June 26 - July 1, 2011 | Boston, MA | New England Complex Systems Institute

International Conference on Complex Systems

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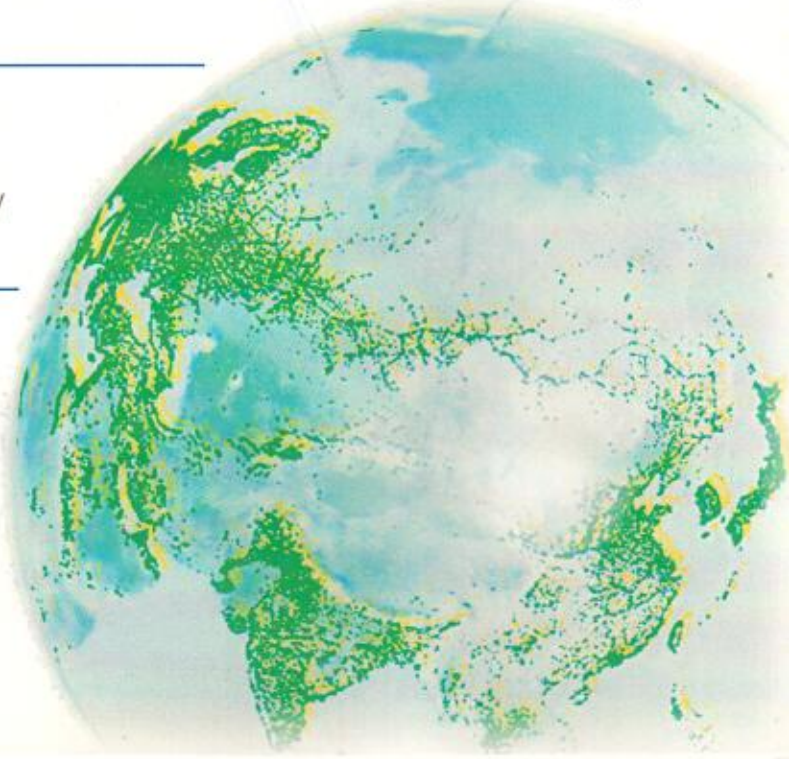

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ICCS 2011: Presentation List

Sunday June 26th

Opening Remarks
Ali Minai

Pedagogical Session
Chair: Erez Lieberman-Aiden
[409] Johan Bollen: Measuring Fluctuations of Collective Mood States from Large-Scale Social Media Feeds: From Stock Markets to Subjective Well-Being
[414] Len Fisher: Can We See the Future? Early-Warning Signs for Critical Transitions in Nature and Society
[413] Yaneer Bar-Yam: Complexity and Human Civilization
[385] Alfred Hubler: Emergence of Functionality in Physically Evolving Networks

Highlight Plenary Session
Chair: Ali Minai
[146] Charlotte Hemelrijk, Ivan Puga-Gonzalez and Jan Wantia: The Self Organization of Primate Social Systems
[380] Scott Turner: Emergence of a Superorganism

NSF Funding Session
Chair: Hiroki Sayama
Elizabeth Tran

Evening
Reception Session
David Bohrman: Changing Global News: Changes in the World, Innovation in News Communication

Monday June 27th

Morning
Chair: Irving Epstein

Plenary Session (1): Complex Systems and Networks
[406] Stuart Pimm: Food Webs: Structure, Dynamics, Assembly, and What Features are General
[403] H. Eugene Stanley: Economic Fluctuations and Statistical Physics: Quantifying Extremely Rare Events with Applications to the Present World Crisis
[404] Mark Newman: Influence in Networks and the First-Mover Advantage
[---] David Gondek

Afternoon Parallel Session 1
Chair: Marco Lagi

Emergence, Complexity and Information
[110] Hugues Bersini: Emergent phenomena only belong to biology
[175] Guillaume Chérel, Jacques Gignoux and Jean-Daniel Zucker: The multi-scale nature of emergent properties: a formalism
[347] Uri Wilensky: Emergence in evolution
[180] Abd-El-Kader Sahraoui: On Emergent Properties When Complexity Is Dealt With Simplicity , a case study with co simulation
[296] Kawandeep Virdee, Yavni Bar-Yam, Dion Harmon, Yaneer Bar-Yam, Giovanni Fusina and Gerard Pieris: Quantifying Multi-Scale Structure and Capabilities in Complex Systems
[55] Georgi Georgiev: Least action as a quantitative measure for organization of a system
[39] Jeff Levin and Ann Gossard: The Importance of Organizational Process Towards Reducing Computational Complexity
[208] Ben Allen, Blake Stacey and Yaneer Bar-Yam: A Formalism for Multiscale Structure in Complex Systems
[149] William Sulis: Causal Tapestries
[243] Shawn Pethel and Daniel Hahs: Distinguishing Anticipation from Causality: Anticipatory Bias in the Estimation of Information Flow

Afternoon Parallel Session 2
Chair: Lael Parrott

Ecology and Organism Behavior
[261] Marcus Frean and Richard Mansfield: Emergence of "Rock-Paper-Scissors" ecologies from intra-specific competition
[187] Amanda Galante, Susanne Wisen, Devaki Bhaya and Doron Levy: Stochastic Models and Simulations of Phototaxis
[81] Elske Van Der Vaart, Rineke Verbrugge and Charlotte K. Hemelrijk: Corvid Cache Protection: Alternative Explanations from a Computational Model
[158] Andrew Hein and Scott Mckinley: Navigating spatial environments: a probabilistic approach to understanding biological search
[274] Monique De Jager, Franjo Weissing, Bart Nolet, Peter Herman and Johan Van De Koppel: Mussels on the move: How Lévy walks have evolved in a self-organizing system

Environment and Sustainability
[214] Clément Chion, Lael Parrott, Samuel Turgeon, Philippe Lamontagne, Cristiane C. A. Martins, Jacques-André Landry, Danielle Marceau, Robert Michaud, Nadia Ménard, Guy Cantin and Suzan Dionne: An agent-based model to support the sustainable management of a complex social-ecological system
[23] Anthony Halog, Najet Bichraoui, Yosef Manik and Binod Neupane: Advancing Integrated Methodological Framework for Developing Sustainable and Resilient Systems
[159] Fred M. Discenzo and Kenneth A. Loparo: Process Design and Optimization for Algae-Oil Systems
[156] David Keith, John Sterman and Jeroen Struben: Understanding Spreading Patterns of Hybrid-Electric Vehicle Adoption
[71] Dimitris Papanikolaou: The Market Economy of Trips

