

2004 Report: Publications and Presentations

Direction of Individual Student Work

Theses

[Chen, Hall] Kinnari Patel, Some eigenvalue results for certain matrices associated with graphs.

[Hsu]

- Haiying Lin, Sample Size Problems in Logistic Regression Models.
- Uyen Pham, A Study of Risk Factors Associated with Low Birth Weight – Georgia WIC Program.
- Kai Qu, Some Contributions in the Classification Analyses of the Spectroscopic Evaluation of Cervical Cancer.
- David Yankey, Forecasting the Chinese Future Market Prices of Aluminum and Copper Commodities.

[Li] Emmanuel Des-Bordes, Minimum ranks of sign pattern matrices.

[Qin] Jihye Kim, A comparative study of interval estimation for sensitivity of a continuous-scale diagnostic test.

[Cymbalyuk and Shilnikov]

- Tatiana Malashchenko, The role of slow Ca^{2+} current in regulation of bursting activity of a leech neuron.
- Konstantin Mokhov, The role of Ca^{2+} dynamics in generation of oscillatory activity of a neuron.

[Zhao] Zhiheng Xu, Inference for general additive-multiplicative hazard model and mixed discrete-continuous Cox regression model via empirical likelihood.

Publications

Books

[Bevis]

- Test Bank for Swokowshki and Cole's Algebra and Trigonometry with Analytic Geometry, 11 Ed., Thomson Brooks/Cole, 2004.
- Test Bank for Swokowshki and Cole's Fundamentals of College Algebra, 11 Ed., Thomson Brooks/Cole, 2004.
- Test Bank for Swokowshki and Cole's Precalculus, 10 Ed., Thomson Brooks/Cole, 2004.

Articles, Essays, and Chapters

Articles, Essays

- **M. Aray**, Application Techniques of the Recursive Inverse Eigenvalue Problem Solution Algorithm, *Ideas, Projects and Technologies*, **ECI-S**, **3** (2004) 2-8.

- **R. Belinsky**, F. González, and J. Stahl, Optimal behavior and concurrent variable interval schedule, *Journal of Mathematical Psychology*, **48** (4) (2004) 247-262.
- **G. Chen, G. Davis, F. Hall, Z. Li, K. Patel and M. Stewart**, An Interlacing Result on Normalized Laplacians, *SIAM Journal on Discrete Mathematics*, **18** (2) (2004) 353-361.
- **G. Chen**, H. Enomoto, K. Kawarabayashi, K. Ota, D. Lou, and A. Saito, Circumference of graphs with bounded degree, *SIAM Journal on Computing*, **33** (5) (2004) 1136-1170.
- **G. Chen**, G. Fan and X. Yu, Cycles in 4-connected planar graphs, *European Journal of Combinatorics*, **25** (6) (2004) 763-780.
- **G. Chen**, G. Tao, B.K. Abban, and T.L. Gift, Re-screening women who test positive for C. trachomatis infection: an integer programming to determine numbers of women cured under fixed program budgets, *Health Care Management Science* **7** (2004) 135-144.
- **G. Chen**, G. Ronald and F. Pfender, New conditions for k-ordered Hamiltonian graphs, *Ars Combinatoria* **70** (2004) 245-255.
- **G. Davis, G. Domke and C. Garner**, Ranks of Line Graphs of Regular Graphs, *Journal of Combinatorial Mathematics and Combinatorial Computing*, **49** (2004) 113-128.
- Catalin Ciuperca and **Florian Enescu**, An inequality involving tight closure and parameter ideals, *Bulletin of the London Math. Society*, **36** (3) (2004) 351-357.
- Manuel Blickle and **Florian Enescu**, On rings with small Hilbert-Kunz multiplicity, *Proceedings of the Amer. Math. Soc.*, **132** (2004) 2505-2509.
- **F. Hall, Z. Li**, and B. Rao, From Boolean to sign pattern matrices, *Linear Algebra and Its Applications* journal, **393**(2004) 233-251.
- Broere, M. Dorfling, W. Goddard, **J.H. Hattingh**, M.A. Henning and E. Ungerer Augmenting trees to have two disjoint total dominating sets, *The Bulletin of the Institute of Combinatorics and its Applications* **42** (2004) 12-18.
- P. Dankelmann, G.S. Domke, W. Goddard, **J.H. Hattingh**, P. Grobler and H.C. Swart, Maximum sizes for domination parameters, *Discrete Mathematics* **281** (2004) 137- 148.
- L.M. Harris and **J.H. Hattingh**, The algorithmic complexity of certain functional variations of total domination in graphs", *Australasian Journal of Combinatorics* **29** (2004) 143-156.
- **N. Patterson** and K. Norwood A Case Study of Teacher Beliefs on Students' Beliefs about Multiple Representations, *International Journal of Mathematics and Science Education*, **2** (1) (2004) 5-23.
- **Patyi**, Analytic cohomology of complete intersections, *Ann. Inst. Fourier (Grenoble)*, **54** (1) (2004) 147-158.
- **G. Qin**, M. Tsao and **Y.-S. Hsu**, Empirical Likelihood Ratio Confidence Interval for the Winsorized Mean, *Advances and Applications in Statistics*, **4** (2) (2004) 167 – 180.
- **G.S. Qin**, M. Tsao and X.H. Zhou, New intervals for the difference between two independent binomial proportions. *J Statist Plan Infer* **123**(2004) 97-115.
- R. Hermers, B.-Y. Jing, **G.S. Qin** and W. Zhou, Saddlepoint approximations to the trimmed mean. *Bernoulli* **10** (2004) 465-501.

