

Éva Czabarka
Resume

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Address: Department of Mathematics
University of South Carolina
Columbia, SC 29208

E-mail: czabarka@math.sc.edu
Work phone: +1 (803) 777-7524
Homepage: <http://www.math.sc.edu/~czabarka>

Degrees:

- 1998 Ph.D. in Mathematics, University of South Carolina, Columbia.
Shifting Technique in Finite Vector Spaces. Thesis advisor: Jerrold Griggs.
- 1991 M.S. in Mathematics, József Attila University, Szeged, Hungary.
Bin Packing Algorithms. Thesis advisor: Gábor Galambos

Education (non-degree):

- Fall 2003 Nonparametric Statistics course at the Foundation for Advanced Education in the Sciences Graduate School at the National Institutes of Health (NIH)
- Oct 2001 Computational Genomics course at Cold Spring Harbor Laboratory, Cold Spring Harbor.
- Fall 2000 Evolutionary Biology course at FAES Graduate School at NIH
- 1998-1999 M.S. studies in Statistics at the University of South Carolina, Columbia (coursework only).
- 1988-1990 Member of the Eötvös Kollégium (Honors College) of József Attila University, Szeged, Hungary.

Work Experience:

- 2012-now Tenured Associate Professor, Dept. of Math., University of South Carolina, Columbia, SC
- 2006-2012 Tenure Track Assistant Professor, Dept. of Math., University of South Carolina, Columbia, SC
- 2004-2006 Tenure Track Assistant Professor, Dept. of Math., College of William & Mary, Williamsburg, VA
- 2001-2004 Research Fellow at the National Center for Biotechnology Information (NCBI), National Library of Medicine, National Institutes of Health, Bethesda, MD.
- 2000-2001 Visiting Fellow at NCBI, NLM, NIH, Bethesda, MD.
- 1991-2000 Graduate Teaching Assistant at the Department of Mathematics, University of South Carolina, Columbia.
- Aug 1996 Internship at Mosaic Computing Incorporated, Columbia, SC.

Research Support (Grants, Fellowships):

- 6) 2014-2015 Ensemble-based Modeling of Large Graphs and Its Application to Social Networks, DARPA GRAPHS, Phase II (15 months) co-PI in the USC subcontract with L.A. Székely (USC Math), PI: Z. Toroczkai (UND Physics/CSE) (15 months) Other co-PI-s: K.E. Bassler (UH Physics), N.V. Chawla (UND CSE), P.L. Erdős (Rényi), G. Korniss (RPI Physics), I. Miklós (Rényi) \$98,500
- 5) 2012-2013 Ensemble-based Modeling of Large Graphs and Its Application to Social Networks, DARPA GRAPHS, Phase I (15 months) co-PI in the USC subcontract with L.A. Székely (USC Math), PI: Z. Toroczkai (UND Physics/CSE) Other co-PI-s: K.E. Bassler (UH Physics), N.V. Chawla (UND CSE), P.L. Erdős (Rényi), G. Korniss (RPI Physics), I. Miklós (Rényi) \$145,000
- 4) 2010-2011 Extremal combinatorics and biological applications of combinatorics: Promising Investigator Research Award, Track 1, Office of Research and Graduate Education, University of South Carolina \$15,632
- 3) Hungarian Bioinformatics: Marie Curie Fellowships at the Rényi Institute of Mathematics of the Hungarian Academy of Sciences 2007-2010 (2 month in each summer, a total of 8 month) approx \$45,000
- 2) Administrative Supplement: Phylogenetic Analysis with Complex Genome Rearrangement Events (2009-2010) by NIH NIGMS 3 R01 GM078991-03S1, co-I, PI: J. Tang (USC CSE), co-I's: L.A. Székely (USC Math) and T.J. Vision (UNC Biology) \$89,000
- 1) Travel grants to:
 - (ii) Babai is 60 Conference, Ohio State University, Columbus, Ohio, March 2010
 - (i) Trotter is 65 Conference, Georgia Tech, Atlanta, May 2008

