, Peoples Rep of China) Multi-marginal stochastic flow for brain diseases	
15:55-16:15	**Tong Wu** (University of Texas at San Antonio, USA) Continuous Data Assimilation from Scattered Spatial Observations in Time-Dependent PDEs	
16:15-16:35	**Michael Zelina** (Charles University, Faculty of Mathematics and Physics, Czech Rep) On the attractor for the Navier-Stokes-like system with the dynamic slip boundary condition	
16:35-16:55	**Ajay Jangid** (Indian Institute of Technology Ropar, India) Adsorption effect on viscous fingering in porous media	
16:55-17:15	**Hidenori Kokufukata** (Graduate School of Science, Kanagawa University, Japan) Ground state for a system of nonlinear Schr\{o}dinger equations with three waves interaction and critical nonlinearities	

Parallel Session 16 :: Thursday, 12/19, 17:30-19:30

TS 1	**Reaction-diffusion equations and aggregation, chemotaxis and nonlocal dispersal** Organizer(s): Yihong Du , Michael Winkler	**Conference Hall A**
17:00-17:45	**Jose A Carrillo** (University of Oxford, England) Nonlocal Aggregation-Diffusion Equations: fast diffusion and partial concentration	

17:45-18:30	**Xiao-Qiang Zhao** (, Canada) Basic Reproduction Numbers for Reaction-Diffusion Population Models

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
17:30-18:00	**Masaaki Mizukami** (Kyoto University of Education, Japan) Properties of blow-up points in a parabolic-parabolic chemotaxis system with spatially heterogeneous logistic term	
18:00-18:30	**Dongkwang Kim** (Ulsan National Institute of Science and Technology, Department of Mathematical Sciences, Korea) Global boundedness and blow-up in a repulsive chemotaxis-consumption system	
18:30-19:00	**Monica Marras** (University of Cagliari, Italy) Qualitative properties of solutions to a class of chemotaxis system	
19:00-19:30	**Pan Zheng** (Chongqing University of Posts and Telecommunications, Peoples Rep of China) Some results in Keller-Segel chemotaxis systems	

SS 3	**Recent Mathematical Progress in Boundary Layer Problems** Organizer(s): Zhifei Zhang , Nader Masmoudi , Weiren Zhao	**Capital Suite 12 B**
17:30-18:00	**Ning Liu** (The Chinese Academy of Sciences, Peoples Rep of China) On the hydrostatic approximation of Navier-Stokes-Maxwell system with Gevrey data	
18:00-18:30	**Faiq Raees** (New York University, United Arab Emirates) On The Hydrostatic Approximation Of Navier-Stokes-Maxwell System With 2D Electronic Fields	
18:30-19:00	**Di Wu** (South China University of Technology, Peoples Rep of China) Mack modes in supersonic boundary layer	
19:00-19:30	**ZHU ZHANG** (The Hong Kong Polytechnic University, Hong Kong) Stability analysis of the subsonic boundary layers at the high Reynolds number	

SS 5	**Recent developments in Partial Differential Equations from Physics** Organizer(s): Xianpeng Hu , Tong Yang , Wei Xiang	**Capital Suite 15**
17:30-18:00	**Ting Zhang** (Zhejiang University, Peoples Rep of China) Some global existence and uniqueness of the strong solution for the multi-dimensional viscoelastic flows	
18:00-18:30	**Panpan P Ren** (City University of Hong Kong, Hong Kong) Extrinsic Derivative Formula for Distribution Dependent SDEs	
18:30-19:00	**Wei XIANG** (City University of Hong Kong, Hong Kong) Transonic Shock with Large Swirl Velocity in a Finite Cylinder	
19:00-19:30	**Renjun Duan** (The Chinese University of Hong Kong, Hong Kong) Steady compressible Navier-Stokes-Fourier system with slip boundary conditions arising from kinetic theory	

SS 43	**Hamiltonian Dynamics and Celestial Mechanics** Organizer(s): Zhifu Xie , Marian Gidea , Ernesto Perez-Chavela	**Capital Suite 5**
17:30-18:00	**Guowei Yu** (Chern Institute of Math, Nankai University, Peoples Rep of China) A symplectic dynamics approach to the spatial isosceles three-body problem	
18:00-18:30	**Cheng Chen** (Sichuan University, Peoples Rep of China) Weak Compactness Criterion in $W^{k,1}$ with an Existence Theorem of Minimizers	
18:30-19:00	**Elena Fantino** (Khalifa University of Science and Technology, United Arab Emirates) An efficient approach to the design of low-energy transfers in n-body systems	
19:00-19:30	**Jinxin Xue** (Tsinghua University, Peoples Rep of China) Global dynamics of the N-body problem.	

SS 48	**Fluid dynamics and KAM theory** Organizer(s): Zineb Hassainia , Taoufik Hmidi , Riccardo Montalto	**Capital Suite 21 A**

17:30-18:00	**Livia Corsi** (University "Roma Tre", Italy) Asymptotically full measure sets of almost-periodic solutions for the NLS equation
18:00-18:30	**Federico Murgante** (University of Milan, Italy) One dimensional energy cascade in a quasi-linear dispersive equation
18:30-19:00	**Luca Franzoi** (University of Milan, Italy) Large amplitude quasi-periodic waves in rotating fluids
19:00-19:30	**Eduardo Garcia-Juarez** (Universidad de Sevilla, Spain) Desingularization of corners in the Muskat and Peskin problems

SS 51	**Integrable Aspects and Asymptotics of Nonlinear Evolution Equations** Organizer(s): Changzheng Qu , Xingbiao Hu , Qingping Liu	**Conference Hall B (B)**
17:30-18:00	**Rui Wang** (China University of Mining and Technology, Beijing, Peoples Rep of China) Superintegrability of matrix models	
18:00-18:30	**Changzheng Qu** (Ningbo University, Peoples Rep of China) The higher-order μ-Camassa-Holm equations	