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Networks
[242] David Arney and Elisha Peterson: Embracing the Complexity of Networks
[84] Scott Pauls: A new notion of centrality for dense graphs
[183] Joon-Young Moon, Dong-Myung Lee, Jacobus Koolen and Seunghwan Kim: Core-periphery disparity in fractal behavior of complex networks
[140] Takeshi Ozeki, Hideyuki Koto, Hajime Nakamura and Teruhiko Kudo: Unique mode structure of BA network dominates Network Dynamics
[63] Bing Wang, Lang Cao, Hideyuki Suzuki and Kazuyuki Aihara: Bond percolation on clique random networks and their applications to arbitrary interacting epidemics
[215] Gergely Palla, Peter Pollner and Tamas Vicsek: Rotated multifractal network generator
[78] Leonardo Morsut, Lorenzo Barasti, Domenico Salvagnin, Jonathan So and Arrigo Zanette: Spontaneous emergence of a new robustness motif in networks under intrinsic noise evolution
[290] Greg Ver Steeg, Armen Allahverdyan and Aram Galstyan: Semi-supervised Clustering in Sparse Networks
[291] Robert Slattery: The Rational Agent in Scale-Free Network Emergence
[280] Huiqi Zhang and Ram Dantu: Human Relationship and Behavior Analysis in Mobile Social Networks

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Social Systems (1): Human Behavior, Opinion and Cultural Dynamics
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[346] Lilianne Mujica-Parodi, Anca Radulescu, Denis Rubin, Tomer Fekete and Helmut Strey: Diagnosing Emotional Stress Resilience from Limbic Regulation: fractals, pheromones, and fear
[172] Christian Alis and May Lim: Utterance length distributions of conversations with coding limits
[268] Amer Ghanem and Ali Minai: Patterns of Interaction Behavior in Online Social Networks
[22] Andreas Ligtvoet: Cooperation as a complex, layered phenomenon
[127] Burton Voorhees: Trade-offs Between Accuracy and Quickness in Risk/Reward Situations
[58] Ihor Lubashevsky and Shigeru Kanemoto: Complex dynamics of systems with motivation caused by scale-free memory
[244] Alexander Outkin and Robert Glass: Applications of Self-calibrating Hybrid Causal-Learning Systems to Opinion Dynamics Modeling
[100] Anthony Woolcock, Colm Connaughton and Yasmin Merali: Linked and Weighted Features: Extensions to Axelrod's Cultural Model
[313] Sarjoun Doumit and Ali Minai: Online News Media Bias Analysis using an LDA-NLP Approach
[269] Katalin Martinas: Greatest Happiness Principle in a Complex System Approach

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[165] Masayuki Kakehashi: A fundamental mathematical model of the health care system
[3] Stefan Topolski: Understanding Health from a Complex Systems Perspective
[6] Stefan Topolski: The Nature of Virtue in Health Care Reform

[226] Thomas Moore, Patrick Finley, John Linebarger, Alexander Outkin, Stephen Verzi, Nancy Brodsky, Daniel Cannon and Robert Glass: Extending Opinion Dynamics to Model Public Health Problems and the Evaluation of Policy Interventions
[224] Thomas Moore, Patrick Finley, John Linebarger, Walter Beyeler, Victoria Davey and Robert Glass: Analyzing Public Health Care as a Complex Adaptive System of Systems
[248] Michael Widener, Sara Metcalf and Yaneer Bar-Yam: Modeling Food Preference within Urban Environments

Complex Systems and Medicine
[4] Stefan Topolski: Improving the Medical Home through an Understanding of Complex Systems
[8] Stefan Topolski: An ethnographic landscape of clinicians' understanding of Complex Systems Principles
[249] Bo Sun, Alex Klinke, Francisco Garcia and Paul Halpern: Tumor Vascular Permeability Measurement Using the MRF Model and a Genetic Algorithm
[186] Anisoara Paraschiv-Ionescu, Christophe Perruchoud, Eric Buchser and Kamiar Aminian: Complexity of human activity patterns in chronic pain: from models to clinical assessment tools
[228] Albaraa Salama, Robert Mart, Steven Nowicki and Stefanie Lopatkin: An Improved Algorithm That Strategically Determines When to Test ICD Lead Integrity

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[MASCC] Workshop: Mathematical Aspects of Social and Cognitive Complexity
[131] Jürgen Klüver: Meaning, Information, and the Understanding of Ambiguity
[198] Brian Castellani and Rajeev Rajaram: Social Complexity Theory: A Mathematical Outline
[33] Dwight Read: Cultural Kinship as a Computational System: From Bottom-Up to Top-down Forms of Social Organization
[169] Robert Reynolds and Yousof Gawasmeh: Evolving Heterogeneous Social Fabrics for the Solution of Real valued Optimization Problems Using Cultural Algorithms
[130] Christina Stoica-Kluever: Solving problems of project management with a Self Enforcing Network (SEN)

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Chair: Dimitri Perrin, Hiroyuki Ohsaki

[CIF] Workshop: Complex Information Flow
[50] Ashley Beattie: Modeling the Complex Information Network at Naval Reserve Headquarters
[66] Karthika Raghavan and Heather Ruskin: Computational Epigenetic Micromodel - Framework for Parallel Implementation and Information Flow
[109] Dimitri Perrin and Hiroyuki Ohsaki: Applications of Epidemic Diffusion to Complex Systems: from Communication Networks to Autonomous Exploratory Robots
[113] Martin Rosvall: Hierarchical organization of large integrated systems
[144] Hideaki Suzuki, Mikio Yoshida and Hidefumi Sawai: Knowledge Transitive Network: A data-flow network for backward deduction
[168] Yusuke Sakumoto, Takeaki Nishioka, Hiroyuki Ohsaki and Makoto Imase: On the Effectiveness of Stable Numerical Solution for Flow-Level Network Simulation
[176] Yosuke Yamada, Hiroyuki Ohsaki, Dimitri Perrin and Makoto Imase: Impact of Mobility Constraints on Epidemic Broadcast in DTNs
[221] Lilian Weng, Alessandro Flammini and Filippo Menczer: An Information Propagation Model Based on User Interests

