

SIAM Workshop on Network Science (NS18)  
July 12-13, 2018  
Oregon Convention Center (OCC), Portland, Oregon, USA  
Room: Oregon 201

**Thursday, July 12, 2018**

**8:15 AM-5:00 PM**

**8:15-8:45      Coffee break**

**8:45-8:50      Welcome**

**8:50-9:40      Invited Plenary 1**

**Percolation and cascades on networks**

Raissa D'Souza

**9:40-10:30      Contributed Session 1**

9:40 AM-10:05 AM

**Heterogeneous Micro-structure of Percolation on Networks**

Tim Rogers

10:05 AM-10:30 AM

**A Re-entrant Phase Transition in the Survival of Secondary Infections on Networks**

Sam Moore

**10:30-11:00      Coffee Break**

**11:00-12:15      Contributed Session 2**

11:00 AM- 11:25 AM

**Equilibrium Community Structure in Binary-State Adaptive Voter Models**

Philip Chodrow and Peter Mucha

11:25 AM-11:50 AM

**Conjoining Uncooperative Societies to Promote Evolution of Cooperation**

Babak Fotouhi, Naghmeh Momeni, Benjamin Allen and Martin A. Nowak

**11:50-12:05      Short Talk Session 1**

11:50 PM-11:55 PM

**Self-organization of Dragon Kings**

Yuansheng Lin, Keith Burghardt, Martin Rohden, Pierre-Andre Noel and Raissa D'Souza.

11:55 PM-12:00 PM

**Random Spatial Networks and Analytic Models for the Spread of SIR Epidemics**

Joel Miller

**12:05-2:00      Lunch on your own**

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2:00-2:45      *SIAM Annual: Danielle S. Bassett, University of Pennsylvania, USA (AN18 IP18)*

2:45-3:30      *SIAM Annual: Tammy Kolda, SIMODS (AN18, MS113)*

**3:30-4:00      Coffee Break**

**4:00-4:50      Contributed Session 3**

4:00 PM-4:25 PM

**Network Constraints on Learnability of Probabilistic Motor Sequences**

Ari E. Kahn, Elisabeth A. Karuza, Jean M. Vettel and Danielle S. Bassett

4:25 PM-4:50 PM

**Maximum Entropy Sparse Random Graphs with Given Average Degree and Clustering**

Pim van der Hoorn, Dmitri Krioukov, Gabor Lippner and Johan Van Leeuwen

**4:50-5:15      Short Talk Session 2**

4:50 PM-4:55 PM

**Structural and Functional Redundancy of Biological Networks**

Alice Schwarze, Mason A. Porter and Jonny Wray

4:55 PM-5:00PM

**A New Dimension-reduction Method for Complex Dynamical Networks**

Edward Laurence, Nicolas Doyon, Louis J Dubé and Patrick Desrosiers

5:00 PM-5:05 PM

**Estimating Epidemic Arrival Times using Linear Spreading Theory**

Lawrence Chen, Matt Holzer and Anne Shapiro

5:05 PM-5:10 PM

**A Bridge Between Homotopy Theory and Network Science**

Leo Torres, Pablo Suárez Serrato and Tina Eliassi-Rad

**5:15-5:45      SIAM Network Science Business Meeting**

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**Friday, July 13, 2018**

**8:30-4:30**

**8:30-9:00**      **Coffee break**

**9:00-9:50**      **Invited Plenary 2**

**Understanding graphs through spectral densities**

David Bindel

**9:50 - 10:15**    **Short Talk Session 3**

9:50 AM-9:55 AM

**Graph Reduction by Edge Deletion and Edge Contraction**

Gecia Bravo Hermsdorff and Lee Gunderson

9:55 AM-10:00 AM

**A Unifying Framework for Graph Clustering**

Nate Veldt, David Gleich and Anthony Wirth

10:00 AM-10:05 AM

**Conditional Tests for Log-linear ERGMs**

Elizabeth Gross, Sonja Petrovic and Despina Stasi

10:05 AM-10:10 AM

**Toward a Sampling Theory for Statistical Network Analysis**

Harry Crane and Jianxiang Gao

**10:15-11:40**    **Poster Session and coffee break**

**11:40-12:30**    **Contributed Session 4**

11:40 AM-12:05 PM

**Inference in Regression with Network Response**

Frank Marrs, Bailey Fosdick and Tyler H. McCormick

12:05 PM-12:30 PM

**Influence Estimation on Social Media Networks using Causal Inference**

Edward Kao, Steven Smith, Danelle Shah, Olga Simek and Donald Rubin

**12:30-2:05**      **Lunch on your own**

**2:05-2:20**      **Short Talk Session 4**

2:05 PM-2:10 PM

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**Pairwise versus Multivariate Constructions of Co-occurrence Networks**