- **A.L. Shilnikov**, Development of Synchronization Theory, IEEE Proceedings of Conference on Circuits and Systems for Communications, held in Moscow, June 30 - July 2, 2004
- **A.L. Shilnikov** and G. Cymbaluyk, Homoclinic saddle-node orbit bifurcations en a route between tonic spiking and bursting in neuron models, *Regular & Chaotic Dynamics* **9(3)**, (2004) 281-297.
- **A.L. Shilnikov, L.P. Shilnikov** and D.V. Turaev, Mathematical aspects of classical synchronization theory. Tutorial. *Bifurcations and Chaos*, **14 (7)** (2004).
- **A.L. Shilnikov** and N.F. Rulkov, Subthreshold oscillations in a map-based neuron model, *Physics Letter A*, **328** (2004) 177-184.
- T. Khan, and **A.B. Smirnova**, Inverse Problem in Diffusion Based Optical Tomography Using Iteratively Regularized Gauss-Newton Algorithm, *Applied Mathematics and Computation*, **161** (2004) 149-170.
- A.G.Ramm and **A.B. Smirnova**, On deconvolution problems: numerical aspects, *Journal of Computational and Applied Mathematics*, **176** (2004) 445-460.
- **D. Vidakovic** and B. Martin, Small-group searches for mathematical proofs and individual reconstructions of mathematical concepts. *Journal of Mathematical Behavior, Volume 23(4)* (2004) 465-492.

Presentations at Professional Meetings

[Alexander]

- Using Electronic Portfolios Across Disciplines, Teaching and Learning EXPO, Georgia State University, Atlanta, GA.
- Undergraduate Mathematics: A Road to Redesign, The Seventeenth Annual Conference on Technology in Collegiate Mathematics, November, 2004, Hyatt Regency, New Orleans, LA.

[Arav] Inverse Spectrum Problem, International Workshop on Groups, Geometry and Dynamics, Technion, Haifa, Israel, January 5-9, 2004.

[Bakonyi]

- Factorization of Operator-Valued Functions on Ordered Groups, Joint Meeting of the 56th British Mathematical Colloquium and the 17th Annual Meeting of the Irish Mathematical Society, Belfast, Northern Ireland (contributed).
- Factorization of Operator-Valued Functions on Ordered Groups, 20th International Operator Theory Conference, Timisoara, Romania (contributed).
- Factorization of Operator-Valued Functions on Ordered Groups, International Workshop on Operator Theory and Applications, Newcastle, United Kingdom (contributed).
- Factorization of Operator-Valued Functions on Ordered Groups, Wabash Modern Analysis Conference, Indianapolis (contributed).

