Curriculum Vitae

JEFF MOEHLIS
Department of Mechanical Engineering
Engineering II Building, Room 2341
University of California, Santa Barbara
Santa Barbara, CA 93106-5070

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Degrees

Ph.D. Physics, University of California, Berkeley, May 2000
B.S. Physics and Mathematics, Iowa State University, May 1993

Dissertation

"Forced Symmetry-Breaking as a Mechanism for Bursting"
    Edgar Knobloch, Chair

Examination Fields: Bifurcation Theory, Hydrodynamic Stability

Awards and Honors

- Speaker at TEDx UCSB, 2014
- National Academy of Engineering Frontiers of Engineering, 2009
- Kavli Fellow, National Academy of Sciences Frontiers of Science, 2008
- Northrop Grumman Excellence in Teaching Award at UCSB, 2008
- National Science Foundation CAREER Award, 2006-2011
- Alfred P. Sloan Research Fellowship in Mathematics, 2005-2007
- National Science Foundation Mathematical Sciences Postdoctoral Research Fellowship, Princeton University, 2000-2003
- Bernard Friedman Memorial Prize in Applied Mathematics for Outstanding Doctoral Dissertation, University of California, Berkeley, 1999-2000
- Geophysical Fluid Dynamics Fellowship at Woods Hole Oceanographic Institution, Summer 1999
- Outstanding Graduate Student Instructor Award, University of California, Berkeley, 1994-1995
- Highest Graduating Senior in Physics, Iowa State University, 1993
- B.S. awarded With Distinction, With Honors, Iowa State University, 1993
- Phi Beta Kappa, elected 1992
- Marian Daniells Mathematics Scholarship, Iowa State University 1989-1992

Professional Experience

- Professor, Department of Mechanical Engineering, University of California, Santa Barbara, Fall 2011-present; also affiliated with Program in Dynamical Neuroscience and Department of Mathematics at UC Santa Barbara
- Chair, Department of Mechanical Engineering, University of California, Santa Barbara, Summer 2021-present
- Chair, Program in Dynamical Neuroscience, University of California, Santa Barbara, Summer 2019- Spring 2020
- Vice Chair, Department of Mechanical Engineering, University of California, Santa Barbara, Fall 2008-Summer 2013, Summer 2017-Summer 2021
- Associate Professor, Department of Mechanical Engineering, University of California, Santa Barbara, Fall 2007-Spring 2011
- Assistant Professor, Department of Mechanical Engineering, University of California, Santa Barbara, Fall 2003-Spring 2007
- Consultant for HRL Laboratories, Summer 2010-Fall 2013
- Visiting Research Associate, Department of Engineering Mathematics, University of Bristol, England, Fall 2007
- Visiting Researcher, Fachbereich Physik der Philipps-Universität Marburg, Summer 2003
- Visiting Research Fellow, Program in Applied and Computational Mathematics, Princeton University, Fall 2000 - Spring 2003
- Graduate Student, Department of Physics, University of California, Berkeley, Fall 1993 - Spring 2000

Graduate Students Advised

Current Students

- Philip Wong, PhD student (co-advised with Matthieu Louis). Research Topic: Decision making for fly larvae
- Nibodh Boddupalli, PhD student. Research Topic: System identification using machine learning
- Cory Brown, PhD student. Research Topic: Koopman operator approach to combustion
- Michael Zimet, PhD student (co-advised with Scott Grafton, Barry Giesbrecht). Research Topic: Physiological response to cold pressor test

Former Students

- Tim Matchen, PhD received Winter 2021. Adaptive strategies for oscillatory systems: Integrating machine learning and control techniques with applications in neuroscience.

- Bharat Monga, PhD received Winter 2020: Model-based and machine learning-based control of biological oscillators.
- Matthew Ou, BS/MS received Spring 2019: In search of optimal stimuli for desynchronizing neural populations via reinforcement learning.
- Carmelo Gonzales, MS received Spring 2019: Analyzing the sensitivity of nonlinear oscillators to parametric perturbations using isostable and isochron coordinates.
- Zachary Guilford, BS/MS received Spring 2018: Information-theoretical identification of coupled oscillator networks.
- Matthew Kim, BS/MS received Spring 2016: Neural modeling.
- Dan Wilson, PhD received Spring 2016: Model reduction for treatment of neurological diseases and cardiological arrhythmias. Received Best PhD Dissertation Award, Currently an Assistant Professor at University of Tennessee, Knoxville.
- Louis Van Blarigan, PhD received Spring 2016: Nonuniform buckled beam energy harvesting: experimental validation, modeling, and dynamic analysis. Currently at Sugarpine Engineering.
- Michael Busch, PhD received Spring 2014: Information propagation on social networks. Currently at Apple, Inc.
- Brian Paden, MS received Spring 2013: Point-to-point control near heteroclinic cycles: plant and controller optimality conditions. Currently at Samsung.
- Ali Nabi, PhD received Fall 2012: Event-based optimal control of neurons. Currently at GenapSys.
- Margot Kimura, PhD received Summer 2011: Collective decision making (MS received Summer 2007: Novel vehicular trajectories for collective motion from coupled oscillator steering control). Currently at Sandia National Laboratory.
- Per Danzl, PhD received Spring 2010: Dynamical characterization and feedback control of oscillatory neural systems. Received Best PhD Dissertation Award, Department of Mechanical Engineering, UCSB. Currently Controls Engineer at Eaton Corporation.
- Lina Kim, PhD received Summer 2009: Characterizing the edge of chaos for shear flows. (MS received Summer 2005: Transient Growth for a Sinusoidal Shear Flow Model). Currently Director of Research Mentorship Program, UCSB.
- Barry DeMartini, PhD received Summer 2008 (co-advised with Kimberly Turner): Development of nonlinear and coupled microelectromechanical oscillators for sensing applications. Currently Engineer at Keysight Technologies.
- Allison Kolpas, PhD received Spring 2008: Coarse-grained analysis of collective motion in animal groups. Currently faculty in Department of Mathematics, West Chester University.

- Joseph Durham, MS received Summer 2007: Controlling canards using ideas from the theory of mixed-mode oscillations. Currently a Senior Research Scientist at Amazon Robotics.
- Michael Schaus, MS received Summer 2005: Neural oscillator identification via phase-locking behavior. Currently Engineering Manager at Navistar.

Postdoctoral Scholars Advised

- Gabor Orosz (Fall 2008-Summer 2010). Research topics: traffic dynamics, coupled oscillators. Faculty in Department of Mechanical Engineering, University of Michigan.

Undergraduate Research Projects Advised

- Andrew Yates (Summer 2019-present): Phase reduction using machine learning.
- Zachary Guilford (Spring 2017): Information theoretical methods for network classification.
- Aviv Elbag (Spring 2016 - Summer 2016): Mathematical modeling of fish schools.
- Vishaal Varahamurthy (Winter 2013-Fall 2015): Dynamical systems software package.
- Talia Barth (Summer 2013 - Spring 2014): Vibrational energy harvester.
- Lijuan (Lily) Li (Fall 2011 - Summer 2012): Finite element analysis of vibrational energy harvester.
- Keith Allen (Fall 2011 - Spring 2012): Vibrational energy harvester.
- Ramzi Deek (Summer 2011, visitor from American University of Beirut): Controlling neurons.
- Tapiwa Maruni (Summer 2011, visitor from Florida A&M University): Information propagation through networks.
- Louis Van Blarigan (Summer 2010-Summer 2011): Vibrational energy harvesting.
- Tomasz Jagoda (Fall 2008-Winter 2009): Computational analysis of a territorial model.
- Ashley Zavagno (Winter 2009-Summer 2009): Territorial behavior of insects.
- Suzanne Iwanicki (Summer 2008-Summer 2009): Territorial behavior of insects.
- Jess Theilmann (Fall Quarter 2006-Winter Quarter 2007): Response of neural oscillator populations to sinusoidal inputs.
- Ronald Votel (Summer Quarter 2005-Summer 2006): Computational analysis of a territorial model.

- Robert Hansen (Winter Quarter 2005-Summer 2006): Response of oscillator populations to Poisson inputs.

