

# **SIAM Workshop on Network Science (NS14)**

July 6-7, 2014

The Palmer House, Chicago, Illinois, USA

Co-located with the [2014 SIAM Annual Meeting](#) July 7-11, 2014

## **Sunday July 6 (Preliminary Schedule)**

### **9:30 - 10:30am Power Networks and Related Applications 1**

*9:30 - 9:45 Saray Shai, Emanuele Strano, Simon Dobson and Marc Barthelemy*

[Multiplex cities: the interplay between coupled transportation networks](#)

*9:45-10 Yang Yang, Adilson Motter and Jianhui Wang*

[Observability of power-grid networks: percolation theory and community-based optimization](#)

*10-10:15 Adilson Motter, Seth Myers, Marian Anghel and Takashi Nishikawa*

[Realistic modeling of synchronization in power-grid networks](#)

*10:15-10:30 Discussion & Questions*

### **10:30 - 11am Coffee break**

### **11 - 12pm Power Networks and Related Applications 2**

*11-11:15 Daniel Bienstock, Guy Grebla and Gil Zussman*

[Optimal Control of Cascading Power Grid Failures with Imperfect Flow Observations](#)

*11:15-11:30 Louis Shekhtman, Yehiel Berezin, Michael Danziger and Shlomo Havlin*

[The Resilience of Networks Formed of Spatially Embedded Networks](#)

*11:30-11:45 Mert Korkali, Jason Veneman, Brian Tivnan and Paul Hines*

[Measuring the Impact of Network Structure, Physics and Coupling in Interconnected Power and Communications Networks](#)

*11:45-12 Discussion & Questions*

### **12 - 1:30pm Lunch**

### **1:30 - 2:45pm Power Networks and Related Applications 3**

*1:30-1:45 Saurav Mohapatra and Thomas J. Overbye*

[Graph Clustering to Determine Zones for Power System Dynamics](#)

*1:45-2 Emilie Hogan, Mahantesh Halappanavar, Eduardo Cotilla-Sanchez and Shaobu Wang*

[Clustering for power grid data](#)

*2-2:15 Bradford Greening Jr and Nina Fefferman*

[Analysis of the Knowledge Capacity of Social Systems using Simplicial Sets](#)

*2:30-2:45 Discussion & Questions*

**2:30-3:00pm Break**

**3:00-3:30pm 1-minute poster presentations**

**3:30-5:00pm Poster session**

**Monday July 7 (Preliminary Schedule)**

**8:30 - 9:15am SIAM Annual Meeting Guest Speaker**

*Jennifer Tour Chayes, Microsoft, USA*

[IP1 Age of Networks](#)

**9:20 - 10:05am Invited speaker**

*Cris Moore, Santa Fe Institute*

Physics-inspired algorithms and phase transitions in community detection

**10 - 10:30am Coffee break**

**10:30 - 12:30pm Network Topology**

*10:30-10:45 Jason Cory Brunson*

[Triad census for two-mode networks](#)

*10:45-11 Chengbin Peng, Tamara G. Kolda and Ali Pinar*

[Accelerating Community Detection by Using K-core Subgraphs](#)

*11-11:15 Pim van der Hoorn, Nelly Litvak and Anna Tolkacheva*

[Degree-degree dependency measures in directed networks](#)

*11:15-11:30 Dimitri Papadimitriou*

[Geometric analysis of flow betweenness centrality](#)

*11:30-11:45 Jonathan Berry, Aaron Kearns, Cynthia Phillips and Jared Saia*

[Finding a planted clique in a distributed social network](#)

*11:45-12 Discussion & Questions*

**12:30 - 2pm Lunch**

**2 - 3:30pm Network Dynamics**

*2-2:15 Feng Shi, Nishant Malik, Peter Mucha and Richard Durrett*

[Coevolution of network dynamics and structures](#)

*2:15-2:30 Mariano Beguerisse Diaz, Chinwendu Enyioha and Mauricio Barahona*

[Dynamics and control of epidemic outbreak on time-changing networks](#)

