Dynamics Days 2017 Schedule

Check-in and registration desk will be open during the following times:
Wednesday: 8:15am – 4:15pm (except noon – 1pm)
Thursday: 8:30am – 11:30am and 1pm – 1:45pm
Friday: 8:30am – 11:30am

Wednesday January 4

8:15	8:45		Check-in + On-site registration *coffee and pastries available*	
8:45	9:00		Welcome	Michelle Girvan
9:00	9:35	1	Invited: A developmental arc of white matter supporting a growing diversity of brain dynamics	Danielle Basset (Penn)
9:35	9:55	2	Contributed: Persistent structures and piecewise isometries in 3D mixing systems	Paul Umbanhowar
9:55	10:30	3	Invited: Dynamic Instabilities in Dislocation-Enabled Plasticity	James Langer (UCSB)
10:30	11:00		Break	
11:00	12:00	4-13	Ignite Session A	
12:00	1:45		Lunch break	
1:45	2:20	14	Invited: Simulating Granular Dynamics in Very Low Gravity	Derek Richardson (UMD)
2:20	2:40	15	Contributed: Specific Transfer Entropy and Its Estimation from Empirical Data	David Darmon
2:40	3:00	16	Contributed: A network approach to pattern formation in atmospheric cloud fields	Franziska Glassmeier
3:00	4:15	17-61	Poster Session A	
4:15	4:35	62	Contributed: Dynamics in a two-step epidemic model: Universal mechanism for hybrid percolation transitions induced by cascade dynamics	Byungnam Kahng
4:35	5:10	63	Invited: Quantifying the Predictability of Precipitation	Istvan Szunyogh (Texas A&M)
5:10	5:30	64	Contributed: A Geometrical Description of Turbulence Using Exact Coherent Structures	Balachandra Suri

The entire conference will be held on the 4th floor of the Sheraton Silver Spring Hotel
All Invited, Contributed and Ignite will be in Cypress Ballroom
All Posters will be in Magnolia Ballroom
Breaks will include complimentary coffee | Lunch is on your own

Thursday January 5

8:30	9:00		Check-in + On-site registration *coffee and pastries available*	
9:00	9:35	65	Invited: Period Doubling Bifurcations in Cardiac Tissue; Experiments, Theory and Simulations	Flavio Fenton (Georgia Tech)
9:35	9:55	66	Contributed: Computational Mechanics of Coherent Structures in Spatiotemporal Systems	Adam Rupe
9:55	10:30	67	Invited: Snakes on a plane: modeling flexible active nematics	Robin Selinger (Kent State)
10:30	11:00		Break	
11:00	12:00	68-77	Ignite Session B	
12:00	1:45		Lunch break	
1:45	2:20	78	Invited: An adaptive computational trade-off in turtle visual cortex	Woodrow Shew (Arkansas)
2:20	2:40	79	Contributed: Echo Behavior in Large Populations of Chemical Oscillators	Kenneth Showalter
2:40	3:15	80	Invited: Scattering Theory for the Boltzmann Equation and the Arrow of Time	David Levermore (UMD)
3:15	3:35	81	Contributed: Dimension from Covariance Matrices	Tom Carroll
3:35	4:00		Break	
4:00	4:35	82	Invited: Spontaneous flows in soft active matter	Zvonimir Dogic (Brandeis)
4:35	4:55	83	Contributed: Temporal Diffraction Signatures of C. elegans	Jenny Magnes
4:55	5:30	84	Invited: Ripping yourself a new one: Dynamics of Mouth Opening in Hydra	Eva-Maria Schoetz Collins (UCSD)