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[ACS] Workshop: Aesthetics in Complex Systems
[329] Arturo Buscarino, Luigi Fortuna, Mattia Frasca and Angelo Lamia: Foggy painting complexity
[330] Arturo Buscarino, Paola Belluomo, Luigi Fortuna and Mattia Frasca: Aesthetics and emergent behaviour
[321] Vaidehi Venkatesan and Ali Minai: Cuisines as Complex Networks
[265] Leslie Alfin: Complexity & Evolved Aesthetics the Enlightened "Hopeful Monster": The Next Great Leap
[314] Daniel Jones and Mark D'Inverno: Amplifying scientific creativity with agent-based simulation
[239] Raoul Rickenberg: Generating insight by design
[202] Stanislas Renard and Philip Fellman: What is Romani Music? An emerging definition learned from social network analysis
[103] Anthony Miller: Psychopomp
[295] Daniel Kohn: Embracing Complexity: A Context for Meaning in Art and Science

Evening Parallel Session 4
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[STCAN] Workshop: State-Topology Coevolution in Adaptive Networks
[1] Hiroki Sayama: Adaptive networks: An emerging research theme on state-topology coevolution in complex networks
[203] Rob Mills, Richard A. Watson and C. L. Buckley: Emergent associative memory as a local organising principle for global adaptation in adaptive networks
[211] Blake Stacey, Andreas Gros and Yaneer Bar-Yam: Beyond the Mean Field in Host--Consumer Spatial Ecology
[182] Yasmin Merali: Information Dynamics and the Resilience of Social Systems
[195] Bing Wu: Effects of Incentive Mechanism to Knowledge Transfer Network in Enterprise
[256] Hiroki Sayama and Junichi Yamanoi: An Adaptive Network Model of Cultural Integration in Corporate Merger
[178] Benjamin J. Bush, Jeffrey Schmidt and Hiroki Sayama: Behavior and Centrality in Idea Exchanging Adaptive Social Networks
[89] Jeffrey Schmidt, Benjamin Bush and Hiroki Sayama: A Python Implementation of Generative Network Automata

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[SFC] Workshop: Science Fiction and Complexity
Jonathan vos Post
Ben Bova
[391] Leonid Korogodski: Complexity in Science Fiction: Pink Noise
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Tuesday June 28th

Morning
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[---] Eric Davidson
[410] Eshel Ben-Jacob: Bacterial Collective Intelligence
[395] Kunihiko Kaneko: Complex Systems Biology: Exploring the Logic of Life through Consistency Principle
[402] Didier Sornette: What Percentage of Our Ancestors Were Men? The Most Underappreciated Fact About Men!

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[25] Kevin Hernandez-Pardo and Roozbeh Daneshvar: Dynamics of a Self-Adjusting Random Fibonacci System
[128] Burton Voorhees: The Value of Non-Attachment in Complex Adaptive System Behavior
[122] Philippe Binder and Brian Wissman: Mutual information and chaotic systems
[72] Takashi Iba and Kazeto Shimonishi: The Origin of Diversity: Thinking with Chaotic Walk
[48] Andrew Seely: Fractal structures optimize entropy production in complex dissipative systems
[164] Irina Trofimova: Functional differentiation (FD) and the phenomena of fractal functionality (FF)
[199] Benjamin Aas: Body-Gödel-Mind: The unsolvability of the hard problem of consciousness

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[210] Odette Lobato, Yoguez Amalia and Orlando Susarrey: Exploring the characteristics of the Mexican Higher Education System in the context of Complex System Approach

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[323] Mario Pavone: P system Reverse Engineering for Gene Regulatory Networks in S-system Model
[276] Andrea Velenich, Mingjie Dai and Jeff Gore: Genetic interactions in yeast are described by heavy-tailed distributions
[298] Michelle Girvan: The Effects of Network Structure on the Stability of Genetic Control: From Models to Data

[237] Micah Brodsky and Gerald Sussman: White Lies About Biology: Programming Deformable Surfaces

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[281] Len Troncale: Could A Unified Natural Systems Science Produce a Top-Down, Systems-Level Systems Pathology?
[250] Andreas Gros, Marcus A.M. De Aguiar, Tilo Winkler, Irving R. Epstein and Yaneer Bar-Yam: Asthma: Pattern formation in bronchial networks
[315] Daniel Jones and Mark D'Inverno: Agent-based Modelling of the Haematopoetic Cellular System
[283] Len Troncale: Case Studies in Systems Pathology: Recognizing Domain-, Discipline-, Tool- & Scale-Independent Diseases

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[7] Stefan Topolski and Joachim Sturmberg: Epidemiologic Validation of a Complex Systems Health Model
[181] David Hiebeler and Isaac Michaud: Targeted Treatment of Outbreaks In a Community-Structured Model
[225] Gavin Fay, Megan Olsen, Joseph Gran, Anne M. Johnson, Vanessa Weinberger, Julie Granka and Oana Carja: Agent-based model of Tasmanian Devils examines spread of Devil Facial Tumor Disease due to road construction

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[204] Victor Dossetti and Francisco Javier Sevilla: Intermittency and ergodicity breaking in a system of interacting self-propelled particles
[264] Zoltan Neda, Erna Kaptalan and Artur Tunyagi: Emerging synchronization as a result of optimization
[288] Ashish Umre and Ian Wakeman: Social Foraging Dynamics in Distributed Systems
[284] Abbas Sarraf Shirazi, Sebastian Von Mammen, Iman Yazdanbod and Christian Jacob: Self-Organized Learning of Collective Behaviours in Agent-Based Simulations
[348] Philippe Collard and Salma Mesmoudi: How intolerant agents avoid segregation in Complex Spatial Systems ?
[145] Erbo Zhao and Zhangang Han: An agent-based model for studying on flocking behaviors with competition and cooperation
[102] Ferenc Járai-Szabó, Bulcsú Sándor and Zoltán Néda: Spring-block modeling of highway traffic
[167] Nguyen Thi Ngoc Anh, Zucker Jean Daniel, Nguyen Huu Du, Drogoul Alexis and Vo Duc An: Hybrid Equation-based and Agent-based Modeling of Crowd Evacuation on Road Network
[207] Pedram Hovareshti, Hua Chen and John Baras: Motif-based Topology Design for Effective Performance by Networks of Mobile Autonomous Vehicles

