



# The 39th International Symposium on Lattice Field Theory (Lattice 2022)

## Monday, August 8, 2022

### Algorithms: Algorithms I - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (2:00 PM - 4:00 PM)

-Conveners: Urs Wenger

time	[id] title	presenter
2:00 PM	[2] Flow-based density of states for complex actions	URBAN, Julian
2:20 PM	[143] Stochastic normalizing flows for lattice field theory	CELLINI, Elia
2:40 PM	[96] Kernel controlled real-time Complex Langevin simulation	ALVESTAD, Daniel
3:00 PM	[129] Gauge-equivariant flow models for sampling in lattice field theories with pseudofermions	ROMERO-LOPEZ, Fernando
3:20 PM	[276] Automatic differentiation for stochastic processes	TELO, Guilherme
3:40 PM	[102] Applying the worldvolume tempered Lefschetz thimble method to lattice field theories	Prof. FUKUMA, Masafumi

### Algorithms: Algorithms II - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (4:30 PM - 6:30 PM)

-Conveners: Simone Bacchio

time	[id] title	presenter
4:30 PM	[349] Status update on flow models for gauge field generation	SHANAHAN, Phiala
4:50 PM	[142] Exploration of Efficient Neural Network for Path Optimization Method	NAMEKAWA, Yusuke
5:10 PM	[80] Reducing the Sign Problem using Line Integrals	LARSEN, Rasmus
5:30 PM	[279] Topology changing update algorithms for SU(3) gauge theory	EICHHORN, Timo
5:50 PM	[146] Machine Learning Trivializing Maps	MARSH ROSSNEY, Joe
6:10 PM	[205] Learning trivializing flows	ALBANDEA, David

## Tuesday, August 9, 2022

### Algorithms: Algorithms III - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (2:00 PM - 4:00 PM)

-Conveners: Michael Fromm

time	[id] title	presenter
2:00 PM	[141] Overcoming exponential volume scaling in quantum simulations of lattice gauge theories	KANE, Christopher
2:20 PM	[120] Exploring the phase structure of the multi-flavor Schwinger model with quantum computing	KÜHN, Stefan
2:40 PM	[115] Digitizing $\mathrm{SU}(2)$ gauge fields and what to look out for when doing so	JAKOBS, Timo
3:00 PM	[136] Defining Canonical Momenta for Discretised $\mathrm{SU}(2)$ Gauge Fields	URBACH, Carsten
3:20 PM	[191] Toward Quantum Computing Phase Diagrams of Gauge Theories with Thermal Pure Quantum States	POWERS, Connor
3:40 PM	[282] Quantum state preparation algorithms for the Schwinger model with a theta term	BAZAVOV, Alexei

### Algorithms: Algorithms IV - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (4:30 PM - 6:30 PM)

-Conveners: Alexei Bazavov

time	[id] title	presenter
4:30 PM	[243] Real time evolution and a traveling excitation in $\mathrm{SU}(2)$ pure gauge theory on a quantum computer.	MENDICELLI, Emanuele
4:50 PM	[134] Determining the Mass Renormalization of the Schwinger Model with Wilson Fermions using Tensor Networks	Mr ANGELIDES, Takis
5:10 PM	[393] Improving Quantum Simulations towards lattice $\mathrm{SU}(3)$	LAMM, Henry
5:30 PM	[241] Quantum Computing for Open Systems	SAMBASIVAM, Bharath

## Wednesday, August 10, 2022

### Algorithms: Algorithms V - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (2:00 PM - 4:00 PM)

-Conveners: Lena Funcke

time	[id] title	presenter
2:00 PM	[350] $\mathbb{Z}_n$ Lattice Gauge Theory on the Quantum Annealer	FROMM, Michael
2:20 PM	[404] Quantum computing for lattice supersymmetry	CULVER, Christopher
2:40 PM	[89] Grassmann tensor-network method for strong-coupling QCD	BLOCH, Jacques
3:00 PM	[446] Toward tensor renormalization group study of three-dimensional non-Abelian gauge theory	KUWAHARA, Takaaki
3:20 PM	[238] Entanglement filtering and improved coarse-graining on two dimensional tensor networks including fermions	SAKAI, Ryo
3:40 PM	[403] Symmetry breaking in an extended-O(2) model	HOSTETLER, Leon

### Algorithms: Algorithms VI - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (4:30 PM - 6:30 PM)

-Conveners: Akio Tomiya

time	[id] title	presenter
4:30 PM	[152] Density of states techniques for fermion worldlines	GATTRINGER, Christof
4:50 PM	[286] Improved lattice method for determining entanglement measures in SU(N) gauge theories	RINDLISBACHER, Tobias
5:10 PM	[295] Error Reduction using Machine Learning on Ising Worm Simulation	KIM, Jangho
5:30 PM	[345] An ML approach to the classification of phase transitions in many flavor QCD	NEUMANN, Marius
5:50 PM	[170] Generative models for scalar field theories: how to deal with poor scaling?	KOMIJANI, Javad
6:10 PM	[157] Mitigating the Hubbard Sign Problem. A Novel Application of Machine Learning	RODEKAMP, Marcel

# Thursday, August 11, 2022

## Algorithms: Algorithms VII - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (9:00 AM - 11:00 AM)

-Conveners: **Fernando Romero-Lopez**

time	[id] title	presenter
9:00 AM	[159] Infinite Variance in Fermionic Systems	YUNUS, Cagin
9:20 AM	[412] Oscillating Autocorrelation and the HMC Algorithm	ZIMMERMANN, Falk
9:40 AM	[413] Transfer matrices and temporal factorization of the Wilson fermion determinant	WENGER, Urs
10:00 AM	[261] MLMC++ as a variance reduction method	Mr KHALIL, Mostafa
10:20 AM	[258] Deflation in multigrid multilevel Monte Carlo	RAMIREZ-HIDALGO, Gustavo
10:40 AM	[436] Towards the Application of Skewed Detailed Balance in Lattice Gauge Theories	PINTO BARROS, Joao C.

## Algorithms: Algorithms VIII - CP1-HSZ/1.004 (CP1-HSZ) - HS7 (11:30 AM - 12:50 PM)

-Conveners: **Jacques Bloch**

time	[id] title	presenter
11:30 AM	[308] Efficiently unquenching electromagnetism in QCD+QED	HARRIS, Tim
11:50 AM	[437] Circuitizing product formulas for (1+1)D SU(2) lattice gauge theories: Lessons from alternative formulations	STRYKER, Jesse
12:10 PM	[194] On the determination of the strong QCD coupling at the Z-pole with new gradient-flow based beta-function	WONG, Chik Him (Ricky)
12:30 PM	[291] T-mu phase diagram using classical-quantum hybrid algorithm	TOMIYA, Akio