

Lei Zhang

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Education

Ph.D. Mathematics/ Minor in Computational Science, Penn State University, U.S.A.,
Advisor: Dr. Qiang Du, Mar. 2004 - Dec. 2008 (Expected)

M.A. Computational Mathematics, Chinese Academy of Sciences, China, Sep. 2001 - Dec. 2003

B.S. Computational Mathematics, Peking University, China, Sep. 1997 - Jul. 2001

Current Research

Scientific computing with applications in materials science: nucleation in solid-state phase transformations, microstructure evolution, defects in solids.

Numerical analysis and Partial Differential Equations.

Numerical solutions of Stochastic Partial Differential Equations.

Publications

Lei Zhang, Long-qing Chen, Qiang Du, "Morphology of critical nuclei in solid state phase transformations", *Physical Review Letters*, 98, No.25, 265703, 2007

Lei Zhang, Long-qing Chen, Qiang Du, "Diffuse-Interface Description of Strain-Dominated Morphology of Critical Nuclei in Phase Transformations", *Acta Materialia*, 2008

Lei Zhang, Long-qing Chen, Qiang Du, "Mathematical and Numerical Aspects of Phase-field Approach to Critical Morphology in Solids," to appear in *Journal of Scientific Computing, Special Volume for Barrett lectures*, 2008

Lei Zhang, Long-qing Chen, Qiang Du, "Effect of the nucleation of a coherent precipitate near an edge dislocation", *In preparing*

Lei Zhang, Long-qing Chen, Qiang Du, "String method for the nucleation process in the conversed field with strong elasticity", *In preparing*

Lei Zhang, "Numerical Simulation of Second Order Stochastic Differential Equations", *Master Thesis*, 2003

Honors and Awards

SIAM Student Travel Award, 2008

Pritchard Dissertation Fellowships, Penn State University, 2008

Excellent Graduate Student Award, Chinese Academy of Science 2003

Excellent Community Service Award, Peking University 1998

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Presentations/Posters

1. SIAM Conference on Mathematical Aspects of Materials Science, MS9: Theory and Simulation of Grain Boundary Evolution, invited talk, May 11-14, 2008, Philadelphia.
2. SIAM Southeastern-Atlantic Section Conference, invited talk, March 14-15 2008, University of Central Florida, Orlando.
3. CCMD Meeting, talk and poster, February 20-22, 2008, Georgia Tech University, Atlanta.
4. CCMA Luncheon Seminar, invited talk, October 5, 2007, Penn State University.
5. Seminar in Mathematics Department, invited talk, May 24, 2007, Beijing Normal University, China.
6. The 2007 John H. Barrett Memorial Lectures: Multi-Scale Modeling and Simulation in Materials Science, poster presentation, April 28 - 30, 2007, University of Tennessee, Knoxville.
7. Computational and Mathematical Aspects of Materials and Fluids, poster presentation, April 13 - 14, 2007, Iowa State University.
8. SIAM Conference on Computational Science and Engineering (CSE07), contributed talk, February 19-23, 2007, Costa Mesa, California.
9. CCMD Atlanta Meeting, poster presentation, February 19-20, 2007, Georgia Tech University.

Teaching Experience

Teaching Math 21: College Algebra 1, Fall 2007

Teaching Math 110: Techniques of Calculus 1, Spring 2006 - Spring 2007

Teaching Math 22: College Algebra 2, Fall 2005

Research Experience

Research at the Center for Computational Materials Design, Penn State and Georgia Tech University, 2005 - 2008

Research at IMA PI Summer Program: Stochastic Partial Differential Equations and Environmental and Geophysical Modeling, 2005.

Research Assistant in State Key Laboratory of Scientific and Engineering Computing, China: Numerical simulation of Stochastic Differential Equations, 2002 - 2003.

Computer Skills

Latex, C++, Matlab, Mathematica programming: numerical schemes for solving differential equations (Finite Difference, Finite Element, Fourier spectral Method) and stochastic PDEs

Services and Professional Societies

Vice President, Chinese Friendship Association at Penn State, 2005-2006

Member of American Mathematical Society (AMS)

Member of Society for Industrial and Applied Mathematics (SIAM)

References

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Prof. Long-Qing Chen Email: lqc3@psu.edu
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University Park, PA 16802-5006, USA