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Friday January 6

8:30	9:00		Check-in + On-site registration *coffee and pastries available*	
9:00	9:35	85	Invited: Predictability of Extreme Rainfall Events via a Complex Network Approach	Juergen Kurths (Potsdam)
9:35	9:55	86	Contributed: Energy Harvesting from Limit Cycle Oscillations of a Flexible Structure in a Fluid Flow	Earl Dowell
9:55	11:10	87-129 + LB	Poster Session B	LB = Late-breaking
11:10	11:45	130	Invited: Controlling Human Microbiota	Yang-Yu Liu (Harvard)
11:45	12:05	131	Contributed: Symmetric States Requiring System Asymmetry	Takashi Nishikawa
12:05	1:50		Lunch break	
1:50	2:25	132	Invited: Fast forward to the classical adiabatic invariant	Christopher Jarzynski (UMD)
2:25	2:45	133	Contributed: Flame surface patterns during thermoacoustic instability	Lipika Kabiraj
2:45	3:05	134	Contributed: Finite-time Thin Film Rupture Driven by Modified Evaporative Loss	Hangije Ji
3:05	3:35		Break	
3:35	3:55	135	Contributed: Multi Chaos: A Low-Dimensional Paradigm for High Dimensional Chaos	James Yorke
3:55	4:15	136	Contributed: Interactions of Solitary Pulses of E. coli in a One-Dimensional Nutrient Gradient	Glenn Young
4:15	4:50	137	Invited: A Simple Generative Model for Collective Online Behavior	Mason Porter (UCLA)

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Ignite Session A order (Wednesday January 4, 11am – noon)	
4	Direct and Indirect Effects of Topography on the Dynamics of Mesoscale Eddies – Larry Gulliver (Also in Poster Session A)
5	Quantum Chaos in Clifford Circuits – Michael Walter
6	Tangled up in Blue: High Frequency Intermittent FPU Dynamics at Equilibrium – David Campbell
7	Numerical Simulations of Oscillation-Driven Regolith Motion on Asteroids – Ronald Ballouz
8	Connecting Hyperbolic Geometry to Kuramoto Oscillator Systems: New Classes of Gradient Phase Models and Completely Integrable Dynamics – Bolun Chen (Also in Poster Session A)
9	The onset of chaos in orbital pilot-wave dynamics – Anand Oza
10	Observing Chaos When the Dynamics of the System is Unknown: A Reservoir Computing Approach – Jaideep Pathak (Also in Poster Session A)
11	State-dependent intrinsic predictability of cortical network dynamics – Leila Fakhraei (Also in Poster Session A)
12	Using data-driven models of brain function to predict individual differences in cognitive task performance – Kanika Bansal (Also in Poster Session A)
13	Sub-threshold resonance facilitates sequential learning in biophysical neural networks. – James Roach (Also in Poster Session A)

Ignite Session B order (Thursday January 5, 11am – noon)	
68	When Not to Grab the Bull by the Horns: Indirect Targeting in Networks – Sean Cornelius
69	Multivariate Dependence Beyond Shannon Information – Ryan James
70	Large Deviations for Gaussian Diffusions with Delay – Brett Geiger
71	Effects of Signal Inhibition on Collective Cell Migration in the Posterior Lateral Line Primordium of danio rerio – Deborah Hemingway (Also in Poster Session B)
72	Agent-based models of pattern formation on zebrafish – Alexandria Volkening (Also in Poster Session B)
73	Large Fluctuations and Rare-Events in Complex Networks – Jason Hindes (Also in Poster Session B)
74	A network dynamics approach to identifying minimal functional subnetworks – Rasoul Rajaei (Also in Poster Session B)
75	The amplification of intrinsic noise by chaos in an optoelectronic feedback loop – Kevin Fei (Also in Poster Session B)
76	Inhibitory Neurons Promote Robust Critical Firing Dynamics in Networks of Integrate-and-Fire Neurons – Zhixin Lu
77	Leveraging Environmental Correlations: The Thermodynamics of Requisite Variety – Alexander Boyd