Thesis/Dissertation Committees/External Examiner

- Max Emerick: Control of Continuous Swarm Systems via Optimal Control and Optimal Transport Theory (MS 2022, Advisor: Bassam Bamieh)
- Swapnil Tripathi: Stabilizing Bimodal Planar Linear Switched Systems (PhD 2022, Advisor: Nikita Agarwal, Indian Institute of Science Education and Research Bhopal)
- Philip Crandell: Photomanipulation of Stress Relaxation in Alginate Hydrogels via addition of PEG (MS 2022, Advisor: Ryan Stowers)
- Connor Hughes: Gradient-Based Optimization of Stochastic Strategies for Robotic Surveillance (MS 2022, Advisor: Francesco Bullo)
- Bruno Jacobs: An Improved Particle-Based Method with Applications to Multiscale Biophysical Problems (PhD 2021, Advisor: Linda Petzold)
- Allan Avila: Spectral Operator Methods in Dynamical Systems (PhD 2020, Advisor: Igor Mezic)
- Elizabeth Huang: Networks of Coupled Oscillators and Social Network Structures of Teams (PhD 2020, Advisor: Francesco Bullo)
- Xiaoming Duan: Markov Chain-Based Stochastic Strategies for Robotic Surveillance (PhD 2020, Advisor: Francesco Bullo)
- Mathias Wanner: Robust Approximation of the Stochastic Koopman Operator (MS 2020, Advisor: Igor Mezic)
- Pouria Akbari Mistani: Large Scale Simulations and Stochastic Modeling of Interfacial Transport Processes (PhD 2020, Advisor: Frederic Gibou)
- Joshua Mueller: Patterns of variability in brain and behavior across spatiotemporal scales (PhD 2020, Advisor: Jean Carlson)
- Hamed Ghaffari: Application of mathematical modeling in cancer, blood clotting abnormalities and migraine headaches research (PhD 2020, Advisor: Linda Petzold)
- Stella Von Meer: Rule representation in explicit categorization (PhD 2019, Advisor: Greg Ashby)
- Anna Washabaugh: The effect of grain size on deformation twinning in magnesium (MS 2019, Advisor: Sam Daly)
- Tie Bo Wu: Computational analysis of acute traumatic coagulopathy (PhD 2019, Advisor: Linda Petzold)
- Bruce Balderrama: The effect of density ratio on downslope gravity current (MS 2019, Advisor: Eckart Meiburg)
- Min Dai: Design of active assist mode for LEGtrek using admittance controller (MS 2019, Advisor: Katie Byl)
- Matthias Kargl: Building a remote-control car and simulating its sliding behavior in MuJoCo (MS 2019, Advisor: Katie Byl)

- Erinn Sloan: Pilot study of a novel assistive device to improve biomechanics of walking gait in populations with foot drop (MS 2018, Advisors: Elliot Hawkes and Tyler Susko)

- Nithin Govindarajan: Periodic approximations and spectral analysis for the Koopman operator: theory and applications (PhD 2018, Advisor: Igor Mezic)

- Matthew DeVogelaere: Transient Thermal Model: A transient heat transfer simulation tool (MS 2018, Advisor: Frederic Gibou)

- Isaac Y. Kwon: Bio-inspired actuators in structural control and vehicle suspension (PhD 2018, Advisor: Henry Yang)

- Sepehr Seifi: Motion planning and control of fixed-direction skating maneuvers for a quadruped robot with passive wheels (MS 2018, Advisor: Katie Byl)

- Mishel George: A Theory of Collective Cell Migration and the Design of Stochastic Survellance Strategies (PhD 2018, Advisor: Francesco Bullo)

- Vrutangkumar V. Shah: A Biomechanical View of Parkinsonia Rest Tremor Mechanism and Its Implication to Therapy and Early Diagnosis (PhD 2017, Advisor: Harish Palanthandalam-Madapusi, Indian Institute of Technology Gandhinagar)

- Wenjun Mei: Modeling and Analysis of Social Network Dynamics: Propagation, Learning and Structural Balance (PhD 2017, Advisor: Francesco Bullo)

- Megan Chang: A Level-Set Approach for Simulating Dendritic Crystal Growth (MS 2017, Advisor: Frederic Gibou)

- Lily Li: Exploiting and Optimizing Nonlinearities for Resonant MEMS Applications (PhD 2016, Advisor: Kimberly Turner)

- Brian Gibson: Studying Energy Loss Mechanisms in MEMS Based Resonators using Laser Doppler Vibrometry (PhD 2016, Advisor: Kimberly Turner)

- Hari Sivakumar: A Modular Approach to Analyzing Biological Networks (PhD 2016, Advisor: Joao Hespanha)

- Alexandre Iolov: Parameter Estimation, Optimal Control and Optimal Design in Stochastic Neural Models (PhD 2016, Advisor: Andre Longtin, University of Ottawa)

- Deepti Kannapan: Synchronization in Pulse-Coupled Oscillator Networks with Mixed Coupling and Nonzero Delays (MS 2015, Advisor: Francesco Bullo)

- Giulia Piovan: Reachability and Actuation Strategies for the Active SLIP Model (PhD 2015, Advisor: Katie Byl)

- John Simpson-Porco: Stability and Control of Inverter-Based Power Grids (PhD 2015, Advisor: Francesco Bullo)

- Rush Patel: Robotic Surveillance and Deployment Strategies (PhD 2015, Advisor: Francesco Bullo)
- Felipe Núñez: Bio-inspired Synchronization of Pulse-Coupled Oscillators and its Application to Wireless Sensor Networks (PhD 2014, Advisor: Frank Doyle)
- Lily Li: MIP-Coated Microbeam Mass Sensing Utilizing Noise Squeezing Effect in Parametric Resonance (MS 2014, Advisor: Kimberly Turner)
- Yuhui Ma: Design of Frequency Dividers using Nonlinear Resonances (MS 2014, Advisor: Kimberly Turner)
- Blane Rhoads: Algorithms for Efficient Guidance of Autonomous Underwater Vehicles (PhD 2013, Advisor: Igor Mezić)
- Mohamad Mehdi Nasr-Azadani: Understanding Turbidity Currents Interacting with Complex Seafloor Topographies: A Depth-resolved Numerical Investigation (PhD 2013, Advisor: Eckart Meiburg)
- Peter Burns: Double-diffusive Instabilities in Sediment-laden Flows (PhD 2013, Advisor: Eckart Meiburg)
- Florian Dörfler: Dynamics and Control in Power Grids and Complex Oscillator Networks (PhD 2013, Advisor: Francesco Bullo)
- Zachary Borden: On Two-layer Analytical Models for Gravity Currents and Internal Bores (PhD 2013, Advisor Eckart Meiburg)
- Fabio Pasqualetti: Secure Control Systems: A Control-Theoretic Approach to Cyber-Physical Security (PhD 2012, Advisor: Francesco Bullo)
- Vaibhav Srivastava: Stochastic Search and Surveillance Strategies for Mixed Human-Robot Teams (PhD 2012, Advisor: Francesco Bullo)
- Marko Budišić: Ergodic Quotients in Analysis of Dynamical Systems (PhD 2012, Advisor: Igor Mezić)
- Jamilah Abdur-Rahim: Identifying Learning and Performance in a Visuomotor Task (PhD 2012, Advisor: Linda Petzold)
- Zi Yie: Exploiting Parametric Resonance and Amplification in Microcantilever-based Mass Sensing (PhD 2012, Advisor: Kimberly Turner)
- Anahita Mirtabatabaei: Opinion Dynamics in Heterogeneous Networks and Opinion Manipulation (PhD 2012, Advisor: Francesco Bullo)
- Chris Burgner: Noise in Nonlinear MEMS as it Applies to Sensing (PhD 2012, Advisor: Kimberly Turner)
- Gunjan Thakur: Encoding Information in Coarse Grain Models for Self-Assembling Systems (PhD 2012, Advisor: Igor Mezić)
- Patrick Shepherd: Cellular Strategies for Controlling the Glial Response to Ischemic Injury and Sensitivity Analysis of Stochastic Biochemical Reaction Networks (PhD 2012, Advisor: Mustafa Khammash)
- Sandra Dandach: Topics in Sequential Decision Making: Analysis and Applications (PhD 2011, Advisor: Francesco Bullo)

- Joey Durham: Distributed Coordination for Teams of Robots (PhD 2011, Advisor: Francesco Bullo)
- Nikita Agarwal: Coupled cell networks - Interplay between architecture & dynamics (PhD 2011, Advisor: Michael Field, University of Houston)
- Guilia Piovan: On Orientation Localization for Relative Sensing Network (MS 2010, Advisor: Francesco Bullo)
- Karl Obermeyer: Visibility problems for sensor networks and UAVs (PhD 2010, Advisor: Francesco Bullo)
- George Gilmore: The global resonance apparatus (MS 2009, Advisor: Igor Mezić)
- Shaunak D. Bopardikar: Pursuit strategies for autonomous vehicles (PhD 2009, Advisor: Francesco Bullo)
- Bryan Eisenhower: Targeted escape in large oscillator networks (PhD 2009, Advisor: Igor Mezić)
- Jagpal Gill (MS 2009, Electrical and Computer Engineering)
- Sophie Loire: Manipulation of microsize to nanosize particles with AC electrokinetic forces (PhD 2008, Advisor: Igor Mezić)
- Brian Munsky: The finite state projection for the solution of the master equation and its applications to stochastic gene regulatory networks (PhD 2008, Advisor: Mustafa Khammash)
- Antoine du Chéné: Second-order accurate computation of curvatures in a level set framework using novel high-order reinitialization schemes (MS 2007, Advisor: Frederic Gibou)
- Vikram Siddavaram: The effects of gravity modulation on fluid mixing (PhD 2007, Advisor: Bud Homsy)
- Zoran Levnajić: Ergodic theory in discrete dynamical systems (MS 2005, Advisor: Igor Mezic)
- Chandrasekhar Samiappan: Maglev apparatus for artificial hearts (MS 2005, Advisor: Brad Paden)

Funding

- 2020-2023: (PI) A Novel Approach to System Identification using Artificial Neural Networks, National Science Foundation, $383,389.
- 2019-2020: (PI) Phase reduction using machine learning, Council on Research and Instructional Resources Faculty Research Grant, UCSB, $6,196.
- 2016-2019: (PI) Understanding and Optimizing Dynamic Stimulation for Improvement of Short- and Long-term Brain Function, National Science Foundation, $249,098 (out of $505,767 total); co-PI: Theoden Netoff

- 2016-2017: (PI) Quantifying information propagation for fish schooling models, Council on Research and Instructional Resources Faculty Research Grant, UCSB, $3,000.