SS 58	**Recent Advances in Numerical Methods for Partial Differential Equations** Organizer(s): Jun Hu , Weiying Zheng , Ran Zhang	**Capital Suite 21 C**
17:30-18:00	**Yanping Chen** (Nanjing University of Posts and Telecommunications, CHINA, Peoples Rep of China) Highly efficient and energy stable multi-step SAV approaches for phase field models	
18:00-18:30	**Xue Jiang** (Beijing University of Technology, Peoples Rep of China) A perfectly matched layer method for scattering problem in cylindrical coordinates	
18:30-19:00	**Yifei Li** (Tuebingen University, Peoples Rep of China) An Energy-stable Numerical Approximation for the Willmore Flow	

19:00-19:30	**Xiaodi Zhang** (Zhengzhou University, Peoples Rep of China) New error analysis of a class of fully discrete finite element methods for the dynamical inductionless MHD equations

SS 64	**Blow-ups and dynamics of nonlinear parabolic equations** Organizer(s): Juncheng Wei , Yifu Zhou	**Capital Suite 11 A**
17:30-18:00	**Seunghyeok Kim** (Hanyang University, Korea) Infinite-time blowing-up solutions to small perturbations of the Yamabe flow	
18:00-18:30	**Antonio J. Fernandez** (Universidad Autonoma de Madrid, Spain) Smooth nonradial stationary 2d Euler flows with compact support	
18:30-19:00	**Rowan Juneman** (University of Bath, England) Vortex dynamics for the Gross-Pitaevskii equation	
19:00-19:30	**Jonah Duncan** (University College London, England) Liouville theorems in the upper half-space and the fully nonlinear Loewner-Nirenberg problem	

SS 69	**New developments in symplectic dynamics** Organizer(s): Huagui Duan , Jun Zhang	**Conference Hall B (A)**
17:30-18:00	**Wenmin Gong** (Beijing Normal University, Peoples Rep of China) Degenerate Arnol`d conjectures, Hamiltonian periodic orbits and Lagrangian intersections	
18:00-18:30	**Xiudi Tang** (Beijing Institute of Technology, Peoples Rep of China) Symplectic classification of compact almost-toric systems of dimension four	

SS 81	**Reaction-(cross-)diffusion models in mathematical biology** Organizer(s): Xueli Bai , Suying Liu , Michael Winkler	**Capital Suite 13**
17:30-18:00	**Zhaoyin Xiang** (University of Electronic Science and Technology of China, Peoples Rep of China) Global existence and stabilization of solutions to a Keller-Segel-(Navier-)Stokes system with prescribed signal concentration on the boundary	

18:00-18:30	**Johannes Lankeit** (Leibniz University Hannover, Germany) Taxis models on an ecological scale
18:30-19:00	**Xinru CAO** (Donghua University, Peoples Rep of China) Critical mass in quasilinear Keller-Segel systems
19:00-19:30	**Ziyue Zeng** (School of Mathematics, Southeast University, Peoples Rep of China) Boundedness and finite-time blow-up in a repulsion-consumption system with nonlinear chemotactic sensitivity

SS 83	**Optimal Control Theory and Applications** Organizer(s): Ellina Grigorieva	**Conference Hall B (C)**
17:30-18:00	**Ellina Grigorieva** (Texas Woman’ s University, USA) Finding Optimal Treatment Protocols in Adaptive Prostate Cancer Therapy	
18:00-18:30	**Helena Sofia Rodrigues** (Polytechnic Institute de Viana do Castelo and CIDMA- University of Aveiro, Portugal) Optimal Control of Personal Protective Costs for Dengue Prevention	
18:30-19:00	**Henok Z Mawi** (Howard University, USA) On Optimal Control Problem related to the Infinity Laplacian	
19:00-19:30	**Weihua Ruan** (Purdue University Northwest, USA) Optimal control of an infinite-dimensional problem with a state constraint arising in the spatial economic growth theory	

SS 93	**Recent trends in elliptic and parabolic equations** Organizer(s): Zu Gao , Cecilia Cavaterra	**Capital Suite 4**
17:30-18:00	**Giulia Cavalleri** (University of Pavia, Italy) A phase field model of Cahn--Hilliard type for tumour growth with mechanical effects and damage	
18:00-18:30	**Zu Gao** (Wuhan University of Technology, Peoples Rep of China) The existence and concentration behavior of positive ground state solutions for a class of Choquard type equations involving nonlocal(mixed) operators	

18:30-19:00	**Luigi Pollastro** (Universita` degli studi di Torino, Italy) Approximate Gidas-Ni-Nirenberg result in the unit ball
19:00-19:30	**Gianluca Mola** (Sorbonne University Abu Dhabi, Italy) Identification of a diffusion matrix in a linear parabolic equation

SS 103	**Elliptic, parabolic problems and functional inequalities** Organizer(s): Ida de Bonis , Gianpaolo Piscitelli	**Capital Suite 10**
17:30-18:00	**Maria Michaela MM Porzio** (Sapienza Universit\`a di Roma, Italy) The influence of singular potentials on the solutions to some parabolic problems	

SS 104	**Recent Developments in High-Order Numerical Methods for Multiscale/Multiphysics Partial Differential Equations** Organizer(s): Zheng Chen , Lin Mu , Yan Jiang	**Capital Suite 2**
17:30-18:00	**Ruchi Guo** (Sichuan University, Peoples Rep of China) Solve electromagnetic interface problems on unfitted meshes	
18:00-18:30	**Yong Liu** (Academy of Mathematics and Systems Science, CAS, Peoples Rep of China) Efficient and Parallel Solution of High-order Continuous Time Galerkin for Dissipative and Wave Propagation Problems	
18:30-19:00	**Shihao Liu** (KTH Royal Institute of Technology, Sweden) A new type of simplified inverse Lax-Wendroff boundary treatment for hyperbolic conservation law	
19:00-19:30	**Tuo Liu** (King Abdullah University of Science and Technology, Saudi Arabia) Explicit Runge-Kutta methods for quadratic optimization via gradient flow equations	

SS 120	**Congestion Games on Networks and the Price of Anarchy: Theory and Applications** Organizer(s): Armen Bagdasaryan , Mansur Saburov	**Capital Suite 14**

17:30-18:00	**Mansur Saburov** (Department of Mathematics and Natural Science, College of Arts and Sciences (CAS), Center for Applied Mathematics and Bioinformatics (CAMB), Gulf University for Science and Technology (GUST), Kuwait) The Price of Cognition in Neural Networks Through Wardrop`s Equilibria Approaches

