Blair D. Sullivan

North Carolina State University
Department of Computer Science
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Research Interests

Parameterized algorithms, structural graph theory, applied discrete mathematics, random graphs, parallel algorithm design, combinatorial scientific computing.

Professional Experience

Associate Professor, Department of Computer Science
Chancellor's Faculty Excellence Program in Data-Driven Science
North Carolina State University, Raleigh, NC — August 2016 – present

Joint Faculty, Computer Science & Mathematics Division
Oak Ridge National Laboratory (ORNL), Oak Ridge, TN — August 2013 – present

Assistant Professor, Department of Computer Science
North Carolina State University, Raleigh, NC — August 2013 – July 2016

Research & Development Staff Member, Complex Systems Group
Oak Ridge National Laboratory, Oak Ridge, TN — July 2008 – August 2013

Graduate Research Assistant, Department of Mathematics
Princeton University, Princeton, NJ — September 2003 – June 2008

Visiting Researcher
Rényi Institute, Budapest, Hungary — October 2007 – April 2008

Graduate Student Intern, Theory Group
Microsoft Research, Redmond, WA — Summer 2007

U. S. Department of Homeland Security (DHS) Graduate Fellow Intern
Oak Ridge National Laboratory, Oak Ridge, TN — Summer 2004

Undergraduate Researcher, Departments of Mathematics and Computer Science
Georgia Institute of Technology, Atlanta, GA — June 2001 – August 2003

Education

Ph. D. in Mathematics. Princeton University, Princeton, New Jersey — June 2008
Thesis: *Extremal Problems in Digraphs.* Advisor: Paul D. Seymour.

M. A. in Mathematics. Princeton University, Princeton, New Jersey — January 2005
Specialized general exam topics: Algebraic Number Theory, Combinatorial Optimization, Matroid Theory.

B. S. Applied Mathematics, B. S. Computer Science, Georgia Institute of Technology, Atlanta, Georgia — May 2003
Summa Cum Laude, minor in Economics, GPA: 4.0

Grants Awarded

[1] Risk Mitigation of Infectious Diseases via Network Modeling and Mining. $150K, co-PI.
NC Data Science & Analytics Initiative (UNC ROI), co-PIs: Janies, Shi (UNCC) 2015 – 2017.

[2] Moore Investigator in Data-Driven Discovery. $1.5M, PI.
Gordon & Betty Moore Foundation 2014 – 2019.

[3] PARSiNG: Parameterized Algorithms Respecting Structure in Noisy Graphs. $250K, PI.
Defense Advanced Research Projects Agency (DARPA) GRAPHS 2014 – 2016.

[4] Data Science Faculty Fellow. $30K, PI.
National Consortium for Data Science 2014.

[5] Scalable Clustering Methods for Dynamic Health Data. $26K, co-PI.
North Carolina State University Research and Innovation Seed Fund, co-PI: Wilson 2014.

[6] Situation Awareness in Complex Networks. $650K, co-PI.
ORNL Laboratory Directed Research and Development program (LDRD), PI: Ferragut 2013–present.

[7] SPARTN: Sparse Projections Achieving Randomization in Tree-like Networks. $415K, PI.
DARPA GRAPHS program 2012 – 2014.

[8] Pattern Discovery & Predictive Modeling on Heterogeneous Graphs using Cray's uRiKA. $390K, co-PI.
ORNL LDRD, PI: Sukumar 2013–2014.

[9] Connecting Combinatorial and Geometric Tree-Like Structure in Complex Networks. $200K, PI.
ORNL LDRD SEED Fund 2011 – 2012.

[10] Scalable Graph Decomposition and Algorithms to Support the Analysis of Petascale Data. $1.2M, PI.
U.S. Department of Energy (DOE) Office of Advanced Scientific Computing Research (ASCR) 2009 – 2012.

[11] Extreme Scale Systems Center. Senior Personnel.
U.S. Department of Defense (DoD) 2008 – 2014.

[12] Hyperbolicity and Tree-like Structure in Networks. PI.
National Institute for Computational Science (NICS) Director's Discretion allocation
250K hours on Nautilus 2012.

