PROGRAM SCHEDULE

Monday, June 1

8:00-8:45 a.m.  Registration + coffee and pastries  GITC 3700 Lobby
                Set Up Posters  GITC 3720
                Poster session all day

8:45-9:00 a.m.  **Introductory Remarks**  GITC 3730
                Daljit S. Ahluwalia, Chair
                Department of Mathematical Sciences

                **Welcoming Address**  GITC 3730
                Fadi P. Deek, Dean of the College of Science and Liberal Arts

9:00-10:00 a.m.  **Plenary Lecture I**  GITC 3730
                John Rinzel, New York University
                *Dynamics of Perceptual Bistability*
                Introduced by Robert M. Miura

10:00-10:20 a.m.  Coffee Break  GITC 3700 Lobby

**MINISYMPOSIA I**

<table>
<thead>
<tr>
<th>Time</th>
<th>Panel A</th>
<th>Panel B</th>
<th>Panel C</th>
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| 10:20 a.m. - 10:50 a.m. | Leah Band  
                University of Nottingham  
                Multiscale Modelling of Hormone Transport in Plant Roots  
                **GITC 3710**  
                **Modeling & Biophysics I**  
                Chair: Sarah Waters, University of Oxford | Jonathan Rubin  
                University of Pittsburgh  
                Rhythmic Activity in Central Pattern Generators  
                **GITC 3730**  
                **Neuroscience I**  
                Chair: Victor Matveev, NJIT | Joseph Heyse  
                Merck Research Laboratories  
                False Discovery Rates for Discrete Data  
                **GITC 3740**  
                **Biostatistics I**  
                Chair: Manish Bhattacharjee, NJIT |
| 10:50 a.m. - 11:20 a.m. | Tom Chou  
                UCLA  
                Mechanisms of Viral Entry  
                **GITC 3710**  
                **Modeling & Biophysics I** | Rodica Curtu  
                University of Iowa  
                Mixed-Mode Oscillations in a Firing Rate Model for Neural Competition  
                **GITC 3730**  
                **Neuroscience I**  
                Chair: Victor Matveev, NJIT | Sanat K. Sarkar  
                Temple University  
                On Storey’s q-value Method for Small-Scale Multiple Testing  
                **GITC 3740**  
                **Biostatistics I**  
                Chair: Manish Bhattacharjee, NJIT |
| 11:20 a.m. - 11:50 a.m. | David Rumschitzki  
                City College of New York  
                How Aquaporin-1 affects Transmural Water Flow in Large Arteries: Possible Link to Early Atherosclerosis  
                **GITC 3710**  
                **Modeling & Biophysics I** | Victoria Booth  
                University of Michigan  
                Simulating Microinjection of Neurotransmitter Agonists and Antagonists in a Novel Model of the Sleep-Wake Regulatory Network  
                **GITC 3730**  
                **Neuroscience I**  
                Chair: Victor Matveev, NJIT | Wenge Guo  
                NIEHS, NIH  
                Adaptive Multiple Testing Procedures under Dependence  
                **GITC 3740**  
                **Biostatistics I**  
                Chair: Manish Bhattacharjee, NJIT |

11:50 a.m. - 12:20 p.m.

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<tr>
<th><strong>Martin Mueller</strong></th>
<th>École Normale Supérieure</th>
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<tr>
<td><strong>Robert Clewley</strong></td>
<td>Georgia State University</td>
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<tr>
<td><strong>Daniel Zelterman</strong></td>
<td>Yale University</td>
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**Modeling the Growth of Thin Soft Tissues**

**Action Potential Redux: A Case Study in Qualitative Reasoning for Design and Optimization of Neural Dynamic Models**

**A Distribution for P-Values**

12:20 - 1:15 p.m. Lunch

1:15 - 2:15 p.m.

**Plenary Lecture II**

Stuart Pimm, Duke University

*What Makes Food Webs Click?*

Introduced by Gareth Russell

2:15 – 3:00 p.m.

Panel Discussion Sponsored by NSF

*Future Roles for Mathematics and Statistics in the Biological Sciences*

3:00 - 3:20 p.m. Coffee Break

3:20 - 3:50 p.m.

