

Workshop on Numerical Methods and Analysis for PDEs



June 26-27, 2024

Harbin Institute of Technology, Shenzhen

Workshop on Numerical Methods and Analysis for PDEs

Date: June 26-27, 2024

Address: H407, Harbin Institute of Technology, Shenzhen

Organizers:

Norikazu Saito	The University of Tokyo
Jilu Wang	Harbin Institute of Technology, Shenzhen
Buyang Li	The Hong Kong Polytechnic University
Tomoya Kemmochi	Nagoya University

Invited Speakers (Alphabetical order):

Takahito Kashiwabara	The University of Tokyo
Tomoya Kemmochi	Nagoya University
Buyang Li	The Hong Kong Polytechnic University
Yonglin Li	The Hong Kong Polytechnic University
Yuwen Li	Zhejiang University
Takayasu Matsuo	The University of Tokyo
Norikazu Saito	The University of Tokyo
Shun Sato	The University of Tokyo
Zuoqiang Shi	Tsinghua University
Akitoshi Takayasu	University of Tsukuba
Shinya Uchiumi	Hokkaido University
Yuki Ueda	Hokkaido University
Li-Lian Wang	Nanyang Technological University
Yifei Wu	Tianjin University
Wenjun Ying	Shanghai Jiao Tong University
Weiying Zheng	Academy of Mathematics and Systems Science, CAS
Guanyu Zhou	University of Electronic Science and Technology of China
Qingsong Zou	Sun Yat-sen University

Schedule

June 26		June 27	
8:40-8:50	Opening		
Chair: Weiyang Zheng		Chair: Yifei Wu	
8:50-9:25	Norikazu Saito	8:40-9:15	Li-Lian Wang
9:25-10:00	Takahito Kashiwabara	9:15-9:50	Qingsong Zou
10:00-10:30	Break, poster session	9:50-10:20	Break, poster session
Chair: Norikazu Saito		Chair: Takayasu Matsuo	
10:30-11:05	Takayasu Matsuo	10:20-10:55	Tomoya Kemmochi
11:05-11:40	Akitoshi Takayasu	10:55-11:30	Shinya Uchiumi
11:40-12:15	Shun Sato	11:30-12:05	Yuki Ueda
12:15-15:00	Lunch, photo	12:05-15:00	Lunch
Chair: Buyang Li		Chair: Tomoya Kemmochi	
15:00-15:35	Weiyang Zheng	15:00-15:35	Yifei Wu
15:35-16:10	Wenjun Ying	15:35-16:10	Buyang Li
16:10-16:40	Break, poster session	16:10-16:40	Break, poster session
Chair: Wenjun Ying		Chair: Jilu Wang	
16:40-17:15	Zuoqiang Shi	16:40-17:15	Yuwen Li
17:15-17:50	Guanyu Zhou	17:15-17:50	Yonglin Li
17:50-20:00	Dinner	17:50-20:00	Dinner

Timetable

June 26 (Wednesday)		
8:40-8:50	Opening	
8:50-9:25	Chair: Weiyong Zheng	Norikazu Saito: A fictitious-play finite-difference method for mean field games with a quadratic Hamiltonian
9:25-10:00		Takahito Kashiwabara: L^∞ -error estimates for isoparametric FEM on smooth domains
10:00-10:30	Break, poster session	
10:30-11:05	Chair: Norikazu Saito	Takayasu Matsuo: Structure-preserving numerical methods for PDEs and their aggressive splitting
11:05-11:40		Akitoshi Takayasu: Rigorous integrator and computer-assisted proofs for semilinear parabolic PDEs in higher dimensions
11:40-12:15		Shun Sato: Linearly implicit conservative exponential integrators for scalar auxiliary variable approach
12:15-15:00	Lunch, photo	
15:00-15:35	Chair: Buyang Li	Weiyong Zheng: A two-grid finite element method for the Schrödinger-Poisson system
15:35-16:10		Wenjun Ying: A Cartesian grid method for nonhomogeneous elliptic interface problems on unbounded domains
16:10-16:40	Break, poster session	
16:40-17:15	Chair: Wenjun Ying	Zuoqiang Shi: Gradient enhanced ADMM for dynamic optimal transport on manifolds
17:15-17:50		Guanyu Zhou: The fully mixed finite element method for the Signorini problem
17:50-20:00	Dinner	

Timetable

June 27 (Thursday)		
8:40-9:15	Chair: Yifei Wu	Li-Lian Wang: Low-regularity estimates of time-splitting Fourier spectral method for logarithmic Schrödinger equation
9:15-9:50		Qingsong Zou: PDENNEval: A comprehensive evaluation of neural network methods for solving PDEs
9:50-10:20	Break, poster session	
10:20-10:55	Chair: Takayasu Matsuo	Tomoya Kemmochi: Discrete maximal regularity for the discontinuous Galerkin time-stepping method without logarithmic factor
10:55-11:30		Shinya Uchiumi: A finite element / spectral mixed approximation for the Stokes problem
11:30-12:05		Yuki Ueda: Time periodic profile on a diffusion equation model to describe a bubble cluster with rupture
12:05-15:00	Lunch	
15:00-15:35	Chair: Tomoya Kemmochi	Yifei Wu: Regularity Mechanism of Nonlinear Schrodinger Equations with Rough Potential
15:35-16:10		Buyang Li: Numerical approximation of discontinuous solutions of the semilinear wave equation
16:10-16:40	Break, poster session	
16:40-17:15	Chair: Jilu Wang	Yuwen Li: Reduced Krylov basis methods
17:15-17:50		Yonglin Li: A new perfectly matched layer method for the Helmholtz equation in nonconvex domains
17:50-20:00	Dinner	