[13] Scalable Graph Decomposition and Algorithms to Support the Analysis of Petascale Data. PI.
Oak Ridge Leadership Computing Facility (OLCF) Director's Discretion allocation
250K hours on Jaguar, 250K hours on Smoky 2011.

Publications

[1] E. Demaine, F. Reidl, P. Rossmanith, F. Sánchez Villaamil, S. Sikdar, and B. D. Sullivan. Structural Sparsity of Complex Networks: Random Graph Models and Linear Algorithms. *under review*, 2016. arXiv:1406.2587.

[2] T. D. Goodrich, M. Farrell, N. Lemons, F. Reidl, P. Rossmanith, F. Sánchez Villaamil, and B. D. Sullivan. Hyperbolicity, degeneracy, and expansion of random intersection graphs. *accepted pending revisions, Journal of Internet Mathematics*, 2016.

[3] A. J. Chin, T. D. Goodrich, M. P. O'Brien, F. Reidl, B. D. Sullivan, and A. van der Poel. Asymptotic Analysis of Equivalences and Core-Structures in Kronecker-Style Graph Models. *To appear in IEEE International Conference on Data Mining (ICDM) 2016*, 2016. arXiv:1609.05081.

[4] B. D. Sullivan and A. van der Poel. A Fast Parameterized Algorithm for Co-Path Set. *11th International Symposium on Parameterized and Exact Computation (IPEC 2016)*, 2016. arXiv:1603.04376.

[5] R. A. Bridges, J. Collins, E. M. Ferragut, J. Laska, and B. D. Sullivan. A multi-level anomaly detection algorithm for time-varying graph data with interactive visualization. *Social Network Analysis and Mining*, 6(1):99, 12 2016.

[6] A. Adcock, M. Mahoney, and B. D. Sullivan. Tree decompositions and social graphs. *Journal of Internet Mathematics*, 12(5):315–361, 2016. arXiv:1411.1546.

[7] T. Goodrich, M. Farrell, N. Lemons, F. Reidl, P. Rossmanith, F. Sánchez Villaamil, and B. D. Sullivan. Hyperbolicity and Expansion of Random Intersection Graphs. *Proceedings of Algorithms and Models for for the Web Graph: 12th International Workshop (WAW2015); LNCS 9479*, pages 29–41, 2015. arXiv:1410.8196.

[8] P. Drange, M. Dregi, D. Lokshtanov, and B. D. Sullivan. On the threshold of intractability. *Proceedings of European Symposium on Algorithms (ESA); LNCS 9294*, pages 411–423, 2015.

[9] R. A. Bridges, J. Collins, E. Ferragut, J. Laska, and B. D. Sullivan. Multi-Level Anomaly Detection on Streaming Graph Data. *Proceedings of IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, 2015. arXiv:1410.4355.

[10] A. Adcock, E. Demaine, M. Demaine, M.P. O'Brien, F. Reidl, P. Rossmanith, F. Sánchez Villaamil, and B. D. Sullivan. Zig-Zag Number Link is NP-Complete. *Journal of Information Processing*, 23(3):239–245, 2015. arXiv:1410.5845.

[11] M. P. O'Brien and B. D. Sullivan. Locally Estimating Core Numbers. *Proceedings of the 2014 IEEE International Conference on Data Mining (ICDM14)*, pages 460–469, 2014. arXiv:1410.6793.

[12] T. S. Humble, A. J. McCaskey, R. S. Bennink, J. J. Billings, E. F. D'Azevedo, B. D. Sullivan, C. F. Klymko, and H. Seddiqi. An Integrated Development Environment for Adiabatic Quantum Programming. *Computational Science & Discovery*, 7:015006, 2014. arXiv:1309.3575.

[13] C. Klymko, B. D. Sullivan, and T. Humble. Adiabatic Quantum Programming: Minor Embedding With Hard Faults. *Quantum Information Processing*, 13(3):709–729, 2014. arXiv:1210.8395.

[14] A. Adcock, B. D. Sullivan, and M. Mahoney. Tree-like structure in large social and information networks. *Proceedings of the 2013 IEEE International Conference on Data Mining (ICDM13)*, pages 1–10, 2013.

[15] A. Adcock, B. D. Sullivan, O. Hernandez, and M. Mahoney. Using OpenMP Tasking in Gromov Hyperbolicity Calculations. *Proceedings of the International Workshop on OpenMP 2013 (IWOMP), LNCS*, 2013.