Invited and Supported Participant

- 6) Institute of Mathematics and Applications Discrete Mathematics Special Year, Spring 2015 (upcoming)
- 5) NSF-CBMS Conference on Mathematical Phylogenetics, Winthrop University, Rockhill, SC June 2014
- 4) Combinatorial Optimization Approaches to Graph Crossing Numbers, Maribor, Slovenia, June 2014
- 3) Exact Crossing Numbers Workshop, American Institute of Mathematics, Palo Alto, California, April 2014
- 2) Mathematical Physics of Complex Networks: from Graph Theory to Biological Physics, Max-Planck-Institut für Physik komplexer Systeme, Dresden, Germany, May 2012
- 1) Hypergraph Turán Workshop, American Institute of Mathematics, Palo Alto, California, March 2011

Awards:

- 2008 Two Thumbs Up Award (student nominated award given by the USC's Student Disability Services)
- 2004 Performance Bonus Award for year 2003 at NCBI
- 2003 Performance Bonus Award for year 2002 at NCBI.
- 2002 Performance Bonus Award for year 2001 at NCBI.

Dates of Longer Research Visits without Employment:

- May 2014 1 month at the Rényi Institute of Mathematics, Budapest, Hungary
- March 2014 2 weeks at the Department of Mathematics, University of Florida, Gainesville, FL
- Feb 2014 2 weeks at the Department of Physics, University of Houston, TX
- Dec 2013 2 weeks in China (Tongji University in Shanghai, Zhejiang University in Hongzhu, Nanjing Normal University in Nanjing)
- Aug-Nov 2013 3 months at the Interdisciplinary Center for Network Science & Applications, University of Notre Dame, IN
- June 2013 40 days at the Rényi Institute of Mathematics, Budapest, Hungary
- June 2011 2 weeks at the University of East Anglia, Norwich, and at the Isaac Newton Institute, University of Cambridge
- Dec 2010 1 month at the Bioinformatics Research Centre, University of Canterbury, NZ
- Sep-Nov 2010 3 months at the Institut für Diskrete Mathematik in Bonn, Germany
- Dec 2007-Jan 2008 3 weeks in South Africa, University of Kwa-Zulu Natal and Stellenbosch University
- May-June 2006 1 month at the Department of Computer Science, Loughborough University, UK
- May-June 2005 1 month at the Department of Computer Science, Loughborough University, UK
- May-June 2004 1 month at the Department of Computer Science, Loughborough University, UK

Short Research Visits (without a talk):

- Oct 2010 4 days at Technische Universität Braunschweig, Germany
- Aug 2010 5 days at the Institute of Mathematics, Slovak Academy of Sciences, Bratislava
- July 2010 1 week at the University of Maribor, Slovenia
- May 2010 3 days at the Institute of Mathematical Biosciences, Columbus, Ohio
- July 2009 5 days at the Institute of Mathematics, Slovak Academy of Sciences, Bratislava
- July 2008 3 days at the Institute of Mathematics, Slovak Academy of Sciences, Bratislava
- June 2007 2 days at the National Evolutionary Synthesis Center, Durham, NC

Teaching Experience:

Courses taught include:

- Basic College Mathematics
- Precalculus Mathematics
- Calculus for Business Adm. & Social Sciences
- Finite Mathematics
- Discrete Mathematics for Computer Science
- Basic Concepts of Elementary Mathematics
- Elementary Probability and Statistics
- Advanced Applied Statistics
- Calculus I
- Vector Calculus
- Differential Equations
- Transition to Advanced Mathematics
- Foundations of Mathematics (major course)
- Abstract Algebra (major course)
- Discrete Mathematics (major/honors course)
- Discrete Geometry (graduate course)
- Discrete Mathematics I (graduate course)
- Discrete Mathematics II (graduate course)
- Graph Theory I (graduate course)
- Graph Theory II (graduate course)

Ph.D. student Virginia Johnson led two undergraduates in an REU in Summer 2012 under my supervision; one of them, Chanequa Roy won best presentation award in her category. Taught preparatory seminars for the National Teacher's Examination (NTE); gave outreach talks (see talks for general audience). Has been cited by at least one graduate of the University of South Carolina as a teacher who significantly contributed to his/her success. Individual work with a talented undergraduate at the College of William & Mary

Graduate Students and Postdoctoral Advisees:

Postdoctoral Advisees:

- Aaron Dutle, 2012-2014 (co-advising with L.A. Székely), became research computer scientist and Langley Research Center, NASA

Ph.D. students:

- Mojca Bračič, University of Maribor, Slovenia co-advising with Drago Bokal
- Virginia Johnson, Aug 2012 *Enumeration Results on Leaf-Labeled Trees*, tenure track job at Columbia College, Columbia SC

M.S. students:

- Clifford Gaddy, Aug 2013, *Spectral Analysis of Randomly Generated Networks with Prescribed Degree Sequences*, prepares to enter medical school.
- Kevin Hathcock, Aug 2012 *Phylogenetic Tree Inferences Using Quartet Splits*, moved to North Carolina to teach as instructor in college/high school.
- Tatiana Orlova, Aug 2010, *Mathematical Models, Algorithms and Statistics of Sequence Alignment*, went to obtain Ph.D. in computer science at the University of Chicago.
- Charles Cavalier, Aug 2009, *Graceful Labelings*, went to obtain M.S. in Information Systems and Decision Sciences at E.J. Ourso College of Business, Louisiana State University, and became a Sr. Associate Analytical Consultant at the SAS institute.
- Ivan Haynes, Dec 2008, *Analysis of generalized Sudoku puzzles: A mixture of discrete techniques*, instructor at the University of South Carolina.

Publications:

- 27) É. Czabarka, A. Dutle, T. Johnston, L. A. Székely, Other large families for the diamond problem based on Abelian groups (submitted)
- 26) É. Czabarka, R. Florez, L. Junes, A discrete convolution on the generalized Hosoya triangle (submitted)
- 25) É. Czabarka, R. Florez, J. Junes, Some enumerations on non-decreasing Dyck paths (submitted)
- 24) É. Czabarka, A. Dutle, P.L. Erdős, I. Miklós, On realizations of a joint degree matrix (submitted)
- 23) Sz. Horváth, É. Czabarka, Z. Toroczkai, Removing degeneracy in maximum entropy models of networks (submitted)
- 22) F. Molnár, N. Derzsy, É. Czabarka, L.A. Székely, K. Szymanszki, G. Korniss, Dominating scale free networks using generalized probabilistic methods, to appear in Scientific Reports