- 2015-2016: (co-PI) Tipping points in the evolution of self-organizing mobile sensory networks, U.S. Army Engineer Research and Development Center $92,000 (out of $596,000 total); PI: Bertrand Lemasson

- 2014-2017: (PI) Optimal termination of spiral waves associated with cardiac arrhythmias, National Science Foundation, $187,500 (out of $375,000 total); co-PI: Frederic Gibou

- 2013-2017: (co-PI) Optimal stimulus waveform design for Parkinson's disease, National Science Foundation, $215,889 (out of $442,453 total), plus additional $43,176 supplement; PI: Theoden Netoff, co-PI: Kenneth Showalter

- 2012-2014: (PI) Synthesizing and Analyzing the Twitter Genome, Institute for Collaborative Biotechnologies, $190,700; co-PI: Ambuj Singh.

- 2011-2012: (PI) The Dynamics of Competing Ideas on Networks, Institute for Collaborative Biotechnologies, $50,000 (out of $100,000 total); co-PI: Ambuj Singh.

- 2011-2014: (PI) Broadband Vibrational Energy Harvesting, National Science Foundation, $322,468.

- 2010-2011: (PI) Vibrational Energy Harvesters: Design and Validation Testing, Council on Research and Instructional Resources Faculty Research Grant, UCSB, $5,000.

- 2010-2014: (PI) Controlling Populations of Neurons, National Science Foundation, $450,000

- 2010-2011: (PI) Bio-inspired Information Propagation in Complex Networks, Institute for Collaborative Biotechnologies, $100,000

- 2009-2010: (co-PI) Instructional Improvement Grant, UCSB, $18,453.30; co-PI: Linda Petzold

- 2007-2009: (PI) A Theoretical, Numerical, and Experimental Study of Territorial Behavior, Council on Research and Instructional Resources Faculty Research Grant, UCSB, $8,000.

- 2007-2010: (co-PI) Bio-inspired Stochastic Search and Decision Making for Robotic Networks, Institute for Collaborative Biotechnologies, $448,600; co-PI: Francesco Bullo

- 2006-2011: (PI) Dynamics of Individual and Coupled Oscillators, National Science Foundation CAREER Award, $400,000

- 2005-2007: (PI) Alfred P. Sloan Research Fellowship in Mathematics, $45,000

- 2005-2006: (PI) Partial Synchronization due to Random Inputs, Council on Research and Instructional Resources Faculty Research Grant, UCSB, $4,800

- 2004-2008: (PI) Equation-Free Modeling of Biological Self-Organization: Coarse Computational Swarming, National Science Foundation, $230,000 (out of $720,000 total); co-PIs: Daniel Grünbaum (Washington), Yannis Kevrekidis (Princeton), Simon Levin (Princeton)
- 2004-2007: (co-PI) Dynamics of Microbeam Sensor Arrays, National Science Foundation, $400,000; PI: Kimberly Turner (UCSB), other co-PI: Steven Shaw (Michigan State)
- 2004-2005: (PI) UCSB Regents' Junior Faculty Fellowship, UCSB $7544
- 2003-2004: (PI) UCSB Junior Faculty Research Incentive Award, UCSB $5000

Publications (published articles at `http://www.me.ucsb.edu/~moehlis`)

Journal Articles

91. D. Wilson and J. Moehlis. Recent advances in the analysis and control of large populations of neural oscillators. *Annual Reviews in Control*, 2022.

90. T.D. Matchen and J. Moehlis. Leveraging deep learning to control neural oscillators. *Biological Cybernetics* **115**: 219-235, 2021.

89. B. Monga and J. Moehlis. Augmented phase reduction for periodic orbits near a homoclinic bifurcation and for relaxation oscillators. *Nonlinear Theory and Its Applications* **12**:103-116, 2021.

88. D. Kuelbs, J. Dunefsky, B. Monga, and J. Moehlis. Analysis of neural clusters due to deep brain stimulation pulses. *Biological Cybernetics* **114**:589-607, 2020.

87. B. Monga and J. Moehlis. Supervised learning algorithms for control of underactuated dynamical systems. *Physica D* **412**:132621, 2020.

86. K.R. Pilkiewicz, B.H. Lemasson, M.A. Rowland, A. Hein, J. Sun, A. Berdahl, M.L. Mayo, J. Moehlis, M. Porfiri, E. Fernandez-Juricic, S. Garnier, E.M. Bollt, J.M. Carlson, M.R. Tarampi, K. Macuga, L. Rossi, and C.-C. Shen. Decoding collective communications from the individual's perspective using information theory tools. *Journal of the Royal Society Interface* **17**:20190563, 2020.

85. B. Monga and J. Moehlis. Phase distribution control of a population of oscillators. *Physica D* **398**: 115-129, 2019.

84. B. Monga, D. Wilson, T. Matchen, and J. Moehlis. Phase reduction and phase-based optimal control for biological systems: a tutorial. *Biological Cybernetics* **113**: 11-46, 2019.

83. B. Monga and J. Moehlis. Optimal phase control of biological oscillators using augmented phase reduction. *Biological Cybernetics* **113**:161-178, 2019.

82. D. Wilson, S. Faramarzi, J. Moehlis, M. R. Tinsley, and K. Showalter. Synchronization of heterogeneous oscillator populations in response to weak and strong coupling. *Chaos* **28**: 123114, 2018.

81. T.D. Matchen and J. Moehlis. Phase model-based neuron stabilization into arbitrary clusters. *Journal of Computational Neuroscience* **44**:363-378, 2018.

80. D. Wilson and J. Moehlis. Spatiotemporal control to eliminate cardiac alternans using isostable reduction. *Physica D* **342**:32-44, 2017.

79. D. Wilson and J. Moehlis. Isostable reduction of periodic orbits. *Physical Review E* **94**:052213, 2016.

78. D. Wilson and J. Moehlis. Isostable reduction with applications to time-dependent partial differential equations. *Physical Review E* **94**:012211, 2016.

77. A.B. Holt, D. Wilson, M. Shinn, J. Moehlis, and T. I. Netoff. Phasic burst stimulation: a closed-loop approach to tuning deep brain stimulation parameters for Parkinson's disease. *PLOS Computational Biology* **12**:e1005011, 2016.

76. D. Wilson and J. Moehlis. Toward a more efficient implementation of antifibrillation pacing. *PLOS One* **11**:e0158239, 2016.

75. M. Detrixhe, M. Doubeck, J. Moehlis, and F. Gibou. A fast Eulerian approach for computation of global isochrons in high dimensions. *SIAM Journal on Applied Dynamical Systems* **15**:1501-1527, 2016.

74. L. Van Blarigan and J. Moehlis. Dynamic analysis of a buckled asymmetric piezoelectric beam for energy harvesting. *Chaos* **26**:033107, 2016.

73. D. Wilson and J. Moehlis. Clustered desynchronization from high-frequency deep brain stimulation. *PLOS Computational Biology* **11**:e1004673, 2015.

72. R. Snari, M. R. Tinsley, D. Wilson, S. Faramarzi, T. I. Netoff, J. Moehlis, and K. Showalter. Desynchronization of stochastically synchronized chemical oscillators. *Chaos* **25**:123116, 2015.

71. L.A.B. Torres, J.P. Hespanha, and J. Moehlis. Synchronization of identical oscillators coupled through a symmetric network with dynamics: a constructive approach with applications to the parallel operation of inverters. *IEEE Transactions on Automatic Control* **60**: 3226-3241, 2015.

70. J. Moehlis and D. Wilson. Better living through phase and isostable reduction. *SIAM News* **48**(9), pp. 1,3,6, 2015.

69. D. Wilson and J. Moehlis. Determining individual phase response curves from aggregate population data. *Physical Review E* **92**:022902, 2015.

68. L. Van Blarigan, J. Moehlis, and R. McMeeking. Low dimensional modeling of a non-uniform, buckled piezoelectric beam for vibrational energy harvesting. *Smart Materials and Structures* **24**:065012, 2015.

67. D. Wilson, A.B. Holt, T.I. Netoff, and J. Moehlis. Optimal entrainment of heterogeneous noisy neurons. *Frontiers in Neuroscience* **9**:192, 2015.

66. D. Wilson and J. Moehlis. Extending phase reduction to excitable media: theory and applications. *SIAM Review* **57**:201-222, 2015.

65. D. Wilson and J. Moehlis. An energy-optimal approach for entrainment of uncertain circadian oscillators. *Biophysical Journal* **107**: 1744-1755, 2014.

64. G. S. Schmidt, D. Wilson, F. Allgöwer, and J. Moehlis. Selective averaging with application to phase reduction and neural control. *Nonlinear Theory and Its Applications* **5**:424-435, 2014.

63. D. Wilson and J. Moehlis. A Hamilton-Jacobi-Bellman approach for termination of seizure-like bursting. *Journal of Computational Neuroscience* **37**:345-355, 2014.

62. D. Wilson and J. Moehlis. Locally optimal extracellular stimulation for chaotic desynchronization of neural populations. *Journal of Computational Neuroscience* **37**:243-257, 2014.