Session A Posters (Wednesday January 4, 3pm – 4:15pm)		
17	The Time Delayed Ensemble Kalman filter for nonlinear Estimation	Zhe An and Henry Abarbanel
18	Nonlinear Dynamics of Macroscopic Quantum Superconducting Metamaterials	Steven Anlage, Daimeng Zhang, Melissa Trepanier, Edward Ott and Thomas Antonsen
19	Hidden Structures of Information Transport Underlying Spiral Wave Dynamics	Hiroshi Ashikaga and Ryan James
20	Using data-driven models of brain function to predict individual differences in cognitive task performance	Kanika Bansal, John Medaglia, Danielle Bassett, Jean Vettel and Sarah Muldoon
21	A Simple approach of Destriping Remote Sensing Imagery	Ranil Basnayake, Erik Bollt, Nick Tufillaro and Jie Sun
22	Ensemble Kalman filtering without a model	Franz Hamilton, Tyrus Berry and Timothy Sauer
23	Chaotic Time Series Prediction with FPGA-Based Reservoir Computers	Daniel Canaday, Aaron Griffith and Daniel Gauthier
24	Connecting Hyperbolic Geometry to Kuramoto Oscillator Systems: New Classes of Gradient Phase Models and Completely Integrable Dynamics	Bolun Chen, Jan Engelbrecht and Renato Mirollo
25	Nonlinear Dynamics in Optimal Communication Waveforms	Ned Corron and Jonathan Blakely
26	Lagrangian descriptors of time-dependent transition states	Galen Craven
27	Transport, Diffusion, and Energy in the Arnold-Beltrami-Childress map	Swetamber Das and Neelima Gupte
28	State-dependent intrinsic predictability of cortical network dynamics	Leila Fakhraei, Shree Hari Gautam and Woodrow Shew
29	Experimental Study of Quantum Graphs With and Without Time-Reversal Invariance	Ziyuan Fu, Trystan Koch, Thomas Antonsen, Edward Ott and Steven Anlage
30	Perron-Frobenius meet Monge-Kantorovich: A set-oriented graph-based approach to optimal transport	Piyush Grover and Karthik Elamvazhuthi
31	Direct and Indirect Effects of Topography on the Dynamics of Mesoscale Eddies.	Larry Gulliver, Timour Radko and Justin Brown
32	Implementation of a Chaotic Equation in High Speed Electronics	Chase Harrison, Benjamin Rhea, Frank Werner and Robert Dean
33	Dynamics of small networks of biomimetic artificial neurons	Harold Hastings, Oscar Hernandez, Lucy Jiang and Lindsey Tensen
34	Invasion fronts in the Fisher-KPP equation on homogeneous trees and random graphs	Aaron Hoffman and Matt Holzer
35	Dynamic Diffraction Analysis of C. elegans	Miranda Hulsey-Vincent, Clara Alivisatos, Kathleen Susman and Jenny Magnes
36	Optimal target sets for a random walk on an undirected graph	Fern Hunt
37	Coupled Autocatalytic Reactions: Interconversion and Extinction of Species	Aditi Khot and S Pushpavanam
38	Using the permutation entropy to detect nonlinearity in short and noisy time series data	Luciano Zunino and Christopher Kulp
39	Relativistic quantum kicked rotor	Boon Leong Lan
40	Collective cell migration over long time scales reveals distinct phenotypes	Rachel Lee, Christina Stuelten, Carole Parent and Wolfgang Losert
41	Analytic Solutions Throughout A Period Doubling	Marko Milosavljevic, Jonathan Blakely

	Route to Chaos	and Ned Corron
42	Bayesian approach for information theory to explain temporal dynamic between stimuli in EEG/MEG signals	Carlos Mugruza-Vassallo
43	Size-dependent propaties of branching of tadpole-like Physarum plasmodium.	Msahide Okada and Tatsunari Sakurai
44	Observing Chaos When the Dynamics of the System is Unknown: A Reservoir Computing Approach	Jaideep Pathak, Zhixin Lu, Brian Hunt, Michelle Girvan, Roger Brockett and Edward Ott
45	Constructing quantum shortcuts to adiabaticity using classical dynamics	Ayoti Patra and Christopher Jarzynski
46	Finding and Forming Synchronized Clusters in Complex Networks of Oscillators Using Symmetries	Louis Pecora, Francesco Sorrentino, Aaron Hagerstrom, Rajarshi Roy and Thomas Murphy
47	Symbolic template iterations of complex quadratic maps	Anca Radulescu and Ariel Pignatelli
48	Real and complex behavior for networks of coupled logistic maps	Anca Radulescu and Ariel Pignatelli
49	Modelling paradoxical excitation under general anesthesia as an inverse response phenomenon	Aditi Khot, Roshan M. Regy and S Pushpavanam
50	Sub-threshold resonance facilitates sequential learning in biophysical neural networks.	James Roach and Michal Zochowski
51	Noisy dynamics of thermoacoustic systems prior to Hopf bifurcation	Aditya Saurabh and Lipika Kabiraj
52	Construction of Reduced Dynamics Models from High-Dimensional Time Series	Aleksei Seleznev, Dmitry Mukhin, Andrey Gavrilov and Alexander Feigin
53	Examining Human Unipedal Quiet Stance	Matthew Semak, Jeremiah Schwartz, Taylor McMillan and Gary Heise
54	Quantum vortex visualization experiment	Itamar Shani, Peter Megson and Daniel Lathrop
55	Entrainment of Coupled Oscillators	Jordan Snyder
56	A developmental arc of white matter supporting a growing diversity of brain dynamics	Evelyn Tang, Chad Giusti, Graham Baum, Shi Gu, Eli Pollock, Ari Kahn, David Roalf, Tyler Moore, Kosha Ruparel, Ruben Gur, Raquel Gur, Theodore Satterthwaite and Danielle Bassett
57	Resource-transport dynamics induces criticality in networks of excitable nodes	Yogesh Virkar, Woodrow Shew, Juan Restrepo and Edward Ott
58	Wavenumber Selection via Spatial Parameter Step	Jasper Weinrich-Burd and Arnd Scheel
59	Dynamics of a Human Spiral Wave	Andrea Welsh, Edwin Greco and Flavio Fenton
60	Testing Wave Chaos Statistical Predictions in Scaled Electromagnetic Cavities	Bo Xiao, Thomas Antonsen, Edward Ott, Zachary Drikas, Jesus Gil Gil and Steven Anlage
61	Characterization of BZ Reaction Phase Response Curves and Synchronization of Coupled BZ Oscillators	Desmond Yengi, Jirapa Rueangsuwan, Mark Tinsley and Kenneth Showalter

