120th Statistical Mechanics Conference  
Rutgers University, Busch Campus, Hill Center, Room 114  
Sunday, December 16, 2018 - Tuesday December 18, 2018  
Honorees  
Daniel Fisher, David Huse, and Mehran Kardar  

**Sunday, December 16th 2018**  
**Registration and Breakfast 8:00 - 9:00**  
9:00 - 9:25 Michael Brenner - Harvard University  
The quest to find a singularity of the Euler Equations: Theory, Simulations and Experiments  
9:25 - 9:50 Eugene Kolomeisky - University of Virginia  
Kelvin-Froude wake patterns of a traveling pressure disturbance  
9:50 - 10:15 Leonid Koralov - University of Maryland  
Large Time Behavior of Randomly Perturbed Dynamical Systems and a New Class of Boundary Value Problems  
10:15 - 10:45 **Coffee Break**  
10:45 - 11:10 Ramin Golestanian - Max Planck Institute for Dynamics and Self-Organization and Oxford University  
Condensation transition in a simple model of colloids with diffusivity edge  
11:10 - 11:35 Yariv Kafri - Technion  
Long-range forces between bodies in active matter  
11:35 - 12:00 Giulio Biroli - Institut de Physique Théorique  
Collective phenomena in large interacting ecosystems  
12:00 - 12:25 Nihat Berker - Kadir Has University and MIT  
All-Temperature Ordering in Maximally Random Systems, Lower Lower-Critical Spin-Glass Dimension, and Continuously Variable Physical Dimension  

**Lunch 12:25 - 1:50**  
1:50 - 2:15 Vedika Khemani - Harvard University  
Quantum chaos and the emergence of dissipative hydrodynamics under unitary dynamics  
2:15 - 2:40 Dan Stein - NYU  
Nature vs. Nurture in Complex (and Not-So-Complex) Systems  
2:40 - 3:05 Paul Chaikin - NYU  
Quantifying hidden order out of equilibrium  
3:05 - 3:30 Leo Radzihovsky - University of Colorado  
Chiral Critical Matter  
3:30 - 4:00 **Coffee Break**  
4:00 - 4:25 Lucy Colwell - University of Cambridge  
Using evolutionary sequence variation to build predictive models of protein structure and function  
4:25 - 4:50 Rava Azeredo da Silveira - Ecole Normale Superieure  
Neuroscience/Cognition  
4:50 - 5:15 Sidney Redner - Santa Fe Institute  
The Dynamics of Dumb and Less Dumb Foraging  
5:15 - 5:40 Terence Hwa - UCSD  
Growth and Expansion of Chemotactic Bacterial Populations in Open Environment  

5:45 **Cocktails & Concert sponsored by Springer (All are invited)**  
7:30 **Banquet at Busch Dining Hall - Reservation required**
Monday, December 17th 2018

Registration and Breakfast 8:00 - 8:40
8:40 - 9:40  Short Talks: Session A
9:40 - 10:05  Michael Desai - Harvard University
Observing evolutionary dynamics with lineage tracking
10:05 - 10:30  Adam Nahum - Oxford University
Simple models for nonintegrable quantum dynamics, and connections to classical statistical mechanics

Coffee Break 10:30 - 11:00

11:00 - 11:25  Natan Andrei - Rutgers University
Quench dynamics in the Sine-Gordon model - Loschmidt Echo and work distribution
11:25 - 11:50  Shivaji Sondhi - Princeton University
ETH without Thermalization
11:50 - 12:20  Timothy Halpin-Healy - Barnard College
Feynman’s Gold

Lunch 12:20 - 1:50

1:50 - 2:15  Aharon Kapitulnik - Stanford University
Emerging Phenomena at a Quantum Phase Transition: the Magnetic Field-Tuned Superconductor to Insulator Transition
2:15 - 2:40  Sarang Gopalakrishnan - CUNY
Quantum phase transitions in spin chains with hyperuniform couplings
2:40 - 3:05  Brian Swingle - University of Maryland
Quantum Lyapunov Spectrum

Coffee Break 3:05 - 3:35

3:35 - 4:00  John Barton - University of California Riverside
Path integral inference of selection in evolving populations
4:00 - 4:25  Leonid Mirny - Massachusetts Institute of Technology
Physics of Chromosomes
4:25 - 4:50  Michael Desai - Laudatio for Daniel Fisher
4:50 - 5:15  Shivaji Sondhi - Laudatio for David Huse
5:15 - 5:40  Timothy Halpin-Healy - Laudatio for Mehran Kardar

5:40 Cocktails and Dinner at the Hill Center - 7th Floor

Tuesday, December 18th 2018

Registration and Breakfast 7:50 - 8:20
8:20 - 9:15  Short Talks: Session B
9:15-9:40  Thorsten Emig - CNRS & Massachusetts Institute of Technology
Modified Szegö–Widom Theorem for Block Toeplitz Matrices with Zero Modes & some Applications
9:40 - 10:05  Andrej Kosmrlj - Princeton University
Phase separation in multicompontent liquid mixtures
10:05 - 10:30  Vadim Oganesyan - CUNY
Scaling description of the many-body localized phase and its spectral signatures
10:30 - 10:55  Thomas Nattermann - University of Cologne
Vector Chiral phases in frustrated 2D classical XY-model and quantum spin chains

Coffee Break 10:55 - 11:25

11:25 - 11:50  Romain Vassuer - University of Massachusetts
Hydrodynamics of quantum integrable systems: transport, diffusion and operator spreading

11:50 - 12:15  Abhishek Dhar - International Centre for Theoretical Sciences
Light-cone spreading of perturbations and the butterfly effect in classical spin chains

12:15 - 12:40  Human rights session: Ian Jauslin - Princeton University

Lunch 12:40 - 1:40

1:40- 2:05  Jed Pixley - Rutgers University
‘Magic-Angle’ Semimetals

2:05 - 2:30  Michael Gullans - Princeton University
Entanglement structure of current-driven diffusive fermion systems

2:30 - 2:55  Hans Jauslin - Université de Bourgogne
Quantization of the electromagnetic field in interaction with a dissipative and dispersive medium; applications to quantum plasmonics

2:55 - 3:20  Dan Pirjol
Large deviations for time-averaged diffusions in the small time limit