[16] B. D. Sullivan, D. Weerapurage, and C. Groer. Parallel Algorithms for Graph Optimization using Tree Decompositions. *Proceedings of the IEEE International Parallel and Distributed Processing Symposium (IPDPS), Workshop on Parallel Computing and Optimization (PCO13)*, 2013. Also available as ORNL-TM/2012/194.

[17] B. D. Sullivan. On a Conjecture of Andrica and Tomescu. *Journal of Integer Sequences*, 16, 2013. arXiv:1210.8437.

[18] C. Groer, B. D. Sullivan, and D. Weerapurage. INDDGO: Integrated Network Decompositions & Dynamic programming for Graph Optimization. Technical Report ORNL-TM/2012/176, Oak Ridge National Laboratory, 2012.

[19] C. Groer, B. D. Sullivan, and S. Poole. A Mathematical Analysis of the R-MAT Random Graph Generator. *Networks*, 58(3):159–170, 2011.

[20] P. Seymour and B. D. Sullivan. Counting Paths in Digraphs. *European Journal of Combinatorics*, 31(3):961–975, 2010. arXiv:1210.8424.

[21] B. D. Sullivan, C. Groer, and S. Poole. Computational Analysis of Two Graph Compression Algorithms. Technical Report ORNL/TM-2009/193, Oak Ridge National Laboratory, 2009.

[22] M. Chudnovsky, P. Seymour, and B. D. Sullivan. Cycles in Dense Digraphs. *Combinatorica*, 28(1):1–18, 2008. arXiv:0702147.

[23] M. Nathanson and B. D. Sullivan. Heights in Finite Projective Space, and a Problem on Directed Graphs. *Integers*, 8(A13), 2008. arXiv:0703418.

[24] B. D. Sullivan. A Summary of Results and Problems Related to the Caccetta-Haggkvist Conjecture. Technical Report 2006-13, American Institute of Mathematics, 2006. arXIv:0605646.

[25] V. Blair Dowling [Sullivan] and W. A. Dowling. Intellectual Property and Academia. *Journal of Business and Economics Research*, 1(4):103–109, 2003.

Software

[1] Y. Ho, C. G. Hobbs, B. P. Mork, F. Reidl, N. G. Rodrigues, and B. D. Sullivan. BEAVr: Bounded Expansion Analysis Visualizer, Version 1.0. DOI: 10.5281/zenodo.55328, June 2016. www.github.com/theoryinpractice/beavr.

[2] M. P. O'Brien, C. G. Hobbs, K. Jasnick, F. Reidl, N. G. Rodrigues, and Blair D. Sullivan. CONCUSS: Combatting Network Complexity Using Structural Sparsity, Version 2.0. DOI: 10.5281/zenodo.55690, June 2016. www.github.com/theoryinpractice/concuss.

[3] M. Baker, C. Groer, J. Lothian, S. Powers, J. Schrock, B. D. Sullivan, and D. Weerapurage. Integrated Network Decompositions and Dynamic programming for Graph Optimization (INDDGO). 2012, 2013. http://github.com/bdsullivan/inddgo.

Honors

Moore Investigator in Data-Driven Discovery (2014); 1 of 14 selected from 1100.

National Consortium for Data Science Faculty Fellow (2014)

Best LDRD SEED Project Poster, Oak Ridge National Laboratory (2012)

Supplemental Performance Award, Oak Ridge National Laboratory (2009, 2011)

DHS Dissertation Grant (2006 – 2007)

DHS Graduate Fellowship (2003 – 2006)

Phi Kappa Phi Scholarship Cup, *Georgia Tech senior with most outstanding academic record* (2003)

Georgia Tech President's Scholar, *full tuition & stipend support* (1999 – 2003); Jo Baker Scholar (2003)

University System of Georgia Outstanding Scholar (2003)

Georgia Tech Outstanding Math Senior Award (2003)

J. C. Currie Outstanding Math Junior Scholarship (2001)

Professional Service

Organizer, NC State Theory Seminar, 2013 – present
`www.csc2.ncsu.edu/theoryseminar`