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[29] Mark Bedau, Noah Pepper, Devin Chalmers and Charles Francis: Statistical measures of the evolution of the drivers of technology as reflected in the patent record
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[292] Nancy Brodsky, Arlo Ames, Robert Glass, Theresa Brown, Patrick Finley, Thomas Moore, John Linebarger, Aldo Zagonel and Louise Maffitt: Application of Complex Adaptive Systems of Systems Engineering to Tobacco Products
[75] Pierpaolo Andriani: Tiny initiating condition triggers emergence of new market: the case of the appearance of the quality coffee sector in the Brazilian market
[67] Manuela Korber and Manfred Paier: Exploring the Effects of Public Research Funding on Biotech Innovation: An Agent-Based Simulation Approach
[65] Jose Lobo and Deborah Strumsky: The Topology of Metropolitan Inventive Spaces: Can You Get There from here?
[129] Laetitia Gauvin, Annick Vignes and Jean-Pierre Nadal: Modeling urban housing market dynamics: can the socio-spatial segregation preserve some social diversity?
[54] Daniel Vasata, Pavel Exner and Petr Seba: Built-up structure criticality
[216] Ferdinando Semboloni: Planning without plan. Evolution and emergent strategies in the Florence metropolitan area
[306] Roberto Murcio and Suemi Rodriguez-Romo: Modeling Mexican Urban Metropolitan Areas by a Self-Organized Criticality approach
[205] C. Schilling, C. Bryant and L. Parrott: Exploring constraints to environmentally supportive behaviour in a municipal setting: Is all self-organized urban structure alike?
[223] Patrick Finley, Robert Glass, Victoria Davey, Thomas Moore, Arlo Ames, Leland Evans, Daniel Cannon, Jacob Hobbs and Matthew Antognoli: Integrating Uncertainty Analysis into Complex-System Modeling to Design Effective Public Policies

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[76] Renata Kaminska, Bill Mckelvey and Catherine Thomas: Building Dynamic Capabilities in Times of Drastic Change: Lessons from Complexity Science
[137] Denise Easton and Lawrence Solow: Navigating the Complexity Space
[18] Sharon Ackerman and Jennifer Jenkins: Conceptualizing Distributed Workplace Environments Through the Lens of Complex Adaptive Systems Theory
[53] Ian Wilkinson, Louise Young, Robert Marks, Terry Bossomaier and Fabian Held: A Business Network Agent-Based Modeling System for domain specialists
[91] Lorraine Dodd: A theory of choices: melding black swans, butterflies and swallowtails
[27] Kevin Mcdermott: Engaging Expectant Stakeholders: A complexity theory approach to engaging stakeholders in complex organizational stakeholder environments
[104] Ankita Singh: Application of Evolutionary Algorithm for Project Schedulinghe

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[177] Anne-Marie Grisogono and Vanja Radenovic: The Adaptive Stance - steps towards teaching more effective complex decision-making
[233] Simona Doboli and Vincent Brown: A Neural-Network Model of Conceptual Combinations
[163] Hadassah J. Head, Benjamin James Bush, A. Gupta, Hiroki Sayama and Shelley D. Dionne: Network-Informed Idea Selection Strategies for Electronic Brainstorming

Evening
Chair: Hiroki Sayama

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Poster Session A
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[364] Igor Yevin and Nokolay Shuvalov: The Theory of Complex Networks in Painting Studying
[45] Mary Keeler, Josh Johnson and Arun Majumdar: Crowd-Sourced Knowledge: Peril and Promise for Complex Knowledge Systems
[56] Georgi Georgiev: Quality as a function of quantity
[70] Takashi Iba: Hidden Order in Chaos: The Network-Analysis Approach to Dynamical Systems
[73] Boming Yu: A study of the stability of deterministic complex networks
[74] Mark Levin: On Combinatorial World
[86] V Anne Smith: Tailoring Bayesian networks for recovering structure of different types of biological networks
[107] Ming-Chang Huang: Characterizing the process of reaching the state of consensus in a social system
[108] Yu-Pin Luo: The effect of the cliques of networks on the occurrence probabilities and the robustness of the equilibrium states of local majority-rule
[116] Sarah Symons and Derek Raine: Agent Based Modelling of State Formation in Ancient Egypt
[133] James Putnam: The Nature of Thermodynamic Entropy
[154] Czeslaw Mesjasz: Can Physics Help Social Sciences in Prediction of Complex Collective Phenomena?
[155] Yoritaka Iwata: Percolation approach for cosmic matter
[162] Luís Vilar, Duarte Araújo, Keith Davids, Pedro Esteves and Vanda Correia: Spatial-temporal constraints on successful performance in team sports
[184] Martine Barons: A mathematical approach to medical complexity
[194] Uday Kulkarni: Dynamics of Exchange
[212] Maurice Passman, Philip Fellman and Jonathan Post: Ontological Determinism, non-locality and the system problem in quantum mechanics

[257] Robert Leve, William Neace, Denise Laframboise and Danielle Letourneau: Time as a variable in complex multi-interactive problems
[272] Lech Schulz: Practical Applied Theory of Abstract Complex Systems - An Introduction via Fuzzy Set Based Comparisons and Optimization
[297] Kawandeep Virdee, Alex Rutherford and Yaneer Bar-Yam: Characterizing Complex Terrains: Mathematical Foundations and Applications
[299] Yavni Bar-Yam, Dion Harmon and Yaneer Bar-Yam: Calculating the Complexity Profile
[303] Vedant Misra, Dion Harmon and Yaneer Bar-Yam: Vulnerability Analysis of High Dimensional Complex Systems
[307] Karla Bertrand, Alexander Gard-Murray and Yaneer Bar-Yam: A systems approach to improving healthcare
[357] Jose Padilla, Saikou Diallo and Andreas Tolk: Complexity as a Function of Understanding

NetSci-High: Posters by High School Students (US Premiere)
Jessica Calderone, Emma Valentine, Josie Trichka, Julie Gallagher, Benjamin James Bush, Jin Akaishi, Hiroki Sayama: A Comparative Study on the Social Networks of Fictional Characters
Cara Boothroyd, Brianna Benson, Deanna Blansky, Christina Kavanaugh, Julie Gallagher, John Endress, Benjamin James Bush, Hiroki Sayama: Academic Achievement and Personal Satisfaction in High School Social Networks
Deng Lin, Nikita Ramhit, MD Uddin, Lazaros Gallos: Does Facebook friendship reflect real friendship?
Jennifer Walsh, Balaji Santhanam, Quan Zhong, David E. Hill, Marc Vidal: Inter-species protein-protein interaction network reveals protein interfaces for conserved function
Mary Lindsay Cerulli, Erzsebet Ravasz Regan: The Hierarchy of Endothelial Cell Phenotypes
MD Tareque, Michael Dewar, Margaret Savitzky: Preaching To The Choir? Using Social Networks to Measure the Success of a Message
Shun Aizawa, Marc Gillespie: Identification of mRNA target sites for siRNA mediated VAMP protein knockdown in Rattus norvegicus