[Chen]

- Problems on cycles and paths in graph theory, SIAM conference on Discrete Mathematics, Nashville, TN, June (invited).
- Graphs with positive curvatures, 10th Anniversary of the Institute of Mathematics, East China Normal University, Shanghai, China, June (invited).
- Finding long cycles, The first Chinese Graph Theory and Combinatorics Conference, Xinjiang, China, August (invited).

- Graphs with positive curvatures, Seventeenth Cumberland Conference on Combinatorics, Graph Theory, and Computing, Murfreesboro, TN, May.
- Finding long cycles in special graphs, The 19th Clemson Mini-Conference on Combinatorial Optimization, Clemson, October.
- An interlacing result on normalized Laplacians, AMS 2004 Fall Southeastern Section Meeting, AMS 999, Nashville, TN, October.

[Enescu] The Sixth International Joint Meeting between the American Mathematical Society (AMS) and Sociedad Matemática Mexicana (SMM), The structure of F-pure rings, Invited talk, Houston, May 2004

[Hall]

- Boolean rank and minimum rank of nonnegative sign pattern matrices, contributed presentation given at the American Mathematical Society Sectional Meeting, March 12, 2004, Tallahassee, FL.
- Inertia sets of symmetric sign pattern matrices, invited talk given at the American Mathematical Society Sectional Meeting, March 26, 2004, Athens, OH.
- From Boolean to sign pattern matrices, contributed presentation given at the 11th Conference of the International Linear Algebra Society, July 22, 2004, Coimbra, Portugal.

[Hattingh]

- On weakly connected domination in graphs II , contributed presentation given at the 35th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 2004.
- On weakly connected domination in graphs II, *invited* presentation given at the 28th annual SIAM Southeastern Atlantic Section Meeting, Johnson City, TN, USA, 2004 (invited talk)

[Li]

- Powerful Ray Pattern Matrices, invited talk at the First National Conference on Graph Theory and Combinatorics, Urumqi, Xinjiang, China, August 2004.
- Minimum Ranks of Sign Pattern Matrices, invited talk at Workshop on Combinatorial Matrix Theory, Banff International Research Station, Banff, Canada, May 2004.

[Patterson, N]

- A Phenomenological Study of TEEMS Program Student Teachers' Perceptions of Their Impact on Student Achievement. Presented at the 26th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Toronto, Canada, October 21 – 24 (refereed).
- Examining the Perceptions and Quality of Alternatively Prepared Mathematics Teachers. Presented at the 82nd Annual Meeting of the National Council of Teachers of Mathematics Research Pre-session, Philadelphia, Pennsylvania. April 21 – 24 (refereed).

[Patyi] Aug. 2004: 50' Invited Talk, Linear Analysis and Probability Workshop, Texas A&M University, College Station, Texas.

[Qin] New intervals for the difference between two independent binomial proportion, invited talk at IISA 2004, Fifth Biennial International Conference on Statistics, Probability and Related Areas. The University of Georgia, Athens, Georgia, May 14-16, 2004.

[Shilnikov]

- Chaos in noninvertible maps for neural dynamics, Coupled Map Lattices 2004, Paris, June 21 - July 2, 2004
- How a neuron model can demonstrate co-existence of tonic spiking and bursting? 2004 Computational Neuroscience Meeting, Baltimore July 18-20, 2004 (Invited)

- Co-existence of tonic spiking modes in a neuron model (contributed) 2004 SIAM Conference on the Life Sciences. Portland, Oregon, July 2004. Co-organizer of a mini-symposium: The Geometry of Spiking and Bursting.
- Rhythmogenesis of tonic spiking and bursting activities, SECABC symposium. Neurobehavioral section, Atlanta, May 19-21, 2004
- Regulation of bursting activity in the neuron model, 20th Annual South East Nerve Net, March 26-27, Atlanta, 2004

[Smirnova]

- Regularization of nonlinear unstable operator equations by Gauss-Newton-type algorithm with simultaneous updates of inverse derivative, Russian Conference 'Algorithmic Analysis of ill-posed problems', February 2004, Ekaterinburg, Russia (invited talk).
- Investigation of the dynamical system method for solving nonlinear ill-posed problems, International Conference on Difference Equations and Applications, August 2-6, 2004, USC in Los Angeles, CA (contributed talk).
- Iteratively regularized Gauss-Newton-type algorithm with simultaneous updates of inverse derivative, Special Session on Fixed Points: Theory and Application, January 7-10, 2004, Phoenix, Arizona (contributed talk).