- 21) H. Aydinian, É. Czabarka, L.A. Székely, Mixed orthogonal arrays, k -dimensional M -part Sperner multi-families, and full multi-transversals, *Information Theory, Combinatorics and Search Theory*, LNCS 7777, (2013) 371-401, Springer, Heidelberg
- 20) É. Czabarka, M. Marsili, L.A. Székely, Threshold functions for distinct parts: revisiting Erdős-Lehner, *Information Theory, Combinatorics, and Search Theory*, LNCS 7777, (2013) 463-471, Springer, Heidelberg
- 19) É. Czabarka, P.L. Erdős, V. Johnson, V. Moulton: Generating functions for multi-labeled trees, *Discrete Applied Mathematics* 161 (2013) 107-117
- 18) Cs. Biró, É. Czabarka, Peter Dankelmann L.A. Székely, Remarks on the domination number of graphs. *Bulletin of the I.C.A.* 64 (2012) 73-82
- 17) É. Czabarka, P. L. Erdős, V. Johnson, A. Kupczok, L.A. Székely, Asymptotically normal distribution of some tree families relevant for phylogenetics and of partitions without singletons, *Moscow J. Comb. Numb. Theory*, 1(3) (2011)
- 16) H. Aydinian, É. Czabarka, P. L. Erdős, L.A. Székely, A tour of M -part L -Sperner families, *JCT A*, 118 (2011) 702–725
- 15) H. Aydinian, É. Czabarka, K. Engel, P.L. Erdős, L.A. Székely, A note on full transversals and mixed orthogonal arrays, *Australasian J. Combin.* 48 (2010) 133–141
- 14) D. Bokal, É. Czabarka, L.A. Székely, I. Vrřo, General lower bounds for the minor crossing number of graphs, *Discrete and Computational Geometry* 44 (2010) 463–483
- 13) É. Czabarka, L.A. Székely, S. Wagner, The inverse problem for certain tree parameters, *Discrete Applied Math* 157 (15) (2009) 3314–3319
- 12) É. Czabarka, P. Dankelmann, L.A. Székely, Diameter of 4-colourable graphs, *European J. of Combin.* 30 (2009) 1082–1098
- 11) É. Czabarka, O. Sýkora, L.A. Székely, I. Vrřo, Biplanar crossing numbers. II. Comparing crossing numbers and biplanar crossing numbers using the probabilistic method. *Random Structures and Algorithms* 33 (4) (2008 Dec) 480–496
- 10) D. Bokal, É. Czabarka, L.A. Székely, I. Vrřo, Graph minors and the crossing number of graphs, *Electronic Notes in Discrete Math.* 28 (2007) 169-175
- 9) É. Czabarka, O. Sýkora, L. A. Székely and I. Vrřo, Crossing numbers and biplanar crossing numbers I: a survey of problems and results, *More Sets, Graphs and Numbers*, eds. E. Győri, G. O. H. Katona and L. Lovász, *Bolyai Society Mathematical Studies* 15, Springer Verlag, (2006) 57–77.
- 8) J.L. Spouge, É. Czabarka, Some central limit theorems pertinent to the effectiveness of database retrieval, *Technical Reports of the Industrial Mathematics Institute, Department of Mathematics, University of South Carolina*, <http://imi.cas.sc.edu/IMI/resources/technical-reports/2006/reports/0615.pdf>
- 7) É. Czabarka, O. Sýkora, L.A. Székely, I. Vrřo, Outerplanar crossing numbers, circular arrangement problem, and isoperimetric functions, *Electronic Journal of Combinatorics* 11(1), (2004) R81 20pp
- 6) G.T. Marth, É. Czabarka, J. Murvai, S.T. Sherry, The allele frequency spectrum in genome-wide human variation data reveals signals of differential demographic history in three large world populations. *Genetics* 166 (2004) 351-372
- 5) G.T. Marth, G. Schuler, R. Yeh, R. Davenport, R. Agarwala, D. Church, S. Wheelan, J. Baker, M. Ward, M. Kholodov, L. Phan, É. Czabarka, J. Murvai, D. Cutler, S. Wooding, A. Rogers, A. Chakravarty, H.C. Harpending, P.-Y. Kwok, S.T. Sherry, Sequence variations in the public human genome data reflect a bottlenecked population history, *Proc. Natl. Acad. Sci. USA* (2003) 100: 376-381.
- 4) I.B. Rogozin, K.S. Makarova, J. Murvai, É. Czabarka, Y.I. Wolf, R.L. Tatusov, L.A. Székely, E.V. Koonin, Connected gene neighborhoods in prokaryotic genomes. *Nucleic Acids Res.*; 30(10) (2002 May) 2212-23.
- 3) É. Czabarka, G. Konjedov, M. V. Marathe, A.G. Percus, D.C. Torney, Algorithms for Optimizing Production DNA Sequencing, *Proceedings of the Eleventh Annual ACM-SIAM Symposium on Discrete Algorithms (SODA00)* 399-408.
- 2) É. Czabarka, *Intersecting Chains in Finite Vector Spaces*, *Combinatorics, Probability and Computing* 8, (1999), 509-528.
- 1) S. Visvanathan, É. Czabarka, A. Sengupta: Fault-Tolerant Embedding of Hamiltonian Circuits in Line Digraph Interconnection Networks, *Information Processing Letters* 57, (1996), 265-271

Invited Seminar/Colloquia (Seminars at place of employment not listed):

- 42) Dept. Math. University of Szeged, Hungary, Combinatorics Seminar, *Partition adjacency matrices*, May 29 2014
- 41) Dept. Physics, University of Houston, Seminar of the Bassler Research Group, *A gentle introduction to the Lovász Local Lemma*, Feb 27, 2014 (90 min)
- 40) Dept. Physics, University of Houston, Seminar of the Bassler Research Group, *Sampling graph ensembles with given assortativity*, Feb 24, 2014 (90 min)