Cory Brunson and Reinhard Laubenbacher

2:10 PM-2:15 PM

**Large Degree Asymptotics and Reconstruction Thresholds of Asymmetric Ising Channels**

Wenjian Liu and Ning Ning

**2:20-3:35      Contributed Session 5**

2:20 PM-2:45 PM

**Simplicial Closure and Higher-order Link Prediction**

Austin Benson, Rediet Abebe, Michael Schaub, Ali Jadbabaie and Jon Kleinberg

2:45 PM-3:10 PM

**Undetectable Cyber-physical Attacks on Power Grids under the AC Model**

Daniel Bienstock and Mauro Escobar

3:10 PM-3:30 PM

**Rumor Source Detection with Multiple Observations under Adaptive Diffusion Protocols**

Miklos Z. Racz and Jacob Richey

**3:35-3:50      Closing Remarks**

**4:00-4:30      Coffee break**

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**Poster Session**

**A Principal Stratification Approach to Uncomplicate Causal Inference Complications on Social Networks**

Kristen M. Altenburger

**Street Network Models and Planarity in Urban Form Studies**

Geoff Boeing

**Quantifying prior over graphical representations of tasks**

Gecia Bravo-Hermisdorff

**A unitary optimisation process for the formation of heterogeneous structures in bipartite mutualistic networks**

Weiran Cai, Jordan Snyder, Raissa D'souza and Alan Hastings

**Backbone Structure of Hierarchical Network Partitioning**

Zizhen Chen and David Matula

**Personalized PageRank under the Degree-Corrected Stochastic Blockmodel**

Fan Chen and Karl Rohe

**Simulation of the Network Topology of Grain Growth in Metals**

Amanda Criner

**The Influence of Time Series Distance Functions on Climate Networks**

Leonardo Ferreira, Liang Zhao and Elbert Macau

**Neural Interactome: Interactive Simulation of a Neuronal System**

Jimin Kim, William Leahy and Eli Shlizerman

**Approximating  $\text{Trace}(L^{\{\dagger\}})$  using the Johnson-Lindenstrauss lemma and spectral methods**

Jesse Laeuchli

**An adaptive multicast scheme in mobile ad hoc networks**

Hyunsun Lee, Yi Zhu and Brian Spain

**Hypothesis testing for dynamic graphs**

Nathan Lemons

**Biased edge-weighting schemes can boost reproducibility of centrality measures in brain networks**

Tingshan Liu and Gwen Spencer

**Normalized mutual information exaggerates community detection performance**

Arya D McCarthy and David W Matula

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**EoN: An open-source Python package for Epidemics on Networks**  
Joel Miller

**Computing the Statistical Significance of Optimized Communities in Networks**  
John Palowitch

**Exploiting Intra-Type Information in Bipartite Community Detection**  
Paola Pesantez-Cabrera, Ananth Kalyanaraman and Mahantesh Halappanavar

**Parameter-Induced Uncertainty in Network Inference**  
Arvind Prasad, Rajmonda Caceres and Vijay Gadepally

**Synthetic Temporal Graph Generation**  
Sumit Purohit, Lawrence B Holder and George Chin

**Data Fusion Reconstruction of Spatially Embedded Complex Networks**  
Fernando Quevedo

**Expanding seed sets with degree corrected random walks in the degree corrected stochastic block model**  
Stephen Ragain

**Greenberg-Hastings dynamics on a small-world network: the effect of network disorder on the collective extinct-active transition**  
Leonardo Reyes, Anthony Ramos, Fernando Zhapa and Miguel Pineda

**The network topology of locally interacting agents and system-level distributions of agent actions**  
Janelle Schlossberger

**Growing Signed Networks**  
Leah Shaw, Corynne Dech and Shadrack Antwi

**Evidence Of Stereotypical Functional Network Motifs Across Temporal Scales In Very High-Dimensional Brain Signals**  
Catherine Stamoulis

**How do graphs effect global stability of sync in a simplified Kuramoto model?**  
Yury Sokolov and G. Bard Ermentrout

**A Toy Model of Preferentially-Attached Networks with Break-Ups**  
Hiroshi Toyoizumi and Takahiro Shimomura