

- [5] G. Bao, D. Liu and S. Luo, *Multi-scale modeling and computation of nano-optical responses*, submitted.
- [6] G. Bao, G. Hu and D. Liu, *An adaptive mesh redistribution technique for solving Kohn-Sham equations by Finite Element Methods*, submitted.
- [7] G. Bao, D. Liu and S. Luo, *Multiphysical modeling and computation of nano optical response*, submitted.
- [8] D. Liu, *Optimal error estimates for Heterogeneous Multiscale Methods for stochastic dynamical systems*, submitted.
- [9] D. Liu, *Strong convergence rate of principle of averaging for jump-diffusion processes*, Frontiers of Mathematics in China, 7, 305-320, 2012.
- [10] D. Liu, *Stochastic simulation of the cell cycle model for budding yeast*, Communications in Computational Physics, 9, 390-405, 2011.
- [11] D. Liu, *Strong convergence of principle of averaging for multiscale stochastic dynamical systems*, Communications in Mathematical Sciences, 8, 999-1020, 2010.
- [12] D. Liu, *Analysis of multiscale methods for stochastic dynamical systems with multiple time scales*, SIAM Multiscale Modeling and Simulation, 8, 944-964, 2010.
- [13] D. Liu, *A numerical scheme for optimal transition paths of stochastic chemical kinetic systems*, Journal of Computational Physics, 227, 8672-8684, 2008.
- [14] W. E, D. Liu, and E. Vanden-Eijnden, *Response to “Communicationsent on ‘Nested stochastic simulation algorithm for chemical kinetic systems with disparate rates’ [Journal of Chemical Physics 123, 194107(2005)]”*, Journal of Chemical Physics, 126, 137102, 2007.
- [15] W. E, D. Liu and E. Vanden-Eijnden, *Nested stochastic simulation algorithms for chemical kinetic systems with multiple time scales*, Journal of Computational Physics, 221, 158-180, 2007.
- [16] D. Liu, *Optimal transition paths of stochastic chemical kinetic systems*, Journal of Chemical Physics, 124, 164104, 2006.
- [17] W. E, D. Liu and E. Vanden-Eijnden, *Nested stochastic simulation algorithm for chemical kinetic systems with disparate rates*, Journal of Chemical Physics, 123, 194107, 2005.
- [18] W. E, D. Liu and E. Vanden-Eijnden, *Analysis of multiscale methods for stochastic differential equations*, Communications on Pure and Applied Mathematics, 58, 1544-1585, 2005.
- [19] D. Liu and C. García-Cevera, *Magnetic switching of ferromagnetic thin films under thermal perturbation*, Journal of Applied Physics, 98, 023903, 2005.
- [20] D. Liu, *Convergence of the spectral method for stochastic Ginzburg-Landau equation driven by space-time white noise*, Communications in Mathematical Sciences, 1, 361-375, 2003.
- [21] W. E and D. Liu, *Gibbsian dynamics and invariant measures for stochastic dissipative PDEs*, Journal of Statistical Physics, 108, 1125-1156, 2002.

RECENT PRESENTATIONS:

- 1) Applied Math Seminar, Georgia Inst Tech, 2012.
- 2) Math Colloquium, Wayne State U, 2011.
- 3) Workshop on Multiscale Systems: Theory and Applications, U of Warwick, 2011.
- 4) Probability Seminar, Brown U, 2011.
- 5) Workshop on Nucleation and Rare Events, Beijing Intl Center for Math Research, 2011.
- 6) ICMSEC Seminar, Chinese Academy of Sciences, 2011.
- 7) SIAM Conf on Applications of Dynamical Systems, 2011.
- 8) Math Colloquium, Central Michigan U, 2011.
- 9) AMS Central Sectional Meeting, 2010.
- 10) Intl Conf on Applied Math, City U of Hong Kong, 2010.
- 11) Workshop on Interdisciplinary Applied and Computational Math, Zhejiang U, 2010.
- 12) SIAM Conf on the Life Sciences, 2010.
- 13) SIAM Conf on Mathematical Aspects of Materials Science, 2010.
- 14) SIAM Great Lakes Conf, U of Michigan-Dearborn, 2010.
- 15) Workshop on Multi-scale Stochastic Modeling of Cell Dynamics, Banff Station, Canada, 2010.
- 16) Math Colloquium, Auburn U, 2009.
- 17) Applied Math Seminar, U of North Carolina at Charlotte, 2008.
- 18) Applied Math Seminar, Wayne State U, 2008.
- 19) Applied Math Seminar, U of California at Irvine, 2008.
- 20) AMS Annual Meeting, 2008.
- 21) PDEs and Numerical Methods Seminar, Penn. State U, 2007.
- 22) SIAM Conf on Applications of Dynamical Systems, 2007.

TEACHING:**UNDERGRADUATE:**

Calculus I&II, Numerical Analysis I&II., Analysis I, Partial Differential Equations.

GRADUATE:

Numerical Methods for PDEs I&II, Numerical Methods for Stochastic Dynamics.

MENTORING:

POSTDOC: Songting Luo (2009-), Guanghui Hu (2010-), Can Huang (2011-).

SYNERGISTIC ACTIVITIES:

- i.) Seminars and workshops: Math Colloquium: 2011, 2010, 2009, 2006;
Applied Math Seminar: 2009, 2005;
Annual Workshop of MCIAM: 2011, 2008.
- ii.) Departmental committes: Advisory 2011; Hiring, 2010, 2006;
Undergraduate, 2010; Graduate, 2009.
University committee on Honors Program, 2011.