Co-organizer

- Barnraising for Data-Intensive Discovery; with B. King, C. Greene, M. Turk
  MDI Biology Laboratory, Spring 2016
  `https://mdibl.org/course/barnraising/`

- Research Cluster: Towards Efficient Algorithms Exploiting Graph Structure; with E. Demaine, D. Marx
  Institute for Computational & Experimental Research in Mathematics (ICERM), Spring 2014
  `https://icerm.brown.edu/sp-s14/`

Co-Chair, SIAM Workshop on Network Science 2016

Steering Committee Member

- SIAM Workshop on Network Science, 2016–present
- Graph500 Benchmark (`http://www.graph500.org`), 2009–2012

Organizing/Program Committee Member

- SIAM Discrete Mathematics 2016
- SIAM Workshop on Network Science 2015
- SIAM Workshop on Combinatorial Scientific Computing 2014

Minisymposia and Special Sessions Organized

- *Discrete Mathematics (and Theoretical Computer Science).*
  Special Session, Association of Women in Mathematics (AWM) Research Symposium, 2015
- *Treewidth: Connecting Fixed-Parameter Tractability, Graphical Models, and Sparse Linear Algebra.*
  Minisymposium, SIAM Computational Science & Engineering, 2013
- *Anomaly Detection Methods and Applications*
  Minisymposium, SIAM Southeastern Atlantic Sectional, 2013 (with R. Bridges)

Panelist/Judge

- National Labs Professional Development Workshop for Underrepresented Participants, 2012, 2013
- Math/CS Graduate Student Lunch & Learn series, Emory University, 2012
- Department of Homeland Security HS-STEM Career Pathways Conference, 2008, 2010.
- NC State Women in Computer Science Research Symposium (judge), 2014, 2015.

NC State Computer Science Departmental Task Forces

- Revamping First Year of Ph.D. Program, 2016–2017
- Actionable Faculty Goals, 2014–2015

ORNL Women in Computing Advisory Board, 2012–2013

ORNL Computer Science & Mathematics Division Awards Committee, 2012

Panelist for Funding Agencies

- NSF Information and Intelligent Systems (IIS) Division, 2015
- NSF Computing and Communication Foundations (CCF) Division, 2014
- DOE Applied Scientific Computing Research (ASCR) Applied Math Program, 2009

Reviewer for Conferences/Journals
including Journal of the ACM; Discrete Mathematics; Combinatorics, Probability and Computing; SIAM Journal on Discrete Mathematics; Combinatorica; Electronic Journal of Linear Algebra; SIAM Combinatorial Scientific Computing; SIAM Workshop on Network Science; Symposium on Theoretical Aspects of Computer Science (STACS).

Teaching Experience

Instructor:

- Computer Science Theory Reading Group (CSC 295/801), NC State University — Spring 2016, Fall 2016
  15-17 participants, including faculty, postdocs, PhD students, and undergraduates
- Automata, Languages and Computability (CSC 333), NC State University — Fall 2015 Instructor/Course Rating
  4.3/4.5 [NCSU dept. average (s.e.m.) 4.1 (0.15)/4.3 (0.13)]
- Theory of Computation (CSC 707), NC State University — Fall 2014
  Instructor/Course Rating 4.7/4.5 [NCSU dept. average (s.e.m.) 4.0 (0.029)/4.0 (0.029)]
- Automata, Languages and Computability (CSC 333), NC State University — Fall 2014
  Instructor/Course Rating 4.5/4.3 [NCSU dept. average (s.e.m.) 4.0 (0.035)/3.9 (0.035)]
- Discrete Mathematics for Computer Scientists (CSC 226), NC State University — Spring 2014
  Instructor/Course Rating 4.2/3.9 [NCSU dept. average (s.e.m.) 3.8 (0.037)/3.7 (0.036)]
- Introduction to Calculus & Analytic Geometry (MAT 101), Princeton University — Fall 2006

Teaching Assistant:

- Graph Theory (MAT 306), Princeton University, Spring 2006, Spring 2007
- Calculus II (Math 1502), Georgia Institute of Technology, Fall 2001, Spring 2002

Head Counselor:

- Program in Mathematics for Young Scientists, Boston University, Summer 2001.
  Guided high school students in elementary number theory; graded problem sets; taught mini-course.

