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

July 6-7, 2014  
The Palmer House, Chicago, Illinois, USA  
Co-located with the [2014 SIAM Annual Meeting](https://www.siam.org/meetings/ag14) 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**
  *NetworKit: 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 Sarıyüce, 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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