SS 121	**Recent developments on nonlinear geometric PDEs** Organizer(s): Angela Pistoia , Pierpaolo Esposito , Giusi Vaira	**Capital Suite 1**
17:30-18:00	**Haixia Chen** (Hanyang University, Korea) Sharp quantitative estimates of the Yamabe problem	
18:00-18:30	**Abdelrazek Dieb** (University Ibn khaldoun of Tiaret, Algeria) Existence and Non-existence results for non-linear elliptic systems involving Hardy potential	
18:30-19:00	**Francisco Javier Reyes Sanchez** (Universidad de Granada, Spain) Prescribing curvatures on surfaces with conical singularities and corners	
19:00-19:30	**Rohit Kumar** (Indian Institute of Technology Jodhpur, India) Characterizations of Compactness and Weighted Eigenvalue Problem for Fractional p-Laplacian in $\mathbb{R}^N$	

SS 125	**Analysis, Algorithms, and Applications of Neural Networks** Organizer(s): Juncai He , Xinliang Liu , Jinchao Xu	**Capital Suite 9**
17:30-18:00	**Yaoyu Zhang** (Shanghai Jiao Tong University, Peoples Rep of China) Optimistic Sample Size Estimate for Deep Neural Networks	
18:00-18:30	**Yuwen Li** (Zhejiang University, Peoples Rep of China) Entropy-based convergence rates of greedy algorithms	
18:30-19:00	**Boou Jiang** (The King Abdullah University of Science and Technology, Peoples Rep of China) DualFL-CS: an accelerated, inexact, and parallel coordinate descent method for federated learning	

SS 126	**Machine Learning and New Framework for Solving Partial Differential Equations** Organizer(s): Jingrun Chen , Haijun Yu , Shuo Zhang	**Capital Suite 3**
17:30-18:00	**Chensong Zhang** (Academy of Mathematics and Systems Science, Peoples Rep of China) A deep learning enabled massive parallel simulator for porous media flow	
18:00-18:30	**Xiang ZHOU** (City University of Hong Kong, Hong Kong) Weak Generative Sampler to Solve High - Dimensional PDEs for Stochastic Models: Efficiency and Adaptivity	
18:30-19:00	**Shuo Zhang** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Complex dualities and new solution frameworks	
19:00-19:30	**Chunmei Su** (Tsinghua University, Peoples Rep of China) Structure-preserving parametric finite element methods for curve diffusion	

SS 127	**Recent Advances in Inverse Problems, Imaging, and Their Applications** Organizer(s): Gang Bao , Peijun Li	**Capital Suite 21 B**
17:30-18:00	**Yuliang Wang** (Beijing Normal University, Peoples Rep of China) Near-field inverse obstacle scattering by flexural waves: method of transformed field expansion	
18:00-18:30	**Dong Wang** (The Chinese University of Hong Kong, Shenzhen & Shenzhen International Center for Industrial and Applied Mathematics, Peoples Rep of China) A prediction-correction based iterative convolution-thresholding method for topology optimization of heat transfer problems	
18:30-19:00	**Jianliang Li** (Hunan Normal University, Peoples Rep of China) Inverse random potential scattering for the polyharmonic wave equation using far-field patterns	
19:00-19:30	**Guanlin Yang** (Institute of Computational Mathematics and Scientific/Engineering Computing, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Inverse random potential scattering for stochastic polyharmonic wave equations	

SS 129	**Inverse problems for nonlocal / nonlinear PDEs** Organizer(s): Barbara Kaltenbacher , William Rundell	**Capital Suite 12 A**
17:30-18:00	**Katya Krupchyk** (University of California, Irvine, USA) Inverse problems for semilinear Schrodinger equations on Riemannian manifolds at large frequency	
18:00-18:30	**Lauri Oksanen** (University of Helsinki, Finland) Fixed angle inverse scattering and rigidity of the Minkowski spacetime	
18:30-19:00	**Philipp Zimmermann** (Universitat de Barcelona, Switzerland) The Calder\`{o}n problem for nonlocal wave equations with polyhomogeneous nonlinearities	

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
17:30-17:50	**Mohamed Ben Romdhane** (Abdullah Al Salem University, Kuwait, Kuwait) A Novel Iterative Discretization Method for Solving Nonlinear Partial Differential Equations	
17:50-18:10	**Garima Gupta** (Indian Institute of Technology Roorkee, India) Study of fractional differential equations with impulses in both state and control	
18:10-18:30	**Zheng Hao** (Chinese academy of science, Peoples Rep of China) Introduction on quantum hydrodynamic equation for semiconductors and the relaxation-time limit	
18:30-18:50	**Ritabrata Jana** (IISER Thiruvananthapuram, India) Fine Boundary Regularity For The Fractional (p,q)-Laplacia	
18:50-19:10	**Tadeusz Koszto{\l}owicz** (Institute of Physics, Jan Kochanowski University, Kielce, Poland, Poland) Superdiffusion described by g-subdiffusion equation with fractional Caputo time derivative with respect to another function	
19:10-19:30	**Sandeep Kumar** (CUNEF University, Spain) Can we create (pseudo)randomness with polygons?	

Parallel Session 17 :: Friday, 12/20, 8:00-9:30

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
8:00-8:30	**Khadijeh Baghaei** (Pasargad Institute for Advanced Innovative Solutions, Iran) Boundedness of classical solutions to a chemotaxis consumption model with signal dependent motility	
8:30-9:00	**Duan Wu** (Paderborn university, Peoples Rep of China) The global solvability and asymptotic behavior for doubly degenerate nutrient model with large initial data	
9:00-9:30	**Yuxiang Li** (School of Mathematics, Southeast University, Peoples Rep of China) Boundedness in a two-dimensional doubly degenerate nutrient taxis system	

SS 5	**Recent developments in Partial Differential Equations from Physics** Organizer(s): Xianpeng Hu , Tong Yang , Wei Xiang	**Capital Suite 15**
8:00-8:30	**Yong Yu** (The Chinese University of Hong Kong, Hong Kong) Pattern formation in Landau-de Gennes theory	
8:30-9:00	**Tak Kwong Wong** (The University of Hong Kong, Hong Kong) Regularity structure and asymptotic behavior of energy conservative solutions to the Hunter-Saxton equation	
9:00-9:30	**Anthony Suen** (The Education University of Hong Kong, Hong Kong) Ill/well-posedness of non-diffusive active scalar equations with physical applications	