- 39) Dept. of Math, Zhejiang University, Hangzhou, China, *Sperner type problems and design of experiments*, Dec 19, 2013
- 38) Dept. of Math., Tongji University, Shanghai, China, *Sperner type problems and design of experiments*, Dec 16 2013
- 37) Dept. of Math, Nanjing Normal University, Nanjing, China, *Partition adjacency matrices*, Dec 13, 2013
- 36) Dept. of Math., Tongji University, Shanghai, China, *Partition adjacency matrices*, Dec 9 2013
- 35) Dept. of Math, University of Louisville, KY, *Partition adjacency matrices*, Oct 23, 2013
- 34) University of Notre Dame, Interdisciplinary Center for Network Science & Applications, *A gentle introduction to the Lovász Local Lemma and its applications II* (2 hours), Oct 10 2013
- 33) University of Notre Dame, Interdisciplinary Center for Network Science & Applications, *A gentle introduction to the Lovász Local Lemma and its applications I* (2 hours), Oct 8 2013
- 32) University of Notre Dame Combinatorics Seminar, *Connecting Sperner problems to mixed orthogonal arrays*, Oct 7, 2013
- 31) Colloquium, Dept. of Applied Math., Illinois Institute of Technology, *From Sperner-type problems to mixed orthogonal arrays*, Aug 26, 2013
- 30) Fall Meeting of the Carolina Math Seminar at the Citadel, South Carolina, *Phylogenetic trees and Stirling numbers*, Oct 26 2012
- 29) University of Szeged Combinatorics Seminar, *Crossing numbers and minor crossing number of graphs*, June 4 2012
- 28) Colloquium, Dept. of Math., University of Alabama, Birmingham, *Structural and enumeration results on some families of trees relevant to bioinformatics*, Feb 17, 2012
- 27) Dept. of Computer Science, University of Alberta, Canada, *From M -part Sperner theorems to mixed orthogonal arrays*, Aug 17-20, 2011
- 26) Dept of Math., University of Alaska, *M -part Sperner families, transversals and mixed orthogonal arrays*. Aug 15, 2011
- 25) NIH, NLM, NCBI, *Structural results on gene trees and species trees*, July 2011
- 24) University of Szeged Combinatorics Seminar, *Graph orientations and crossing numbers*, June 27 2011
- 23) Biomathematics Research Centre, *Some results on gene trees and phylogenetic trees*, University of Canterbury, NZ, Dec 19
- 22) Technische Universität Berlin, Dept. of Math, *More part Sperner families*, Nov 19, 2010
- 21) University of Maribor, Dept. of Math, *Analogues of crossing numbers*, Oct 18, 2010
- 20) University of Szeged, Combinatorics Seminar, *M -part Sperner families*, Aug 27, 2010
- 19) Colloquium University of Southern Georgia, Dept. of Math, *Models for bootstrapping in database retrieval*, Oct 16, 2008.
- 18) Stellenbosch University, South Africa, *What does database bootstrapping mimic?*, January 6, 2008
- 17) University of Kwa-Zulu Natal, Durban, South Africa, *Crossing numbers and minor crossing numbers*, January 10, 2008.
- 16) Colloquium, University of Alabama at Birmingham, *Modeling evaluation of database retrieval*, Sept. 7, 2007.
- 15) Rényi Institute of Mathematics of the Hungarian Academy of Sciences, Budapest, Hungary, *A model for database bootstrap* (in Hungarian), May 2007.
- 14) SZTAKI (Computer Science Research Institute of the Hungarian Academy of Sciences), Budapest, Hungary, *Justifying database bootstrapping* (in Hungarian) May 2007.
- 13) Department of Computer Science, University of Alberta, Edmonton, Canada *Bootstrapping the ROC_n* Oct 2006:
- 12) Department of Computer & Information Sciences & Engineering, University of Florida, *Bootstrapping the ROC_n* , Oct 2006
- 11) Department of Mathematics, University of South Carolina, *Bootstrapping the ROC_n* March 2 2006
- 10) Colloquium, Department of Mathematics, College of William & Mary, *Comparing the efficiency of database retrieval methods* May 3, 2004
- 9) Colloquium, Virginia Polytechnic Institute and State University, Department of Computer Science, *Analysis of allele frequency spectrum in human variation data*, April 19, 2004
- 8) Colloquium, Department of Mathematics, San Jose State University, San Jose, CA, *Comparing the efficiency of database retrieval methods*, March 4, 2004
- 7) Colloquium, Department of Mathematics, Georgetown University, Washington DC, *Comparing the efficiency of database retrieval methods*, Feb. 24 2004
- 6) Bioinformatics Seminar of the Department of Computer Science, University of South Carolina, Columbia, *Which algorithm to choose?*, January 23 2004
- 5) Joint colloquium of the Departments of Mathematics/Computer Science, Biology and Chemistry, Valparaiso University, Valparaiso, IN, *Which algorithm to choose?* Nov. 10 2003

