

Understanding Complex Systems



Schedule

Monday, May 17, 2004

8:30am Continental Breakfast and Poster Setup, Loomis Lobby

Opening Session M1 in 141 Loomis chaired by Alfred Hubler

8:55am Opening Remarks by **David E. Daniel, Dean of Engineering**

9:00am Stephen Wolfram, Mathematica (keynote)

10:00am Coffee Break, Loomis Lobby

10:15am Leon Chua, UC Berkeley, Cellular Neural Nets with Local Activity
(talk and video show)

12:00 Lunch in the Ballroom of the Illini Union

Session M2 in 141 Loomis chaired by Jay Mittenthal

1:00pm Kurt Kwast, UIUC

1:40pm Andreas Wagner, Santa Fe Institute

2:20pm Gene Robinson, UIUC

3:00pm Coffee Break, Loomis Lobby

Session M3 in 141 Loomis chaired by Noshir Contractor

3:20pm [Stan Wasserman](#), UIUC

4:00pm Richard Rogers, U Amsterdam

4:40pm Coffee & Ice Cream Break, Loomis Lobby

Session M4 in 141 Loomis chaired by Bob Clegg

- 5:00pm [Daniel P. Lathrop](#), U Maryland, [Nonlinear instabilities and turbulence in 15, 110 or 15000 kg of liquid sodium](#)
- 5:40pm [Thomas J. Anastasio](#), UIUC, [Multiple time scale control of eye movement by neural networks.](#)
- 6:00pm [Kimberley Hill](#), UIUC, [Instabilities in the radial segregation patterns of granular mixtures](#)

6:20pm Poster Session P1 with Pizza and Refreshments, Loomis Lobby

- [Glenn Foster](#), UIUC [Nonlinear Resonant Forcing of Dynamical Systems](#)
- [Ioan Sturzu](#), Ball State U, [Quantum calculation of the Thermal Effect in Quantum-dot Cellular Automata](#)
- John Benjamin Cassel, UIUC, [PAC-Learnability of Temporal Relations between Partially Observable Chaotic Events within Geographic Networks](#)
- Jason Ralph Hickok, UIUC, [Transcriptional Profiles of GnRH Neurons: Implications of Circadian Input into the HPG](#)
- [Alex Barr](#), Physics, UIUC, [Adaptation to the Edge of Chaos in a Non-Isothermal Autocatalator](#)
- [Bin He](#), UIUC, [MetaQuerier: Exploring and Integrating the Deep Web](#)
- [Tim Wotherspoon](#), UIUC, [Smooth-Rough Phase Transitions in Deposition Processes with a Heat Flow and an Electrical Current](#)
- Daniel B. Stouffer, Northwestern U, [Two mechanisms to explain trophic food web structure](#)
- Jian Liu, UIUC, [Monte Carlo Bohmian Dynamics from Trajectory Stability Properties](#)
- Vasil Antonov, [Nanoparticle Diffusion on Desorbing Solids: The Role of Elementary Excitations in Buffer-Layer-assisted Growth"](#)

Evening Session M5 in 141 Loomis chaired by Samuel N. Beshers

- 7:00pm Eric Jakobsson, Nat. Inst. Health, DIRECTIONS IN BIOINFORMATICS AND COMPUTATIONAL BIOLOGY AT THE NATIONAL INSTITUTES OF HEALTH
- 7:40pm Caroline Haythornthwaite, UIUC
- 8:20pm Susan W. Kieffer, UIUC
- 9:00pm Paul Melby, Georgetown U

Tuesday, May 18, 2004

8:00am Continental Breakfast, Loomis Lobby

Session T1 in 141 Loomis chaired by Tom Anastasio

- 8:30am [Jim Houk](#), Northwestern U, [Agents of the Mind](#)
- 8:50am [Michael Blinov](#), LANL, [Modeling and analysis of combinatorial complexity in signal transduction](#)
- 9:10am [Erik Luijten](#), UIUC, [Collapsing polyelectrolytes: Self-assembly driven by counterions](#)
- 9:50am Eric Jakobsson, Nat. Inst. Health

10:30am Coffee Break, Loomis Lobby

Session T2 in 141 Loomis chaired by Jay Mittenthal

- 10:40am Noshir Contractor, UIUC, [Coevolution of knowledge networks in 21st century o](#)
- 11:20am [Katy Borner](#), Indiana U, [Mapping and Modeling Scientific Network Ecologies](#)

