Curriculum Vitae

Xiantao Li

Personal information

Institute for Mathematics
and its Applications(IMA)
423 Lind Hall
207 Church Street SE
Minneapolis, MN 55455

E-mail address: xli@ima.umn.edu
Office phone: (612) 626-0788
Fax: (612) 626-7370
Home phone: (612) 331-8060
Cell phone: (917) 519-1029
Web page: http://www.ima.umn.edu/~xli

Education:

2000–2002	University of Wisconsin-Madison, *Madison, WI.* Ph.D. in Mathematics, May 2002. Thesis: Numerical computation of the semiclassical limit of the Schrödinger equation and related problems. Thesis advisor: Shi Jin.
1998–2000	Georgia Institute of Technology, *Atlanta, GA.* Ph.D. student (transferred to University of Wisconsin-Madison). Academic advisor: Shi Jin.
1994–1998	Peking University, *Beijing, China.* B.S. in Mathematics, June 1998.

Employment:

2004–present	Institute for Mathematics and its Applications at University of Minnesota, *Minneapolis, MN.* Postdoctoral Associate Mentor: Mitchell Luskin and Richard D. James
2002–2004	Princeton University, *Princeton, NJ.* Research Associate Supervisor: Weinan E
2000–2002	University of Wisconsin-Madison, *Madison, WI.* Teaching Assistant.
1998–2000	Georgia Institute of Technology, *Atlanta, GA.*

Teaching Assistant.

Award:

2002	SIAM travel award.
2001	John Nohel Prize for excellent research in applied mathematics, University of Wisconsin-Madison.

Fields of Interest:

Multiscale modeling and computing in material science,
Energetics and dynamics of material defects,
Hyperbolic conservation laws,
Computational fluid dynamics,
Multiphase wave propagations.

Invited presentations in conferences:

Mar. 2002	Ninth International Conference on Hyperbolic Problems: Theory, Numerics, Applications, *California Institute of Technology, Pasadena.*
Jul. 2002	SIAM 50th Annual Meeting, *Philadelphia.*
Sep. 2001	Midwest PDE seminar, *University of Wisconsin-Madison.*
Nov. 2002	44th Annual Meeting of the Division of Plasma Physics, *Orlando.*
Jul. 2003	Multiscale workshop, *Princeton University.*
May. 2004	SIAM Conference on Mathematical Aspects of Materials Science, *Los Angeles.*
Oct. 2004	2nd International Conference on Multiscale Materials Modeling (MMM-II), *Los Angeles.*
May 2005	Multiscale Modeling in Solids , *Universite de Montreal, Canada.*
Jun. 2005	Multiscale Modeling and Simulation of Materials, *Baton Rouge, Louisiana.*
Nov. 2005	Bridging Time and Length Scales in Materials Science and Biophysics, *UCLA.*

Presentations in departmental seminars:

Princeton University, Oct. 2002,
Ohio-State University, May, 2003,
University of Wisconsin–Madison, Oct. 2003,
Duke University, Jan. 2004,
University of Massachusetts Amherst, Feb. 2004,
Courant Institute, Feb. 2004,
North Carolina State University, Jan. 2004,
University of Maryland, Feb. 2004.
Institute for Mathematics and its Applications, Nov. 2004.
Iowa State University, Nov. 2004.
University of Minnesota, Jan. 2005.

Membership:

Since 1998	American Mathematical Society.
Since 2002	Mathematical Society of America.

References:

Prof. Weinan E	Princeton University, weinan@math.princeton.edu
Prof. Shi Jin	University of Wisconsin, Madison, jin@math.wisc.edu
Prof. Mitchell Luskin	University of Minnesota, twin cities, luskin@umn.edu
Ms. Cathy Jacobson	Georgia Institute of Technology, jacobson@math.gatech.edu

Language fluency:

Chinese	Mother tongue,
English	Fluent,

Computer Programming:

LaTeX, Fortran90, MPI and OpenMP parallel computation, Matlab, Maple.

Research paper:

1. Numerical computation of the semiclassical limit of the Schrödinger equation and related problems,
   Ph.D. thesis, University of Wisconsin–Madison, 2002.

2. Numerical approximations of pressureless and isothermal gas dynamics,
   (with `François Bouchut and Shi Jin`),
   SIAM, J. Num. Anal. 41, 135-158, 2003.

3. Multi-phase computations of the semiclassical limit of the Schrödinger equation and related problems: Whitham vs Wigner,
   (with `Shi Jin`),
   Physica D, 182, 46-85, 2003.

4. On Two Moment Systems for computing multiphase semiclassical limits of the Schrödinger Equation,
   (with `L. Gosse and S. Jin`),
   Math. Model Methods Appl. Sci., 13, No. 12, 1689-1723, 2003.

5. An Eulerian method for computing multi-valued solutions of the Euler-Poisson equations,
   (with `John G. Wohlbier, Shi Jin and John Booske`),
   Phys. Rev. E., 70, 016502, 2004.

6. Analysis of the Heterogeneous Multiscale Method for Gas Dynamics
   (with `Weinan E`),

Methods of Analysis and Applications, accepted.

7. Multiscale modeling for the dynamics of solids at finite temperature,
(with Weinan E),
Journal of the Mechanics and Physics of Solids, accepted for publication.

8. Some recent progress on multiscale modeling,
(with Weinan E and Eric Vanden-Eijnden),
Lecture Notes in Computational Science and Engineering, Vol.39, 3–22.

9. Multiscale modeling of crystalline solids
(with Weinan E),
Handbook of multiscale modeling of material, 2004(edited by Sidney Yip).

10. The Heterogeneous Multiscale Method: A Review
(with Weinan E, Bjorn Engquist, Weiqing Ren, Eric Vanden-Eijnden),
SIAM Review, under review.

11. Multiscale simulation of crack propagation in iron-α,
in preparation.

12. Molecular dynamics study of microstructure in NiAl,
in preparation.