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<tr>
<th><strong>Serguei Saavedra</strong></th>
<th>CABDyN Complexity Centre</th>
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<tbody>
<tr>
<td><strong>Janet Best</strong></td>
<td>Ohio State University</td>
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<tr>
<td><strong>David Rindskopf</strong></td>
<td>City University of New York</td>
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**Common Organizing Mechanisms in Ecological and Socio-economic Networks**

**Sleep-Wake Cycle Dynamics: Insights from Infants**

**Using Latent Class Analysis in Medical Diagnosis**

3:50 - 4:20 p.m.

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<tr>
<th><strong>Dan Fiscus</strong></th>
<th>Frostburg State University</th>
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<td><strong>Gennady Cymbalyuk</strong></td>
<td>Georgia State University</td>
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<tr>
<td><strong>Zahur Islam</strong></td>
<td>Novartis Pharmaceuticals Corp.</td>
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**Theory and Applications of an Ecological Network Model of Life Toward a Sustainable Human-Environment Relation**

**Neurons with Multiple Personalities: Co-existence of Silent and Oscillatory Regimes**

**Interim Analysis of Clinical Trials in Pharmaceutical Industry**

4:20 - 4:50 p.m.

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<tr>
<th><strong>Nina Fefferman</strong></th>
<th>Rutgers University</th>
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<tr>
<td><strong>Andrea Barreiro</strong></td>
<td>University of Washington</td>
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<tr>
<td><strong>Liam Paninski</strong></td>
<td>Columbia University</td>
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**Network Representations and the Evolution of Social Complexity**

**Transfer of Correlations in Neural Oscillators**

**Statistical Models for Neural Encoding, Decoding, and Optimal Stimulus Design**

4:50 - 5:20 p.m.

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<tr>
<th><strong>Gustavo Stolovitzky</strong></th>
<th>IBM Corporation</th>
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<tr>
<td><strong>Christoph Börgers</strong></td>
<td>Tufts University</td>
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<tr>
<td><strong>Changwon Lim</strong></td>
<td>NIEHS, NIH</td>
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**Statistical Models for Neural Encoding, Decoding, and Optimal Stimulus Design**
| Ordered Cyclic Motifs Contribute to Dynamic Stability in Biological and Engineered Networks | Synchronization of Type II Neurons by Inhibitory Pulses | Robust Statistical Theory and Methodology for Nonlinear Models with Application to Toxicology |

5:30 – 6:45 p.m. | Poster Session and Reception | GITC 3700 Lobby
                 |                                     | GITC 3720 |

7:00–9:00 p.m.  | Banquet                                      | Eberhardt Hall 112
                 | Remarks by Interim Provost Donald H. Sebastian |
PROGRAM SCHEDULE

Tuesday, June 2

8:00-9:00 a.m.  Coffee and pastries  GITC 3700 Lobby
Poster session (half day)  GITC 3720

9:00-10:00 a.m.  **Plenary Lecture III**
**Martine Ben Amar**, LPS, Paris
*Morphogenesis of Living Systems: A Biomechanical Point of View*
Introduced by Linda Cummings

