

The Second HKSIAM Biennial Meeting

Thursday, 31st August 2023

9:00 - 9:50	Plenary Session LT1 Chair: Jan Hesthaven	Chi-Wang Shu Inverse Lax-Wendroff Procedure for Numerical Boundary Conditions			
9:50 - 10:20	Coffee Break				
10:20 - 12:20	MS01, Room 201	MS03, Room 202	MS04, Room 203	MS09, Room 209A	MS10, Room 209B

Ludovic Tangpi	Jun Lai	Ruchi Guo	Jin Woo Jang	Kailiang Wu
Chao Zhou	Tao Yin	Wenbin Li	Gyoungun Ko	Yong Liu
Camilo Hernandez	Wangtao Lu	Xiliang Lu	Tak Kwong Wong	Qian Huang
	Erik Orvehed Hiltunen	Guozhi Dong	Seok-Bae Yun	Liwei Lu

12:30 - 14:30	Lunch Break				
14:30 - 15:20	Plenary Session LT1 Chair: Mete Soner	Kai King Chan Application of Mathematical Geometric Analysis on Pavement Defect Detection			
15:20 - 15:50	Coffee Break				
15:50 - 17:50	MS03, Room 201	MS05, Room 202	MS16, Room 203	MS10, Room 209A	MS08, Room 209B

Alex Tse	Bastian von Harrach	Xingding Chen	Haijin Wang	Tao Xiong
Yufei Zhang	Yifeng Xu	Shubin Fu	Qi Tao	Chang Yang
Yunzhang Li	Yi-Hsuan Lin	Ying Yang	Hui Yu	Shengtong Liang
Chenchen Mou	Siyu Cen	Haibiao Zheng	Jiwei Li	Yiwen Lin

Thursday, 31st August 2023
2nd HKSIAM Meeting @ LT1

9:00 - 9:50
Plenary Session
Chair:
Jan Hesthaven

Chi-Wang Shu
Inverse Lax-Wendroff Procedure for Numerical
Boundary Conditions

14:30 - 15:20
Plenary Session
Chair: Mete Soner

Kai King Chan
Application of Mathematical Geometric Analysis
on Pavement Defect Detection

Thursday, 31st August 2023
2nd HKSIAM Meeting @ Room 201

10:20 - 10:50, MS03, Ludovic Tangpi
Forward-backward propagation of chaos via displacement monotonicity

10:50 - 11:20, MS03, Chao Zhou
Convergence analysis on the particle systems with centralized control

11:20 - 11:50, MS03, Camilo Hernandez
Propagation of chaos for Schrödinger problems with interacting particles

15:50 - 16:20, MS03, Alex Tse
Optimal Investment and Consumption with Epstein-Zin Stochastic Differential Utility
and Proportional Transaction Costs

16:20 - 16:50, MS03, Yufei Zhang
Exploration-exploitation trade-off for continuous-time reinforcement learning

16:50 - 17:20, MS03, Yunzhang Li
Time Discretization of Partially Observable Stochastic Optimal Control Problems

17:20 - 17:50, MS03, Chenchen Mou
Master equations for extended MFG and MFG with a major player

Thursday, 31st August 2023

2nd HKSIAM Meeting @ Room 202

10:20 - 10:50, MS03, Jun Lai
Selective focusing of multiple elastic particles

10:50 - 11:20, MS03, Tao Yin
Multiple-scattering frequency-time hybrid solver for the wave-equation problems

11:20 - 11:50, MS03, Wangtao Lu
Mathematical theory for electromagnetic scattering resonances and field enhancement in a subwavelength annular gap

11:50 - 12:20, MS03, Erik Orvehed Hiltunen
Band structure and Dirac points of real-space quantum optics in periodic media

15:50 - 16:20, MS05, Bastian von Harrach
Towards global convergence for inverse coefficient problems

16:20 - 16:50, MS05, Yifeng Xu
AFEM for Elliptic Eigenvalue Optimization in Phase-Field Setting

16:50 - 17:20, MS05, Yi-Hsuan Lin
Inverse problems for semilinear reaction-diffusion equations

17:20 - 17:50, MS05, Siyu Cen
Recovery of Multiple Parameters in Subdiffusion from One Lateral Boundary Measurement

Thursday, 31st August 2023

2nd HKSIAM Meeting @ Room 203

10:20 - 10:50, MS04, Ruchi Guo

Transformer meets boundary value inverse problems

10:50 - 11:20, MS04, Wenbin Li

Convex neural networks for inverse problems in imaging

11:20 - 11:50, MS04, Xiliang Lu

Current density impedance imaging with PINNs

11:50 - 12:20, MS04, Guozhi Dong

Optimal control of ReLU neural network informed partial differential equations

15:50 - 16:20, MS16, Xingding Chen

A recycling preconditioning method with auxiliary tip subspace for elastic crack propagation simulation using XFEM

16:20 - 16:50, MS16, Shubin Fu

An efficient multiscale preconditioner for large-scale highly heterogeneous flow

16:50 - 17:20, MS16, Ying Yang

A virtual element method for the PNP equations on polygonal meshes

17:20 - 17:50, MS16, Haibiao Zheng

Non-iterative local parallel algorithms for an interface-coupled parabolic problem

Thursday, 31st August 2023
2nd HKSIAM Meeting @ Room 209A

10:20 - 10:50, MS09, Jin Woo Jang
Vanishing angular singularity limit to the hard-sphere Boltzmann equation

10:50 - 11:20, MS09, Gyoungun Ko
Large-amplitude problem of BGK model

11:20 - 11:50, MS09, Tak Kwong Wong
Magnetic confinement for the 2D axisymmetric relativistic Vlasov-Maxwell system in an annulus

11:50 - 12:20, MS09, Seok-Bae Yun
Stationary weak solutions to the BGK model in a slab

15:50 - 16:20, MS10, Haijin Wang
Stability and error estimates of LDG-IMEX-BDF methods for convection-diffusion equation

16:20 - 16:50, MS10, Qi Tao
Accuracy-enhancement of discontinuous Galerkin methods for PDEs containing high-order spatial derivatives

16:50 - 17:20, MS10, Hui Yu
Traceability of Water Pollution: An Inversion Scheme Via Dynamic CGO Solutions

17:20 - 17:50, MS10, Jiwei Li
Flow Measurement: An Inverse Problem Formulation

Thursday, 31st August 2023

2nd HKSIAM Meeting @ Room 209B

10:20 - 10:50, MS10, Kailiang Wu
Geometric Quasi-Linearization (GQL) for Bound-Preserving Schemes

10:50 - 11:20, MS10, Yong Liu
An essentially oscillation-free discontinuous Galerkin method for hyperbolic conservation laws

11:20 - 11:50, MS10, Qian Huang
Moment methods for a kinetic model of polar active matter

11:50 - 12:20, MS10, Liwei Lu
Weak Collocation Regression method: fast reveal hidden stochastic dynamics from high-dimensional aggregate data

15:50 - 16:20, MS08, Tao Xiong
Uniformly unconditionally stable asymptotic preserving finite difference schemes for kinetic transport equations

16:20 - 16:50, MS08, Chang Yang
A New Collision Avoidance Model with Semi-implicit Random Batch Resolution

16:50 - 17:20, MS08, Shengtong Liang
An asymptotic-preserving PN method for the three temperature radiative transfer equation

17:20 - 17:50, MS08, Yiwen Lin
Kinetic-fluid multi-phase flow system with random inputs