12:00 Lunch in the Ballroom of the Illini Union

1:00pm Tutorial I in 151 Loomis

Session T3A in 141 Loomis chaired by Glenn Foster

1:00pm [Mike Paulin](#), U Otago, [Co-evolution of Morphology and Agility in Early Vertebrates](#)

1:40pm [Zan Luthey-Schulten](#), UIUC, [The Evolution of Protein Structure](#)

Session T3B in 144 Loomis chaired by Peter Fleck

1:00pm Allen Hunt, Wright State U

1:40pm E. Atlee Jackson, UIUC, [The Successions of Creative Networks in the Universe](#)

2:20pm Coffee Break, Loomis Lobby

Session T4 in 141 Loomis chaired by Bob Clegg

2:40pm Hermann Riecke, Northwestern U

3:20pm [Leonard Sander](#), U Michigan, lsander@umich.edu, [Scale-Free Networks with Geography](#)

4:00pm Coffee & Ice Cream Break, Loomis Lobby

Session T5 in 151 Loomis chaired by Alex Scheeline

4:20pm [John J. Tyson](#), Virginia Tech, [Kinetic analysis of cell cycle regulation](#)

5:00pm [Howard Petty](#), U Michigan, [Chemical Oscillations and Propagating Chemical Waves in Cells and Tissues](#)

5:40pm [Duane D. Johnson](#), UIUC, [Genetic-Programming for Multiscale Modeling](#)

6:20pm End of Session T5

6:30pm Invited Speaker Appreciation Dinner, Levis Faculty Center

8:00pm After Dinner Talk by

[UIUC Provost and Interim Chancellor Richard H. Herman](#), Levis Faculty Center

Wednesday, May 19, 2004

7:30am Continental Breakfast, Loomis Lobby

Session W1 in 141 Loomis chaired by Samuel N. Beshers

8:10pm [Greg Worrell](#), Mayo Clinic, [Long-range temporal correlations in the human intracranial electroencephalogram](#)

8:30am [Nigel Goldenfeld](#), UIUC, [Physics, universality, computational algorithms and complexity](#)

9:00am [Gul Agha](#), UIUC

9:40am [Janice Bahr](#), UIUC, [Physiological Adaptions of the Black Bear to a Changing](#)

External Environment

10:20am Coffee Break, Loomis Lobby

Session W2 in 141 Loomis chaired by Jay E. Mittenthal

10:30am James A. Glazier, Indiana U

11:10am [Eshel Ben-Jacob](#), Tel Aviv U, [Let the complex be simple - functional holograp activity](#)

12:00 Lunch in the Ballroom of the Illini Union

1:00pm Tutorial II in 151 Loomis

Session W3A in 141 Loomis chaired by Ziggy Majumdar

1:00pm [Sua Myong](#), UIUC, [Helicase-DNA interactions studied by FRET \(Fluorescent Resonance Energy Transfer\)](#)

1:20pm [Clare Yu](#), UC Irvine, [How does Intracellular Molecular Motor Driven Transport Work?](#)

1:40pm [Horacio Castillo](#), Ohio U, [Fluctuations in Glassy Dynamics](#)

Session W3B in 144 Loomis chaired by Sahraoui Chaieb

1:00pm [Lucas Illing](#), Duke U, [Controlling Fast Chaos in Delay Dynamical Systems](#)

1:20pm [Jian Liu](#), UIUC, [Monte Carlo Bohmian Dynamics from Trajectory Stability Properties](#)

1:40pm Sergei Kopeikin*, U Missouri, Measuring the (ultimate) speed of gravity by VLI

Session W3C in 158 Loomis chaired by Samuel N. Beshers

1:00pm [Chien-Feng Huang](#), LANL, [A Coevolutionary Agent Based Model of Genotype Encoding](#)

1:20pm Yuri Dabaghian, UC San Francisco, [Complexity of Quantum Spectra](#)

1:40pm [Cristian Huepe](#), Northwestern U, [Spin Dynamics on a Network: Phase Transition and Applications](#)

Session W3D in 136 Loomis chaired by Benny Brown

1:00pm [Erwin B. Montgomery Jr.](#), Wisconsin U, [The basal ganglia-thalamic-cortical sys](#)