SS 15	**On the dynamics of hyperbolic partial differential equations: theory and applications** Organizer(s): Salim Messaoudi , Athanasios Tzavaras , Tej Eddine Ghoul	**Capital Suite 21 A**
8:00-8:30	**Bounadja Hizia** (University of Sciences and Technology Houari Boumediene, Algeria) On the Cauchy problem of the MGT-Viscoelastic plate with heat conduction of Fourier law	

8:30-9:00	**Belkacem Said-Houari** (University of Sharjah, United Arab Emirates) The Westervelt-Pennes model of nonlinear thermo-acoustics: local well-posedness and singular limit for vanishing relaxation time
9:00-9:30	**Salim Messaoudi** (University of Sharjah, United Arab Emirates) On a truncated thermoelastic Timoshenko System with a dual-phase-lag model

SS 21	**Fluid dynamics and PDE** Organizer(s): Jerry Bona , Hongqiu Chen	**Conference Hall B (D)**
8:00-8:30	**Colette Guillop\`e** (Universit\`e Paris-Est Cr\`eteil, France) Improved H^1 Theory for a Higher-Order Water Wave Model	
8:30-9:00	**Junsik Bae** (Korea Advanced Institute of Science and Technology, Korea) Emergence of peaked singularities in the Euler-Poisson system	
9:00-9:30	**Jerry Bona** (University of Illinois at Chicago, USA) Suppressing blowup of solutions of the generalized KdV equation	

SS 31	**Regularity of partial differential equations** Organizer(s): Dongsheng Li	**Capital Suite 4**
8:00-8:30	**Yuanyuan Lian** (Department of Mathematical Analysis, University of Granada, Spain) Interior pointwise regularity for elliptic and parabolic equations in divergence form and applications to nodal sets	
8:30-9:00	**Jianhua Wu** (Shaanxi Normal University, Peoples Rep of China) The dynamical behavior and coexistence of a predator-prey model in the chemostat	
9:00-9:30	**Rui Yang** (Central South University, Peoples Rep of China) Log BMO matrix weights and quasilinear elliptic equations with Orlicz growth	

SS 46	**Theory, Numerical methods, and Applications of Partial Differential Equations** Organizer(s): Dazhi Zhang , Qiyu Jin , Shengzhu Shi , Yao Li	**Capital Suite 11 A**

8:00-8:30	**Han Huan** (Wuhan University of Technology, Peoples Rep of China) Variational method and its application in medical image registration
8:30-9:00	**Qiyu Jin** (Inner Mongolia University, Peoples Rep of China) Total Curvature-Driven Blind Image Deblurring
9:00-9:30	**Minqiang Xu** (Zhejiang University of Technology, Peoples Rep of China) A class of positive-preserving, energy stable and high order numerical schemes for the Poission-Nernst-Planck system

SS 57	**Dynamics and Numerics of Stochastic Differential Equations** Organizer(s): Xiaoying Han , Zhenxin Liu , Jiaqi Cheng	**Capital Suite 2**
8:00-8:30	**Shirou Wang** (Jilin University, Peoples Rep of China) Can one hear the shape of high-dimensional landscape?	
8:30-9:00	**Zimu Zhu** (Hong Kong University of Science and Technology(Guangzhou), Peoples Rep of China) Convergence of the Backward Deep BSDE Method with Applications to Optimal Stopping Problems	

SS 58	**Recent Advances in Numerical Methods for Partial Differential Equations** Organizer(s): Jun Hu , Weiying Zheng , Ran Zhang	**Capital Suite 21 C**
8:00-8:30	**Daniele Boffi** (King Abdullah University of Science and Technology, Saudi Arabia) Small cut cells in a fictitious domain approach for fluid structure interactions	
8:30-9:00	**Wenbo Li** (The Academy of Mathematics and Systems Science of the Chinese Academy of Sciences, Peoples Rep of China) DG method for fractional Laplace equations	
9:00-9:30	**Bowen Li** (City University of Hong Kong, Hong Kong) Efficient quantum Gibbs samplers	

SS 63	**Singular limit problems arising from nonlinear PDEs** Organizer(s): Feng Xie , Xiongfeng Yang , Weike Wang , Haitao Wang	**Capital Suite 8**

8:30-9:00	**Hung-Wen Kuo** (National Cheng Kung University, Taiwan) COUPLING AND PROPAGATION OF SINGULARITIES IN THE INITIAL LAYER FOR BOLTZMANN EQUATION
9:00-9:30	**Yu Mei** (Northwestern Polytechnical University, Peoples Rep of China) Vanishing viscosity limits for the free boundary problem of compressible flows

SS 68	**Recent advances on interfaces dynamics modeling, simulation and applications** Organizer(s): Shixin Xu , Huaxiong Huang , Ming-Chih Lai	**Capital Suite 21 B**
8:00-8:30	**Xiaoping Wang** (The Chinese University of Hong Kong (Shenzhen) and the Shenzhen International Center for Industrial and Applied Mathematics, Peoples Rep of China) An efficient unconditional energy stable scheme for multiphase flow simulations	
8:30-9:00	**Wenjun Ying** (Shanghai Jiao Tong University, Peoples Rep of China) A Cartesian grid method for nonhomogeneous elliptic interface problems on unbounded domains	
9:00-9:30	**Benzhuo Lu** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Interfaced neural networks for solving (parametric) interface PDE problems	

SS 81	**Reaction-(cross-)diffusion models in mathematical biology** Organizer(s): Xueli Bai , Suying Liu , Michael Winkler	**Capital Suite 13**
8:00-8:30	**Suying Liu** (Northwestern Polytechnical University, Peoples Rep of China) Global classical solutions to a triply haptotactic cross-diffusion system modeling oncolytic virotherapy	

SS 107	**Recent Advances in Data Assimilation with Machine Learning** Organizer(s): Nan Chen , Jinlong Wu , Yeyu Zhang	**Conference Hall B (B)**
8:00-8:30	**Jinchao Feng** (Great Bay University, Peoples Rep of China) Data-driven model selections of interacting particle dynamics via Gaussian processes with uncertainty quantification	

