Chia Ying Lee

CONTACT INFORMATION

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CURRENT EMPLOYMENT

University of British Columbia, Department of Mathematics, Vancouver, BC Canada

Postdoctoral Fellow *Aug 2013 - present*

EDUCATION

Brown University, Providence, RI, USA
Ph.D in Applied Mathematics *May 2011*
Thesis title: *Effective Approximations of Stochastic Partial Differential Equations based on Wiener Chaos expansions and the Malliavin Calculus*
Thesis Advisor: Boris Rozovsky

Sc.M, Applied Mathematics *May 2007*

The University of Michigan, Ann Arbor, MI, USA
B.Sc, Mathematics *Magna cum Laude* *Sept 2002 - Aug 2005*
Honors Program, College of Literature, Science and the Arts
BA, Music

ACADEMIC AND WORK EXPERIENCE

University of British Columbia, Department of Mathematics, Vancouver, BC Canada
Postdoctoral Fellow *Aug 2013 - present*
Advisor: Rachel Kuske
Research area: Pattern formation in stochastic PDEs with delay, statistical inverse problems in seismic imaging

Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC, USA
Joint appointment with **Department of Statistics and Operations Research, Univeristy of North Carolina**, Chapel Hill, NC, USA
Postdoctoral Researcher *Sept 2011 - Aug 2013*
Advisors: James Nolen (Duke U.), Amarjit Budhiraja (UNC)
Research area: Optimal design of importance sampling schemes for rare event simulation in Erdős-Rényi random graphs and reflected diffusions

Bioinformatics Institute, Singapore
Research Officer, Systems Biology Group *Aug 2005 - July 2006*
Research area: Modeling of p53 tumor suppressor reaction pathways and applications of the stochastic simulation algorithm for biomolecular reactions

Research Interests

Stochastic analysis, stochastic partial differential equations (SPDE), numerical analysis for SPDE, uncertainty quantification, stochastic simulation, rare event simulation, large deviation principle.

Publications & Preprints

C. Y. Lee, L. Setayeshgar. *Large deviations for a stochastic Korteweg–de Vries equation.* Submitted.

S. Bhamidi, J. Hannig, C. Y. Lee, J. Nolen. *The importance sampling technique for understanding rare events in Erdős-Rényi random graphs.* Resubmitted, arXiv:1302.6551v2, 31 pages.

C. Y. Lee, B. L. Rozovskii. *On Stochastic Navier-Stokes Equation Driven by Stationary White Noise.* Malliavin Calculus and Stochastic Analysis, Eds.: F. Viens et al., Springer Proceedings in Mathematics, (2013) pp. 219-250.

C. Y. Lee. *Effective Approximations of Stochastic Partial Differential Equations based on Wiener Chaos expansions and the Malliavin Calculus*, Ph.D Thesis (2011).

C. Y. Lee, B. L. Rozovskii. *A stochastic finite element method for stochastic parabolic equations driven by purely spatial noise*, Communications on Stochastic Analysis, (2010) Vol. 4, No. 2, pp. 271-297.

C. Y. Lee, B. L. Rozovskii, H. M. Zhou. *Randomization of forcing in large systems of PDEs for improvement of energy estimates*, Multiscale Modeling and Simulation, (2010) Vol. 8, No. 4, pp. 1419-1438.

Work in progress

Importance sampling for reflected stochastic differential equations. (with A. Budhiraja)

Pattern formation and stability of stochastic Swift-Hohenberg equation with delay. (with R. Kuske)

Statistical inverse problems in seismic imaging. (with Z. Fang, C. Da Silva, F. Herrmann, R. Kuske)

Other Work

C. Y. Lee. *Stochastic simulation of biochemical systems with randomly fluctuating rate constants due to dynamic disorder.* Preprint, arXiv:1202.1266, 17 pages.