10:00-10:20 a.m.  Coffee Break  GITC 3700 Lobby

**MINISYMPOSIA III**

<table>
<thead>
<tr>
<th>Time</th>
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</table>
| 10:20-10:50 a.m. | **GITC 3710**  
Modeling & Biophysics II  
Chair: Linda Cummings, NJIT  
Edward Green  
MBI, The Ohio State University  
Non-local Models for the Formation of Hepatocyte-Stellate Cell Aggregates  
Yixin Guo  
Drexel University  
Thalamocortical Model with Human Gpi Data and the Map Reduction of the Model  
Jianwen Cai  
University of North Carolina  
Joint Modeling of Longitudinal Categorical Data and Survival Data |
| 10:50-11:20 a.m. | **GITC 3730**  
Neuroscience III  
Chair: Jorge Golowasch, NJIT  
Sarah Waters  
University of Oxford  
Mathematical Models for Tissue Engineering Applications  
Eric Shea-Brown  
University of Washington  
Neural Coding and Dynamics under Cochlear Implant Stimulation  
Yanqing Sun  
University of North Carolina at Charlotte  
A Semiparametric Random Effects Model for Multivariate Competing Risks Data |
| 11:20 a.m. - 11:50 a.m. | **GITC 3740**  
Biostatistics III  
Chair: Sundar Subramanian, NJIT  
Anita Layton  
Duke University  
Multistable Dynamics Mediated by Tubuloglomerular Feedback in a Model of Coupled Nephrons  
Kresimir Josic  
University of Houston  
Correlation Transfer in Neuronal Populations  
Haesook T. Kim  
Harvard School of Public Health  
Competing Risks Data: Design and Analysis |
| 11:50 a.m. - 12:20 p.m. | **GITC 3700**  
Lobby  
Bruce Ayati  
University of Iowa  
Biofilm as a Physiologically Structured Fluid  
Duane Nykamp  
University of Minnesota  
Toward a Second Order Description of Neuronal Networks  
Chung Chang  
New Jersey Institute of Technology  
Non-Parametric Estimation of a Lifetime Distribution with Incomplete Censored Data |


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<tr>
<th>Time</th>
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<th>Chair/Institution</th>
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| 12:20 p.m. - 12:40 p.m. | Junghyo Jo  
LBM/NIDDK/NIH  
Dynamics of Fat Tissue Growth | Svitlana Zhuravytska  
Drexel University  
Transitions to Bursting in the Stochastic Model of Electrically Coupled Beta Cells | Sarosh Fatakia  
NIDDK, NIH  
Comparative Genomic Analysis Involving Information Theory to Investigate Evolutionary Traits with G Protein-Coupled Receptor Superfamilies |
| 12:40-1:40 p.m. | Lunch and Poster Session  
Removal of posters |  
| 1:40-2:40 p.m. | Plenary Lecture IV  
Larry Abbott, Columbia University  
Random Matrices and Neural Networks |  
| 2:40-3:00 p.m. | Coffee Break |  
| 3:00-3:30 p.m. | Alexey Kuznetsov  
IUPUI  
Interlocked Artificial Regulatory Oscillators | Carson Chow  
NIH  
Effective Theories for Neural Networks | R. Todd Ogden  
Columbia University  
Regression Models with Signals or Images as Predictors |
| 3:30-4:00 p.m. | Ram Ramaswamy  
Jawaharlal Nehru University  
The Effect of miRNA on the Dynamics of Regulatory Networks | Michael Buice  
NIH  
Chaos and Stochastic Dynamics | Ying Keun Cheung  
Columbia University  
Randomized Selection Trials with an Active Control |
| 4:00-4:30 p.m. | Matteo Convertino  
University of Padova  
River Networks: From Geomorphic Auto-Organization to Biodiversity Pattern Dynamics | Berton Earnshaw  
University of Utah  
A Diffusion-Activation Model of CaMKII Translocation Waves in Dendrites | Lin Huang  
Children’s Hospital Boston  
Sequential Test for Right Censored Data with Linear Transformation Model |
| 4:30-5:00 p.m. | Daniel Bunker  
New Jersey Institute of Technology  
Quantifying Ecological Functional Diversity | Georgi Medvedev  
Drexel University  
Reliability and Frequency Control in Stochastic Neuronal | Xiaodong Luo  
Mount Sinai School of Medicine  
Pseudo-Partial Likelihood Estimators for |
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<th>Time</th>
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<th>Affiliation</th>
<th>Title</th>
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<tr>
<td>5:00-5:20 p.m.</td>
<td><strong>Renita Machado</strong></td>
<td>New Jersey Institute of Technology</td>
<td>Clustered Wireless Sensor Networks</td>
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<td><strong>Choongseok Park</strong></td>
<td>IUPUI</td>
<td>Irregular vs. Synchronized Activity in Basal Ganglia</td>
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<td><strong>Fabio Demarqui</strong></td>
<td>University of Connecticut</td>
<td>A New Bayesian Model for Survival Data Using a Piecewise Exponential Model with a Random Time Grid</td>
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End of conference