

Associate Professor

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Employment

Associate Professor, University of Illinois at Chicago	Aug 2016 - present
Assistant Professor, University of Illinois at Chicago	Aug 2011 - Aug 2016
Golomb Assistant Professor, Purdue University	Aug 2009 - Aug 2011

Education

Ph.D. in Mathematics, Northwestern University	Jun 2009
Dissertation advisor: Elton P. Hsu	
B. S. in Mathematics, Univ. of Sci. and Tech. of China	Jun 2004

Research

Probability Theory and Stochastic Analysis.

Preprints and Publications

18. Density bounds of solutions to differential equations driven by Gaussian rough path, (with B. Gess and S. Tindel), *submitted*, (2018).
17. Geometric deviation of Levy's occupation time arcsine law, (with E. P. Hsu), *preprint*, (2018).
16. Mutual intersection for rough differential systems driven by fractional Brownian motions, (with Yinghui Shi and Dongsheng Wu), *Statistics & Probability Letters*, Vol 135, 83-91, (2018).
15. "Purposely misspecified" posterior inference on the volatility of a jump diffusion process, (with R. Martin and F. Domagni), *Statistics & Probability Letters*, Vol 134, 106-113, (2018).

14. On the law of the iterated logarithm for Brownian motion on compact manifolds, (with J. Pajda-De La O), *submitted*, (20017).
13. Local times of stochastic differential equations driven by fractional Brownian motions, (with S. Lou), *Stochastic Processes and Their Applications*, Vol. 127, Issue 11, 3643-3660, (2017).
12. Multiplicative functionals for the heat equation on manifolds with boundary, *Stochastic Analysis and Related Topics, A Festschrift in Honor of Rodrigo Banuelos, Progress in Probability, Birkhauser*, Vol 72, 67-83, (2017).
11. Fractal dimensions of rough differential equations driven by fractional Brownian motions, (with S. Lou), *Stochastic Processes and Their Applications*, Vol. 126, Issue 8, 2410-2429, (2016)
10. On small time asymptotics for rough differential equations driven by fractional Brownian motions, (with F. Baudoin), *Large Deviations and Asymptotic Methods in Finance, Springer Proceedings in Mathematics & Statistics, Vol 110*, (2015).
9. On probability laws of solutions to differential systems driven by a fractional Brownian motion, (with F. Baudoin, E. Nualart and S. Tindel), *Annals of Probability*, Vol. 44, No. 4, 2554-2590, (2016).
8. Varadhan asymptotics for SDEs driven by fractional Brownian motions, (with F. Baudoin and X. Zhang), *Stochastic Processes and Their Applications*, Vol. 125, Issue 2, 634-652, (2015).
7. Smoothing effect of rough differential equations driven by fractional Brownian motions, (with F. Baudoin and X. Zhang), *Annales de l'Institut Henri Poincare*, Vol. 52, No. 1, 412-428, (2016).
6. Small-time expansion for local jump-diffusion models with infinite jump activity, (with J. E. Figueroa-Lopez and Y. Luo), *Bernoulli*, **20** (3), 2014, 1165-1209.
5. Gradient bounds for solutions of stochastic differential equations driven by fractional Brownian motions, (with F. Baudoin), *Malliavin Calculus and Stochastic Analysis: A Festschrift in Honor of David Nualart*, Springer Proceedings in Mathematics & Statistics, Vol. 34, Springer Verlag, (2013).
4. Concentration property and Gaussian upper bound for density of solutions to SDEs driven by fractional Brownian motions, (with F. Baudoin and S. Tindel), *Annales de l'Institut Henri Poincare*, **50** (1), 2014, 111-135.

3. Small-time kernel expansion for solutions of SDEs driven by fractional Brownian motions, (with F. Baudoin), *Stochastic Processes and their Applications*, 121 759-792, (2011).
2. Asymptotics of implied volatility in local volatility models, (with J. Gatheral, E. P. Hsu, P. Laurence and TH. Wang), *Mathematical Finance*, **22** 591-620, (2012).
1. Quasi-invariance of the Wiener measure on the path space over a complete Riemannian manifold, (with E. P. Hsu), *J. of Funct. Anal.*, **257** (5), 2009, 1379-1395.
0. Asymptotics of implied volatility in local volatility models, PhD thesis, Northwestern University (2009).

Awards and Honors

Simons Collaboration Grant for Mathematicians (\$35,000)	2015-2020
AMS-Simons travel grant (\$4,000)	2013-2015
Best Thesis Award, Department of Mathematics, Northwestern University	2009
Best Prelim Award, Department of Mathematics, Northwestern University	2005
Outstanding Student Award, Department of Mathematics, USTC	2000-2004

Seminar Talks

Probability Seminar, UIUC, Mar 2018	Mar 2018
Probability Seminar, Purdue University	Jan 2018
Probability Seminar, University of Connecticut	Oct 2017
Probability Seminar, Jiangsu Normal University, China	May 2017
Probability and Mathematical Physics Seminar, USTC, China	May 2017
Probability Seminar, Carnegie Mellon University	Mar 2017
Probability Seminar, UCSB	Mar 2017
Probability Seminar, University of Connecticut	Oct 2016
Probability Seminar, Purdue University	Sep 2016
Probability Seminar, Institute of Applied Math, Chinese Academy of Science	Jul 2016
Colloquium, Illinois Institute of Technology	Feb 2016
Probability Seminar, Northwestern University	Feb 2016
Applied Mathematics Seminar, UIC	Apr 2015
Probability Seminar, Michigan State University	Dec 2014
Probability Seminar, USTC, China	Jul 2014
Probability Seminar, Jiangsu Normal University, China	Jul 2014
Probability Seminar, University of Illinois at Urbana-Champaign	Oct 2013
Probability Seminar, USTC, China	Jun 2013
Probability and Statistics Seminar, Wayne State University	Apr 2013