61. D. Wilson and J. Moehlis. An energy-optimal methodology for synchronization of excitable media. *SIAM Journal on Applied Dynamical Systems* **13**:944-957, 2014.

60. P. Bogdanov, M. Busch, J. Moehlis, A. K. Singh, and B. K. Szymanski. The social media genome: Modeling individual topic-specific behavior in social media. *Social Network Analysis and Mining* **4**:204, 2014.

59. D. Wilson and J. Moehlis. Optimal chaotic desynchronization for neural populations. *SIAM Journal on Applied Dynamical Systems* **13**: 276-305, 2014.

58. A. Mauroy, B. Rhoads, J. Moehlis, and I. Mezic. Global isochrons and phase sensitivity of bursting neurons. *SIAM Journal on Applied Dynamical Systems* **13**:306-338, 2014.

57. J. Moehlis. Improving the precision of noisy oscillators. *Physica D* **272**:8-17, 2014.

56. E. Kenig, M.C. Cross, J. Moehlis, and K. Wiesenfeld. Phase noise of oscillators with unsaturated amplifiers. *Physical Review E* **88**, 062922, 2013.

55. B.A. Paden and J. Moehlis. Point-to-point control near heteroclinic orbits: plant and controller optimality conditions. *Automatica* **49**, 3562-3570, 2013.

54. A. Mauroy, I. Mezic, and J. Moehlis. Isostables, isochrons, and Koopman spectrum for the action-angle representation of stable fixed point dynamics. *Physica D* **261**, 19-30, 2013.

53. A. Nabi, T. Stigen, J. Moehlis, and T. Netoff. Minimum energy control for *in vitro* neurons. *Journal of Neural Engineering* **10**, 036005, 2013.

52. A. Kolpas, M. Busch, H. Li, I. D. Couzin, L. Petzold, and J. Moehlis. How the spatial position of individuals affects their influence on swarms: a numerical comparison of two popular swarm dynamics models. *PLOS One* **8**, e58525, 2013.

51. A. Nabi, M. Mirzadeh, F. Gibou, and J. Moehlis. Minimum energy desy-chronizing control for coupled neurons. *Journal of Computational Neuroscience* **34**, 259-271, 2013.

50. L. Van Blarigan, P. Danzl, and J. Moehlis. A broadband vibrational energy harvester. *Applied Physics Letters* **100**, 253904, 2012.

49. A. Nabi and J. Moehlis. Time optimal control of spiking neurons. *Journal of Mathematical Biology* **64**, 981-1004, 2012.

48. M. Busch and J. Moehlis. On the homogeneous assumption and the logistic behavior of information propagation. *Physical Review E* **85**, 026102, 2012.

47. M. Kimura and J. Moehlis. Group decision-making models for sequential tasks. *SIAM Review* **54**, 121-138, 2012.

46. A. Nabi and J. Moehlis. Single input optimal control for globally coupled neuron networks. *Journal of Neural Engineering* **8**, Article No. 065008, 2011.

45. V. Srivastava, F. Bullo, and J. Moehlis. On bifurcations in nonlinear consensus networks. *Journal of Nonlinear Science* **21**, 875-895, 2011.

44. T. Stigen, P. Danzl, J. Moehlis, and T. Netoff. Controlling spike timing and synchrony in oscillatory neurons. *Journal of Neurophysiology* **105**, 2074-2082, 2011.

43. H. Osinga and J. Moehlis. A continuation method for computing global isochrons. *SIAM Journal on Applied Dynamical Systems* **9**, 1201-1228, 2010.

42. P. Danzl, A. Nabi, and J. Moehlis. Charge-balanced spike timing control for phase models of spiking neurons. *Discrete and Continuous Dynamical Systems Series A* **8**, 1413-1435, 2010.

41. M. Busch and J. Moehlis. Analysis of a class of symmetric equilibrium configurations for a territorial model. *Numerical Mathematics: Theory, Methods, and Applications* **3**, 143-161, 2010.

40. G. Orosz, J. Moehlis, and F. Bullo. Robotic reactions: Delay-induced patterns in autonomous vehicle systems. *Physical Review E* **81**, 025204, 2010.

39. P. Danzl and J. Moehlis. Weakly coupled parametrically forced oscillator networks: existence, stability, and symmetry of solutions. *Nonlinear Dynamics* **59**, 661-680, 2010.

38. G. Orosz, J. Moehlis, and R. M. Murray. Controlling biological networks by time-delayed signals. *Philosophical Transactions of the Royal Society A* **368**, 439-454, 2010.

37. P. Danzl, J. Hespanha, and J. Moehlis. Event-based minimum-time control of oscillatory neuron models: phase randomization, maximal spike rate increase, and desynchronization. *Biological Cybernetics* **101**, 387-399, 2009.

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22. † G. Orosz, J. Moehlis, and F. Bullo, Delayed car-following dynamics for human and robotic drivers. *Proceedings of the 2011 ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE 2011)*.

21. † V. Srivastava, J. Moehlis, and F. Bullo, On bifurcations in nonlinear consensus networks. *Proceedings of 2010 American Control Conference*, 1647-1652, 2010.

20. † A. Nabi and J. Moehlis, Nonlinear hybrid control of phase models for coupled oscillators. *Proceedings of 2010 American Control Conference*, 922-923, 2010.

19. † T. Stigen, P. Danzl, J. Moehlis, and T. Netoff, Linear control of neuronal spike timing using phase response curves. *Proceedings of the 31$^{\text{st}}$ Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 1541-1544, 2009.

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15. † J. Moehlis, On the dynamics of coupled parametrically forced oscillators. *Proceedings of 2008 ASME Dynamic Systems and Control Conference*, DSCC2008-2189, 2008.

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- J. Moehlis. Review of "Data-Driven Science and Engineering: Machine Learning, Dynamical Systems, and Control" by S.L. Brunton and J.N. Kutz. *SIAM Review* **63**, 419-423, 2021.

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Patents

- A. Holt, T. Netoff, D. Wilson, J. Moehlis. Systems and methods for tuning closed-loop phasic burst stimulation based on a phase response curve, U.S. Patent 10,071,248, 2018.

- J. Moehlis, D. Wilson, and T. Netoff. Chaotic desynchronization of neural populations with non-pulsatile inputs, U.S. Patent 9,352,155, 2016.

Teaching Experience

Instructor

- Engineering 3, Introduction to Programming, Spring 2010, Spring 2011, Fall 2011, Summer 2012, Fall 2012, Fall 2013, Fall 2014, Summer 2015, Fall 2015, Summer 2016, Fall 2016, Summer 2017, Spring 2018, Summer 2018, Fall 2018, Summer 2019, Fall 2019, Summer 2020, Fall 2020, Summer 2021, University of California, Santa Barbara.
- Computer Science 8, Introduction to Computer Science, Summer 2020, University of California, Santa Barbara
- Mechanical Engineering 16, Dynamics, Summer 2019, Summer 2020, Spring 2021, Summer 2021, University of California, Santa Barbara
- Mechanical Engineering 17, Mathematics of Engineering, Spring 2004, Spring 2005, Spring 2006, Spring 2007, Spring 2008, University of California, Santa Barbara.
- Mechanical Engineering 163, Vibrations, Summer 2019, University of California, Santa Barbara
- Mechanical Engineering 169 / Electrical and Computer Engineering 183 / Physics 106, Nonlinear Phenomena, Spring 2015, Spring 2018, University of California, Santa Barbara
- Mechanical Engineering 215A, Applied Dynamical Systems I, Fall 2004, Fall 2005, Fall 2006, Fall 2008, Fall 2009, Fall 2010, Fall 2019, University of California, Santa Barbara
- Mechanical Engineering 215B, Applied Dynamical Systems II, Winter 2005, Winter 2006, Winter 2007, Winter 2009, Spring 2012, Spring 2013, Winter 2014, Winter 2015, Winter 2016, Winter 2017, Spring 2019, University of California, Santa Barbara
- Mechanical Engineering 225BC, Introduction to Low-dimensional Modeling, Winter 2004, University of California, Santa Barbara.
- Mechanical Engineering 225DS/225JM, Dynamical Systems with Symmetry, Winter 2008, Spring 2016, University of California, Santa Barbara.

Co-instructor/Course Teaching Assistant:

- Program in Applied and Computational Mathematics/Ecology and Evolutionary Biology/Molecular Biology 514, Biological Dynamics, Fall 2002, Princeton University.
- Program in Applied and Computational Mathematics 591, Special Topics in Biological Dynamics, Fall 2001, Princeton University.

Substitute/Guest Lectures:

- Engineering 220C, Tissue & Systems Bioengineering, Fall 2017, University of California, Santa Barbara.

- Geography 288, Complexity and Emergence, Winter 2005, University of California, Santa Barbara.

- Program in Applied and Computational Mathematics 571, Applied Dynamical Systems, Fall 2000, Fall 2002, Princeton University.

- Physics 205B, Advanced Dynamics, Spring 2000, University of California, Berkeley.

Graduate Student Instructor (at University of California, Berkeley):

- Physics 7A, Physics for Scientists and Engineers I, Spring 1994, Spring 1995, Summer 1995.

- Physics 7B, Physics for Scientists and Engineers II, Fall 1994.

- Physics 7C, Physics for Scientists and Engineers III, Fall 1993, Fall 1995.

- Physics 8A, Introductory Physics I, Summer 1994.

