Workshop on Multi-scale Stochastic Modeling of Cell Dynamics

Jan 17 - Jan 22, 2010
Banff International Research Station

Breakfast: 7:00 to 9:30, Lunch: 11:30 to 13:30, Dinner: 17:30 to 19:30
Meals are in restaurant, Sally Borden Building
Coffee Breaks are in 2nd floor lounge, Corbett Hall

Monday, Jan 18 2010

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:10</td>
<td>Mattingly, Jonathan</td>
<td>Stochastic fluctuations in bio chemical networks</td>
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<tr>
<td>10:50</td>
<td>Higham, Des</td>
<td>Discrete versus Continuous in Simple Gene Regulation Models</td>
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<tr>
<td>11:30</td>
<td>Wang, Jin</td>
<td>Potential and Flux Landscape Framework for Understanding Stability and Robustness of Cellular Network</td>
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<td>(lunch &amp; afternoon break)</td>
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<tr>
<td>17:30</td>
<td>Perkins, Ted</td>
<td>Trajectory inference for stochastic chemical kinetic models</td>
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<td>18:10</td>
<td>Williams, Ruth</td>
<td>Coupled enzymatic degradation of proteins</td>
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Tuesday, Jan 19 2010

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<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Kou, Samuel</td>
<td>Multi-resolution inference of stochastic models from partially observed data</td>
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<tr>
<td>09:10</td>
<td>Scott, Matthew</td>
<td>Modeling intrinsic noise in continuous systems</td>
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<tr>
<td>09:50</td>
<td>Liu, Di</td>
<td>Numerical methods for stochastic bio-chemical reacting networks with multiple time scales</td>
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<td>(coffee break)</td>
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<tr>
<td>10:50</td>
<td>Wilkinson, Darren</td>
<td>Bayesian inference for stochastic networks</td>
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<tr>
<td>11:30</td>
<td>Santillan, Moises</td>
<td>Evolution of the distributions for stochastic gene expression subject to negative feedback regulation</td>
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<tr>
<td>17:30</td>
<td>Tupper, Paul</td>
<td>An Apparent Paradox of State-Dependent Diffusion</td>
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<tr>
<td>18:10</td>
<td>Mukherjee, Sayan</td>
<td>Multiscale factor models for molecular networks</td>
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Wednesday, Jan 20 2010

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<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Kuske, Rachel</td>
<td>Model choice for mixed mode oscillations: coherence resonance and delay bifurcations</td>
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<tr>
<td>09:10</td>
<td>Anderson, David</td>
<td>Simulation methods for stochastically modeled population processes</td>
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<tr>
<td>09:50</td>
<td>Eldon Emberly</td>
<td>A mechanism for polar protein localization in bacteria</td>
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<tr>
<td>10:50</td>
<td>Fricks, John</td>
<td>Modeling Neck Linker Extension in Kinesin Molecular Motors</td>
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<tr>
<td>11:30</td>
<td>Kang, Hye-Won</td>
<td>The optimal size for space discretization for chemical reaction-diffusion networks</td>
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<tr>
<td>17:30</td>
<td>Pfaffelhuber, Peter</td>
<td>Spatial aspects of multiscale chemical reaction networks</td>
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<tr>
<td>18:10</td>
<td>Kaern, Mads</td>
<td>A framework for stochastic simulations of gene expression within evolving heterogeneous cell populations</td>
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### Thursday, Jan 21 2010

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<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>08:30-09:05</td>
<td>Othmer, Hans</td>
<td>A Multi-Scale Analysis of Reacting Systems</td>
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<tr>
<td>09:10-09:45</td>
<td>Rempala, Greg</td>
<td>Statistical and Algebraic Methods for Analyzing Stochastic Mass Action Kinetics</td>
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<tr>
<td>09:50-10:30</td>
<td>McMillen, David</td>
<td>Bacterial gene expression: modelling and (some) experiments</td>
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<td>(coffee break)</td>
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<tr>
<td>10:50-11:25</td>
<td>Swain, Peter</td>
<td>Modelling stochasticity in gene expression</td>
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<tr>
<td>11:30-12:10</td>
<td>Konstantin Mishaikow</td>
<td>Developing a Database for the global dynamics of multiparameter systems</td>
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<td>(lunch &amp; afternoon break)</td>
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<tr>
<td>17:30-18:05</td>
<td>Qian, Hong</td>
<td>Noneq. phase trans'n: Emerging landscape, time scales, and the chemical basis for epigenetic-inheritance</td>
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<tr>
<td>18:10-18:50</td>
<td>Tsimring, Lev</td>
<td>Dynamics and synchronization of synthetic gene oscillators</td>
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### Friday, Jan 22 2010

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<tr>
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<tbody>
<tr>
<td>08:30-09:05</td>
<td>Kurtz, Tom</td>
<td>Diffusion Approximation for Multiscale Reaction Network Models</td>
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<tr>
<td>09:10-09:45</td>
<td>Surovcik, Katharina</td>
<td>Is anybody out there? Modelling spatial scaling in quorum sensing</td>
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<tr>
<td>09:50-10:30</td>
<td>Gedeon, Thomas</td>
<td>Somitogenesis clock-wave initiation requires differential decay and multiple binding sites for clock protein</td>
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<td>(coffee break)</td>
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<tr>
<td>10:50-11:25</td>
<td>Cottrell, David</td>
<td>Incorporating diffusion in stochastic models of gene expression</td>
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<td>11:30-12:10</td>
<td>Glynn, Peter</td>
<td>Monte Carlo Methods for Computing Quasi-stationary Distributions</td>
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