- 4) Colloquium, Virginia Polytechnic Institute and State University, Computer Science Department, *Comparing the efficiency of database retrieval methods* March 19, 2003
- 3) Genetics Discussion Group of the University of South Carolina, Columbia, SC, *Sequence alignment and accuracy of database retrieval* May 30, 2001
- 2) Departments of Mathematics and Computer Science, Gettysburg, PA, *Sequence alignment, protein structure matching and the Chen-Stein method*, April 19, 2001
- 1) NIH, NLM, National Center for Biotechnology Information, *Shifting in Finite Vector Spaces*, Nov 23, 1998

Invited Conference Talks:

- 27) Combinatorial Optimizations Approaches to Graph Crossing Numbers Workshop, Maribor, Slovenia, *Combinatorial optimization models in crossing numbers*, June 2014 (25 min)
- 26) Fall Southeastern Sectional Meeting of the AMS, University of Louisville, KY, *On realizations of a joint degree matrix*, Oct 5-6 2013 (25 min)
- 25) SIAM-SEAS meeting, Knoxville TN, Extremal Problems in Combinatorics, *Large families for the diamond problem based on Abelian groups* March 2013 (25 min)
- 24) Advances in Interdisciplinary Statistics and Combinatorics, University of North Carolina Greensboro, *Mixed orthogonal arrays, k -dimensional M -part Sperner multi-families and full multi-transversals*, Oct 5-7 2012 (20 min)
- 23) Search Methodologies III, Zentrum für interdisziplinäre Forschung, *Fixed orthogonal arrays, k -dimensional M -part Sperner multi-families and full multi-transversals* Sep 1-5, 2012 (45 min)
- 22) GraDR 2012 Crossing Number Workshop and Minischool, Valtice, Czech Republic, *Minor crossing numbers*, May 20-24 (20 min)
- 21) Spring Southeastern Sectional Meeting of the AMS, University of South Florida, Tampa, *Phylogenetic trees and cyclic permutations*, March 10-11 2012 (25 min)
- 20) Fall Southeastern Sectional Meeting of the AMS, Wake Forest, University in Winston-Salem, *Graph orientations and crossing numbers*, North Carolina, Sept 24-25, 2011
- 19) Crossing Numbers Turn Useful, Banff International Research Station, Canada, *Crossing number lower bounds and orientations*, Aug 20-26 2011
- 18) Phylogenetics: New data, new Phylogenetic challenges, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK *Generalized Stirling numbers and distribution of phylogenetic trees*, June 20-24, 2011 (20 min)
- 17) Midsummer Phylogenetics at University of East Anglia, UK, *Optimal placement of multiplication events on a species tree*, June 17, 2011
- 16) SIAM SEAS 2011, UNC Charlotte, *Extremal questions on d -dimensional transversals in M -dimensional grids*, March 25-26, 2011 (25 min)
- 15) 2011 Southeastern Sectional Meeting of AMS, Statesboro, GA *Higher dimensional transversals in M -dimensional grids*, March 12-13, 2011 (25 min)
- 14) Search Methodologies II, Zentrum für interdisziplinäre Forschung, *Full transversals and mixed orthogonal arrays* Oct 25-29, 2010 (30 min)
- 13) 2010 Fall Eastern Sectional Meeting of the AMS, Syracuse, NY, *Some combinatorial results on gene trees*, October 2-3, 2010 (20 min),
- 12) Workshop on Theory and Algorithmic Aspects of Graph Crossing Number, Brno, Czech Republik, *Analogues of crossing numbers*, Aug 21-22 2010 (20 min)
- 11) 2009 Molecular Informatics and Bioinformatics International Symposium, Institute of Advanced Studies, Budapest, Hungary *Minimizing the number of episodes on a species tree — an extension of Gallai's theorem on intervals* March 17-19 2009 (30 min)
- 10) SIAM Discrete Mathematics biannual meeting, Burlington, Vermont *Minor crossing numbers*, 2008 (30 min)
- 9) International Conference on Interdisciplinary Mathematical and Statistical Techniques (IMST 2008/FIM XVI), Memphis, *The diameter of 4-colorable graphs*, May 2008 (30 min)
- 8) Sectional AMS Meeting, Special Session on Extremal and Probabilistic Combinatorics, DePaul University, Chicago, *M -part L -Sperner families*, Oct. 5-6, 2007 (30 min)
- 7) 6th Slovenian International Conference on Graph Theory, Minisymposium on Crossing Numbers of Graphs, *Minor crossing*

