

Shaowei Lin

Curriculum Vitae

Contact Department of Mathematics
University of California, Berkeley
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Education

2006–present *Ph.D., Mathematics*
University of California, Berkeley
Berkeley, CA
Advisor: Bernd Sturmfels

2002–2005 *B.S., Mathematics*
Stanford University
Stanford, CA
Thesis: *Invariants on Legendrian knots*
Advisor: Yakov Eliashberg
Minor: Computer Science
Honors with Distinction

Fellowships and Awards

2005 Stanford University Department of Mathematics Undergraduate Research Award

2005 Agency for Science, Technology and Research Roll of Honor

2002 Agency for Science, Technology and Research National Science Scholarship

Positions

2005–2006 Research Officer
Institute for Infocomm Research, Digital Wireless Department, Singapore
Project: Matrix Decompositions and their Applications in MIMO Communications
Advisor: Ying-Chang Liang

Summer 2004 Research Assistant
Stanford University, Stanford, CA
Project: Topological Methods in Scientific Computing, Stats. and Comp. Science
Advisor: Gunnar Carlsson

Research Interests

Broad: Algebraic Statistics, Computational Algebraic Geometry, Combinatorics

Specific: Relations among Principal Minors of a Matrix, Exact and Asymptotic Evaluation of Marginal Likelihood Integrals for Singular Models, Counting of Inference Functions for Graphical Models.

Publications

S. Lin, B. Sturmfels, and Z. Xu, "Marginal Likelihood Integrals for Mixtures of Independence Models," arXiv:0805.3602, May 2008, submitted to *Journal of Machine Learning Research*.

S. Lin, W. W. L. Ho, and Y. C. Liang, "Block Diagonal Geometric Mean Decomposition (BD-GMD) for MIMO Broadcast Channels," *IEEE Trans. Wireless Communications*, accepted for publication.

S. Lin, W. W. L. Ho, and Y. C. Liang, "Block-Diagonal Geometric Mean Decomposition (BD-GMD) for Multiuser MIMO Broadcast Channels," *Proc. IEEE PIMRC*, Helsinki, Finland, Sep. 2006.

S. Lin, W. W. L. Ho, and Y. C. Liang, "MIMO Broadcast Communications Using Block-Diagonal Uniform Channel Decomposition (BD-UCD)," *Proc. IEEE PIMRC*, Helsinki, Finland, Sep. 2006.

Presentations

Relations among Principal Minors of a Matrix

09/28/2008 UC Berkeley, Algebraic Geometry Seminar, Berkeley, CA.

12/18/2008 Technische Uni., Reine und Angewandte Algebra, Berlin, Germany.

03/29/2008 AMS Sectional Meeting, Alg. Geom. of Matrices and Determinants, Baton Rouge, LA.

Professional Activities

2007–2008 Organizer of Mentor Lecture Series at Berkeley (with D. Oliveira e Silva)

2006–present Member, American Mathematical Society

Programming Experience

C++, LaTeX, Matlab, Maple, Singular, Macaulay2.

August 27, 2008