8:30-9:00	**Yu Chen** (Shanghai University of Finance and Economics, Peoples Rep of China) A mechanism learning based method for data filling of physical fields
9:00-9:30	**Yiwen Lin** (Shanghai Jiao Tong University, Peoples Rep of China) A random reconstruction method in optical tomography

SS 116	**Stochastic computing and structure preserving methods** Organizer(s): Yanzhao Cao , Jialin Hong , Xu Wang	**Capital Suite 6**
8:00-8:30	**Cristina Anton** (MacEwan University, Canada) Exponential bounds for the density of the law of the solution of a SDE with locally Lipschitz coefficients	
8:30-9:00	**Yanzhao Cao** (Auburn University, USA) Diffusion model for generative learning	
9:00-9:30	**Xinyu Chen** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Superiority of stochastic symplectic methods via the law of iterated logarithm	

SS 122	**Understanding the Learning of Deep Networks: Expressivity, Optimization, and Generalization** Organizer(s): Shijun Zhang , Feng-Lei Fan , Juncai He	**Conference Hall B (C)**
8:00-8:30	**Jun Fan** (Hong Kong Baptist University, Hong Kong) Functional neural network on infinite-dimensional data	
9:00-9:30	**Yunwen Lei** (The University of Hong Kong, Peoples Rep of China) Optimization and Generalization of Gradient Descent for Shallow ReLU Networks	

SS 125	**Analysis, Algorithms, and Applications of Neural Networks** Organizer(s): Juncai He , Xinliang Liu , Jinchao Xu	**Capital Suite 9**
8:00-8:30	**Yongqiang Cai** (Beijing Normal University, Peoples Rep of China) Neural network, dynamical system and formal language	

8:30-9:00	**Tong Mao** (King Abdullah University of Science and Technology, Saudi Arabia) Expressivity and Approximation Properties of Deep Neural Networks with ReLUk Activation
9:00-9:30	**Juncai He** (The King Abdullah University of Science and Technology, Saudi Arabia) Neural Networks and Operators Based on Convolution and Multigrid Structure

SS 140	**Symmetry and Overdetermined problems** Organizer(s): Jyotshana Prajapat	**Capital Suite 10**
8:00-8:30	**Pierpaolo Esposito** (Universit\\'a degli Studi Roma Tre, Italy) The quasi-linear Liouville equation	
8:30-9:00	**Bernhard Ruf** (Accademia di Scienze e Lettere - Istituto Lombardo, Italy) On a Bliss-Moser type inequality	
9:00-9:30	**Angela Pistoia** (Sapienza University of Roma, Italy) Elliptic systems with critical growth	

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
8:00-8:20	**Sarabindu Dolui** (National Institute of Technology Andhra Pradesh, India) Stabilization of steady-states in a three dimensional network of ferromagnetic nanowires	
8:20-8:40	**Diksha Gupta** (Indian Institute of Technology Delhi, India) Existence, Symmetry and Regularity of Ground States of a Non Linear Choquard Equation in the Hyperbolic Space	
8:40-9:00	**Gyeonggyu Lee** (National Institute, Korea) Unconditionally energy gradient stable numerical scheme for Cahn-Hilliard equation with arbitrary polynomial formula degenerate mobility	
9:00-9:20	**Seunggyu Lee** (Korea University, Korea) Maximum principle and energy stablity preserving explicit scheme for solving Allen-Cahn equation	

Parallel Session 18 :: Friday, 12/20, 14:00-16:00

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
14:00-14:30	**Weirun Tao** (Southeast University, Peoples Rep of China) Stabilization and pattern formation in a chemotaxis model with acceleration	
14:30-15:00	**Guoqiang Ren** (Huazhong University of Science and Technology, Peoples Rep of China) Global solvability of predator-prey model with prey-taxis or predator-taxis	
15:00-15:30	**Zhongping Li** (China West Normal University, Peoples Rep of China) Global bounded weak solutions to a 3D chemotaxis-Stokes system with slow p-Laplacian diffusion and rotation	
15:30-16:00	**Zhaoyin Xiang** (University of Electronic Science and Technology of China, Peoples Rep of China) On an inhomogeneous incompressible Navier-Stokes system with chemotaxis modeling vascular network	

SS 5	**Recent developments in Partial Differential Equations from Physics** Organizer(s): Xianpeng Hu , Tong Yang , Wei Xiang	**Capital Suite 15**
14:00-14:30	**Wenbin Zhao** (Renmin University of China, Peoples Rep of China) Nonlinear stability of entropy waves for the Euler equations	
14:30-15:00	**Ke Chen** (The Hong Kong Polytechnic University, Hong Kong) Well-posedness for local and nonlocal quasilinear evolution equations in fluids and geometry	
15:00-15:30	**Anita Yang** (The Chinese University of Hong Kong, Hong Kong) The 3D kinetic Couette flow via the Boltzmann equation in the diffusive limit	
15:30-16:00	**Andrew Yang** (City University of Hong Kong, Hong Kong) Long time instability of compressible planar Poiseuille flows	

SS 15	**On the dynamics of hyperbolic partial differential equations: theory and applications** Organizer(s): Salim Messaoudi , Athanasios Tzavaras , Tej Eddine Ghoul	**Capital Suite 21 A**

14:00-14:30	**NAASER-EDDINE TATAR** (KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS, Saudi Arabia) Evolution problems with non-small amplitudes
14:30-15:00	**Hatem Zaag** (CNRS and Universite Sorbonne Paris Nord, France) Energy methods for an improved blow-up bound for a superconformal wave equation
15:00-15:30	**Nuno J. Alves** (University of Vienna, Austria) Euler-Riesz systems: Compensated Integrability and connections to Harmonic Analysis
15:30-16:00	**Rachid Ait Haddou** (King Fahd University of Petroleum and Minerals, Saudi Arabia) Bernstein`s Problem and Positivity Preserving Exponential Integrators for Evolution Equations