- Physics 105, Analytic Mechanics, Spring 1996.

- Physics 137A, Quantum Mechanics I, Fall 1996, Summer 1997.

Outstanding Graduate Student Instructor Award, University of California, Berkeley, 1994-1995

Professional Activities

- Member of Editorial Board, *SIAM Journal on Applied Dynamical Systems*, 2020-present.

- Member of Editorial Board, *Journal of Nonlinear Science*, 2017-present

- Member of Technical Advisory Group for MEMS and Adaptive Materials, HRL Laboratories, 2020, 2022.

- Member of Organizing Committee for SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 19-23, 2019.

- Co-organizer of Minisymposium on "Phase-Amplitude Coordinate Systems for Oscillators ", SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 19-23, 2019.

- Member of Program Committee for 4th International Conference on Mathematical Neuroscience, Juan-les-Pins, France, June 11-13, 2018.

- Member of Nominations Committee for Society for Industrial and Applied Mathematics Activity Group on Dynamical Systems, 2017.

- Chair of Organizing Committee for Emphasis Semester on Control in Biology and Medicine, Mathematical Biosciences Institute, Ohio State University, Fall 2017.

- Member of Program Committee for 5th SIAM Workshop on Network Science, Pittsburgh, Pennsylvania, July 13-14, 2017.

- Co-organizer of Minisymposium on "Control of Neural Systems", SIAM Conference on Control and Its Applications, Pittsburgh, July 10-12, 2017.

- Co-organizer of Minisymposium on "Isochrons and Isostables", SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 21-25, 2017.

- Judge for Central Coast Brain Bee high school competition, November 12, 2016.

- Co-organizer of Workshop on "Sensory Feedbacks and Distributed Communications in Natural and Artificial Systems", University of California, Santa Barbara, April 28-29, 2016.

- Co-organizer of Featured Minisymposium on "Medical Applications," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 17-21, 2015.

- Special Session Co-Chair for International Symposium on Nonlinear Theory and its Applications (NOLTA), Santa Fe, New Mexico, September 2013.

- Co-organizer of Featured Minisymposium on "Dynamics and Control of Neurons and Networks," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2013.

- Co-organizer for Design of Dynamic Structures, Devices, and Systems Symposium Topic, ASME 1st Biennial International Conference on Dynamics for Design, Chicago, Illinois, August 12-15, 2012.

- Co-organizer of Minisymposium on "Controlling Neurons," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2011.

- Judge for Poster Competition, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2011, May 2017.

- Program Director, Society for Industrial and Applied Mathematics Activity Group on Dynamical Systems, January 1, 2008 - December 31, 2009.

- Co-chair of Organizing Committee, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2009.

- Co-organizer of Minisymposium on "Connecting Modeling with Experiments in Neuroscience," SIAM Conference on Life Sciences, Montreal, Canada, August 4-7, 2008.

- Panelist, Forward Looking Panel Discussion, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, 2007.

- Co-organizer of Minisymposium on "Mathematics of Parkinson's Disease," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 28-June 1, 2007.

- Co-organizer of Minisymposium on "Individual and Collective Motion in Biology," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 28-June 1, 2007.

- Co-organizer of "International Workshop on Applied Dynamical Systems - Mechanics, Turbulence, Knots, Cockroaches, and Chaos: A Nonlinear and Poetic Path," in honor of Philip Holmes' 60th birthday, Centre de Recherches Mathématiques, Montreal, Canada, October 15-16, 2005.

- Co-organizer of Minisymposium on "Dynamics of MEMS," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 22-26, 2005.

- Scientific Committee, International Workshop on Hysteresis and Multi-Scale Asymptotics, University College Cork, Ireland, March 17-21, 2004.

- Co-organizer of Minisymposium on "Canards: Theory and Applications," Seventh SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 27-31, 2003.

- Co-organizer of Minisymposium on "Reduced-Order Dynamics of Fluids and Flames," Seventh SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 27-31, 2003.

- Organizer of Minisymposium on "Mechanisms for Intermittency and Bursting," Sixth SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 20-24, 2001.

- Co-organizer of Dynamical Systems / Nonlinear Science Seminar, Program in Applied and Computational Mathematics, Princeton University, Fall 2000-Spring 2001.

- Staff member at Summer Program in Geophysical Fluid Dynamics at the Woods Hole Oceanographic Institution: The General Circulation of the Atmosphere, Woods Hole, Massachusetts, June 19 - August 25, 2000

- Member of Editorial Committee, *Discrete and Continuous Dynamical Systems - Series S*, 2007 - 2010

- Referee for

    - *AIAA Journal*
    - *American Control Conference proceedings*
    - *Applied Mathematics Letters*
    - *Applied Numerical Mathematics*
    - *Applied Physics Letters*
    - *ASME conference proceedings*
    - *ASME Journal of Computational and Nonlinear Dynamics*
    - *ASME Journal of Vibration and Acoustics*
    - *Automatica*
    - *Autonomous Robots*
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- *Canadian Journal of Physics*
- *Chaos*
- *Cognitive Neurodynamics*
- *Communications in Mathematical Sciences*
- *Computational and Structural Biotechnology Journal*
- *Control Systems Letters*
- *Discrete and Continuous Dynamical Systems, Series B*
- *Electronic Journal of Differential Equations*
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- *Frontiers in Neuroimaging*
- *Frontiers in Neuroscience*
- *IEEE conference proceedings*
- *IEEE Control System Letters*
- *IEEE Transactions on Automatic Control*
- *IEEE Transactions on Control of Network Systems*
- *IEEE Transactions on Molecular, Biological, and Multi-Scale Communications*
- *Indian Control Conference proceedings*
- *International Conference on Hybrid Systems proceedings*
- *International Journal of Bifurcation and Chaos*
- *International Journal of Neural Systems*
- *International Journal of Non-Linear Mechanics*
- *International Journal of the Physical Sciences*
- *International Journal of Robust and Nonlinear Control*
- *International Scholarly Research Notices*
- *Israel Journal of Chemistry*
- *Journal of Computational Neuroscience*
- *Journal of Fluid Mechanics*
- *Journal of the Franklin Institute*
- *Journal of Mathematical Analysis and Applications*
- *Journal of Mathematical Biology*
- *Journal of Mathematical Biosciences*

- *Journal of Mathematical Neuroscience*
- *Mechatronics*
- *Journal of Micromechanics and Microengineering*
- *Journal of Neural Engineering*
- *Journal of Nonlinear Science*
- *Journal of the Physical Sciences*
- *Journal of Physics A: Mathematical and General*
- *Journal of Sound and Vibration*
- *Journal of the Atmospheric Sciences*
- *Journal of Theoretical Biology*
- *Mathematical Biosciences*
- *Mathematics of Control, Signals, and Systems*
- *Mechatronics*
- *Neural Computation*
- *New Journal of Physics*
- *Nonlinear Dynamics*
- *Nonlinear Theory and Its Applications*
- *Nonlinearity*
- *Philosophical Transactions of the Royal Society A*
- *Physica D*
- *Physical Review E*
- *Physical Review X*
- *Physical Review Letters*
- *Physics of Fluids*
- *Physics Letters A*
- *Proceedings of the National Academy of Sciences U.S.A.*
- *Proceedings of the Royal Society A*
- *Processes*
- *Progress in Biophysics and Molecular Biology*
- *Public Library of Science Computational Biology*
- Scholarpedia (`http://www.scholarpedia.org`)
- *Science*
- *SIAM Journal on Applied Dynamical Systems*
- *SIAM Journal on Applied Mathematics*

- *SIAM Journal on Numerical Analysis*
- *SIAM Review*
- *Theoretical and Computational Fluid Dynamics*
- *Transactions on Neural Systems and Rehabilitation Engineering*

- Editor for article in *Proceedings of the National Academy of Sciences U.S.A*, 2014.
- Guest Editor for *Journal of Nonlinear Science*, 2009-2012
- Guest Associate Editor for special issue on energy management for *Nonlinear Theory and Its Applications*, published 2011
- Proposal Review for

    - National Science Foundation Division of Mathematical Sciences
    - National Science Foundation Division of Civil, Mechanical and Manufacturing Innovation
    - National Science Foundation Integrative Strategies for Understanding of Neural and Cognitive Systems
    - National Science Foundation Ecosystem Science Cluster Division
    - National Science Foundation Collaborative Research in Computational Neuroscience Program
    - U.S. Army Corps of Engineers Engineer Research and Development Center
    - UK-India Education and Research Initiative
    - Army Research Office
    - Swiss National Science Foundation
    - Netherlands Organisation for Scientific Research
    - Israel Science Foundation
    - US-Israel Binational Science Foundation
    - American Association for the Advancement of Science (AAAS)
    - Gordon and Betty Moore Foundation

- Panel member for National Science Foundation Civil and Mechanical Systems Division
- Panel member for National Science Foundation Division of Civil, Mechanical and Manufacturing Innovation
- Book reviewer for McGraw-Hill, Cambridge University Press, Elsevier, Springer

- Member

    - Society for Industrial and Applied Mathematics

- American Society of Mechanical Engineers
- American Physical Society

University Service (all at UCSB, except where noted)