Probability Seminar, University of Kansas	Mar 2013
Probability Seminar, Purdue University	Jan 2013
Analysis Seminar, Northwestern University	Feb 2012
Math and Applied Math Seminar, UIC	Feb 2012
Colloquium, IUPUI	Jan 2012
Colloquium, Illinois Institute of Technology	Jan 2012
Probability Seminar, Purdue University	Dec 2011
Probability and Math-Physics Seminar, University of Rochester	Nov 2011
Statistics Seminar, UIC	Sep 2011
Special colloquium, University of Illinois at Chicago	Jan 2011
Probability Seminar, Purdue University	Sep 2010
Probability Seminar, Purdue University	Sep 2009
Applied Math Seminar, Purdue University	Sep 2009
Probability Seminar, University of Illinois at Urbana-Champaign	May 2009
Probability Seminar, University of Minnesota-Twin Cities	Apr 2009
Math Finance Seminar, Rutgers University	Feb 2009
Probability Seminar, University of Kansas	Jan 2009
Analysis and Probability Seminar, Northwestern University	Nov 2008
Graduate Student Seminar, Northwestern University	Mar 2007

Conference Talks

The 40 th conference on Stochastic Processes and their Applications – Special Session on “Noisy systems in Gaussian environments”(invited), Sweden	Jun 2018
Oberwolfach Workshop on Mathematics of Quantitative Finance (invited), Germany	Feb 2017
USTC Probability Forum (invited), University of Science and Technology of China	Aug 2016
The 11th AMS Conference on Dynamical Systems, Differential Equations and Applications (invited), Orlando	Jul 2016
Seminar on Stochastic Processes 2016, University of Maryland-College Park	Mar 2016
AMS Central Fall Sectional Meeting-Special session on "Stochastic Analysis with Applications to Quantitative Finance" (invited), Loyola University in Chicago	Oct 2015
Mini-Workshop on stochastic PDEs (invited), USTC, China	Jul 2015

2015 IMS-China International Conference on Probability and Statistics-Special Session on "Topics on fractional Brownian motions motions and Gaussian fields" (invited), China, July 2015

Conference in Stochastic Analysis and Related Topics (invited), Purdue University May 2015

The Dynamical Systems, Ergodic Theory and Probability Conference dedicated to the memory of Nikolai Chernov (invited), University of Alabama at Birmingham May 2015

AMS Spring Western Sectional Meeting-Special Session on "Stochastic Analysis & Rough Path" (organizer), U. of Nevada-Las Vegas Apr 2015

AMS Spring Southeastern Sectional meeting-Special Session on "Stochastic Processes and Related Topics" (invited), U. of Alabama-Huntsville Mar 2015

Oberwolfach Workshop on Dirichlet Form Theory and its Appl. (invited), Germany Oct 2014

Cincinnati Symposium on Probability Theory and Appl. (invited), U. of Cincinnati Sep 2014

Seminar on Stochastic Processes 2014, UCSD Mar 2014

The 8th Workshop on Markov Processes and Related Topics, BNU-China (invited) Jul 2012

8th International Purdue Symposium on Statistics - Probability Session (invited) Jun 2012

8th International Purdue Symposium on Statistics - Math Finance Session (invited) Jun 2012

Seminar on Stochastic Processes 2012, University of Kansas Mar 2012

Seminar on Stochastic Processes 2011, University of California - Irvine Mar 2011

Seminar on Stochastic Processes 2010, University of Central Florida in Orlando Mar 2010

AMS 2010 Southeastern Sectional Meeting-Math Finance, U. of Kentucky (invited) Mar 2010

1st Graduate Student Conference in Probability, U. of Wisconsin-Madison Apr 2007

Undergraduate Research

In the Spring 2016, I supervised a project “Brownian motion on manifolds” in the Mathematical Computing Lab of UIC. Participated undergraduate students are Henry Besser and Brandon Carrier. Graduate mentor is Alex Cameron.

Student Advising

Past Student: Jennifer Pajda-De La O (PhD 2016)

Post-doc Mentoring

Past post-doc: Shuwen Lou (Fall 2014-Spring 2017, currently tenure-track at Loyola University)

Additional Professional Activities

- Co-organized (with I. Nenciu) the Summer School on Stochastic Analysis and Geometry, UIC, Aug 2014.
- Scientific committee of the Thirty Sixth Midwest Probability Colloquium, Oct 2014.
- Co-organized (with F. Baudoin and D. Nualart) a Special Session of AMS Conference in Las Vegas, NV on “Stochastic Analysis & Rough Paths”, Apr 2015.
- Co-organizing (with F. Baudoin and S. Tindel) a BIRS-CMO workshop on “Theoretical and Applied Stochastic Analysis” at Casa Mathematica Oaxaca, Mexico, Sep 2018.
- Co-organizing (with F. Baudoin) a Special Session of AMS Conference in Hartford, CT on “Stochastic Analysis and Related Fields”, Apr 2019.
- Refereed for:
 - Acta Mathematica Sinica
 - Ann. Inst. Henri Poincare Probab. Statist.
 - Annals of Applied Probability
 - Electronic Communications in Probability
 - Finance and Stochastics
 - Journal of Dynamical and Control Systems
 - Journal of Theoretical Probability
 - Malliavin Calculus and Stochastic Analysis, Springer Proc. Math. Stat. Springer Verlag.
 - Quantitative Finance
 - Science China-Mathematics
 - SIAM Journal on Financial Mathematics
 - Statistics & Probability Letters
 - Stochastics and Dynamics
 - Stochastic Processes and Their Applications