124th Statistical Mechanics Conference
Rutgers University, Busch Campus, Hill Center, Room 114
Sunday, May 7, 2023 - Tuesday May 9, 2023
<u>Honorees</u>
Bill Bialek, Antti Kupianinen and Jorge Kurchan

<u>Sunday, May 7, 2023</u>
Registration and Breakfast 8:00 - 9:00

9:00 - 9:25 **Ilya Nemenman** - Emory University
Animal learning, a century after Pavlov

9:25 - 9:50 **Gregory Eyink** -John Hopkins University
Statistical Physics and Fluid Turbulence in Collision: Spontaneous Stochasticity

9:50 - 10:15 **Leticia Cugliandolo -** LPTHE Sorbonne Université
Dynamics of Motility-Induced clusters: coarsening beyond Ostwald ripening

10:15 - 10:40 **Ned Wingreen** - Princeton Univeristy
Exclusion of unwanted components from biomolecular condensates

10:40 - 11:10 *Coffee Break*

11:10 - 11:35 **Dov Levine** - Technion
Can we Define Random Close Packing?

11:35 - 12:00 **Massimo Vergassola** - UC San Diego
Fluid dynamics of embryonic development

12:00 - 12:25 **Larry Abbott** - Columbia University
Could a Fly Pass Physics 1?

Lunch 12:25 - 1:50

1:50 - 2:15 **Shlomo Havlin** - Bar Ilan University
Interdependent networks yield novel physical phase transitions

2:15 - 2:40 **Mark Freidlin** - University of Maryland
Long-Time Influence of Small Perturbations

2:40 - 3:05 **Chuck Newman** - NYU
Thermodynamic Limit of the first Lee-Yang Zero

3:05 - 3:40 **Jean Bricmont** - UC Louvain
Proofs of non-locality almost without experiments

3:40 - 4:10 *Coffee Break*

4:10 - 4:35 **Cristian Giardina** - UnivModena Reg Emil
SOLVABLE MODELS OF ENERGY TRANSPORT

4:35 - 5:00 **Micheal DeWeese** - University of Berkeley
Designing Optimal Non-Equilibrium Heat Engines

5:00 - 5:25   **Stephanie Palmer** - University of Chicago

How what you do shapes what you see

5:25 - 5:50   **Ivana Cvijovic** - Stanford University

Mapping the statistics of tissue residence and migration in the human antibody-mediated immunity

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, May 8, 2023

Registration and Breakfast 7:45 - 8:30

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

9:35 - 9:55   **Jan Wehr -** University of Arizona

Quantum trajectories of stimulated emission

9:55 - 10:20   **Francesco Zamponi** - CNRS and Ecole Normale Superieure

Exact solution of liquid dynamics in infinite dimensions

Coffee Break 10:20 - 10:50

10:50 - 11:15   **Alexandre Morozov – Rutgers University**

SmartRunner: an adaptive approach to global optimization in discrete systems

11:15 - 11:40   **Uwe Tauber –Virginia Tech**

Spatially Inhomogeneous Stochastic Cyclic Competition Models: Stabilizing Vulnerable Ecologies Through Immigration Waves

11:40 - 12:05   **Laura Foini** - CNRS IPhT Saclay

The eigenstate thermalization hypothesis

12:05 - 12:30   **Human Rights Session** - Ian Jauslin and Joel Lebowitz

Lunch 12:30 - 1:50

1:50 - 2:15   **Joshua Shaevitz** - Princeton University

Polar and nematic states drive 3D pattern formation in the bacterium Myxococcus xanthus

2:15 - 2:40   **Leenoy Meshulam** - University of Washington

From 100k pigment cells to skillful camouflage: emerging simplicity in sleeping octopuses

2:40 - 3:05   **Ben Machta** - Yale University

A non-equilibrium critical model for bacterial chemosensory amplification

3:05 - 3:30   **Emil Yuzbashyan** - Rutgers University

Is nonequilibrium superconductivity a quantum or a classical phenomenon?

Coffee Break 3:30 - 4:00

4:00 - 4:25   **Marcelo Magnasco** - Rockefeller University

Robustness, Flexibility and Trainability of Complex Biological Networks

4:25 - 4:50	**Stephanie Palmer - University of Chicago**
	Laudatio for Bill Bialek
4:50 - 5:15	**Jean Bricmont** – UC Louvain
	Laudatio for Antti Kupianinen
5:15 - 5:40	**Francesco Zamponi** - CNRS and Ecole Normale Superieure
	Laudatio for Jorge Kurchan

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

Tuesday, May 9, 2023
Registration and Breakfast 7:45 - 8:30

8:30 - 9:15	Short Talks: Session B
9:15 - 9:40	**Will Perkins** - Georgia Tech
	Tree contractions, correlation decay, and uniqueness for hard spheres
9:40 - 10:05	**Jani Lukkarinen** - University of Helsinki
	Generation and propagation of chaos in the stochastic Kac model

Coffee Break 10:05 - 10:35

10:35 - 11:00	**Leonid Koralov** - University of Maryland
	Perturbations of Parabolic Equations and Diffusion Processes with Degeneration: Boundary Problems and Metastability
11:00 - 11:25	**Avraham Soffer -** Rutgers University
	A new approach to Scattering: On the Asymptotic states of Nonlinear Dispersive and Hyperbolic equations with General Data
11:25 - 11:50	**Kostya Khanin** - University of Toronto
	On KPZ problem and statistics of stochastic flows
11:50- 12:15	**Ramon Van Handel** - Princeton Universityy
	Phase transitions and nonasymptotic random matrix theory

Lunch 12:15 - 1:25

1:25 - 1:50	**Horng-Tzer Yau** - Harvard University
	On the spectral gap of mean-field spin glass models
1:50- 2:15	**Ivan Corwin** - Columbia University
	Stationary measures for open boundary systems
2:15 - 2:40	**Ron Peled** - Tel Aviv University, Princeton University and IAS
	Minimal Surfaces in Random Environment
2:40 - 3:05	**Tom Spencer** - Institute for Advanced Study
	Correlation lengths of spin systems with small magnetic field
3:05 - 3:30	**Michael Aizenman** - Princeton University
	Ruminations on Matrix Convexity and the Strong Subadditivity of Quantum Entropy