123rd Statistical Mechanics Conference

Rutgers University, Busch Campus, Hill Center, Room 114

Sunday, December 18, 2022 - Tuesday December 20, 2022

Honorees

Matthew Fisher and Chuck Newman

Sunday, December 18th 2022

Registration and Breakfast 8:00 - 9:00

9:00 - 9:25 **Leo Radzihovsky** - University of Colorado
Lifshitz dualities

9:25 - 9:50 **Daniel Stein** - NYU
Ground State Stability and the Nature of the Spin Glass Phase

9:50 - 10:15 **Michael Aizenman - Princeton University**
Ruminations on Matrix Convexity and the Strong Subadditivity of Quantum Entropy

10:15 - 10:40 **Gérard Ben Arous** - NYU
High-dimensional limit theorems for SGD: Effective dynamics and critical scaling

10:40 - 11:10 ***Coffee Break***

11:10 - 11:35 **Charles Kane** - University of Pennsylvania
Quantum Brownian Motion 35 years later

11:35 - 12:00 **Werner Krauth** - Ecole normale supérieure
Lifted non-reversible Markov chains: From solvable models to real-life applications

12:00 - 12:25 **Dmitry Krotov** - IBM Research
Modern Hopfield Networks in AI and Neurobiology

Lunch 12:25 - 1:50

1:50 - 2:15 **Daniel Fisher** - Stanford University
A Hitchhiker's Guide to Spin Glasses

2:15 - 2:40 **Jon Machta** - University of Massachusetts
Optimal Paths for Annealing Algorithms: Insights from Non-equilibrium Statistical Physics

2:40 - 3:05 **Nina Holden** - NYU
Regularity of the Schramm-Loewner evolution: Up-to-constant variation and modulus of continuity

3:05 - 3:40 **Smitha Vishveshwara** - University of Illinois
Fractional Quasiparticles: A Collective Quest

3:40 - 4:10 ***Coffee Break***

4:10 - 4:35 **Stefano Martiniani** - NYU
Play. Pause. Rewind. Model-free measurement of local entropy production and extractable work in active matter

4:35 - 5:00 **Roger Melko** - University of Waterloo/Perimeter
Autoregressive models for quantum simulation

5:00 - 5:25 **Lai-Sang Young** - NYU
Growth and depletion in some stochastic reaction networks

5:25 - 5:50 **Eric Siggia** - Rockefeller University
Geometry and Genetics

6:00 Cocktails & Concert in the Fiber Optics Auditorium, sponsored by Springer's Journal of Statistical Physics (All are invited)

7:50 Banquet at at the Hill Center - 7th Floor - Reservation required

Monday, December 19th 2022

Registration and Breakfast 7:45 - 8:30

8:30 - 9:30 Short Talks: Session A

9:35 - 10:00 **Lily Reeves** - Cornell University
Chemical distance for 2d critical percolation

10:00 - 10:25 **Michael Damron** - Georgia Institute of Technology
First-Passage Percolation in the Critical Regime

Coffee Break 10:25 - 10:55

10:55 - 11:20 **Rodica Costin** - Ohio State University
Non-perturbative Solution of the 1d Schrodinger Equation

11:20 - 11:45 **Reza Gheissari** - Northwestern University
Low-temperature Ising dynamics from ground state initializations

11:45 - 12:10 **Senthil Todadri** - Massachusetts Institute of Technology
The dipolar Bose Hubbard model

12:10 - 12:30 **Human Rights Session** - Ian Jauslin and Joel Lebowitz

Lunch 12:30 - 1:50

1:50 - 2:15 **Eyal Lubetzky** - NYU
On the level lines of the Solid-On-Solid model above a wall

2:15 - 2:40 **Ovidiu Costin** - Ohio State University
Noise Effects on Padé Approximants and Conformal Maps

2:40 - 3:05 **Sagar Vijay** - UC Santa Barbara
Monitored Quantum Dynamics and Beyond

3:05 - 3:30 **Romain Vasseur** - University of Massachusetts Amherst
Learning global charges from local measurements

Coffee Break 3:30 - 4:00

4:00 - 4:25 **Bulbul Chakraborty** - Brandeis University
The collective behavior of particles with “noisy” interactions

4:25 - 4:50 **Louis-Pierre Arguin** - CUNY, Baruch College
A statistical mechanics perspective on the large values of the Riemann zeta function

4:50 - 5:15 **Daniel Stein** - Laudatio for Chuck Newman

4:15 - 5:40 **Leo Radzihovsky** - Laudatio for Matthew Fisher

5:45 Cocktails and Dinner at the Hill Center - 7th Floor

Tuesday, December 20th, 2022

Registration and Breakfast 7:45 - 8:15

8:15 - 9:15 Short Talks: Session B

9:15 - 9:40 **Federico Bonetto** - Georgia Institute of Technology
Autonomous evolution for the speed of 2 electrons in a thermostated system

9:40 - 10:05 **Federico Camia** - NYU
Conformal Statistical Mechanics

Coffee Break 10:05 - 10:30

10:30 - 10:55 **Natan Andrei** - Rutgers University
Kondo Effect in 1-D superconductors

10:55 - 11:20 **Ravi Krishnamurthi - Suny New Paltz**
Convergence of discrete dynamical web to dynamical Brownian web

11:20 - 11:45 **Vedika Khemani** - Stanford University
Operator relaxation and the optimal depth of classical shadows

11:45 - 12:10 **Misha Tsodyks** - Institute for Advanced Study
Human Memory: Theory vs Experiments

Lunch 12:10 - 1:25

1:25 - 1:50 **Wei Wu** - NYU Shanghai
Massless phases for the Villain model in d>=3

1:50- 2:15 **Nick Read** - Yale University
Short-range spin glasses: single-replica equivalence and indecomposable metastates

2:15 - 2:40 **Ilya Gruzberg** - Ohio State University
Conformal invariance and Anderson transitions

2:40 - 3:05 **Jed Pixley** - Rutgers University
Universality classes of observer driven phase transitions

3:05 - 3:30 **David Huse** - Princeton University
Transitions to many-body quantum chaos and thermalization