1:20pm [Robert Kozma](#), Memphis, [Neuropercolations: Dynamical Percolation Models of Pha](#)

2:00pm Marko Puljic

Session W3E in 147 Loomis chaired by Davit Sivil

1:00pm Peter Fleck, UIUC, An Adaptive-Learning-Rate Algorithm for Physical Hardware

1:20pm Lidi Chen, Southern Illinois U, [Periodic motions in a periodically forced, pi](#)

1:40pm Davit Sivil, UIUC, Emergent Structures in Wave-Particle Systems

Session W3F in 143 Loomis chaired by Joseph Jun

1:00pm Albert Luo, Southern Illinois U, [A theory for nonsmooth dynamical systems on](#)

1:20pm [Marc Mansfield](#), Stevens Institute of Technology NJ, [Spin glass that strongly](#)

1:40pm [Eric Preston](#), Indiana State U, [Simulated Weakening in Driven Threshold Model](#)

2:00pm Tim Schoenharl, U Notre Dame, [Agent Based Exploration of Self-organizing Neur](#)

Session W3G in 234 Loomis chaired by Tim Wotherspoon

1:00pm Predrag Tasic, UIUC, [Characterizing Configuration Space Properties of Symmetr](#)

1:20pm Murat R. Demirer, U Memphis, [Identification of cortical dynamics based on Hil](#)

1:40pm [Prabhakar Pradhan](#), Northwestern U, [Statistics of eigenfunfunctions and eigenv](#)

Session W3H in 236 Loomis chaired by Jian Xu

1:00pm Ke Dong, UIUC, [Optimizing terahertz emission from quantum double wells](#)

1:20pm Daniel B. Stouffer, Northwestern U,

1:40pm [Bin He](#), UIUC, [Holistic Integration across Large Scale Web Sources](#)

2:00pm Scott Christley, Notre Dame, [Dissemination of Culture using a Quantum Model](#)

2:20pm Coffee Break, Loomis Lobby

Session W4 in 141 Loomis chaired by Noshir Contractor

2:40pm [Fabio Fonti](#), Boston College, [Complexity theory and the evolution of communica](#)

3:20pm Jay Kesan

4:00pm [Bernie Trujillo](#), U Wisconsin-Madison, [Self-organization in bankruptcy legal s](#)

4:20pm Coffee Break, Loomis Lobby

Session W5 in 141 Loomis chaired by Robert M. Clegg

4:40pm [David Campbell](#), Boston U, [Intrinsic Localized Modes: Localizing Energy throug Discreteness](#)

5:00pm [Sahraoui Chaieb](#), UIUC, [Random Polymer Networks and the crumpling-induced roug](#)

5:40pm Walter Goldberg, U Pittsburgh, [Turbulence at an air-water interface](#)

6:20pm Poster Session P2 with Sandwiches and Refreshments, Loomis Lobby

Evening Session W6 in 141 Loomis chaired by Alfred Hubler

6:40pm Peter Schuster, The Role of Neutral Networks in Evolutionary Optimization, RN

7:20pm [Joshua E. S. Socolar](#), Duke U, [Dynamics of random Boolean networks](#)

8:00pm Refreshment Break, Loomis Lobby

8:10pm [Paul Goldbart](#), Physics, UIUC, [Fluctuating Random Network Media and their Uni](#)

8:50pm Glenn Hoetker

9:30pm Bruce Miller, TX Christian U, [Influence of Expansion on Hierarchical Structur](#)

Thursday, May 20, 2004

8:00am Continental Breakfast, Loomis Lobby

Session TH1 in 141 Loomis chaired by Jay E. Mittenthal

8:30am Paul Selvin, UIUC

9:10am [Radek Erban](#), U Minnesota, [From Signal Transduction to Spatial Pattern Formatio](#)

9:50am [Jay E. Mittenthal](#), UIUC, [Principles of Design for Molecular Modules with Appl](#)

10:20am Coffee Break, Loomis Lobby

Session TH2 in 141 Loomis chaired by Tom Anastasio

10:30am Sue Becker, McMaster University, Computational Models of Neural Coding in th

11:10am [Clare Yu](#), [Equilibration and Frequency Dependence of the Specific Heat of Gl](#)

11:30am [Kevin E. Bassler](#), U Houston, ["Gradient Flow Networks I"](#)