SS 21	**Fluid dynamics and PDE** Organizer(s): Jerry Bona , Hongqiu Chen	**Conference Hall B (D)**
14:00-14:30	**Paolo Piersanti** (The Chinese University of Hong Kong Shenzhen, Peoples Rep of China) Grounded shallow ice sheets melting as an obstacle problem	
14:30-15:00	**Adilbek Kairzhan** (Nazarbayev University, Kazakhstan) A Hamiltonian Dysthe equation for hydroelastic waves in a compressed ice sheet.	
15:00-15:30	**Mimi Dai** (University of Illinois at Chicago, USA) Stability and instability problems of MHD	
15:30-16:00	**Hongqiu Chen** (University of Memphis, USA) Water Wave Models: Bore Propagations	

SS 31	**Regularity of partial differential equations** Organizer(s): Dongsheng Li	**Capital Suite 4**
14:00-14:30	**Zhengce Zhang** (Xi`an Jiaotong University, Peoples Rep of China) Liouville-type theorems and existence of solutions for quasilinear elliptic equations with nonlinear gradient terms	

14:30-15:00	**Kai Zhang** (University of Granada, Spain) Boundary regularity for elliptic equations

SS 46	**Theory, Numerical methods, and Applications of Partial Differential Equations** Organizer(s): Dazhi Zhang , Qiyu Jin , Shengzhu Shi , Yao Li	**Capital Suite 11 A**
14:00-14:30	**Zhifang Liu** (Tianjin Normal University, Peoples Rep of China) A Fast Minimization Algorithm for the Euler Elastica Model Based on a Bilinear Decomposition	
14:30-15:00	**Shengzhu Shi** (Harbin Institute of Technology, Peoples Rep of China) The second fundamental form: an effective regularizer for multiplicative noise removal	
15:00-15:30	**Yao Li** (Harbin Institute of Technology, Peoples Rep of China) Robust Image Denoising through Out-of-Distribution Typical Set Sampling	

SS 47	**Meeting Point of Scientific Computing and Machine Learning** Organizer(s): Pingwen Zhang , Zhijian Yang , Lei Zhang	**Capital Suite 3**
14:00-14:30	**Liwei Xu** (University of Electronic Science and Technology of China, Peoples Rep of China) Deep learning solvers for a couple of fluid dynamic equations	
14:30-15:00	**Jin Zhao** (Capital Normal University, Peoples Rep of China) pETNNs: Partial Evolutionary Tensor Neural Networks for Solving Time-dependent Partial Differential Equations	
15:00-15:30	**Xiangcheng Zheng** (Shandong University, Peoples Rep of China) Numerical analysis for manifold-preserving and data-driven algorithms of high-index saddle dynamics	
15:30-16:00	**Weying Zheng** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) On finite element approximation of the Schroedinger-Poisson model	

SS 57	**Dynamics and Numerics of Stochastic Differential Equations** Organizer(s): Xiaoying Han , Zhenxin Liu , Jiaqi Cheng	**Capital Suite 2**

14:00-14:30	**Billel Guelmame** (ENS Lyon, France) A Smoluchowski-Kramers approximation to the variational wave equation
14:30-15:00	**Jianbo Cui** (Hong Kong Polytechnic University, Hong Kong) Wasserstein Hamiltonian Flow and Its Structure Preserving Numerical Scheme
15:00-15:30	**Weisong Zhou** (Chongqing University of Posts and Telecommunications, Peoples Rep of China) Pullback measure random attractors of lattice FitzHugh-Nagumo systems
15:30-16:00	**Jiaqi Cheng** (Northeast Normal University, Peoples Rep of China) On the random age structured model

SS 58	**Recent Advances in Numerical Methods for Partial Differential Equations** Organizer(s): Jun Hu , Weiying Zheng , Ran Zhang	**Capital Suite 21 C**
14:00-14:30	**Jiwei Jia** (Jilin University, Peoples Rep of China) Green Multigrid Network	
14:30-15:00	**Pengzhan Jin** (Peking University, Peoples Rep of China) A hybrid iterative method based on MIONet for PDEs: Theory and numerical examples	

SS 63	**Singular limit problems arising from nonlinear PDEs** Organizer(s): Feng Xie , Xiongfeng Yang , Weike Wang , Haitao Wang	**Capital Suite 8**
14:00-14:30	**Haitao Wang** (Shanghai Jiao Tong University, Peoples Rep of China) 3D hard sphere Boltzmann equation: explicit structure and the transition process from polynomial tail to Gaussian tail	
14:30-15:00	**Weike WANG** (Shanghai Jiao Tong University, Peoples Rep of China) GLOBAL SOLUTION OF 3-D KELLER-SEGAL MODEL WITH COUETTE FLOW IN WHOLE SPACE	
15:00-15:30	**Feng Xie** (Shanghai Jiao Tong University, Peoples Rep of China) Stability analysis of boundary layers and inviscid limits of MHD equations	

SS 68	**Recent advances on interfaces dynamics modeling, simulation and applications** Organizer(s): Shixin Xu , Huaxiong Huang , Ming-Chih Lai	**Capital Suite 21 B**
14:00-14:30	**Xianmin XU** (Chinese Academy of Sciences, Peoples Rep of China) The Onsager variational principle and physics preserving numerical schemes	
14:30-15:00	**Xuelian Bao** (South China University of Technology, Peoples Rep of China) Coupled Capillary-Perivascular Flow and Mass Transport: Modeling and Computation	
15:00-15:30	**Zhen Zhang** (Southern University of Science and Technology, Peoples Rep of China) Simulation of wetting/dewetting process on a permeable and inextensible elastic sheet	
15:30-16:00	**Rong Tang** (The Hong Kong Polytechnic University, Hong Kong) Convergent finite element approximations of surface evolution with relaxed minimal deformation	

SS 107	**Recent Advances in Data Assimilation with Machine Learning** Organizer(s): Nan Chen , Jinlong Wu , Yeyu Zhang	**Conference Hall B (B)**
14:00-14:30	**Di Qi** (Purdue University, USA) Reduced-Order Models for Data Assimilation of Multiscale Turbulent Systems	
14:30-15:00	**Daniel Zhengyu Huang** (Peking University, Peoples Rep of China) Efficient Derivative-Free Bayesian Inference for Large-Scale Inverse Problems	
15:00-15:30	**Yeyu Zhang** (Shanghai University of Finance and Economics, Peoples Rep of China) An Efficient Multiscale Stochastic Reduced-Order Model and Nonlinear Filtering Scheme for Two-Dimensional Stratified Turbulence	
15:30-16:00	**Marios Andreou** (University of Wisconsin-Madison, USA) An Efficient Online Smoother and Sampling Algorithm for Partially Observed Nonlinear Dynamical Systems	