*2:30-2:45 Yiqing Cai*

[Cohomological Waves on Networks](#)

*2:45-3 Fatimah Abdul Razak and Henrik Jeldtoft Jensen*

['Causality' and collective behavior on complex networks](#)

*3-3:15 Discussion & Questions*

**3:30 - 4pm Coffee break**

**4 - 5pm Numerical linear algebra**

*4-4:15 John Conroy, John Gilbert, Steven Kratzer, Vince Lyzinski, Carey Priebe and Joshua Vogelstein*  
[Matching Diffusion MRI Brain Graphs via Sparse Matrix Reorderings: Moving from C. elegans to the Human Brain](#)

*4:15-4:30 Tobias Jones and Geoffrey Sanders*  
[Aggressive Coarsening Strategies for Numerical Linear Algebra on Scale-Free Topology](#)

*4:30-4:45 Saleh Soltan and Gil Zussman*  
[Analysis of failures in the power grid via the pseudo-inverse of the admittance matrix](#)

*4:45-5 Discussion & Questions*

**5 - 6pm SIAM Network Science business meeting** (led by A. Pinar)

**Poster Session**

*Christian Staudt and Henning Meyerhenke*  
[NetworkKit: Interactive tools for high-performance network analysis](#)

*Qing Hui, Haopeng Zhang and Zhenyi Liu*  
[On robust and optimal imperfect information consensus protocols for network systems](#)

*Dane Taylor, Sebastian Skardal and Jie Sun*  
[Optimal synchronization of complex networks](#)

*Konstantin Zuev, James Beck and Steven Wu*  
[Rare events in complex networks and their efficient estimation](#)

*Desmond Higham, Peter Grindrod, Peter Laflin, Alexander Mantzaris and Amanda Otley*  
[Anticipating behavior during Twitter spikes](#)

*Antonio Iovanella and Giovanna Ferraro*  
[The emergence of choreography in Inter-Organizational innovation networks](#)

*Aydin Buluc, John Gilbert and Sivan Toledo*  
[Computing shortest paths using sparse Gaussian elimination](#)

*John Lang and Hans De Sterck*  
[On the dynamics of cascade processes on online social networks versus traditional social networks](#)

*Roldan Pozo*  
[Extending Q-matrix frameworks for generalized network centralities](#)

*Weibing Deng, Ting Liao, Tim Gernat, Harry Dankowicz and Gene Robinson*  
[Modeling honey bee interaction networks](#)

*Weituo Zhang, Chjan Lim, Gyorgy Korniss and Boleslaw Szymanski*  
[Opinion Dynamics and Influencing on Random Geometric Graphs](#)

*Benjamin Lubin, Jesse Shore and Vatche Ishakian*  
[Communication network design: Balancing modularity and mixing via optimal graph spectra](#)

*Ahmet Erdem Saryüce, Erik Saule, Kamer Kaya and Umit Catalyurek*  
[STREAMER: a distributed framework for incremental closeness centrality computation](#)

*Shrirang Abhyankar, Jed Brown, Matthew Knepley, Florian Meier and Barry Smith*  
[Abstractions for expressing network problems in PETSc](#)

*Avi Shapiro and Elgar Pichler*  
[Network modeling of public goods games](#)

*Sanjukta Bhowmick*  
[The effect of noise on community detection](#)

*Mahantesh Halappanavar, Eduardo Cotilla-Sanchez, Daniel Duncan, Emilie Hogan and Paul Hines*  
[Graph-theoretic modeling of power grids](#)

*Miri Priesler and Arie Reichman*  
[Solutions of The OFDMA WMN Resource Allocation Problem](#)

*Cosmin Safta, Habib Najm, Ali Pinar, Richard Chen and Jean-Paul Watson*  
[Probabilistic methods for power grid networks](#)

*Joel Miller*  
[Edge-based compartmental modeling for infectious processes](#)



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