number and crossing number of graphs, June 2007 (30 min)

- 6) Ondrej Šykora Memorial Theory Day, Loughborough University, Loughborough, UK, *What does bootstrapping mimic?* June 2006: (20 min)
- 5) PARADAY V, PÁRC, Dept. of Computer Science, Loughborough University, Loughborough, UK, *Bootstrapping the ROC_n in database retrieval* May 24 2004 (30 min)
- 4) PÁRC Mini-symposium, Parallel Algorithms and Architecture Research Centre, Department of Computer Science, Loughborough University, Loughborough, UK, *Sequence alignment algorithms* June 18 2002: (60 min)
- 3) 2001 Spring Southeastern Section, Columbia, SC, *Protein structure matching — an extension of the largest clique size in Erdős-Rényi random graphs* March 16-18, 2001, (20 min)
- 2) Third University of North Carolina at Greensboro Mini-Conference in Combinatorics and Graph Theory, *Algorithms for Optimizing Production DNA Sequencing* November 1999, (30 min)
- 1) Center for Nonlinear Studies Workshop, Los Alamos National Laboratory, Los Alamos, New Mexico, *Shifting in finite vector spaces* July 29-Aug 7, 1998 (60 min).

Talks for General Audience/Outreach:

- 13) PME/Gamecock Math Club, University of South Carolina, Sudoku and Latin squares, March 26, 2013
- 12) Spring Meeting of the Carolina Math Seminar at Benedict College, Columbia, Feb 10, 2012: Orthogonal arrays and transversals
- 11) Talk on interesting problems to elementary school students at Mossy Oaks Elementary School, Beaufort, SC, May 2008
- 10) Colloquium talk at the Department of Mathematics and Computer Science, South Carolina State University, June 2006: Crossing numbers
- 9) Colloquium talk at the Department of Mathematics, Eastern Michigan University, November 2004: Which algorithm to choose
- 8) Eastern Pennsylvania and Delaware Section of the MAA, Gettysburg College, Gettysburg, PA, October 18, 2003, panelist: Careers in Mathematics
- 7) Career Night, Mathematics and Statistics Departments of the University of South Carolina, Columbia, SC, January 21, 2003
- 6) Mathematics Awareness Month Talk Series, Department of Mathematics and Computer Science of South Carolina State University, Orangeburg, SC, March 29, 2002: Sequence alignment algorithms
- 5) Spring Colloquium Series, Gettysburg College, Departments of Mathematics and Computer Science, Gettysburg, PA, April 19, 2001, panelist: Jobs in government
- 4) Mathematics Awareness Month Talk Series, Department of Mathematics and Computer Science of South Carolina State University, Orangeburg, SC, April 16, 1997: Mathematics and the internet
- 3) Euclidean Club at the Department of Mathematics and Computer Science of South Carolina State University, Orangeburg, SC, October 22, 1996: Trigonometry of the ancient Greek astronomers
- 2) Euclidean Club at the Department of Mathematics and Computer Science of South Carolina State University, Orangeburg, SC, March 20, 1996: Fractals
- 1) Euclidean Club at the Department of Mathematics and Computer Science of South Carolina State University, Orangeburg, SC, November 14, 1995: Oh, that colorful mathematics! (Problems that can be solved by coloring)

Conference Organization:

- 6) SIAM Discrete Math Conference, Modeling Networks under Exact and Soft Constraints Minisymposium, Minnesota 2014 (co-organizing with L.A. Székely)
- 5) Summer School in Network Science May 20-24, 27-31, University of South Carolina, Columbia. (member of the organizing committee, chair: L.A. Székely; co-chairs: L. Lu, Q. Wang; other organizing members: V. Gudkov, X. Li)
- 4) Special Session on Graphs, Hypergraphs and Counting, Spring Sectional Meeting of the AMS, Iowa State University, Ames, IA, Apr 27-28, 2013 (co-organizer with L.A. Székely)
- 3) Discrete Mathematics and Bioinformatics Minisymposium (3 sessions) at the 33rd SIAM Southeastern Atlantic section Conference, April 4-5, 2009, Columbia, SC
- 2) Mini-Conference on Applied Combinatorics (member of the organizing committee, chair: G.O.H. Katona, committee members: J.R. Griggs and L.A. Székely) October 15-16, 2007, Columbia, SC
- 1) Ondrej Šykora Memorial Theory Day, (member of the organizing committee, committee members: L.A. Székely and Imrich Vrto) June 7 2006, Loughborough University, UK

Service:

at *University of South Carolina*:

- Member of the Peer Review of Teaching Committees, 2014-present)
- Scholarship and Advisory Committee (2011-present): Knowles Fellowship advisor (mentored 2011 scholarship winner Madison Miller); Participated in advising Goldwater Scholarship applicants (advised 2012 winners William Franks and Daniel Grier)
- Scholar Review Committee Member for Carolina and McNair Scholars (2013-2014)
- Undergraduate Advisor for math majors (2004-2013)
- Undergraduate Advisory Committee (2006-2013)
- Member of the College of Arts and Sciences Curriculum Committee (2012-2013)
- Faculty Senator (2011-2013)
- Faculty Advisory Committee (2008-2010)
- Hiring Committee (2009-2010)
- PME/Gamecock Math Club Faculty Advisor (2009-2010)
- Gamecock Leadership Society Faculty Advisor (2009-2010)
- Events Committee (2009-2010)
- Qualifying Exam Committee chair (2009)
- Webpage Committee (2006-2008) — maintenance of Industrial Mathematics Institute webpages
- Member of High School Mathematics Committee (2006-2008)
- Comprehensive exam committee member/reader for math Ph.D. students Aaron Dutle, Paisa Seeulangsawat, Xing Peng, Heather Smith, Danny Rorabaugh, Ed Boehnlein, Taylor Short
- Mentor at the Women's Mentor Network of South Carolina (2011-2013)
- First-Year Scholar Mentor, Mentor Program of the Office of Fellowships and Scholar Programs (2012-2013)
- M.S. defense exam committee member/reader for computer science student Thorben Primke
- Ph.D. committee member for computer science student Annamaria Kish
- Organizer of the combinatorics seminar (2012-2013)

at *College of William & Mary*:

- Undergraduate Advisor for math majors (2004-2006)
- Undergraduate Curriculum Committee (2005-2006)

Membership in Professional Organizations: AMS, SIAM, MAA, János Bolyai Mathematical Society in Hungary

Refereeing Work: Electronic Journal of Combinatorics, SIAM Journal on Discrete Mathematics, Discrete Mathematics, Discrete Applied Mathematics, Australasian Journal of Combinatorics, Journal of Statistical Theory and Practice, Nucleic Acids Research

Additional Information:

- Publication 4. (list of publications) has been reviewed by Faculty of 1000 and received a rating of 6 (must read)
- Publication 4. has been reviewed in the September 30, 2002 issue of *The Scientist*.
- Publication 5. has been discussed in the December 23, 2002 issue of *University of Utah News and Public Relations*
- Publication 5. has been discussed in the December 24, 2002 issue of *BBC News World Edition (Science/Nature)*
- Publication 5. has been discussed in the December 24, 2002 issue of *Noticias* (in Portuguese)
- Publication 5. has been discussed in the December 27, 2002 issue of *The Washington Times* (page A3)
- Publication 5. has been discussed in the December 30, 2002 issue of *Washington Post* (page A09, Science Notebook)