Mentoring

Ph.D. Students

- Advisor:
  - Timothy D. Goodrich, NC State University, Computer Science — 2014 – present
  - Michael P. O'Brien, NC State University, Computer Science — 2013 – present
  - Andrew van der Poel, NC State University, Computer Science — 2014 – present
- Committee Member:
  - Emily Barnard, NC State University, Mathematics — anticipated March, 2017
    TBA (advisor: Nathan Reading)
  - James Elliott, NC State University, Computer Science — October, 2015
    "Resilient Iterative Linear Solvers Running Through Errors" (advisor: Frank Mueller)
  - Sadia Sharmin, University of Bergen, Computer Science — August, 2014
    "Practical Aspects of the Graph Parameter Boolean-width" (advisor: Fredrik Manne)
  - Aaron Adcock, Stanford University, Electrical Engineering — June, 2014
    "Characterizing, Identifying, and Using Tree-like Structure in Social and Information Networks" (advisor: Gunnar Carlsson)
- Interns (at Oak Ridge National Laboratory):
  - Aaron Adcock (Stanford University) — 2011–2014
  - Christine Klymko (Emory University) — 2012
  - Zhibin Huang (University of Georgia) — 2010

Postgraduates

- Kyle Kloster — June 2016–present
- Felix Reidl (accepted postdoc at Royal Holloway University (UK) starting Spring 2017) — January 2016–present
- Diego Galindo (currently Technologist at Caterpillar) — 2012
- Charlotte Kotas (currently Research Staff at ORNL) — 2012
- Dinesh Weerapurage, post-MS (currently Sr. Software Developer at KPMG), — 2011 – 2012

Undergraduates

- Eric Horton — Fall 2016*
- Jean-Claude Shore — Fall 2016$^{\times}$
- Yang Ho (NCSU Undergraduate Research Travel Grant Recipient) — Summer 2015, Fall 2015, Spring 2016^{+}
- Clayton Hobbs — Spring 2015$^{\times}$, Summer 2015, Spring 2016^{+}
- Nishant Rodrigues — Summer 2015, Fall 2015, Spring 2016^{+}
- Brandon Mork — Spring 2015$^{\times}$, Fall 2015*, Spring 2016^{+}
- Alex Chin (NCSU Undergraduate Research Grant Recipient) — Fall 2013, Spring 2014
- Matthew Farrell (Albertson College) — Summer 2013$^{\#}$
- Timothy Goodrich (Valparaiso University) — Summer 2013$^{\#}$

$*$ Funded by NC State Provost's Professional Experience Program
$\times$ NC State Independent Research in Computer Science (CSC 499)
$+$ NC State Computer Science Senior Design Project (CSC 492)
$\#$ DOE Science Undergraduate Laboratory Internship (SULI) program

High School Math Thesis Students (Oak Ridge High School, Oak Ridge, TN)

- Megan Kelly and Neall Caughman — 2012
  Semifinalists in 2012 Siemens Competition.
- Gloria D'Azevedo — 2010
  Placed at state and national Junior Science & Humanities Symposium.

Presentations *(2007-present)*

[1] Duke Network Analysis Center Seminar Series, Durham, NC *(Nov. 2016)*.

[2] The Mathematics Behind Big Data Analysis (minisymposium), SIAM Conference on Discrete Mathematics, Atlanta, GA *(June 2016)*.

[3] Kennesaw State University Infinite Horizons Lecture Series, Kennesaw, GA *(Apr. 2016)*.

[4] Workshop on Generalized Network Structures and Dynamics, Mathematical Biosciences Institute (MBI), Columbus, OH *(Mar. 2016)*.

[5] ICERM Workshop on the Mathematics of Data Science, Providence, RI *(July 2015)*.

[6] Women in Computing Brown Bag Lecture Series, Oak Ridge National Laboratory (ORNL), Oak Ridge, TN *(July 2015)*.

[7] NetSci15, Zaragoza, ES *(June 2015)*.

[8] SIAM Workshop on Network Science, Snowbird, UT *(May 2015)*.

[9] AWM Research Symposium, Baltimore, MD *(Apr. 2015)*.

[10] Data Science Seminar, National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, NC *(Apr. 2015)*.