Session B Posters (Friday January 6, 9:55am – 11:10am)		
87	Experiments in Superconducting Microwave Cavities to demonstrate Chaos Regularization of Quantum Tunneling Rates	Bisrat Addissie

88	Principles governing neural dynamics are scale-invariant at criticality: Renormalization approach.	Vidit Agrawal
89	Complex behavior in networks of nonlinear oscillators	Leandro Alonso
90	Crash Box Response to a Drop Weight Impact Tester	Khaled Asfar, Salman Hailat and Mai Al-Qudah
91	Phases of Space-occupying networks and relation to mammalian brain	Nima Dehmamy, Soodabeh Milanloui and Laszlo Barabasi
92	Spectral Properties of Spiral Waves in the Barkley Model	Stephanie Dodson and Bjorn Sandstede
93	The amplification of intrinsic noise by chaos in an optoelectronic feedback loop	Kevin Fei, Joe Hart, Thomas Murphy and Rajarshi Roy
94	A Novel Model of Pulsing Oscillators	Christopher Fritz
95	Graph clustering of human mobility networks and its applications	Naoya Fujiwara
96	Limit cycles and strange attractors of polynomial dynamical systems	Valery Gaiko
97	Handwritten Digit Recognition with Reservoir Computers in Software and Hardware	Aaron Griffith, Nicholas Haynes, Otti D'Huys, Daniel Canaday and Daniel Gauthier
98	Chaos, noise, and physical random number generation	Joseph Hart, Yuta Terashima, Atsushi Uchida, Thomas Murphy and Rajarshi Roy
99	Modeling the Network Dynamics of Pulse-Coupled Neurons	David Hathcock, Kimberly Crain, Sarthak Chandra, Thomas Antonsen, Edward Ott and Michelle Girvan
100	Effects of Signal Inhibition on Collective Cell Migration in the Posterior Lateral Line Primordium of danio rerio	Deborah Hemingway, Rachel Lee and Wolfgang Losert
101	Large Fluctuations and Rare-Events in Complex Networks	Jason Hindes and Ira Schwartz
102	Effects of traumatic brain injury upon the neural dynamics and nonlinear network properties of the human brain	Andrei Irimia and John Van Horn
103	Control of diffusion in random walkers	Miki Kobayashi and Hiroyasu Ando
104	Tunable Photonic Oscillators	Vassilios Kovanis
105	Turbulent Chimera States in Large Diode Lasers Arrays	Vassilios Kovanis
106	Development of kinks in car-following models	Douglas Kurtze
107	Statistics of chaotic resonances at optical frequencies: theory and experiments	Domenico Lippolis, Li Wang and Yun-Feng Xiao
108	Nonlinear Dynamics of Directed Cell Migration	Wolfgang Losert
109	The Impact of Non-Orthogonal Axes on Mixing with a Bi-axial Hemispherical Piecewise Isometry	Thomas Lynn, Julio Ottino, Paul Umbanhowar and Richard Lueptow
110	Burning up: The effect of slope upon forest fire propagation	Robin M.P. Morillo and Niklas Manz
111	Spontaneous oscillation in coupled heterogeneous excitable phase oscillators	Kai Morino, Gouhei Tanaka and Kazuyuki Aihara
112	Revisiting delay-embedding by using Hilbert-Schmidt integral operator theory for dynamical reconstruction	Naoto Nakano
113	Dynamics of free scroll wave termination by low-energy electric field pulses in three dimensions	Niels Otani, Valentin Krinski, Kayleigh Wheeler and Stefan Luther
114	Phase synchronization in active and quiet sleep in	Nicoló Pini, Maristella Lucchini, Nina