11:50am [Eshel Ben-Jacob](#), Tel Aviv U, Life Complex Systems Experiment

12:00 Lunch in the Ballroom of the Illini Union

1:00pm Tutorial III in 151 Loomis

Session TH3A in 141 Loomis chaired by Tim Wotherspoon

1:00pm Waltraud Kriven

1:20pm [Tian-Li Yu](#), UIUC, [Dependency structure matrices, organizational clustering an](#)

1:40pm [Glenn Foster](#), UIUC [Nonlinear Resonant Forcing of Dynamical Systems](#)

2:00pm Lihua Zou, UIUC, [An Evolutionary Computation Model of Intracellular Signaling](#)

Session TH3C in 158 Loomis chaired by Peter Fleck

1:00pm [Richard D. Braatz](#), UIUC, [Design and Control of Multiscale Systems](#)

1:20pm [Marko K. Berkenbusch](#), U Chicago, [Discrete charges on two-dimensional conducto](#)

1:40pm [Martin Butz](#), UIUC, [Machine Learning in Hierarchical Classification Problems D](#)

2:00pm [Nicola Scafetta](#), Duke U, [Detecting Levy and fractal Gaussian Intermittencies](#)

Session TH3D in 136 Loomis chaired by Samuel N. Beshers

1:00pm [D.C., Bill, Lin](#), Ryerson U, [Discrete Scale Invariance in Long-Term Heart Rate Variability of Healthy Humans](#), derlin@ryerson.ca

1:20pm [Indranil Gupta](#), UIUC, [Fighting Fire with fire: using probabilistic techniques to build stress-resistant networked computer systems](#)

1:40pm [Diego Batallas](#), UIUC, [Information Leaders in Product Development Organizational Networks: Social Network Analysis of the Design Structure Matr](#)

2:00pm Brandon Gegg, Southern Illinois U, [Analytical Modeling of Periodic Motions in a Friction-induced Oscillator](#)

Session TH3E in 147 Loomis chaired by Joseph Jun

1:00pm [Charlie Williams](#), UIUC, [Managing Interdependence: An Agent-Based Model of Adaptation in Centralized & Decentralized Systems](#)

1:20pm Matthias Moebius, U Chicago, [Air effects in granular size separation](#)

1:40pm Xiangjun Xing, UIUC, [Rise of Entropic Shear Rigidity](#)

Session TH3F in 143 Loomis chaired by Austin Gerig

1:00pm Ahmet Yildiz, UIUC, [Nature's processive motors walk hand over hand](#)

1:20pm [Alex Barr](#), Physics, UIUC, [Adaptation to the Edge of Chaos in a Non-Isotherma](#)

1:40pm [Peter Bajcsy](#), UIUC, [Understanding Multi-Instrument Measurement Systems](#)

2:00pm Austin Gerig, UIUC, Irregular Dynamics of an Open One-Dimensional Mechanical

Session TH3G in 234 Loomis chaired by Benny Brown

1:00pm Ashvin Lakshmikantha, UIUC

1:20pm Hemanshu Kaul, UIUC, [Global Optima Results for the Kauffman NK Model](#)

1:40pm Jian Xu, UIUC, Enhanced Diffraction Pattern from a Fibonacci Chain

2:00pm Gabriel Villalobos Camargo, U Bogotá, Colombia, [The role of the resonancies in a Driven Triangular Well: Numerical and analytical results](#)

2:20pm Coffee Break, Loomis Lobby

Session TH4 in 141 Loomis chaired by Sahraoui Chaieb

2:40pm Denis Boyer, National U. of Mexico, Complex Patterns in Animal Foraging: The
3:20pm [Rhanor Gillette](#), UIUC, ["Evolving biological neural networks for social cooper](#)
4:00pm [Alex Scheeline](#), UIUC, [Chemical Sensing and Biological Networks](#)

4:20pm Coffee Break, Loomis Lobby

Session TH5 in 141 Loomis chaired by Samuel N. Beshers

4:40pm [Feniosky Peña-Mora](#), UIUC, [Collaborative First Response to Disasters Involving
Critical Physical Infrastructure: Drawing from Robust Natural Systems](#)
5:20pm [Wayne J. Davis](#), UIUC, [Bridging the Temporal Threshold between Reality and
Virtuality](#)
6:00pm Bob Clegg, UIUC

7:00pm End of Conference

Click here to go to the [Conference Homepage](#)

[Edit](#)