Evening 2
Chair: Amac Herdagdelen and Anzi Hu

Late-Breaking News Session A
[356] Seung Kee Han: Estimating the Network Link Weights from the Inverse Phase Synchronization Matrix
[358] Francesco Sorrentino: Synchronization of hypernetworks of coupled dynamical systems
[360] Woon Seon Jung, Dong-In Lee and Kyungsik Kim: Characteristics of the sea surface distribution using the rescaled range analysis in three seas
[361] Jae Won Jung, Gyuchang Lim and Kyungsik Kim: Aanlysis of multifractal structures in two-dimensional Lattices
[362] Michel Ducharme, Daniel Lafond and Bradley Rathbun: A Gaming Approach to Train Systems Thinking in the Military
[389] Joon Kim, Jewoo Hong, Juyeol Yun and Hyojung Kwon: Ecohydrologic and Biogeochemical Process Networks in Forest Ecosystems
[411] Borje Ekstig: Complexity and Evolution - a study of the growth of complexity inbiological and cultural evolution
[416] Carlos Gershenson: Self-organization leads to supraoptimal performance in public transportation systems

Wednesday June 29th

Morning
Chair: Hiroki Sayama

Plenary Session (3): Artificial & Natural Systems
[---] Hod Lipson
[398] Leah Edelstein-Keshet: Understanding Cell Motility with Mathematical Models
[405] Alex Pentland: How Social Networks Shape Human Behavior
[399] Mark Klein: Managing Emergence in Large-Scale Deliberation

Afternoon Parallel Session 1
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Engineering Systems
[294] Kyle Harrington, Emma Tosch, Lee Spector and Jordan Pollack: Compositional Autoconstructive Dynamics
[143] Xiaocong Gan and Zhangang Han: Control The Game Ms. Pac-Man Automatically -- Using The Real Time Search Method
[123] Robert Glass, John Linebarger, Arlo Ames, Walt Beyeler, Patrick Finley and Theresa Brown: Complex Adaptive Systems of Systems (CASoS) Engineering: Mapping Aspirations to Problem Solutions
[10] Anthony Masys: Safety Culture- Revealing the complexity
[328] Daniel Sturtevant, Alan Maccormack and James Paul Peruvankal: Network Structure and Bugs in Complex Software Systems
[218] Touria El Mezyani, Ralph Wilson, Michael Sattler, Sanjeev Srivastava, David Cartes and Chris Edrington: Complexity Quantification to Enhance the Power Systems Design and Modeling
[236] Shashank Tamaskar, Tatsuya Kotegawa, Kartavya Neema and Daniel Delaurentis: Measuring Complexity of Aerospace Systems
[209] Justin W. Gillespie and David J. Singer: Gaining insight into the structure of an early-stage ship design
[112] Nelson A. Gómez Cruz and Carlos Eduardo Maldonado: Biological Computation: A Road to Complex Engineered Systems
[170] Rui Teng, Bing Zhang and Nori-Shirazi Mehdad: Dynamic and Adaptive Organization of Data-Collection Infrastructures in Sustainable Wireless Sensor Networks
[246] Sarah Sheard and Ali Mostashari: Use of Complexity Types in the Realms of Systems Engineering

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Chair: Philippe Binder

Physical and Chemical Systems
[310] Emmanuel Landa Hernandez, Irving O. Morales Agiss, Rubén Fossion, Pavel Stransky, Juan C. López Vieyra, Víctor M. Velázquez and Alejandro Frank Hoeflich: Scale Invariance and Criticality in Classical and Quantum Examples
[21] Nadeem Bashir and G M Peerzada: Effect of counter-ions in different salts on the Resorcinol-BrO3--Mn2+-H2SO4 Oscillatory Chemical Reaction
[139] Fabrice Debbasch and Jean-Pierre Rivet: New stochastic models of thermodiffusion: entropic validation through kinetic theory
[279] Santiago Nunez-Corrales and Eric Jakobsson: Hierarchical Modularity: The Description of Multi-Level Complex Systems as Nested Coupled Fokker-Planck Equations
[119] Gaetano Campi, Alessandro Ricci, Michela Fratini, Nicola Poccia, Gabriele Ciasca, Alessandra Mari, Lorenza Suber, Mario Altamura, Augusto Pifferi and Antonio Bianconi: New experimental approaches for evolution and control of complexity in out-of equilibrium systems
[69] Georgi Georgiev: The principle of least action and the second law of thermodynamics

Cosmology
[138] Claire Chevalier, Yann Ollivier and Fabrice Debbasch: Large-scale emergent matter in cosmology
[85] Christoph Raeth: Probing non-Gaussianities in the cosmic microwave background by means of nonlinear data analysis techniques
[93] Philip Fellman, Maurice Passman and Jonathan Post: Time, Uncertainty and Non-Locality in Quantum Cosmology

Afternoon Parallel Session 3
Chair: Zann Gill

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[38] A. Karim Ahmed: Complexity, Affinity-Bias and Systems Biology: An Ecosystem Model of the Origin and Evolution of Life
[115] Derek Raine and Sarah Symons: An agent-based model of coding and inheritance in a prebiotic ecology
[9] Walter Riofrio: Cellular Dynamics at the Beginning of Prebiotic World

Evolution
[304] Stephen Serene, Longzhi Tan, Hui Xiao Chao and Jeff Gore: Hidden randomness between fitness landscapes limits reverse evolution
[121] Marcus A.M. de Aguiar, Elizabeth Baptestini, Ayana Martins and Yaneer Bar-Yam: A neutral speciation theory for one-dimensional and ring geometries
[260] Marcus Frean, Gareth Baxter and Paul Rainey: Ongoing evolution on networks
[120] Chris Phoenix: Animals Made of Stem Cells: Immortality and Regeneration vs. Brains, Blood, and the Cambrian Explosion
[240] Kirill Korolev, Joao Xavier, David Nelson and Kevin Foster: Genetic demixing in a Petri dish
[217] Walt Beyeler, Robert Glass, Patrick Finley and Theresa Brown: Modeling Systems of Interacting Specialists
[343] Alexis Morris, William Ross, Mihaela Ulieru and James Whitacre: The Evolution of Cultural Resilience and Complexity
[317] Zann Gill: Collaborative Intelligence and Effective Complexity