[11] Capital Area Theory Seminar, University of Maryland, Baltimore, MD *(Apr. 2015)*.

[12] Algorithms Seminar, Duke University, Durham, NC *(Apr. 2015)*.

[13] Princeton Program in Applied and Computational Mathematics (PACM) Colloquium, Princeton, NJ *(Feb. 2015)*.

[14] Center for Computing Sciences Seminar, Institute for Defense Analysis, Bowie, MD *(Feb. 2015)*.

[15] Computer Science Seminar, Emory University, Atlanta, GA *(Feb. 2015)*.

[16] Algorithms, Randomness, and Combinatorics (ARC) Colloquium, Georgia Tech, Atlanta, GA *(Feb. 2015)*.

[17] Special Session on Network Science, Joint Mathematics Meetings, San Antonio, TX *(Jan. 2015)*.

[18] AMS Southeastern Fall Sectional, Special Session on Recent Developments in Graph Theory and Hypergraph Theory, Greensboro, NC *(Nov. 2014)*.

[19] Atlanta Lecture Series in Combinatorics and Graph Theory, Atlanta, GA *(Nov. 2014)*.

[20] Johns Hopkins University Center for Imaging Science Seminar, Baltimore, MD *(Oct. 2014)*.

[21] RTP 180: Big Data, Research Triangle Park, NC *(Aug. 2014)*.

[22] University of Bergen Algorithms Group Seminar, Bergen, Norway *(Aug. 2014)*.

[23] RWTH Aachen Computer Science Seminar, Aachen, Germany *(Aug. 2014)*.

[24] Gordon and Betty Moore Foundation DDD Investigators Finalist Symposium, Palo Alto, CA *(July 2014)*.

[25] Los Alamos National Laboratory, CNLS Seminar, Los Alamos, NM *(June 2014)*.

[26] NCDS Data Innovation Showcase, Chapel Hill, NC *(May 2014)*.

[27] SAMSI Education and Outreach: Undergraduate Modeling Workshop, Raleigh, NC *(May 2014)*.

[28] Topology and Geometry of Networks & Discrete Metric Spaces Workshop, Institute for Mathematics and its Applications, Minneapolis, MN *(Apr. 2014)*.

[29] Tutorial at ICERM Research Cluster, Providence, RI *(Apr. 2014)*.

[30] AMS Southeastern Spring Sectional, Special Session on Graph Theory, Knoxville, TN *(Mar. 2014)*.

[31] Bertinoro Workshop on Algorithms & Graphs, Bertinoro, Italy *(Dec. 2013)*.

[32] RWTH Aachen Computer Science Seminar, Aachen, Germany *(Dec. 2013)*.

[33] SAMSI Education and Outreach: Undergraduate Workshop, Research Triangle Park, NC *(Oct. 2013)*.

[34] SAMSI Workshop on Social Network Data: Collection and Analysis, Research Triangle Park, NC *(Oct. 2013)*.

[35] Cumberland Conference 2013, Murfreesboro, TN *(May 2013)*.

[36] LANL CNLS Colloquium, Los Alamos, NM *(May 2013)*.

[37] MIT Combinatorics Seminar, Cambridge, MA *(Apr. 2013)*.

[38] Industrial Engineering Seminar, University of Tennessee, Knoxville, TN *(Apr. 2013)*.

[39] Computer Science Seminar, North Carolina State University, Raleigh, NC *(Mar. 2013)*.

[40] Georgia Tech Computational Science & Engineering (CSE) Seminar, Atlanta, GA *(Oct. 2012)*.

[41] Emory University SIAM Student Seminar, Atlanta, GA *(Oct. 2012)*.

[42] Duke University Applied Mathematics & Analysis Seminar, Durham, NC *(Oct. 2012)*.

[43] University of North Carolina at Chapel Hill Applied Mathematics Colloquium, Chapel Hill, NC *(Sept. 2012)*.

[44] ICIS Workshop: Graph and Hypergraph Problems in Computational Science, Park City, UT *(July 2012)*.

[45] Workshop on Massive Modern Data Sets (MMDS), Palo Alto, CA *(July 2012)*.

[46] Duke University Applied Mathematics Seminar, Durham, NC *(Apr. 2012)*.