- Chair, Department of Mechanical Engineering, Summer 2021-present
- Chair, Program in Dynamical Neuroscience, Fall 2019-Summer 2020
- Vice Chair, Department of Mechanical Engineering, Fall 2008-Summer 2013, Summer 2017-Summer 2021
- Chair, Graduate Committee, Department of Mechanical Engineering, Summer 2017-Summer 2021
- Associate Director of the Center for Control, Dynamical Systems, and Computation, 2018-present
- Chair, Academic Integrity Software Ad Hoc Committee, 2020
- Chair, Diversity, Equity, and Inclusion Committee, Department of Mechanical Engineering, Summer 2020-present
- Member, University of California Office of the President Negotiated Salary Trial Program Phase 2 Taskforce, Fall 2021-Spring 2022
- Member, Campus Climate Faculty Survey Committee, Fall 2020-Spring 2021
- Member, Faculty Workload Intervention Program Committee 2021-present
- Mentor, RISE (Reimagining Instruction for the Student Experience) Institute, Summer 2020
- Member, ESCI (Evaluation System for Courses and Instruction) Ad Hoc Committee, Fall 2018-2020.
- Member, Brain Initiative Committee, Fall 2019-2020.
- Reviewer, Instructional Improvement Program Grants, Spring 2020.
- Member, Council on Planning and Budget, Fall 2016-Summer 2019.
- Member, Committee on Academic Planning & Resource Allocation, Fall 2016-Summer 2019
- Member, SAGE Junior Fellow Selection Committee, Fall 2018
- Chair, Undergraduate Committee, Department of Mechanical Engineering, Fall 2008-Summer 2013
- Member, Professional Masters Degree Committee, Department of Mechanical Engineering, 2018-19
- Member, Advisory Committee, Department of Mechanical Engineering, 2017-18, 2018-19, 2019-20, 2020-21
- Member, Undergraduate Committee, Department of Mechanical Engineering, Fall 2013 - Spring 2016.
- Member of Merits and Promotions Committee, Department of Mechanical Engineering, 2011-12, 2014-15, 2016-17, 2020-21.

- Member of Fluids Search Committee, Department of Mechanical Engineering, 2017-18.
- Member of Controls Search Committee, Department of Mechanical Engineering, 2017-18.
- Member of Planning Committee, Department of Mechanical Engineering, Fall 2009-Summer 2013.
- Judge for Graduate Division Grad Slam, Preliminary Round, Spring 2019
- Member of Faculty Legislature, 2015-16.
- Member of College of Engineering Faculty Executive Committee, Fall 2012-Spring 2014.
- Member of Local Work Team - UC Campus Climate Assessment, Fall 2011-Spring 2013.
- Member of Ad Hoc Review Committee for academic personnel case, Summer 2012.
- Member of Ad Hoc Selection Committee for Tirrell Award for Distinction in Undergraduate Research, Spring 2010.
- Member of Selection Committee for Center for Control, Dynamical Systems, and Computation Best PhD Dissertation Award, 2010, 2014.
- Reviewer/Judge for Capstone Design Projects, Department of Mechanical Engineering, 2008-2009, 2009-2010, 2010-11, 2011-12, 2012-13, 2014-15, 2017-18.
- Faculty Supervisor for Capstone Design Project, Department of Mechanical Engineering, 2013-14.
- Panelist for School for Scientific Thought Course Faculty Discussion Panel, CNSI Education Program, Spring 2009.
- Organizer of Department of Mechanical Engineering Departmental Colloquium, Spring 2008.
- Member of Selection Committee for Best PhD Award, Department of Mechanical Engineering, 2008, 2015.
- Organizer of Center for Control, Dynamical Systems, and Computation Seminar Series, Spring 2007, Winter 2009.
- Member, Graduate Committee, 2003-2008, 2015-16.
- Member Chancellor's Advisory Committee on Faculty and Staff Housing, 2005-2009.
- Coordinator for Programs in Dynamical Systems, Center for Control, Dynamical Systems, and Computation, 2005-2010
- Organizer of Department of Mechanical Engineering 2005 Convocation.

Presentations

Talks † = invited

- † "TBD", Aerospace and Mechanical Engineering Seminar, University of Southern California, Los Angeles, January 18, 2023 (forthcoming).
- † "Controlling Populations of Neural Oscillators", International Conference on Control of Self-Organizing Nonlinear Systems, Potsdam, Germany, November 23-26, 2022 (forthcoming).
- † "Desynchronizing Neural Oscillators", Workshop on Synchronization in Natural and Engineering Systems: Open Problems in Modeling, Analysis, and Control, ARO-sponsored virtual workshop, March 30, 2022.
- † "Controlling Populations of Neural Oscillators", Mechanical Engineering Seminar, University of Washington, Seattle, January 18, 2022.
- † "Learning How to Control Populations of Neurons", Mechanical Engineering Distinguished Seminar Series, University of Colorado, Boulder, September 2, 2021.
- † "A Data-Driven, Machine Learning-Based Approach to Adaptive Deep Brain Stimulation", Symposium on Harnessing Data Science for Autonomous Computing and Memory Materials, Remote Conference, July 15, 2021.
- † "A Data-Driven, Machine Learning-Based Approach to Adaptive Deep Brain Stimulation", SIAM Conference on Applications of Dynamical Systems, Remote Conference, May 23-27, 2021.
- † "Learning How to Control Populations of Neurons", Data-Driven Methods for Science and Engineering Seminar, University of Washington, October 30, 2020.
- † "Better Living Through Control: With Applications to Neural and Cardiac Systems", Society for Physics Students seminar, University of California, Santa Barbara, February 25, 2020.
- † "Controlling Populations of Neurons", Dynamical Neuroscience Seminar, University of California, Santa Barbara, June 3, 2019.
- † "Leveraging Machine Learning to Control Neurons", SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 21, 2019.
- † "Controlling Populations of Neural Oscillators", Applied Mathematics Colloquium, New Jersey Institute of Technology, March 1, 2019.
- † "Controlling Populations of Neural Oscillators", Neuroengineering Seminar, University of Minnesota, February 21, 2019.
- † "Controlling Populations of Neural Oscillators", Dynamics Days 2019, Evanston, Illinois, January 4-6, 2019.
- † "Controlling Populations of Neural Oscillators", Modeling, Computation, Nonlinearity, Randomness and Waves Seminar, University of Arizona, September 13, 2018.
- † "Controlling Populations of Neural Oscillators", Society for Industrial and Applied Mathematics Annual Meeting, Portland, Oregon, July 11, 2018.

- † "Controlling Populations of Neural Oscillators", Circuit Mechanisms of Brain Disease Journal Club talk, University of California at San Francisco, July 5, 2018.
- "Neural Oscillators: Symmetry, Clusters, and Control", Perspectives in Nonlinear Science, Institut d'Etudes Scientifiques de Cargese, Corsica, France, March 30, 2018.
- † "Controlling Populations of Neurons", Oxford Neurotheory Forum seminar, Oxford University, November 22, 2017.
- † "Controlling Biological Oscillators", Control in Biology and Medicine: Workshop on Control of Cellular and Molecular Systems, Mathematical Biosciences Institute, Ohio State University, October 3, 2017.
- "Clustered Desynchronization of Neural Oscillators", SIAM Conference on Control and Its Applications, Pittsburgh, July 11, 2017.
- † "Optimal Timing Control Using the Augmented Phase Reduction", 9th European Nonlinear Dynamics Conference (ENOC 2017), Budapest, Hungary, June 25-30, 2017.
- † "Controlling Populations of Neurons", Workshop on Brain Dynamics and Neurocontrol Engineering, Washington University, St. Louis, Missouri, June 25-27, 2017.
- † "Clustered Desynchronization of Neural Oscillators", SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 23, 2017.
- † "Better Living Through Control", MathNeuro Seminar, INRIA Sophia Antipolis, France, May 2, 2017.
- † "Better Living Through Control: With Applications to Neural and Cardiac Systems", Biomath Seminar, University of California at Los Angeles, November 10, 2016.
- † "Brain Control - It's Not Just for Mad Scientists", SIAM Conference on the Life Sciences, Boston, Massachusetts, July 14, 2016.
- † "Better Living Through Control: With Applications to Neural and Cardiac Systems", Control Seminar, University of Michigan, March 25, 2016.
- † "Better Living Through Control: With Applications to Neural and Cardiac Systems", Mathematics Colloquium, Case Western Reserve University, March 23, 2016.
- † "Brain Control - It's Not Just for Mad Scientists", Dynamics of Biologically Inspired Networks: Workshop on Generalized Network Structures & Dynamics, Mathematical Biosciences Institute, Ohio State University, March 22, 2016.
- † "Better Living Through Control: With Applications to Neural and Cardiac Systems", Applied Mathematics Colloquium, Cornell University, March 18, 2016.
- † "Brain Control - It's Not Just for Mad Scientists", Network Frontier Workshop, Northwestern University, December 6-7, 2015.