SS 108	**New Trends in Fractional Modelling with General Kernel** Organizer(s): Ozlem Defterli , Dumitru Baleanu	**Capital Suite 9**

14:00-14:30	**Ozlem Defterli** (Associate Professor Dr., Department of Mathematics, Faculty of Arts and Sciences, Cankaya University, Ankara, Turkey) Generalization of 1D-Asymmetric Harmonic Oscillator Model via Different Kernels
14:30-15:00	**Imad A Jaradat** (Abdullah Al-Salem University, Kuwait) Coupled Dynamics Of Caputo Memory Effects And Time Delays In Fractional Physical Models
15:00-15:30	**Eqab M. Rabei** (Al al-Bayt university, Jordan) The treatment of conformable electromagnetic theory of Maxwell as a singular system
15:30-16:00	**DUMITRU BALEANU** (Lebanese American University,Beirut,Lebanon, Lebanon) New aspects of the generalized operators

SS 115	**Computational Techniques Using Fast Fourier Transformation (FFT) for Partial Differential Equations** Organizer(s): Daisuke Takahashi , Benson Muite , Samar Aseeri	**Capital Suite 12 A**
14:00-14:30	**Christian Klein** (University of Burgundy, France) Spectral methods for nonlinear dispersive equations	
14:30-15:00	**Daisuke Takahash** (University of Tsukuba, Japan) Implementation of Parallel 3-D Real FFT with 2-D Decomposition on Manycore Clusters	
15:00-15:30	**Anando AGC Chatterjee** (Indian Institute of Technology Kanpur, India) Utilizing Network Delays for Modeling Physical Propagation in HPC	
15:30-16:00	**Samar Aseeri** (King Abdullah University of Science and Technology, Saudi Arabia) Advancements in FFT Techniques: A Focus on My Publications	

SS 116	**Stochastic computing and structure preserving methods** Organizer(s): Yanzhao Cao , Jialin Hong , Xu Wang	**Capital Suite 6**

14:00-14:30	**Siqing Gan** (Central South University, Peoples Rep of China) Long-time strong convergence of one-step methods for McKean-Vlasov SDEs with non-globally Lipschitz continuous coefficients
14:30-15:00	**Ziyi Lei** (Chinese Academy of Sciences, Peoples Rep of China) Numerical approximation of the invariant measure for a class of stochastic damped wave equations
15:00-15:30	**Lei Li** (Shanghai Jiao Tong University, Peoples Rep of China) A second-order Langevin sampler preserving positive volume for isothermal-isobaric ensemble
15:30-16:00	**Ge Liang** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) Long-time weak convergence analysis of a semi-discrete scheme for stochastic Maxwell equations

SS 122	**Understanding the Learning of Deep Networks: Expressivity, Optimization, and Generalization** Organizer(s): Shijun Zhang , Feng-Lei Fan , Juncai He	**Conference Hall B (C)**
14:00-14:30	**Gen Li** (The Chinese University of Hong Kong, Hong Kong) Faster Convergence and Acceleration for Diffusion-Based Generative Models	
14:30-15:00	**Juncai He** (The King Abdullah University of Science and Technology, Saudi Arabia) On the Expressivity of Neural Networks and Its Applications	
15:30-16:00	**Shijun Zhang** (The Hong Kong Polytechnic University, Hong Kong) Overcoming High-Frequency Challenges: From Shallow to Multi-layer Neural Networks	

SS 140	**Symmetry and Overdetermined problems** Organizer(s): Jyotshana Prajapat	**Capital Suite 10**
14:00-14:30	**Filomena Pacella** (University of Roma Sapienza, Italy) Break of symmetry for semilinear elliptic problems in cones	
14:30-15:00	**Yichen Liu** (Xi'an Jiaotong-Liverpool University, Peoples Rep of China) Overdetermined problems for p-Laplace and generalized Monge-Ampere equations	

15:00-15:30	**Yuanyuan Lian** (Department of Mathematical Analysis, University of Granada, Spain) A rigidity result for the overdetermined problems with the mean curvature of the graph of solutions operator in the plane

CS 2	**PDEs and Applications**	**Capital Suite 11 B**
14:00-14:20	**Qing Li** (shijiazhuang traditional chinese hospital, Peoples Rep of China) Determine the exact value of the square root of 2	
14:20-14:40	**Almat Orazbayev** (Nazarbayev University, Kazakhstan) Improved L^{p}-L^{q} Hardy Inequalities	
14:40-15:00	**Debendra Prasad Panda** (BITS Pilani K K Birla Goa Campus, India) Optimal System, Symmetry Reduction and Conservation Laws of Complex Modified KdV equation	
15:00-15:20	**Vivek Sahu** (Indian Institute of Technology Kanpur, India, India) Fractional Hardy inequality with boundary singularity for the critical case sp=1 and Hardy inequality on functions of bounded variation	
15:20-15:40	**Anusree R** (Indian Institute of Technology Hyderabad, India) Sign Changing Solution for a (p,q)-Laplacian System in $\mathbb{R}^{N}$	
15:40-16:00	**Achenef Tesfahun** (Nazarbayev University, Kazakhstan) Ill-posedness of the Thirring model below the critical regularity	

Parallel Session 19 :: Friday, 12/20, 16:15-18:45

SS 1	**Analysis of parabolic models for chemotaxis** Organizer(s): Michael Winkler , Johannes Lankeit	**Capital Suite 7**
16:15-16:45	**Jianlu Yan** (Nanjing University of Aeronautics and Astronautics, Peoples Rep of China) Local existence and global boundedness for a chemotaxis system with gradient dependent flux limitation	
16:45-17:15	**Mengyao Ding** (Institute for Advanced Study in Mathematics of HIT, Peoples Rep of China) Quantitative analysis and its applications for Keller-Segel type systems	

17:15-17:45	**Liangchen Wang** (Chongqing University of Posts and Telecommunications, Peoples Rep of China) Global existence and eventual smoothness of a Keller-Segel-consumption system involving local sensing and growth term

