Session Program

26 July 2026 to 1 August 2026

The 43rd International Symposium on Lattice Field Theory (Lattice 2026)

Algorithms and artificial intelligence

University of Maryland, College Park
Adele H. Stamp Student Union 3972 Campus Dr College Park, MD 20742, United States

Monday 27 July

14:00

Algorithms and artificial intelligence

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: En-Hung Chao

14:00–14:20

Reducing the residual mass of domain-wall fermions using machine learning

Speaker
Shunsuke Yasunaga

14:20–14:40

Non-perturbative tuning of relativistic heavy quarks using machine learning in lattice QCD

Speaker
Thamirys de Oliveira

14:40–15:00

Machine-Learning-Accelerated Multigrid Setup for Lattice QCD Dirac Solves

Speaker
Simon Pfahler

15:00–15:20

The Renormalization-Group Preconditioned Conjugate Gradient for Domain Wall Fermions

Speaker
Mr Jonah Eick

15:20–15:40 **Algorithms for domain wall fermions**

Speaker
Dr Peter Boyle

15:40

16:10

Algorithms and artificial intelligence

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: James Osborn

16:10–16:30

Overcoming Topological Freezing with Multilevel Generative Plaquette Sampling

Speaker
Ankur Singha

16:30–16:50

Optimal Paths through Distribution Space for Mitigating Topological Freezing

Speaker
Roberto Dionisio

16:50–17:10 **Parallel tempered Metadynamics in full QCD**

Speaker
Gianluca Fuwa

17:10–17:30 **Exploration of Parallel Tempering on Boundary Conditions**

Speaker
Victor Granados-Pinto

17:30

Tuesday 28 July

14:00

Algorithms and artificial intelligence

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Prof. Shailesh Chandrasekharan

14:00–14:20 **Generalized Dynamics for HMC**

Speaker
James Osborn

14:20–14:40
Studying the impact of multiple, localized, gauge-fixed subvolumes with coherent conjugate momenta on the Hybrid Monte Carlo

Speaker
Robert Mawhinney

14:40–15:00 **Worldvolume Hybrid Monte Carlo method for lattice gauge theories**

Speaker
Masafumi Fukuma

15:00–15:20 **Crafting the change of variables for HMC**

Speaker
Xiao-Yong Jin

15:20–15:40 **Event-Chain Monte Carlo for pure gauge lattice QCD**

Speaker
Yacob OZDALKIRAN

15:40

16:10

Algorithms and artificial intelligence: I

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Masafumi Fukuma

16:10–16:30 **Projected Density Matrix Sampling for Quantum Lattice Hamiltonians**

Speaker
Prof. Shailesh Chandrasekharan

16:30–16:50 **Reweighting using the worldline formalism**

Speaker
Dr En-Hung Chao

16:50–17:10 **Efficient Hybrid Monte Carlo for Pfaffian Quantum Monte Carlo**

Speaker
Thomas Hauschild

17:10–17:30
H^{2}MC: A Hybrid Hamiltonian Monte Carlo framework for interacting quantum wires

Speaker
Finn Temmen

17:30

16:10

Algorithms and artificial intelligence: II

Session |
Location: Adele H. Stamp Student Union, Thurgood Marshall, 3972 Campus Dr, College Park, MD 20742 |
Convener: Letizia Parato

16:10–16:30

Tackling the Sign Problem in the Doped Hubbard Model with Normalizing Flows

Speaker
Dominic Schuh

16:30–16:50 **Machine-Learned Density of States for the Doped Hubbard Model**

Speaker
Felicitas Freche

16:50–17:10 **Generative Models for the Low-Temperature Hubbard Model**

Speaker
Janik Kreit

17:10–17:30

Low-Temperature Hybrid Monte Carlo for Perylene and Corannulene: Stabilizing Determinant and Force

Speaker
Petar Sinilkov

17:30

Wednesday 29 July

09:00

Algorithms and artificial intelligence

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Matteo Saccardi

09:00–09:20 **Operator Learning for spectral reconstruction in lattice QCD**

Speaker
Alessandro De Santis

09:20–09:40
Direct and indirect inverse-Laplace strategies for spectral reconstruction

Speaker
Demetrianos Gavriel

09:40–10:00
Spectral density reconstruction from lattice QCD correlators: an approach via numerical anti-Laplace transform. Numerical treatment.