Afternoon Parallel Session 4
Chair: Jacky Mallett

Economic and Financial Systems

[397] Dror Kenett and Eshel Ben-Jacob: Uniformity, Multiformity and Systemic Collapses in the Global Financial Village
[287] Dion Harmon, Marcus A.M. de Aguiar, David Chinellato, Dan Braha, Irving Epstein, Marco Lagi and Yaneer Bar-Yam: Predicting economic market crises using measures of collective panic
[305] Vedant Misra and Yaneer Bar-Yam: Why the stock market crashed: market instability and financial regulations
[118] J. J. Farias Neto: The Financial Market as a Complex System
[270] Gyuchang Lim, Kyungsik Kim, Soo Yong Kim and Jin Min Kim: Regular pattern in the collective behavior of investors
[150] Victor Yakovenko: Entropy maximization and distributions of money, income, and energy consumption in a market economy
[114] Walid Nasrallah: The dynamics of micro-economically relevant institutions
[263] Sehyun Kim, Min Jae Kim, Soo Yong Kim and Kyungsik Kim: Intra- and inter-sector dependence structure in stock markets
[282] Daniele Signori and Ramazan Gencay: Economic Links and Counterparty Risk
[135] Jean-Pierre Nadal, Mirta B. Gordon, Denis Phan and Viktoriya Semeshenko: Pricing of Goods with Bandwagon Properties: Entanglement between Demand and Supply
[90] Hugues Bersini: Why should the economy be competitive ?
[60] Jacky Mallett: Analysing the behaviour of the textbook fractional reserve banking model as a complex dynamic system

Afternoon Parallel Session 5
Chair: Peggy Holman

[EE] Workshop: Engaging Emergence: Working with Changing Social Systems in Complex, Volatile Times
This highly interactive session invites you to uncover what's possible at the intersection of theory, research, and practice when engaging with complexity in social systems.
[105] Peggy Holman: Engaging Emergence: Turning Upheaval into Opportunity
[51] Curt Lindberg (presented by Lisa Kimball): Complex Processes for Complex Problems: Saving Lives by Preventing Infections in Hospitals
[245] Lawrence Solow and Denise Easton: Learning in Complex Times: Complex Adaptive Learning
[142] Ed Addison: Understanding Organizational Design, Culture and Change Management from a Complex Systems Perspective

Evening
Chair: Yaneer Bar-Yam

Banquet

Banquet Session
[412] Thomas Schelling: Why, in Thirty Years, No Nuclear Terrorism?

Thursday June 30th

Morning
Chair: Howard Eichenbaum

Plenary Session (4): Mind and Brain
[400] John Hopfield: Animal Behavior and Emergent Computational Dynamics
[396] James Mcclelland: Emergence in Cognitive Science
[393] Steven Bressler: The Expectant Cortex
[408] Jerome Kagan: The Tapestry of Variation in Human Traits

Afternoon Parallel Session 1
Chair: Gabriel Kreiman

Biomolecular and Cellular Systems
[36] Val Bykovsky: Molecular Experimentation and Evolutionary Biology
[193] Chi-Han Chang, Rayomond Dinshaw and Gregory D. Scholes: Quantitative Fit of Linear Spectra to Refine the Electronic Hamiltonian of the Photosynthetic Protein, Phycocyanin 645
[124] Mauricio Garcia-Vergara and Guillermo Ramirez-Santiago: Positional and Temporal Information Transmitted by a Cell Signal Cascade with n-Modules
[19] Weijiu Liu and Yuee Chen: Modeling store-operated calcium entry with membrane potential regulation
[289] Megan Brady, Paul Frisch, Kenneth Mcleod and Craig Laramee: Emergent Responses of Cellular Systems to Static Magnetic Field Exposure

Neural and Psychological Systems
[47] Ursula Drager: Postnatal Changes in Retinoic Acid Signaling Delineate Domains with Anti-Correlated Gene Expression in the Medial Cerebral Cortex of Adult Mice
[220] Jeongkyu Shin, Uncheol Lee, George Mashour, Seungwoo Ku and Seunghwan Kim: Dynamic functional backbones of brain networks during anesthetic state transitions
[338] Daniel Remondini, Sebastiano Stramaglia, W. Liao, G. Castellani and D. Marinazzo: Exploring brain dynamics complexity by fNMRi
[266] Michael Norman, Larry Liebovitch, Paul Peluso, Jessica Su and John Gottman: Mathematical Model of the Dynamics of Psychotherapy
[5] Stefan Topolski: Pre-existing complex systems concepts among complexity naive physician peers
[44] Steven Hassan: Complex systems approach to dealing with destructive cult groups

Afternoon Parallel Session 2
Chair: Mark Klein

Complex Systems Design
[369] William Ross, Alexis Morris and Mihaela Ulieru: Exploring the Impact of Network Structure on Organizational Culture Using Multi-Agent Systems
[227] Anne-Marie Grisogono: Design as a strategy for dealing with complexity
[40] Alex Ryan: Applications of Complex Systems to Operational Design
[251] Paul Seguin: Complex Systems Science: Moving from Theory to Application in the World's Largest Public Engineering Agency

Modeling Methodology
[273] Juan Fernandez-Gracia, Victor M. Eguiluz and Maxi San Miguel: Update rules and interevent time distributions: Slow ordering vs. no ordering in the Voter Model
[222] Wei An, Dalei Wu and Song Ci: Modeling Dynamical Complex System with Partial Observations
[312] Artemy Kolchinsky and Luis M. Rocha: Prediction and modularity in complex dynamical systems
[324] Sarjoun Doumit and Ali Minai: Bayesian Analysis and Prediction of News using an LDA-Based Approach
[30] Mathias Beck and Andrea Schenker-Wicki: How to manage complex systems: new qualitative methods
[26] Rajeev Rajaram: The use of a density based approach in study of complex non-equilibrium dynamics

Afternoon Parallel Session 3
Chair: Jeff Schank

Social Games and Evolution
[37] Eric Beinhocker: Evolution as Computation: Integrating Self-Organization with Generalized Darwinism
[213] Benjamin Allen: Population structure and the evolution of social behavior
[326] David Rand: Noise, heterogeneity and the evolution of human cooperation
[160] Luís Vilar, Duarte Araújo, Keith Davids, Bruno Travassos and Ricardo Duarte: Emergence of patterns of coordination in attacker-defender dyadic systems in team sports
[88] Walid Nasrallah: Whence Complexity: On the evolutionary advantage of complexity in tribal artificial life
[278] Bin Xu and Zhijian Wang: Evolutionary Dynamical Pattern of "Coyness and Philandering": Evidence from Experimental Economics
[259] Marcus Frean and Joseph Bulbulia: Neutral evolution as a route to large-scale cooperative equilibriums in the Stag Hunt game
[262] Sanghyun Ahn, Kyungsik Kim, Dong-In Lee and Soo Yong Kim: Mechanism on nonmyopic agents changing the endogenous decision rules
[219] Christoforos Somarakis and John Baras: On the complexity of a social behavior model
[92] Paul Smaldino and Jeffrey Schank: How We Move Around, Not Just That We Do: Random Walks, Agent-Based Models, and the Evolution of Cooperation
[309] Jeff Schank, Paul Smaldino and Matt Miller: Is sharing irrational?: An agent-based modeling analysis of the ultimatum game with spatially explicitly mobile agents

