

PROGRAM SCHEDULE

Friday, May 13

8:00 - 8:45 a.m.	Registration + Coffee & Pastries	Kupfrian 1 st floor lobby
	Set Up Posters Poster Session - All Day	Kupfrian 103, 104, 105, 107
8:45 - 9:00 a.m.	Introductory Remarks Daljit S. Ahluwalia, Chairperson Department of Mathematical Sciences	Theater
	Welcoming Address Priscilla Nelson, Provost and Senior Vice President of Academic Affairs	Theater
9:00 – 10:00 a.m.	PLENARY LECTURE I John Ockendon , Oxford University <i>Industry-Driven Challenges in Applied Mathematics</i> (Introduction by Demetrios T. Papageorgiou)	Theater
10:00 – 10:30 a.m.	Coffee Break	Kupfrian 1 st floor lobby

MINISYMPOSIA I

	MATHEMATICAL BIOLOGY I KUPFRIAN 117 <i>Chair: Jorge Golowasch, NJIT</i>	MATHEMATICAL FLUID DYNAMICS I KUPFRIAN 118 <i>Chair: Lou Kondic, NJIT</i>	STATISTICS IN BIOLOGY/ GENETICS AND EDUCATION KUPFRIAN 106 <i>Chair: Pranab K. Sen, University of North Carolina at Chapel Hill</i>
10:30 - 11:00 a.m.	Herbert Levine University of California at San Diego <i>Fluctuation Effects in Intracellular Calcium Signaling</i>	Kate Stebe Johns Hopkins University <i>Surfactant Effects on Drop Detachment</i>	Javier Cabrera Rutgers University <i>Statistical Analysis of Data from Comparative DNA Microarray Experiments</i>
11:00 - 11:30 a.m.	Philip Holmes Princeton University <i>A Central Pattern Generator for Insect Locomotion</i>	Z. Jane Wang Cornell University <i>Fore- and Hind-Wing Interactions in Dragonfly Flight</i>	Dipak Dey University of Connecticut <i>Classification of Shapes using Complex Elliptical Shape Distribution</i>
11:30 a.m. - 12 noon	Thomas Kepler Duke University <i>Inducible Reorganization of the Immune System</i>	Howard Stone Harvard University <i>The Reciprocal Theorem as a Way to Get Something for (Almost) Nothing: (I) The Mobility of Membrane-Trapped Particles and (II) The Normal Force in Sliding Lubrication with Soft Materials</i>	Nilanjan Chatterjee National Institutes of Health <i>Semiparametric Maximum Likelihood Estimation Exploiting Gene-Environment Independence in Case-Control Studies</i>

12 noon - 12:30 p.m.	Vittorio Cristini University of California at Irvine <i>Two-Dimensional Chemotherapy Simulations Demonstrate Fundamental Transport and Tumor Response Limitations Involving Nanoparticles</i>	Paul Steen Cornell University <i>Dynamics and Stability of Capillary Surfaces: Designing Droplet Switches</i>	Shelby Haberman Educational Testing Service <i>Identifiability of Parameters in Item Response Models with Unconstrained Ability Distributions</i>
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12:30 – 2:15 p.m.	Lunch and Poster Session	Kupfrian 1 st floor lobby and Kupfrian 103, 104, 105, 107
2:15 - 3:15 p.m.	PLENARY LECTURE II Larry Abbott , Brandeis University <i>Scale-Invariant Adaptation</i> (Introduction by Farzan Nadim)	Theater
3:15 - 3:45 p.m.	National Science Foundation Presentation Henry Warchall Air Force Office of Scientific Research Presentation Arje Nachman	Theater
3:45 - 4:15 p.m.	Coffee Break	Kupfrian 1 st floor lobby

