

# Christopher Siefert

## Curriculum Vitæ

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### Research Interests

Linear Algebra, Krylov Methods, Preconditioners, KKT Systems, Algebraic Multigrid, Reduced Order Modeling, Stochastic Programming, Simulation, Optimization and Spatial Statistics.

### Education

- 2000–2006* University of Illinois at Urbana-Champaign Ph.D. in Computer Science with Computational Science and Engineering Option (GPA 3.93/4.0).  
Advisor: Eric de Sturler.
- 1996–2000* College of William and Mary B.S. in Computer Science and Mathematics, May 2000.  
Highest Honors in Computer Science (GPA 3.95/4.0).

### Employment

- 2006–present* Limited Term Technical Staff, Computational Mathematics and Algorithms Group, Sandia National Laboratories.
- 2005–2006* Research Assistant, Department of Computer Science (UIUC).
- 2003–2005* Research Assistant, Center for Simulation of Advanced Rockets (UIUC).
- 2000–2003* National Science Foundation Graduate Fellow, Department of Computer Science (UIUC).
- Summer 2001* Summer Research Intern, Computational Sciences and Mathematical Research (Sandia Livermore National Laboratory).
- Summer 2000* Summer Research Student, Department of Computer Science (College of William and Mary) and Computational Sciences and Mathematical Research (Sandia Livermore National Laboratory).
- 1999–2000* Head Grader, Department of Computer Science (College of William and Mary).
- Summer 1999* Summer Research Student, Department of Computer Science (College of William and Mary).
- 1998–1999* Grader, Department of Computer Science (College of William and Mary).

### Awards and Honors

- 2000–2003* National Science Foundation Fellow.
- 2000* Winner of the Lord Botetourt Medal (One issued each year).
- 2000* Member — Phi Beta Kappa.
- 1996–2000* Monroe Scholar.
- 1999* Batten Scholar.

## Publications

- [1] P. Bochev, J. Hu, C. Siefert and R. Tuminaro. An Algebraic Multigrid Approach Based on a Compatible Gauge Reformulation of Maxwell's Equations. *Submitted to SIAM Journal on Scientific Computing*, SAND2007-1633.
- [2] C. Siefert and E. de Sturler. Probing Methods for Saddle-Point Problems. *Electronic Transactions in Numerical Analysis (ETNA)*, Special Volume on Saddle Point Problems: Numerical Solution and Applications, Volume 22, pp. 163–183, April 2006.
- [3] C. Siefert and E. de Sturler. Preconditioners for Generalized Saddle-Point Problems. *SIAM Journal on Numerical Analysis*, Volume 44, Number 3, pp. 1275–1296, 2006.
- [4] C. Siefert. Preconditioners for Generalized Saddle-Point Problems. PhD Thesis. 2006.
- [5] J. Liesen, E. de Sturler, A. Sheffer, Y. Aydin, and C. Siefert. Efficient Computation of Planar triangulations. *Proceedings of the 10th International Meshing Roundtable*, 2001.
- [6] C. Siefert, V. Torczon and M.W. Trosset. Model-Assisted Pattern Search Methods for Optimizing Expensive Computer Simulations. *ASA Proceedings of the Joint Statistical Meeting*, 2002. pp. 3236-3241.
- [7] C. Siefert. Model-Assisted Pattern Search. Honors Thesis. Accepted with Highest Honors. 2000.

## Technical Presentations

- [8] “Algebraic Multigrid and Algebraic Reformulations of the Eddy Current Equations, Part II” — Talk at the 13th Copper Mountain Conference on Multigrid Methods, March 2007.
- [9] “Algebraic Multigrid and Algebraic Reformulations of the Eddy Current Equations” — Invited Talk for CSE 2007, February 2007.
- [10] “AMG and a Discrete Reformulation for Maxwell's Equations” — Computer Science Research Institute Seminar at Sandia National Laboratory, October 2006.
- [11] “Probing Methods for Generalized Saddle-Point Problems” — Contributed Talk for Preconditioning 2005, May 2005.
- [12] “Generalized Saddle-Point Preconditioners and Approximate Schur Complements” — Invited Talk for CSE 2005, February 2005.
- [13] “Preconditioners for Generalized Saddle-Point Problems” — Talk for Midwest Numerical Analysis Day, April 2004.
- [14] “Preconditioners for Generalized, Stabilized Saddle-Point Problems” — Contributed Talk for Preconditioning 2003 Conference, October 2003.
- [15] “Model-Assisted Pattern Search Methods for Optimizing Expensive Computer Simulations” — Topic Contributed/Invited Talk at Joint Statistics Meeting, August 2002.
- [16] “MAPS: An algorithm for non-parametric Response Surface Methodology” — Poster Session at the 2000 SRCOS/ASA Conference.
- [17] “Model-Assisted Pattern Search” — Talk at Sandia National Laboratory, August 2000.
- [18] “Model-Assisted Pattern Search” — Invited Talk for the Board of Visitors of the College of William and Mary, Spring 2000.

## Professional Societies and Service

*Societies*           SIAM, ACM.

*Service*            Computer Science Graduate Student Organization Coordinator 2002-2003.