[Vidakovic]

- Students' conceptions of the natural numbers in a problem involving infinite iteration, Part I. Presented at the MAA regional conference (Southeastern section), Clarksville, TN (March).
- Students' conceptions of the natural numbers in a problem involving infinite iteration, Part II. Presented at the MAA regional conference (Southeastern section), Clarksville, TN (March).

[Zhao]

- Statistical inference for the additive risk model, Annual Meeting of the American Statistical Association, Toronto, August 2004, contributed talk.
- Empirical likelihood methods for comparison of survival functions, The Seventh North American New Research Conference, Toronto, August, 2004, invited talk.
- Simultaneous confidence band for a functional of cumulative hazard functions, International Conference on Robust Statistics (ICORS04) Beijing, July, 2004, contributed talk.
- Inference for mean residual life and proportional mean residual life model via empirical likelihood, The Second Erich L. Lehmann Symposium, Rice University, May, 2004, contributed talk.
- Regression analysis of the long-term survival rate via empirical likelihood, Fifth Biennial International Conference on Statistics, Probability and Related Areas, University of Georgia, May, 2004, invited talk.
- Estimation in the additive risk model and its application, University of Florida Sixth Annual Winter Workshop Data Mining, Statistical Learning, and Bioinformatics, January, 2004, contributed poster

Colloquia and Seminar Presentations

[Bakonyi]

- Factorization of Operator-Valued Functions on Ordered Groups, University of Texas at Dallas.
- The Commutant Lifting Theorem for Ordered Groups, University of Iowa, Iowa City.

[Chen]

- Plane graphs with positive curvatures, Department of Mathematics, University of Mississippi, MS, April.
- Finding long cycles in 3-connected graphs, Nanjing Normal University, Nanjing, China, June.
- Long cycles in 3-connected graphs, Huazhong Normal University, Wuhan, China, July.
- Long cycles in special graphs, University of Colorado at Denver, CO, October.

[Enescu]

- Rings with small Hilbert-Kunz multiplicities, Algebra seminar, invited talk, University of Missouri, March 2004.
- The Hilbert-Kunz multiplicity and complete intersections, Algebra Seminar, invited talk, University of South Carolina, October 2004.

[Ghosh]

- February 25th, 2004: A Bayesian approach to Individual Bioequivalence (Invited).
- March 29, 2004: A Unified Approach to Bioequivalence, ENAR Meeting.
- May 11, 2004: Bayesian approach to Clinical Trial" Department of Epidemiology, Centers of Disease Control (CDC) (Invited).

[He] Clemson University, September 2004, Title: Reconstruction and Higher Dimensional Geometry.

[Hsu] Some Research Problems Associated with Logistic Regressions (Invited talks by Sichuan University on May 19, 20 and 21, 2004).

[Li] Minimum Ranks of Sign Pattern Matrices, Tongji University, Shanghai, August 2004

[Qin] Empirical Likelihood Inference for the Area Under the ROC Curve, invited talk at the Department of Statistics, The University of Georgia, Athens, Georgia, September 24, 2004.

[Shilnikov] Bifurcation transitions between tonic-spiking and bursting regimes in neuron models. The Salk Neuroscience Institute seminar, July 28, 2004 Wednesday, July 28, 10:30 AM CNL conference room

[Zhao]

- Empirical likelihood in survival analysis and its application, School of Mathematics, Sichuan University, P.R. C., July, 2004.
- Empirical likelihood in survival analysis and its application, Statistics Department, University of Georgia, April, 2004.
- Empirical likelihood in survival analysis and its application, Department of Mathematics and Statistics, University of North Carolina at Charlotte, March, 2004
- Statistical inference for the additive risk model, Annual Meeting of the American Statistical Association, Toronto, August 2004.
- Empirical likelihood methods for comparison of survival functions, The Seventh North American New Research Conference, Toronto, August, 2004.
- Simultaneous confidence band for a functional of cumulative hazard functions, International C*onference on Robust Statistics (ICORS04) Beijing, July, 2004.
- Inference for mean residual life and proportional mean residual life model via empirical likelihood, The Second Erich L. Lehmann Symposium, Rice University, May, 2004.
- Regression analysis of the long-term survival rate via empirical likelihood, Fifth Biennial International Conference on Statistics, Probability and Related Areas, University of Georgia, May, 2004.