MINISYMPOSIA II

	MATHEMATICAL BIOLOGY II	MATHEMATICAL FLUID DYNAMICS II	COMPUTATIONAL ELECTRO-MAGNETICS
	KUPFRIAN 117 <i>Chair: Amitabha Bose, NJIT</i>	KUPFRIAN 118 <i>Chair: Yuan-Nan Young, NJIT</i>	KUPFRIAN 106 <i>Chair: Peter Petropoulos, NJIT</i>
4:15 – 4:45 p.m.	Richard Bertram Florida State University <i>Modeling Network Interactions Between the Hypothalamus and Pituitary</i>	André Nachbin IMPA, Brazil <i>New Nonlinear Water Wave Models over Highly Variable Topographies</i>	Jan Hesthaven Brown University <i>Solving the Time-Domain Maxwell's Equations with Uncertainties</i>
4:45 – 5:15 p.m.	Arthur Sherman National Institutes of Health <i>Metabolic and Electrical Oscillations in Insulin- Secreting Pancreatic Beta- Cells</i>	Anette (Peko) Hosoi Massachusetts Institute of Technology <i>From Sliding Paper to Crawling Snails: Novel Applications of Thin Films</i>	Fernando Reitich University of Minnesota <i>A New High-Order High-Frequency Integral-Equation Method for the Solution of Wave Scattering Problems</i>
5:15 – 5:45 p.m.	John Rinzel New York University <i>Fast-Decaying Inhibition Can Facilitate Spiking</i>	Andrew Belmonte Pennsylvania State University <i>Impact of a Solid into a Viscoelastic Micellar Fluid</i>	Fioralba Cakoni University of Delaware <i>Electromagnetic Inverse Scattering for a Buried Object</i>
5:45 – 6:15 p.m.	Victoria Booth University of Michigan <i>Mean Theta Phase of Model CA1 Pyramidal Cell Firing Changes with Location of Synaptic Stimuli</i>	Michael Shelley New York University <i>Swimming Worms, Swimming Sheets</i>	Miguel Visbal U.S. Air Force Research Laboratory <i>High-Order Finite-Difference Schemes for Time-Domain Computational Electromagnetics and Acoustics</i>

Saturday, May 14

8:00 - 9:00 a.m.	Registration + Coffee & Pastries	Kupfrian 1 st floor lobby
	Poster Session - All Day	Kupfrian 103, 104, 105, 107
9:00 - 10:00 a.m.	PLENARY LECTURE III Martin Golubitsky , University of Houston <i>Coupled Cell Systems: Theory and Examples</i> (Introduction by Robert M. Miura)	Theater
10:00 - 10:30 a.m.	Coffee Break	Kupfrian 1 st floor lobby

MINISYMPOSIA III

	MATHEMATICAL BIOLOGY III	MATHEMATICAL FLUID DYNAMICS III	NONLINEAR WAVES
	KUPFRIAN 117 <i>Chair: Cyrill Muratov, NJIT</i>	KUPFRIAN 118 <i>Chair: Michael Siegel, NJIT</i>	KUPFRIAN 106 <i>Chair: Zoi-Heleni Michalopoulou, NJIT</i>
10:30 – 11:00 a.m.	Masayasu Mimura Meiji University <i>Self-Organized Patterns in Bacterial Colonies</i>	Andrea Bertozzi University of California at Los Angeles <i>Shocks in Driven Liquid Films</i>	Arnd Scheel IMA, University of Minnesota <i>Following Coherent Structures</i>
11:00 – 11:30 a.m.	John Pearson Los Alamos National Laboratory <i>Equivalence and Identification of Markov Models for Ion Channel Kinetics</i>	Russell Caflisch University of California at Los Angeles <i>Singularities in Incompressible Fluid Dynamics</i>	Richard Haberman Southern Methodist University <i>Vector Soliton Collision Dynamics in Nonlinear Optical Fibers</i>
11:30 a.m. - 12 noon	Jonathan Bell University of Maryland at Baltimore County <i>Waves of Excitation in Neural Field Models</i>	Monika Nitsche University of New Mexico <i>Regularizations of Vortex Sheet Motion</i>	Jared Bronski University of Illinois at Urbana-Champaign <i>The Periodic Modulational Instability</i>
12 noon - 12:30 p.m.	Anna Georgieva Novartis Pharmaceuticals Corp. <i>Mechanistic Systems Biology Modeling Applied to the Pre-Clinical Cardiac Safety Assessment of a Pharmaceutical Compound: From Channels to Cells to Tissue</i>	Jean-Marc Vanden-Broeck University of East Anglia <i>Nonlinear Capillary Waves in Electrified Fluid Sheets</i>	J. Nathan Kutz University of Washington <i>Computing Spectra of Linear Operators Using Hill's Method</i>

12:30 – 2:00 p.m.	Lunch and Poster Session	Kupfrian 1 st floor lobby and Kupfrian 103, 104, 105, 107
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2:00 - 3:00 p.m.

PLENARY LECTURE IV

Joseph B. Keller, Stanford University
Sound Source Location
(Introduction by Daljit S. Ahluwalia)

Theater

3:00 – 3:30 p.m.