[47] Large Graphs: Modeling, Algorithms, and Applications Workshop, Institute for Mathematics and its Applications, Minneapolis, MN *(Oct. 2011)*.

[48] ICIAM 2011, Combinatorial Scientific Computing Mini-Symposium, Vancouver BC *(July 2011)*.

[49] Virginia Bioinformatics Institute, Virginia Tech, Blacksburg, VA *(Sept. 2011)*.

[50] SAMSI Complex Networks Transitions Workshop, Research Triangle Park, NC *(June 2011)*.

[51] Sandia National Labs, Livermore, CA *(Nov. 2010)*.

[52] University of Georgia Computer Science Colloquium, Athens, GA *(Oct. 2010)*.

[53] SAMSI Complex Networks Opening Workshop, Research Triangle Park, NC *(Sept. 2010)*.

[54] Department of Energy ASCR AMR PI Meeting, Berkeley CA *(May 2010)*.

[55] ORNL Computer Science and Mathematics Division (CSMD) Advisory Board, Oak Ridge, TN *(June 2010)*.

[56] Rice CAAM Colloquium, Houston, TX *(Apr. 2010)*.

[57] Georgia Tech Combinatorics Seminar, Atlanta, GA *(Jan. 2010)*.

[58] University of Tennessee Mathematics Department Junior Colloquium, Knoxville, TN *(Sept. 2009)*.

[59] PROMYS 20th Reunion, Boston University, Boston, MA *(July 2009)*.

[60] AWM Workshop, AMS-MAA Joint Mathematics Meetings, Washington, D.C. *(Jan. 2009)*.

[61] Princeton-Oxford Graph Theory Workshop, Oxford University, Oxford, England *(June 2008)*.

[62] Oak Ridge National Laboratory, Oak Ridge, TN *(May 2008)*.

[63] AMS-MAA Joint Mathematics Meetings, San Diego, CA *(Jan. 2008)*.

[64] Alfred Renyi Mathematics Institute, Budapest, Hungary *(Nov. 2007)*.

[65] University of California, San Diego Combinatorics Seminar, San Diego, CA *(Oct. 2007)*.

[66] Microsoft Research Theory Group, Redmond, WA *(Oct. 2007)*.

[67] Simon Fraser University Discrete Math Seminar, Burnaby, BC *(Oct. 2007)*.

[68] Georgia Tech Graph Theory Seminar, Atlanta, GA *(Sept. 2007)*.

[69] Microsoft Research Theory Group, Redmond, WA *(Apr. 2007)*.

[70] Grad Student Combinatorics Conference, Seattle, WA *(Apr. 2007)*.

[71] 38th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, Boca Raton, FL *(Mar. 2007)*.

[72] New York Number Theory Seminar, New York, NY *(Feb. 2007)*.

[73] Nassau Presbyterian Church Adult Education Series, Princeton, NJ *(Feb. 2007)*.

Other Conferences and Workshops

Dagstuhl Seminar "Bidimensional Structures: Algorithms, Combinatorics, & Logic" Wadern, Germany *(Mar. 2013)*

DARPA Big Data Colloquium, Arlington, VA *(Jan. 2013)*

DARPA Math Summit, Incline Village, NV *(Feb. 2012)*

Supercomputing SC11, Seattle, WA *(Nov. 2011)*

SciDAC 2010, Chattanooga, TN *(July 2010)*

SOS 14 Workshop, Savannah, GA *(Feb. 2010)*

DOE Genomics Workshop, Joint Genomics Institute, Walnut Creek, CA *(Jan. 2010)*

SIAM Annual Meeting, Denver, CO *(July 2009)*

Pacific Institute for the Mathematical Sciences Workshop on the Cycle Double Cover Conjecture, University of British Columbia, Vancouver, CA *(Aug. 2007)*

C&O@40 Conference, University of Waterloo, Waterloo, Ontario *(June 2007)*

Program for Women in Mathematics, Institute for Advanced Study, Princeton, NJ. Participant in 2003 (Mathematical Biology), 2005 (Geometry of Groups), 2006 (Zeta Functions).

Memberships

Americal Mathematical Society (AMS)

Society for Industrial and Applied Mathematics (SIAM)

Association of Women in Mathematics (AWM)