- † "Brain Control - It's Not Just for Mad Scientists", Mechanical Engineering Colloquium, University of California, Santa Barbara, October 19, 2015.
- † "Nonlinear Oscillations, Dynamical Systems, and Bifurcations of Vector Fields", Mechanical and Aerospace Engineering Colloquium, Princeton University, October 9, 2015.
- † "Better Living Through Control: With Applications to Neural and Cardiac Systems", Institute for Computational Medicine Distinguished Seminar Series, Johns Hopkins University, October 6, 2015.
- † "Brain Control - It's Not Just for Mad Scientists", Workshop on PDE-based Models and their Simulations, University of California, Santa Barbara, June 8, 2015.
- † (Plenary) "Brain Control - It's Not Just for Mad Scientists", SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 21, 2015.
- † "Brain Control", Ground-breaking Research/Innovative Technology (GRIT) Talk, University of California, Santa Barbara, June 30, 2014.
- † "Optimal Chaotic Desynchronization for Neural Populations," Applied Mathematics and Statistics Department Seminar, University of California, Santa Cruz, May 5, 2014.
- † "Brain Control", TEDx UCSB Talk, University of California, Santa Barbara, April 26, 2014.
- † "Optimal Chaotic Desynchronization for Neural Populations," Workshop on Dynamical Neural Systems, Synchronization and Control, IEEE Conference on Decision and Control, Florence, Italy, December 9, 2013.
- † "Optimal Chaotic Desynchronization for Neural Populations," Physics Colloquium, University of California, Merced, October 25, 2013.
- "Selective averaging with application to phase reduction," 2013 International Symposium on Nonlinear Theory and its Applications (NOLTA2013), Santa Fe, New Mexico, September 8-11, 2013.
- † "Using optimal control to achieve desynchronization of neural populations," Workshop on Emerging Applications in Systems and Control Theory for Neuroscience and Neural Medicine, 2013 American Control Conference, Washington D.C., June 16, 2013.
- † "Controlling Populations of Neurons," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 19-23, 2013.
- † "Controlling populations of neurons," Systems Biology Seminar, University of California, Santa Barbara, April 5, 2013.
- † "Controlling populations of neurons," Mathematical Neuroscience: Workshop on Disease, Mathematical Biosciences Institute, Ohio State University, Feb 4-8, 2013.
- † "Group decision-making models for sequential tasks," Applied Math Colloquium, University of Arizona, September 21, 2012.

- † "Group decision-making models for sequential tasks," Statistics and Applied Probability Department Seminar, University of California, Santa Barbara, May 30, 2012.

- † (Keynote) "Spontaneous order in natural and engineered systems," Materials Research Laboratory Science Teacher Workshop, University of California, Santa Barbara, March 16, 2012.

- "An energy harvester for broadband vibrations," IUTAM Symposium on 50 Years of Chaos, Kyoto, Japan, November 28 - December 2, 2011.

- "Controlling neurons," International Congress of Industrial and Applied Mathematics (ICIAM), Vancouver, Canada, July 18-22, 2011.

- "Dynamics-enabled quartz reference oscillators," with David Chang and Chip Moyer, MesoDynamics Architectures Kickoff/DEFYS Program Review Meeting, Jekyll Island, Georgia, July 6-8, 2011.

- † "A dynamical systems analysis of territorial behavior," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 22-26, 2011.

- † "Controlling neurons," Center for Control, Dynamical Systems, and Computation Seminar, University of California at Santa Barbara, May 6, 2011.

- † "Controlling neurons," Networks Seminar, University of Houston, March 25, 2011.

- † "Controlling neurons," Interdisciplinary Serminar in Nonlinear Science, Northwestern University, January 3, 2011.

- † "Controlling neurons," Department of Electrical and Systems Engineering seminar, Washington University, St. Louis, Missouri, October 1, 2010.

- † "Controlling populations of neurons," SIAM Conference on the Life Sciences, Pittsburgh, Pennsylvania, July 12-15, 2010.

- † "Controlling neurons," 16th U.S. National Congress of Theoretical and Applied Mechanics, State College, Pennsylvania, June 27-July 2, 2010.

- "Exploiting nonlinearity to provide broadband energy harvesting," 2009 ASME Dynamic Systems and Control Conference, Hollywood, California, October 12-14, 2009.

- † "Controlling neurons," Seminar, École supérieure d'électricité, Paris, France, July 20, 2009.

- † "Coarse-grained analysis of collective motion," Seminar, PMMH-ESPCI, Paris, France, July 17, 2009.

- † "Controlling neurons," Workshop on Modeling, Estimation, and Control in Neuroscience at the 47th IEEE Conference on Decision and Control, Cancun, Mexico, December 8, 2008.

- "On the dynamics of coupled parametrically forced oscillators," 2008 ASME Dynamic Systems and Control Conference, Ann Arbor, Michigan, October 20-22, 2008.

- † "Coarse-grained analysis of collective motion," Applied Mathematics Seminar, University of Michigan, October 3, 2008.
- † "Controlling neurons," Department of Mechanical Engineering Colloquium, University of Michigan, October 3, 2008.
- † "Numerical computation of isochrons," SIAM Annual Meeting, San Diego, California, July 7-11, 2008.
- † (Plenary) "Coarse-grained analysis of collective motion," New York Academy of Sciences Bioactive Systems Symposium, Polytechnic University, New York City, June 12, 2008.
- † "Reduced order models for airflows in buildings," Engineering Insights 2008, University of California, Santa Barbara, February 28-29, 2008.
- † "Coarse-grained analysis of collective motion," Department of Mathematics Seminar, University of Surrey, England, November 30, 2007.
- † "Coarse-grained analysis of collective motion," Computer Science Departmental Seminar, University of Bristol, England, November 15, 2007.
- † "Controlling neurons," Theoretical Mechanics Seminar, University of Nottingham, England, November 14, 2007.
- † "Coarse-grained analysis of collective motion," Bath Institute of Complex Systems Seminar, University of Bath, England, November 5, 2007.
- † "Coarse-grained analysis of collective motion," Bristol Centre for Applied Nonlinear Mathematics Seminar, University of Bristol, England, November 2, 2007.
- † "Controlling neurons," Applied Mathematics Seminar, University of Exeter, England, October 8, 2007.
- † "Coarse-grained analysis of stochasticity-induced switching between collective motion states," BIOCOMP 2007, Vietri sul Mare, Italy, September 24-28, 2007.
- † "Controlling neurons," Annual Meeting of the Theoretical Neuroscience Network, Bristol, England, September 10-14, 2007.
- "Equilibrium configurations for a territorial model," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 28-June 1, 2007.
- † "On the dynamics of coupled, non-autonomous oscillators," Workshop on Coupled Nonlinear Oscillators and Applications in Nanosystems, Santa Barbara, California, May 25-27, 2007.
- "On the response of neurons to sinusoidal current stimuli: phase response curves and phase-locking," 45th IEEE Conference on Decision and Control, San Diego, California, December 13-15, 2006.
- † "To stick or to swim? Well, well... An equation-free characterization of stick-slip dynamics for a model for schooling fish," Center for Applied Mathematics Seminar, University of Southern California, March 20, 2006.

- "Key elements of individual behaviors causing diverse group and population-level dynamics in schooling," joint talk with Daniel Grünbaum, Workshop on Swarming by Nature and by Design, Institute of Pure and Applied Mathematics, University of California at Los Angeles, February 27, 2006.

- † "Optimal inputs for phase models of spiking neurons," CIMMS Lunchtime Series Seminar, California Institute of Technology, February 15, 2006.

- † "Optimal inputs for phase models of spiking neurons," Applied Mathematics Colloquium, University of Arizona, February 10, 2006.

- † "Optimal inputs for phase models of spiking neurons," Applied Mathematics Colloquium, University of California at Los Angeles, January 11, 2006.

- "Transient growth for a shear flow model," American Physical Society's 58th Annual Meeting of the Division of Fluid Dynamics, Chicago, Illinois, November 20-22, 2005.

- † "A one-dimensional model for fish schooling," Workshop on Swarming in Natural and Engineered Systems, Napa Valley, California, August 3-4, 2005.

- † "Periodic orbits and chaotic sets in a model for turbulent shear flows," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 22-26, 2005.

- † "Canards for a reduction of the Hodgkin-Huxley equations," SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 22-26, 2005.

- † "Response dynamics of neural oscillator populations," American Mathematical Society Special Session on "Dynamical Systems in Neuroscience," Santa Barbara, California, April 15-16, 2005.

- † "Low-Dimensional models for shear flow turbulence," Mechanical and Industrial Engineering Seminar, University of Illinois at Urbana-Champaign, March 31, 2005.

- † "Response dynamics of neural oscillator populations," Applied Mathematics Seminar, University of Michigan, February 2, 2005.

- "Low-dimensional models for shear flow turbulence," Applied Mathematics Seminar, University of California, Santa Barbara, January 21, 2005.

- "A low-dimensional model for turbulent shear flows" American Physical Society's 57th Annual Meeting of the Division of Fluid Dynamics, Seattle, Washington, November 21-23, 2004.

- † "Response dynamics of neural oscillator populations," Applied Mathematics Seminar, University of Washington, November 19, 2004.

- †"The response dynamics of neural oscillator populations," Kavli Institute for Theoretical Physics Seminar, Santa Barbara, California, September 29, 2004.

- †"Canards: examples from chemistry and biology," American Institute of Mathematical Sciences 5th International Conference on Dynamical Systems and Differential Equations, Pomona, California, June 16-19, 2004.

- †"Canards: examples from chemistry and biology," International Workshop on Hysteresis and Multi-Scale Asymptotics, University College Cork, Ireland, March 17-21, 2004.

- †"Low-dimensional models for shear flow turbulence," Fluid Mechanics Seminar, University of California, San Diego, February 17, 2004.