Speaker
Francesco Di Renzo

10:00–10:20
Spectral density reconstruction from lattice QCD correlators: an approach via numerical anti-Laplace transform. Analytical characterisation

Speaker
Jose Alejandro Vidal Maxia

10:20–10:40 **Optimized solver algorithms for computing $Tr(A^{-1})$**

Speaker
Benjamin Luke

10:40

11:10

Algorithms and artificial intelligence

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Dr Thomas Spriggs

11:10–11:30
Spectral Properties of the non-Hermitian Dirac Operators from the Krylov-Schur Algorithm

Speaker
Patrick Oare

11:30–11:50 **Topological modes in Lattice QCD evolution**

Speaker
Chulwoo Jung

11:50–12:10
Learning Low Modes of the Wilson Dirac Operator with Gauge-Equivariant Networks

Speaker
choi minjae

12:10–12:30 **Updates on the Machine Learning Approach for Lattice Gauge Fixing**

Speaker
Ho Hsiao

12:30

Thursday 30 July

14:00

Algorithms and artificial intelligence

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Daniel Hackett

14:00–14:20 **Solving sign problems with physics-informed kernels**

Speaker
Renzo Kapust

14:20–14:40
Learning the generating functional for variance reduction in lattice QCD

Speaker
Fernando Romero López

14:40–15:00 **Neural-Enhanced Out-of-equilibrium sampling for Lattice Field Theory**

Speaker
Elia Cellini

15:00–15:20
Unbiased Diffusion-Based Generation via Scalable Non-Equilibrium Transport

Speaker
Octavio Vega

15:20–15:40
Renormalization Group inspired inverse blocking with conditional normalizing flows

Speaker
Letizia Parato

15:40

16:10

Algorithms and artificial intelligence

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Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Francesco Di Renzo

16:10–16:30
Diagonalizing the Kogut-Susskind Hamiltonian with Physics-Informed Neural Networks

Speaker
Simone Romiti

16:30–16:50 **Neural Wavefunctions in Quantum Field Theory**

Speaker
Suryansh Rajawat

16:50–17:10
3+1d SU(3) Yang-Mills + theta-term with Neural Network Quantum States

Speaker
Joshua Lin

17:10–17:30

The Affine Conjecture: Using Numerical Methods to Tune Geometries for Non-integrable Lattice Field Theories

Speaker
Rohan Misra

17:30

Friday 31 July

14:00

Algorithms and artificial intelligence

Session |
Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Fernando Romero López

14:00–14:20

Agentic AI for QCD perturbation theory or: how I learned to stop worrying and love the bot

Speaker
Erik Lundstrum

14:20–14:40

AI-Assisted Higher-Order Hopping-Parameter Expansion in Lattice QCD

Speaker
Tatsuya Wada

14:40–15:00

A variational framework for variance reduction in lattice field theory

Speaker
Pietro Butti

15:00–15:20

Topology and thermodynamics from a machine-learned 4d SU(3) FP gauge action

Speaker
Urs Wenger

15:20–15:40

Lattice QCD on the 16-cell honeycomb

Speaker
Daniel Nogradi

15:40

16:10

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Location: Adele H. Stamp Student Union, Benjamin Banneker B, 3972 Campus Dr, College Park, MD 20742 |
Convener: Xiao-Yong Jin

16:10–16:30

Tensor renormalization group for four-dimensional SU(N) gauge theories

Speaker
Katsumasa Nakayama

16:30–16:50

Tensor renormalization group analysis of correlators in Yang-Mills theory

Speaker
Takaaki Kuwahara

16:50–17:10

Simulating the string formulation of SU(3) lattice gauge theory

Speaker
Benjamin Izett

17:10–17:30

Comparison of Smearing Kernels for Field-Transformation HMC via the Master-Field Technique

Speaker
Shuhei Yamamoto

17:30