Afternoon Parallel Session 4
Chair: Czeslaw Mesjasz

Safety and Security
[77] Arthur Tomasino: Complex Adaptive Systems and Public Safety
[59] Irene Pestov: Dynamical Networks with Embedded Heterogeneous Agents
[190] Jérôme Levesque, Kate Kaminska and Sean Norton: Information sharing network in a community of senior security planners for the Vancouver 2010 Olympics
[57] Ali Bas and Volkan Karaca: A Simulation on Organizational Communication Networks During a Terrorist Attack
[95] Philip Fellman, Kathleen Carley and Gregory Parnell: Biowar and Bioterrorism Threat Risk Assessment

[98] Philip Fellman, Dinorah Frutos, Nathan Thanakijsombat and Pard Teekasap: The Complex Landscape of Maritime Piracy

International Issues and Globalization
[318] Walter Clemens: Toward a New Paradigm for International Studies: The Complexity of Interdependence
[192] Michael Hülsmann, Richard Colmorn and Viktoryia Bakhrutdzinava: Understanding International Supply Networks as Complex Adaptive Logistics Systems - A Complexity-based Approach for Formal Representation
[97] Jorge Riveras and Philip Fellman: Dynamic Modeling of International Distributor Agent Networks
[286] Alex Rutherford, Dion Harmon, Justin Werfel, Alexander Gard-Murray, Shlomiya Bar-Yam, Andreas Gros and Yaneer Bar-Yam: Predicting Locations of Ethnic Violence
[96] Philip Fellman: The Complexity of Intelligence Estimates
[285] Alexander Gard-Murray, Karla Bertrand and Yaneer Bar-Yam: Applying complexity theory to real-time geopolitical crises

Afternoon Parallel Session 5
Chair: Jim Houk

[SB] Workshop: Syntax in the Brain
[340] Jim Houk: Syntax in the Brain: Motor Syntax Agents
[325] Neil Berthier: The Syntax of Human Infant Reaching
[331] Paul Reber: Computational models of sequential processing
[333] Whitney Tabor: Recursion and Recursion-Like Structure in Ensembles of Neural Elements
[341] Hiroyuki Ohta, Yasuhiro Nishida and Jim Houk: Presynaptic inhibition and incremental learning in the striatum of the basal ganglia
[332] David Fraser and Jim Houk: Motor Syntax Disorder in Schizophrenia
[334] Barry Peterson: Pursuit of moving visual targets as a syntactic behavior
[322] Howard Eichenbaum: Towards a model of recollection
[345] James L. Mcclelland: Temporal structure: Its nature and how it is learned
[134] Jim Houk: Can DPM Brain Agents Write Stories and Sing Songs?

Evening
Chair: Hiroki Sayama

Poster Pitch Session B

Poster Session B
[28] Hiroki Sayama: PyCX Project: Complex systems simulation made simple in Python
[31] Reut Livne-Tarandach: Change Resurrected: Examining How and Why Change Initiatives Re-emerge
[61] Maxim Mozgovoy and Iskander Umarov: Believable Team Behavior: Towards Behavior Capture-Based AI for the Game of Soccer
[62] Galina Korotkikh and Victor Korotkikh: From Space and Time to a Deeper Reality as a Possible Way to Solve Global Problems
[64] James Murphy and Ray Walshe: Analysing Emergent Complexity in Microbial Populations
[68] Xuguang Leng: Survival of the Fittest -- Over the Long Run
[79] Liz Johnson, Klaus J. Diepold and James Mathieson: World Cup Soccer ABM Simulation: Demonstrating a Hybrid Multi-Scale CAS for Real-World Dynamics
[101] Tatyana Unkovskaya and Andrey Grytsenko: Systemic risks of financial crises as effects of emergence in complex economic systems
[111] Genki Ichinose and Mio Kobayashi: Frequent propagation of cooperators by random intensity of selection on a network
[132] Ankita Singh and Ankita Singh: Spatial Face Recognition
[151] Philip Fellman: Understanding the Complexity of IIED Terrorist Networks
[161] Luís Vilar, Duarte Araújo, Keith Davids, Bruno Travassos and Ricardo Duarte: Interdependence between perceptual and motor sub-systems in pattern-forming dynamics in team sports
[166] Akshay Patil and Alpana Dongre: Insight into Urban Complexity
[196] Zoheir Mottaki: Collective housing as an emergent phenomenon in design knowledge : A case study of hillside Terrace project (Tokyo) as a complex collective form
[200] Fred M Discenzo, Kenneth A Loparo, Dukki Chung and Matthew Kirsch: Enhanced Test Stand Integrates Information from Design, Manufacturing, and In-Field Operations
[230] Jorge Barros Pires, Alexandre Evsukoff, Lauro Silveira and Fernando Miranda: Pragmatism, Existential Graphs and Fuzzy Logic: Logic systems Integration for Data Analysis
[231] Tamás Kalmár-Nagy and Kevin Hernandez-Pardo: Revisiting the Physicist's Approach to the Toroidal Traveling Salesman Problem
[234] Martin Tensuan and May Lim: Semi-empirical modeling of a microcredit market
[235] Zhangang Han: The contribution of the power-law distribution in a trust and reputation evolution in P2P consulting systems
[302] Thomas Raway, Craig Laramee, Hiroki Sayama, Shelley Dionne and David Sloan Wilson: Teaching Social Complexity and Multidisciplinary Team Building: An Experimental Engineering Approach
[339] Mithilesh Salunke and Ali Minai: Building Modular Animals: A Computational Framework
[344] Alexander M. Duda and Stephen E. Levinson: Complex Networks of Spiking Neurons: Collective Behavior Characterization
[350] Jonathan Post: Quantum Coincidence with Amino Acid Molecular Weight
[353] Ali Minai, Laxmi Iyer, Kiran Byadarhaly and Chandrika Sagar: An Integrated Neurodynamical Framework for Thought and Action
[354] Willow Hallgren, Adam Schlosser and Erwan Monier: Global change and the interaction of Human and natural systems: The Impact of Land Use and Biofuel Policies on Future Climate
[382] Dong Zhou and Zhangang Han: Effects of Social Identity on Opinion Dynamics with Heterogeneous Agents