	newborn infants	Burtchen and Maria Gabriella Signorini
115	Boolean Satisfiability as Boolean Networks	Andrew Pomerance
116	Dynamical rhythms of an array of diffusively coupled BZ microoscillators with Global Negative Feedback.	Ivan Proskurkin and Vladimir K. Vanag
117	A network dynamics approach to identifying minimal functional subnetworks	Rasoul Rajaei, Sean Cornelius, Emma Towlson and Albert-László Barabási
118	Optimal dynamical regularization for prediction in nonlinear inverse problems	Paul Rozdeba
119	Propagating ring and deposition pattern of motile cells of Escherichia coli	Tatsunari Sakurai
120	Collective motion patterns and hybrid dynamics of swarms with networked delay coupling	Ira Schwartz, Klementyna Szwaykowska and Jason Hindes
121	Prediction of Indian Summer Monsoon Rainfall by Phase-Space Reconstruction Model	V. Krishnamurthy and A. Surjalal Sharma
122	Study of Phase-flip and oscillation-death in indirectly coupled oscillators	Amit Sharma, Umesh Verma and Manish Shrimali
123	Memory Stabilization Preferentially Occurs Near a Phase-Transition	Quinton Skilling, Nicolette Ognjanovski, Sara Aton and Michal Zochowski
124	Wrinkling of a thin film on a nematic liquid crystal elastomer	Harsh Soni, Robert A Pelcovits and Thomas R. Powers
125	Dynamics of a Two-Layer Tear Film with Evaporation	Michael Stapf
126	Four wave interaction system makes wrong predictions for the water wave problem	Danish Ali Sunny
127	Agent-based models of pattern formation on zebrafish	Alexandria Volkening and Bjorn Sandstede
128	Mathematical Model of Glob-Driven Tear Film Breakup (TBU)	Lan Zhong, Christiaan F. Ketelaar, Richard J. Braun, Carolyn G Begley and P. Ewen King-Smith
129	Nonlinear Wave Chaos and the Random Coupling Model	Min Zhou, Edward Ott, Thomas M. Antonsen and Steven M. Anlage

Late-Breaking Posters (Friday January 6, 9:55am – 11:10am)		
LB1	Coarse Modeling of Circadian Rhythms in Heterogeneous Neural Networks	Tom Bertalan, C. William Gear, Yannis Kevrekidis, Michael Henson, Erik Herzog and Carlo Laing
LB2	Parameter reduction via nonlinear data-mining	Alexander Holiday, Antonios Zagaris, William Leeb, William Gear and Ioannis Kevrekidis
LB3	Bifurcations in a periodically stimulated limit cycle oscillator with finite relaxation times	Peter Langfield, Wilson Facanha, Bart Oldeman and Leon Glass
LB4	Using a Large-Scale Neural Model of Cortical Object Processing to Investigate the Neural Substrate for Holding Multiple Items in Short-Term Memory and for performing a Paired Associate Task	Qin Liu, Antonio Ulloa and Barry Horwitz
LB5	Data-Mining Assisted Coarse-Grained Optimization	Dmitry Pozharskiy, Andrew Duncan, Grigorios A. Pavliotis and Ioannis G. Kevrekidis
LB6	Suppression and revival of oscillation in indirectly coupled limit cycle oscillators	Pooja Rani, Neeraj Kamal and Manish Shrimali
LB7	Ordinal Networks of Time Series	Michael Small, Konstantinos Sakellariou, Michael McCullough and Thomas Stemler