

第四届北京大学计算与应用数学拔尖博士生研讨会  
暨第七届北京计算数学研究生论坛

2021 年 9 月 10 — 12 日

北京大学



## 会议日程

9 10 1114		
8:50 — 9:00		
9:00 — 9:30		Low-rank matrix manifold: Geometry and optimization
9:30 — 10:00		Second-Order Methods for Deep Learning Problems
10:00 — 10:20		
10:20 — 10:50		Risk Bounds and Calibration for a Smart Predict-then-Optimize Method
10:50 — 11:20		A General Quantum Simulator Based On the Subspace-CP Format
11:20 — 14:00		
14:00 — 14:30		FEM Approximation for Parabolic Optimal Control Problems with Pointwise Observations
14:30 — 15:00		Auxiliary Space Preconditioners for $C^0$ Finite Element Approximation of Hamilton-Jacobi-Bellman Equations with Cordes Coefficients
15:00 — 15:30		Finite Element Method for a Nonlinear PML Helmholtz Equation with Large Wave Number
15:30 — 15:50		
15:50 — 16:20		
16:20 — 16:50		An Energy Stable Finite Element Scheme for the Three-component Cahn-Hilliard-type Model for Macromolecular Microsphere Composite Hydrogels

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9:00 — 9:30		Machine learning force field from Gaussian process regression for active learning, and its applications in material simulations
9:30 — 10:00		Robust Multi-object Matching via Iterative Reweighting of the Graph Connection Laplacian
10:00 — 10:20		
10:20 — 10:50		NPTC-net: Narrow-Band Parallel Transport Convolutional Neural Networks on Point Clouds
10:50 — 11:20		Some recent progress on singularity formation in incompressible fluids and related models
11:20 — 14:00		
14:00 — 14:30		WENO
14:30 — 15:00		An Approximate Analytical Solution to Knudsen Layers
15:00 — 15:30		Positivity-preserving High Order Finite Volume Hybrid Hermite WENO Schemes for Compressible Navier-Stokes Equations
15:30 — 15:50		
15:50 — 16:20		Alternating descent method for gauge cooling of complex Langevin
16:20 — 16:50		Generative learning from the perspective of gradient flow

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9:00 — 9:30		
9:30 — 10:00		Computing Solution Landscape of Nonlinear Space-fractional Problems via Fast Approximation Algorithm
10:00 — 10:20		
10:20 — 10:50		A Spatial-Temporal asymptotic preserving scheme for radiation magnetohydrodynamics in the equilibrium and non-equilibrium diffusion limit
10:50 — 11:20		A Unified Structure Preserving Scheme for a Multi-species Model with a Gradient Flow Structure and Nonlocal Interactions via Singular Kernels