NetSci-High: Posters by High School Students (same as Tuesday)

Evening 2
Chair: Amac Herdagdelen and Anzi Hu

Late-Breaking News Session B
[359] Robert Scheidt, Nicole Salowitz, Janice Zimbelman, Aaron Suminski, Kristine Mosier, Lucia Simo and James Houk: Learning visualized in cerebral cortex, basal ganglia and cerebellum
[372] Pratim Sengupta: Design Principles for a Visual Programming Language to Integrate Agent-based modeling in K-12 Science
[378] Sara Sadvandi, Hycham Aboutaleb and Cosmin Dumitrescu: Systemic approach for negotiation process
[384] Harsha K, Onkar Hoysala and Bharath M. Palavalli: An Approach to Disaster Management using Games and Agent Based Models
[387] Arturo H. Ariño, Samy Gaiji, Javier Otegui, Vishwas Chavan and A. Townsend Peterson: Signal Discovery in World's Available Biodiversity Data
[388] Chun Wong, Hiroki Sayama, Manoj Agarwal, Kenneth Chiu and Kevin Heard: Modeling Geographical Diffusion of Broadband Internet Use from Household Survey Data
[390] Ajay Deep Kachhvah and Neelima Gupte: Avalanche Transmission and Explosive Percolation in the Criticality of Branching Hierarchical Networks
[418] Dmitry Chistilin: Chaos and Kondratieff Long Waves As a Result from Modeling of the World Economy and Individual Groups of Countries Development During the Period of 1970-2000
[415] Guillermo Sierra: Options valuation, volatility and term structure model of underlying long memory features: The case of Mexican Stock Market Index
[417] Carlos Gershenson: The Implications of Interactions for Science and Philosophy

Friday July 1st

Morning and Afternoon
Chair: Edgar Peters

Plenary Session (5): Complexity in Social, Economic & Physical Systems
[376] Geoffrey West: The Complexity, Simplicity, and Unity of Living Systems from Cells to Cities; Towards a Quantitative, Unifying Framework of Biological and Social Structure, Organization and Dynamics
[407] Nassim Taleb: A Map and Simple Heuristic to Detect Fragility, Antifragility, and Model Error
[392] Eric Beinhocker: Complexity, Economics, and Public Policy: New Tools for Real World Challenges
[401] Sorin Solomon: Autocatalytic Feedback Loops Amplify Microscopic Random Events to Systemic Complex Changes
[394] Dennis Bushnell: Societal Future States
[386] Neil Gershenfeld: Computer Science = Physical Science
[---] Stephen Wolfram

For the most updated program, see http://necsi.edu/wiki/index.php/ICCS11

International Conference on Complex Systems

Subject Areas: Unifying Themes in Complex Systems

Sessions will be structured around both themes and systems.

THEMES

EMERGENCE: The relationship of component to collective behavior; the relationship of internal structure to external influence; multiscale structure and dynamics; self-similarity and fractals.

COMPLEXITY & INFORMATION: Defining complexity; characterizing the information necessary to describe complex systems; structuring, storing, accessing, distributing, visualizing and analyzing information describing complex systems; the dynamics of information and its computational characterization.

DYNAMICS & SELF-ORGANIZATION: Time series analysis and prediction; chaos; temporal correlations; the time scale of dynamic processes; spatio-temporal patterns; dynamic scaling; pattern formation; evolution, development and adaptation; interaction between internal dynamics and external inputs; programmability of self-organization.

NETWORKS: Complex network topologies; small-world and scale-free networks; connectivity and centrality; motifs, cliques and communities; dynamical networks; adaptive networks; network modeling and analysis; modularity, degeneracy, redundancy, and substructure; visualization of networks.

METHODOLOGY: Computer simulation; agent-based modeling; data-driven research methods; analytical methods; nonlinear statistics; soft computing; methods and tools for complex systems education.

SYSTEMS

PHYSICAL & CHEMICAL SYSTEMS: Non-equilibrium processes; hydrodynamics; glasses; non-linear chemical dynamics; complex fluids; molecular self-organization; information and computation in quantum and classical physical systems; spatio-temporal patterns in physical systems from subatomic to astrophysical.

BIO-MOLECULAR & CELLULAR SYSTEMS: Systems biology; protein and DNA folding; bio-molecular informatics; membranes; cellular response and communication; genetic regulation; gene-cytoplasm interactions; development; cellular differentiation; primitive multicellular organisms; the immune system; origins of life.

PHYSIOLOGICAL & PSYCHOLOGICAL SYSTEMS: Nervous system; sensorimotor systems; computational models of neural and cognitive function; perception, cognition and action; psychological dysfunction; pattern recognition; learning and development; human-machine interaction; autonomous mental development; neurocognitive networks.

ORGANISMS & POPULATIONS: Population biology; ecosystems; ecology; ecological networks; speciation; evolution.

HUMAN SOCIAL & ECONOMIC SYSTEMS: Social networks; corporate and social structures and dynamics; organizational behavior and management; markets; urban development; the global economy; military systems; global conflict; interactions between human and natural systems.

ENGINEERED SYSTEMS: Design and manufacturing; nanotechnology; bioengineering; modified and hybrid biological organisms; computer based interactive systems; multi-agent systems; artificial life; artificial intelligence; robots; communication networks; the Internet; traffic systems; distributed control; self-organizing artifacts; complex systems engineering; biologically inspired engineering; sensor networks.

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Kenneth J. Arrow - Stanford University
Michel Baranger - MIT
Per Bak - Niels Bohr Institute
Charles H. Bennett - IBM
William A. Brock - University of Wisconsin
Charles R. Cantor - Boston University
Noam A. Chomsky - MIT
Leon Cooper - Brown University
Daniel Dennett - Tufts University
Irving Epstein - Brandeis University
Michael S. Gazzaniga - Dartmouth College
William Gelbart - Harvard University
Murray Gell-Mann - CalTech / Santa Fe Institute
Pierre-Gilles de Gennes - ESPCI
Stephan Grossberg - Boston University
Michael Hammer - Hammer & Co
John Holland - University of Michigan
John Hopfield - Princeton University
Jerome Kagan - Harvard University
Stuart A. Kauffman - Santa Fe Institute
Chris Langton - Santa Fe Institute
Roger Lewin - Harvard University
Richard C. Lewontin - Harvard University
ALbert J. Libchaber - Rockefeller University
Seth Lloyd - MIT
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Herbert A. Simon - Carnegie-Mellon University
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