Coffee Break

Kupfrian 1st floor lobby

MINISYMPOSIA IV

MATHEMATICAL BIOLOGY IV

KUPFRIAN 117
Chair: Louis Tao, NJIT

3:30 – 4:00 p.m.

Stephen Childress
New York University
*Flapping Flight as a Bifurcation
in Frequency Reynolds
Number*

MATHEMATICAL FLUID DYNAMICS IV

KUPFRIAN 118
Chair: Jonathan Luke, NJIT

Wendy Zhang
University of Chicago
*Viscous Entrainment: Singular &
Nearly Singular Liquid Spouts*

BIOSTATISTICS AND GENOMICS

KUPFRIAN 106
*Chair: Dipak Dey, University of
Connecticut*

W. Jackson Hall
University of Rochester
*Secondary Inference after a
Sequential Clinical Trial*

4:00 – 4:30 p.m.

Lora Billings
Montclair State University
*Chaotic Desynchronization of
Multi-Strain Diseases*

Hillary Ockendon
Oxford University
*Turbulent Flow in Long Thin
Channels*

Pranab K. Sen
University of North Carolina at
Chapel Hill
*The Curse of Dimensionality in
Genomics: Beyond the Likelihood
Paradigm*

4:30 – 5:00 p.m.

Frank Hoppensteadt
New York University
*Dynamics of Coalitions in
Aggregates and Networks of
Oscillators*

L. Pamela Cook
University of Delaware
*Flows of Worm-Like Micellar
("Living Polymer") Solutions:
Modeling and Predictions*

William Sallas
Novartis Pharmaceuticals Corp.
*Deconvolution and Regularization:
Connection to Linear Least
Squares and Application to
Estimating Insulin Secretion in
Patients with Type 2 Diabetes*

5:15 - 6:15 p.m.

KEYNOTE STEAKER

Avner Friedman, Mathematical Biosciences Institute, Ohio State University
Mathematical Biology – A Newcomer to Applied Mathematics
(Introduction by Gregory A. Kriegsmann)

Theater

6:30 - 9:00 p.m.

Remarks
President Robert A. Altenkirch

Campus Center Atrium

Banquet

Campus Center Atrium

Sunday, May 15

8:00 - 9:00 a.m.	Coffee & Pastries	Kupfrian 1 st floor lobby
9:00 - 10:00 a.m.	Plenary Lecture V William Kath , Northwestern University <i>Simulating Rare Events in Lightwave Systems with Importance Sampling</i> (Introduction by Denis Blackmore)	Theater
10:00 - 10:30 a.m.	Coffee Break	Kupfrian 1 st floor lobby
10:30 - 11:30 a.m.	Plenary Lecture VI Leo P. Kadanoff , University of Chicago <i>Effective Scientific Simulations</i> (Introduction by Michael Siegel)	Theater

	MATHEMATICAL BIOLOGY V KUPFRIAN 117 <i>Chair: Victor Matveev, NJIT</i>	MINISYMPOSIA V MATHEMATICAL FLUID DYNAMICS V KUPFRIAN 118 <i>Chair: Michael Booty, NJIT</i>	WAVES KUPFRIAN 106 <i>Chair: Vianey Villamizar, Brigham Young University</i>
11:30 - 12:00 p.m.	De Witt Sumners Florida State University <i>DNA Knots Reveal Chiral Packing of DNA in Phage Capsids</i>	Bernard Matkowsky Northwestern University <i>Flames as Discontinuity Surfaces in Gasdynamic Flows</i>	Clyde Scandrett Naval Postgraduate School <i>Cancellation Techniques in Scattering from Fluid Loaded Plates</i>
12:00 - 12:30 p.m.	Johan Paulsson Cambridge University <i>Suppressing Fluctuations in Living Cells</i>	Ashwani K. Kapila Rensselaer Polytechnic Institute <i>Detonations in Heterogeneous Explosives: Model and Computational Results</i>	John Harris Northwestern University <i>Coupled Elastic Waveguide Modes</i>
12:30 - 1:00 p.m.	Gareth J. Russell Columbia University <i>Modeling Epidemics Based on Uncertain Timing Data</i>	D. Scott Stewart University of Illinois at Urbana-Champaign <i>Verification of Detonation Shock Dynamics by Numerical Simulation in Complex Geometries and in Multi-Material Systems</i>	Andy Norris Rutgers University <i>Crack Front Waves using Matched Asymptotic Expansions</i>

1:00 - 2:30 p.m.	Lunch and remove posters	Kupfrian 1 st floor lobby and Kupfrian 103, 104, 105, 107
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