James Michael Rath

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Education

Ph.D. (Computational and Applied Mathematics)	University of Texas at Austin	2007
M.S. (Computational and Applied Mathematics)	University of Texas at Austin	2000
S.B. (Mathematics with Physics minor)	Massachusetts Institute of Technology	1998

Appointments

Lecturer and Postdoctoral Fellow	University of Texas at Austin	2007–present
Research Assistant	University of Texas at Austin	1999–2000, 2005–2007
Teaching Assistant	University of Texas at Austin	1998, 2001–2004
Teaching Assistant	Massachusetts Institute of Technology	1997–1998

Honors and Awards

Frank Gerth III Teaching Excellence Award	2004
CAM Graduate Student Fellowship	1998–2001

Publications

1. J. Rath, "A quadratically convergent multiscale-based accelerator for solving symmetric positive-definite linear systems," in preparation.
2. T. Arbogast and J. Rath, "Non-convergence of a popular multiscale finite element method," in preparation.
3. J. Rath, "Darcy flow, multigrid, and upscaling," in *Multiscale Optimization Methods and Applications*, 337–366, 2006.

Presentations

1. "Non-convergence of a popular multiscale finite element method," at the CSM Industrial Affiliates Meeting, the University of Texas at Austin, October, 2007.
2. "Multiscale basis optimization for Darcy flow," at the SIAM Geosciences Meeting, Sante Fe, NM, March, 2007.
3. "Using Newton's method to solve linear systems or: How I learned to stop worrying and love nonlinear problems," at the UT SIAM Student Chapter Symposium, Austin, TX, February, 2007.
4. "Multiscale basis optimization for Darcy flow," at the CSM Industrial Affiliates Meeting, the University of Texas at Austin, October, 2006.
5. "A multiscale method with basis shape optimization for Darcy flow," at the Finite Element Rodeo, Texas A&M University, College Station, TX, March, 2006.

6. Poster "A multiscale method with basis shape optimization for Darcy flow," at the CSM Industrial Affiliates Meeting, the University of Texas at Austin, October, 2005.
7. "Darcy flow, multigrid, and upscaling," at the Conference on Multiscale Optimization Methods and Applications, University of Florida at Gainesville, March, 2004.
8. Poster "Subgrid upscaling preconditioners for Darcy flow," at the CSM Industrial Affiliates Meeting, the University of Texas at Austin, October, 2003.