SS 5	**Recent developments in Partial Differential Equations from Physics** Organizer(s): Xianpeng Hu , Tong Yang , Wei Xiang	**Capital Suite 15**
16:15-16:45	**Guochun Wu** (Huaqiao University, Peoples Rep of China) Long-time behavior to the 3D isentropic compressible Navier-Stokes equations	
16:45-17:15	**Xiufang Cui** (Lanzhou University, Peoples Rep of China) Incompressible limit of compressible viscoelastic system with vanishing shear viscosity	
17:15-17:45	**Xinlin Cao** (The Hong Kong Polytechnic University, Peoples Rep of China) The effective medium generated by a cluster of highly contrasting nanoparticles with periodic and nonperiodic distribution	

SS 15	**On the dynamics of hyperbolic partial differential equations: theory and applications** Organizer(s): Salim Messaoudi , Athanasios Tzavaras , Tej Eddine Ghoul	**Capital Suite 21 A**
16:15-16:45	**Pierre-Emmanuel Jabin** (Pennsylvania State University, USA) A new duality method for mean-field limits with singular interactions	

SS 46	**Theory, Numerical methods, and Applications of Partial Differential Equations** Organizer(s): Dazhi Zhang , Qiyu Jin , Shengzhu Shi , Yao Li	**Capital Suite 11 A**
16:15-16:45	**Linhui Li** (Harbin Institute of Technology, Peoples Rep of China) Superconvergence of the local discontinuous Galerkin method with generalized numerical fluxes for fourth-order equations	
16:45-17:15	**Tianxin Zhang** (Harbin Institute of Technology, Peoples Rep of China) Spectral method based fractional physics-informed neural networks for solving tempered fractional partial differential equations	

SS 63	**Singular limit problems arising from nonlinear PDEs** Organizer(s): Feng Xie , Xiongfeng Yang , Weike Wang , Haitao Wang	**Capital Suite 8**
16:15-16:45	**Xiaojing Xu** (Beijing Normal University, Peoples Rep of China) On the Sobolev stability threshold for 3D Navier-Stokes equations with rotation near the Couette flow	
16:45-17:15	**Xiongfeng Yang** (Shanghai Jiao Tong University, Peoples Rep of China) The limit from Vlasov-Poisson system to KdV/ZK equations	
17:15-17:45	**Xiongtao Zhang** (Wuhan University, Peoples Rep of China) BV solutions to the Navier-Stokes equation	

SS 68	**Recent advances on interfaces dynamics modeling, simulation and applications** Organizer(s): Shixin Xu , Huaxiong Huang , Ming-Chih Lai	**Capital Suite 21 B**
16:15-16:45	**Jia Zhao** (Binghamton University, USA) Thermodynamically consistent hydrodynamic phase-field computational modeling for fluid-structure interaction with moving contact lines	
16:45-17:15	**Zhenlin Guo** (Beijing Computational Science Research Center, Peoples Rep of China) Numerical Studies for Multicomponent Vesicles	
17:15-17:45	**Yuzhe Qin** (Shanxi University, Peoples Rep of China) A phase field description of droplet dynamics with ion transport	

SS 107	**Recent Advances in Data Assimilation with Machine Learning** Organizer(s): Nan Chen , Jinlong Wu , Yeyu Zhang	**Conference Hall B (B)**
16:15-16:45	**Liu Liu** (Chinese University of Hong Kong, Peoples Rep of China) An Asymptotic-Preserving Neural Network approach for the Boltzmann equation with uncertainties	
16:45-17:15	**Yu Feng** (Great Bay University, Peoples Rep of China) A unified Bayesian inversion approach for a class of tumor growth models with different pressure laws	

17:15-17:45	**Yingshuo Peng** (Shanghai University of Finance and Economics, Peoples Rep of China) Inverse Transfer and Coherence in Rotating Stratified Turbulence with Clouds and Phase Transitions

SS 116	**Stochastic computing and structure preserving methods** Organizer(s): Yanzhao Cao , Jialin Hong , Xu Wang	**Capital Suite 6**
16:15-16:45	**LIying Sun** (Capital Normal University, Peoples Rep of China) The stochastic scalar auxiliary variable approach for stochastic nonlinear Klein--Gordon equation	
16:45-17:15	**Fuke Wu** (Huazhong University of Science and Technology, Peoples Rep of China) Asymptotic error distribution for the Euler scheme of stochastic delay differential equation with locally Lipschitz coefficients	
17:15-17:45	**Fengshan Zhang** (Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Peoples Rep of China) A new class of splitting methods that preserve ergodicity and exponential integrability for stochastic Langevin equation	
17:45-18:15	**Weidong Zhao** (Shandong University, Peoples Rep of China) Strong Stability Preserving Multistep Schemes for FBSDEs	

SS 140	**Symmetry and Overdetermined problems** Organizer(s): Jyotshana Prajapat	**Capital Suite 10**
16:15-16:45	**Jing Wu** (Autonomous University of Madrid, Spain) Overdetermined elliptic problems in nontrivial contractible domains of the sphere	
16:45-17:15	**Marcello Lucia** (City University of New York, USA) Some overdetermined problem in space forms	
17:15-17:45	**Anoop T V** (Indian Institute of Technology Madras, India) Domain variations of the first eigenvalue via a strict Faber-Krahn type inequality.	

CS 2	**PDEs and Applications**	**Capital Suite 11 B**

16:15-16:35	**Rohit Kumar** (Indian Institute of Technology Jodhpur, India) Higher Order Fractional Weighted Homogeneous Spaces: Characterization and Finer Embeddings
16:35-16:55	**Sudhakar Chaudhary** (Institute of Infrastructure, Technology, Research And Management, India) Mesh-free mixed finite element approximation for nonlinear time-fractional biharmonic equation using weighted b-splines
16:55-17:15	**Wei Guo** (Hebei Normal University, Peoples Rep of China) Shearlet Scattering Transform and Its Applications
17:15-17:35	**Aidos Shakir** (Al Farabi Kazakh National University, Kazakhstan) Inverse problem for parabolic equation with p-Laplacian and damping term
17:35-17:55	**Anupma Arora** (Birla Institute of Technology and Science Pilani, India) Existence of weak solutions for Kirchhoff type double phase problem in $\mathbb{R}^N$