Selected Conference & Seminar Presentations

AMS Sectional Meeting, Albuquerque, NM *Apr 2014*
Invited talk at 'Special Session on Stochastics and PDEs'

SIAM Conference on Uncertainty Quantification, Savannah, GA
Invited talk at mini-symposium 'Efficient Simulation of Rare Events' *Mar 2014*

3rd Workshop for Women in Probability, Durham, NC *Oct 2012*
Invited plenary talk

ICERM Uncertainty Quantification workshop, Providence, RI *Oct 2012*
Invited talk

8th Purdue Symposium on Statistics, West Lafayette, IN *June 2012*
Invited talk at session 'Spatial Modeling, Applied Stochastics and Paleoclimatology'

SIAM Conference on Uncertainty Quantification, Raleigh, NC *April 2012*
Invited talk at minisymposium 'Recent Advances in Numerical SPDES'
Co-organizer and speaker at minisymposium 'Recent Advances and Applications of Stochastic Partial Differential Equations'

Spring 2011 Sectional Meeting of the AMS, Las Vegas, NV *April 2011*
Invited talk at session "Stochastic partial differential equations"

NSF-CBMS Conference on Recent Advances in the Numerical Approximation of Stochastic Partial Differential Equations, Illinois Institute of Technology, Chicago, IL
Poster presentation *August 2010*

SIAM Annual Meeting 2009, Denver, CO *July 2009*
Contributed talk

7th World Congress in Probability and Statistics, Singapore *July 2008*
Contributed talk

Awards and Grants

Brown University

Stella Dafermos Award, Division of Applied Mathematics *May 2011*

SIAM Student Travel Award *July 2009*

Graduate International Colloquia Grant *Sept 2009*

Graduate School Travel Grant *July 2008, April 2011*

University Fellowship, Division of Applied Mathematics *Sept 2006 - May 2007*

The University of Michigan

Department of Mathematics Scholarship *2004-2005*

James B. Angell Scholar *2005*

Teaching & Mentoring

University of British Columbia, BC Canada

Instructor, MATH104 *Differential Calculus for Commerce and Social Sciences* *Fall 2013*

University of North Carolina, Chapel Hill

Instructor, STOR113 *Decision Models for Economists* *Fall 2012*

SAMSI

Industrial Math/Stats Modelling Workshop for Graduate Students *July 2012*

Faculty mentor for group of participants on the project *'Signal Detection for Drug Safety'*

Interdisciplinary Workshop for Undergraduate Students *May 2012*

Mentored participants and developed workshop material

Brown University

Instructor, APMA1210 *Operations Research: Deterministic Methods* *Fall 2010*

Designed the syllabus and conducted the course as a co-instructor. Mentored students on a their final project.

Teaching Assistant

APMA0340 Methods of Applied Mathematics *Fall 2007*
APMA1200 Operations Research: Probabilistic Models *Spring 2008*
Conducted recitation and office hours, prepared homework solutions and graded homework sets

London Mathematical Society, Short Course Programme

Tutorial leader *July 2008*

Conducted tutorial sessions at the Short Course Programme on Stochastic Partial Differential Equations to familiarize students with the course material

Professional Development & Service

Mathematical Education Seminar, Department of Mathematics, University of British Columbia

Seminar discussion leader, "Applying Bloom's Taxonomy to the Calculus Classroom." *Oct 2013*

Sheridan Center for Teaching and Learning, Brown University

Certificate IV (Teaching Consultant Program) *May 2011*

Provided individualized feedback on instructors' teaching practices to help them improve their teaching, and facilitated workshops with instrutors to discuss the elements of reflective teaching practices.

Certificate III (Professional Development Seminar)

Certificate I (Teaching Seminar)

Division of Applied Mathematics, Brown University

Colloquium on Financial Mathematics, Co-organizer *Sept 2009*

Won the Graduate International Colloquia Grant to organize the colloquium.

Graduate Student Seminar, Seminar Organizer *2009 - 2011*