- †"The response dynamics of neural oscillator populations," Chalk Talk Series, Sloan-Swartz Center for Theoretical Neurobiology, Salk Institute, San Diego, February 13, 2004.

- †"The response dynamics of neural oscillator populations," Center for Control Engineering and Computation Seminar, University of California, Santa Barbara, January 23, 2004.

- †"The response dynamics of neural oscillator populations," Interdisciplinary Serminar in Nonlinear Science, Northwestern University, January 16, 2004.

- †"Modeling and control of minimal flow unit turbulence in plane Couette flow," 42nd IEEE Conference on Decision and Control, Maui, Hawaii, December 9-12, 2003.

- "Low-dimensional models for turbulent plane Couette flow in the minimal flow unit constructed from uncoupled empirical modes," American Physical Society's 56th Annual Meeting of the Division of Fluid Dynamics, Meadowlands, New Jersey, November 23-25, 2003.

- "A new type of heteroclinic cycle arising in a model for turbulent plane Couette flow," American Physical Society's 56th Annual Meeting of the Division of Fluid Dynamics, Meadowlands, New Jersey, November 23-25, 2003.

- †"A low dimensional model for shear flows," Dynamical Systems / Nonlinear Science Seminar, Princeton University, November 21, 2003.

- †"The response dynamics of neural oscillator populations," Workshop on Patterns in Physics, The Fields Institute, Toronto, Canada, November 14-18, 2003.

- "A low dimensional model for shear flows," Seminar der AG Komplexe Systeme, Fachbereich Physik der Philipps-Universität Marburg, Marburg, Germany, August 20, 2003.

- †"Response dynamics and phase oscillators in the brainstem," Seminar der AG Komplexe Systeme, Fachbereich Physik der Philipps-Universität Marburg, Marburg, Germany, July 15, 2003.

- "Minimal plane Couette flow turbulence: low-dimensional models," 13th International Couette Taylor Workshop, Barcelona, Spain, July 3-5, 2003.

- †"Symmetry and synchrony for globally coupled oscillator networks: a tutorial," Workshop on Symmetry and Bifurcation in Biology, Banff, Canada, May 31 - June 5, 2003.

- "Canards in a surface oxidation reaction," Seventh SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 27-31, 2003.

- †"Response of neurons in the brain region locus coeruleus to stimuli," Mathematics Colloquium, Lehigh University, February 12, 2003.

- †"Response of neurons in the brain region locus coeruleus to stimuli," Colloquia Series in Applied Mathematics, The College of William and Mary, February 10, 2003.

- †"Response of neurons in the brain region locus coeruleus to stimuli," Special Mathematics Seminar, North Carolina State University, January 27, 2003.

- †"Response of neurons in the brain region locus coeruleus to stimuli," Mathematics Colloquium, Drexel University, January 22, 2003.

- †"Response of neurons in the brain region locus coeruleus to stimuli," Mathematics Colloquium, Rensselaer Polytechnic Institute, January 15, 2003.

- "Models for turbulent plane Couette flow using the proper orthogonal decomposition: moderate aspect ratio," American Physical Society's 55th Annual Meeting of the Division of Fluid Dynamics, Dallas, Texas, November 24-26, 2002.

- †"Low dimensional models of turbulent plane Couette flow using the proper orthogonal decomposition," Department of Mechanical and Environmental Engineering Seminar Series, University of California, Santa Barbara, October 28, 2002.

- †"Low dimensional models of turbulent plane Couette flow using the proper orthogonal decomposition" Applied and Interdisciplinary Mathematics Seminar, University of Michigan, October 4, 2002.

- †"Response of neurons in the brain region locus coeruleus to stimuli," Applied and Interdisciplinary Mathematics Seminar, University of Michigan, October 3, 2002.

- "Response of neurons in the brain region locus coeruleus to stimuli," Dynamical Systems / Nonlinear Science Seminar, Princeton University, September 20, 2002.

- †"Phase models for coupled neurons, with application to the brain region locus coeruleus," Applied Mathematics and Statistics Seminar, University of California, Santa Cruz, March 5, 2002.

- "Models for turbulent plane Couette flow using the proper orthogonal decomposition," American Physical Society's 54th Annual Meeting of the Division of Fluid Dynamics, San Diego, California, November 18-20, 2001.

- "Canards (French ducks): examples from chemistry and biology," Dynamical Systems / Nonlinear Science Seminar, Princeton University, October 26, 2001.

- "A model for turbulent plane Couette flow using the proper orthogonal decomposition," 12th International Couette-Taylor Workshop, Evanston, Illinois, September 6-8, 2001.

- "Bursts: excursions to (and back from) infinity," Sixth SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 20-24, 2001.

- "Wrinkled tori, bursts, and supergluing bifurcations due to resonant temporal forcing," Sixth SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 20-24, 2001.

- "Bifurcations with symmetry: an overview," Dynamical Systems / Nonlinear Science Seminar, Princeton University, March 5, 2001.

- "Radiation of mixed layer near-inertial oscillations into the ocean interior," American Physical Society's 53rd Annual Meeting of the Division of Fluid Dynamics, Washington D.C., November 19-21, 2000.

- "Bursts: excursions to (and back from) infinity," Dynamical Systems / Nonlinear Science Seminar, Princeton University, October 16, 2000.

- "Bursts in binary fluid convection," 2000 Summer Study Program in Geophysical Fluid Dynamics, Woods Hole, Massachusetts, June 19-August 25, 2000.

- "Wrinkled tori and bursts due to resonant temporal forcing," Special Seminar, Program in Applied and Computational Mathematics, Princeton, New Jersey, April 18, 2000

- "Global bifurcations of parametrically excited surface waves in a square container," American Physical Society's 52nd Annual Meeting of the Division of Fluid Dynamics, New Orleans, Louisiana, November 21-23, 1999.

- "Effect of a simple storm on a simple ocean," 1999 Summer Study Program in Geophysical Fluid Dynamics, Woods Hole, Massachusetts, June 21-August 27, 1999.

- "Bursts in oscillatory systems with broken D_4 symmetry," Fifth SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 23-27, 1999.

- "Chaotic direction-reversing waves in triple convection," American Physical Society's 51st Annual Meeting of the Division of Fluid Dynamics, Philadelphia, Pennsylvania, November 22-24, 1998.

- "A new mechanism for bursting," American Physical Society's 50th Annual Meeting of the Division of Fluid Dynamics, San Francisco, California, November 23-25, 1997.

- "A dynamical systems approach to neural networks," Kamp Chaos 1995, Lake Arrowhead, California, May 19-21, 1995.

Posters

- "Stabilization of neurons into arbitrary clusters," Fourth Annual Brain Initiative Investigators Meeting, Bethesda, Maryland, April 9-11, 2018.

- "Improving the precision of noisy oscillators," Nonlinear Dynamics and Stochastic Methods: From Neuroscience to Other Biological Applications, University of Pittsburgh, March 10-12, 2014.

- "Optimal chaotic desynchronization for neural populations," Mathematical Neuroscience: Workshop on Disease, Mathematical Biosciences Institute, Ohio State University, Feb 4-8, 2013.

- "Controlling populations of neurons," 2012 National Science Foundation CMMI Engineering Research and Innovation Conference, Boston, Massachusetts, July 9-12, 2012.

- "Analysis of parametric pumping for enhanced oscillator response," with Yook-Kong Yong, Michael Cross, Randy Kubena, Deb Kirby, David Chang, and Peter Brewer, MesoDynamics Architectures Kickoff/DEFYS Program Review Meeting, Jekyll Island, Georgia, July 6-8, 2011.

- "Controlling populations of neurons," National Science Foundation CMMI Research and Innovation Conference, Atlanta, Georgia, January 4-7, 2011.

- "Controlling neurons," National Science Foundation CMMI Research and Innovation Conference, Honolulu, Hawaii, June 22-25, 2009.

- "Controlling neurons," National Academy of Sciences 20th Annual Kavli Frontiers of Science Symposium, Irvine, California, November 6-8, 2008.

- "Equilibrium configurations for a territorial model," SIAM Conference on Life Sciences, Montreal, Canada, August 4-7, 2008.

- "Neural oscillator identification via phase-locking behavior," International Workshop on Applied Dynamical Systems: Mechanics, Turbulence, Knots, Cockroaches, and Chaos, Montreal, Canada, October 15-16, 2005.

- "Models for turbulent plane Couette flow using the proper orthogonal decomposition," Dynamics Days 2002, Baltimore, Maryland, January 4-7, 2002.

- "Chaotic direction-reversing waves," Michigan Interdisciplinary Mathematics Meeting III, Fluid Dynamics: Theory, Computation & Application, Ann Arbor, Michigan, September 22-24, 2000.

- "Chaotic direction-reversing waves," 15th Annual University of California Conference on Nonlinear Science, Yountville, California, April 16-18, 1999.

- "Bursts in oscillatory systems with broken D_4 symmetry," Dynamics Days 1999, Atlanta, Georgia, January 6-9, 1999.

- "Bursts," 14$^{\text{th}}$ Annual University of California Conference on Nonlinear Science, Los Alamos, New Mexico, February 20-21, 1998.
- "The Eckhaus-Benjamin-Feir instability in systems with temporal modulation," 13$^{\text{th}}$ Annual University of California Conference on Nonlinear Science, San Diego, California, February 22-23, 1997.