- Estimation in the additive risk model and its application, University of Florida Sixth Annual Winter Workshop Data Mining, Statistical Learning, and Bioinformatics, January, 2004.

Grants

NAME	GRANT	TYPE	PERIOD	AMOUNT
M. Alexander	PRISM mini-grant - PRISM NSF: Undergraduate Mathematics, A Road to Redesign. Co-PI	External	2004	10,000
M. Arav	Mobile Classroom for Teaching Mathematics and Statistics Co-PI	Internal	2004	105,045
M. Bakonyi	Factorization, Extension, and Interpolation Problems for Operator-Valued Functions on Groups Co-PI	External	08/15/03-07/31/06	\$28,100
G. Chen	Problems Surrounding Graph Minors and Connectivities, NSA	External	2004-2006	\$32,000
P. Ghosh	Hierarchical Nonlinear Models in Pharmacology of HIV - NIH, Co-PI	External	2004-2006	73,317
H. He	Factorization, extension, and interpolation results for operator valued functions on groups, NSF. Co-PI	External	8/15/03-7/31/06	28,000
V. Miller	PRISM mini-grant - PRISM NSF: Undergraduate Mathematics, A Road to Redesign. Co-PI	External	2004	10,000
V. Miller	PRISM mini-grant - PRISM NSF Extending The MILE: Instructional Professional Development Program. Co-PI	External	2004	8,200
V. Miller	Mobile Classroom for Teaching Mathematics and Statistics Co-PI	Internal	2004	105,045
N. Patterson	Mobile Classroom for Teaching Mathematics and Statistics Co-PI	Internal	2004	105,045
N. Patterson	PRISM mini-grant - PRISM NSF: Undergraduate Mathematics, A Road to Redesign. Co-PI	External	2004	10,000
A. Shilnikov	Brains and Behaviors Grants, Co-PI	Internal	2004	54,000
A. Shilnikov	GSU Research grant , Co-PI	Internal	2004	15,000
A. Shilnikov	Mobile Classroom for Teaching Mathematics and Statistics Co-PI	Internal	2004	105,045
A. Smirnova	Mobile Classroom for Teaching Mathematics and Statistics Co-PI	Internal	2004	105,045
A. Smirnova	Numerical Investigation of Inverse Problem in Optical Tomography	Internal	2004-2005	6,000
A. Smirnova	Theoretical and Numerical Investigation of dynamical systems method for solving linear and nonlinear ill-posed problems	External	2004	72,300,

D. Vidakovic	Mobile Classroom for Teaching Mathematics and Statistics PI	Internal	2004	105,045
D. Vidakovic	PRISM mini-grant - PRISM NSF Extending The MILE:Instructional Professional Development Program. PI	Internal	2004	8,200
D. Vidakovic	PRISM's Summer Academy for teachers	Internal	2004	1,000
D. Vidakovic	Robert Noyce Urban Mathematics Educator Program (UMEP). NSF Robert Noyce Scholarship" Co-PI	External	2005-2009	470,000
D. Vidakovic	Urban Teacher-Researcher Collaborative. Improving Teacher Quality Grants Program, The University of Georgia, Athens, GA Co-PI	External	2004-2005	35,816.
D. Vidakovic	Probability and Statistics for Middle School Teachers and their Students: A Quantitative Approach.	External	2003-2004	24,410
D. Vidakovic	NSF Travel Support to the Advisory Board Meeting	External	2004	1,200
Y. Zhao	Full Support to the Seventh North American New Research Conference ,Toronto	External	2004	450
Y. Zhao	NSF funded Travel Award to the Second Erich L. Lehmann Symposium, Rice University	External	2004	386
Y. Zhao	NSF funded Travel Award to UF Winter Workshop: Data Mining, Statistical Learning, and Bioinformatics, University of Florida	External	2004	400