

# Curriculum Vitae

**Rohini Kumar**

## Contact Information

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## Personal Data

Citizenship: India

## Education

- **Ph.D. in Mathematics** July 2009  
University of Wisconsin-Madison, Madison, Wisconsin  
Advisor: Timo Seppäläinen  
Major: Probability  
Minor: Analysis
- **M.Sc. Mathematics**, Bangalore University, Bangalore, Karnataka, India 2003
- **B.Sc. Economics, Mathematics, Statistics**, Mount Carmel College, Bangalore University, Bangalore, Karnataka, India, 2001

## Postdoctoral Training

- August 2009-June 2011 : Postdoctoral scholar, Statistics and Applied Probability, University of California-Santa Barbara.

## Faculty Appointments

- August 2017 - present : Associate Professor, Mathematics Department, Wayne State University

- August 2011- August 2017 : Assistant Professor, Mathematics Department, Wayne State University

## Funding

- University Research Grant, Summer 2016 (\$10,000)
- NSF Grant DMS-1209363: “Stochastic homogenization and its applications to financial mathematics”; September 1, 2012- August 31, 2015 (\$97,119)
- University Research Grant, Summer 2012 (\$10,000)

## Peer-reviewed Publications

- R. Kumar, Lea Popovic, *Large deviations for multi-scale jump-diffusion processes*, Stochastic Processes and their Applications, Volume 127, Issue 4, April 2017, Pages 1297-1320, ISSN 0304-4149, <http://doi.org/10.1016/j.spa.2016.07.016>.
- Forde, Martin; Kumar, R., *Large-time option pricing using the Donsker-Varadhan LDP correlated stochastic volatility with stochastic interest rates and jumps*, Ann. Appl. Probab. 26 (2016), no. 6, 3699–3726. doi:10.1214/16-AAP1189. <http://projecteuclid.org/euclid.aop/1481792597>
- R. Kumar. *Effect of volatility clustering on indifference pricing of options by convex risk measures*. Applied Mathematical Finance, (2014), DOI:10.1080/1350486X.2014.949805.
- M. Forde, R. Kumar, H. Zhang. *Large deviations for the boundary local time of doubly reflected Brownian motion*. Statistics and Probability Letters (2015), Vol 96, pp. 262-268, DOI: <http://dx.doi.org/10.1016/j.spl.2014.09.004>
- J. Feng, J.-P. Fouque, R. Kumar. *Small-time asymptotics for fast mean-reverting stochastic volatility models*, Ann. Applied Probability, Vol 22, No.4, 1541-1575 (2012)
- N. Georgiou, R. Kumar and T. Seppalainen. *TASEP with discontinuous jump rates*. ALEA 7, 293 – 318 (2010).
- R. Kumar. *Current fluctuations for independent random walks in multiple dimensions*. Journal of Theoretical Probability, Springer Netherlands, Vol 24, Issue 4, pp. 11701195, (2011) <http://dx.doi.org/10.1007/s10959-010-0317-4>
- R. Kumar. *Space-Time Current Process for Independent Random walks in One Dimension*. ALEA Lat. Am. J. Probab. Math. Stat. 4, 307 – 336 (2008)

## Preprints

- R. Kumar, H. Nasrallah, Portfolio optimization near horizon, submitted

## Invited Talks

- 39th Conference on Stochastic Processes and their Applications (SPA2017), Moscow, Russia, July 24-28, 2017
- Conference celebrating Tenth Anniversary of the Center for Financial Mathematics and Actuarial Research, University of California, Santa Barbara, May19-21, 2017
- National Meeting of Women in Financial Mathematics, at the Institute for Pure and Applied Mathematics (IPAM) in UCLA, April 27-28, 2017
- 8th Western Conference on Mathematical Finance (WCMF8), University of Washington, Seattle, March 24-25, 2017
- Probability seminar, McGill University, Montreal, Canada, October 6, 2016
- In session “Limit Theorems In Stochastic Analysis” at IMS-APRM 2016, Hong Kong, June 27, 2016
- Colloquium, Math Department, University of Michigan -Dearborn, March 23, 2016
- Math finance seminar, University of Michigan-Ann Arbor, February 3, 2016
- Applied PDE online seminar, University of Washington-Seattle, November 5, 2015
- Math Finance seminar, University of Texas at Austin, October 12, 2015
- Probability Seminar, Purdue University April 9, 2015
- Conference on Stochastic Asymptotics & Applications - joint with 6th Western Conference on Mathematical Finance, September 25-27, 2014
- Colloquium, Mathematics Department, Worcester Polytechnic Institute, Worcester, MA, May 2, 2014
- Probability Seminar at University of Illinois, Urbana-Champaign, March 11, 2014
- JMM - SIAM Minisymposium on Recent Advances in Financial Mathematics, January 15, 2014

- Seminar, TIFR Centre for Applicable Mathematics, Bangalore, India, June 6, 2013
- New Directions in Probability, Indian Statistical Institute, Bangalore, India May 30-June 4, 2013
- AMS Sectional Meeting Special Session on ‘Stochastic Processes with Applications to Physics and Control’, Iowa State University, 27-28 April 2013
- AMS Eastern Sectional Meeting- Special Session on Financial Mathematics, Boston College, April 6-7, 2013
- Probability and Statistics Seminar, Mathematics Department, Wayne State University, February 16, 2011
- Colloquium, Mathematics Department, Lehigh University, February 9, 2011
- Southern California Probability Symposium, IPAM, UCLA, December 4, 2010
- Probability and Statistics Seminar, Mathematics Department, Kansas University, October 21, 2009

## Awards

- University Research Grant, Summer 2016 (\$10,000)
- NSF Grant DMS-1209363: “Stochastic homogenization and its applications to financial mathematics”; September 1, 2012- August 31, 2015 (\$97,119)
- University Research Grant, Summer 2012 (\$10,000)
- Elizabeth Hirschfelder Award for 2006-2007 (\$2000 and a certificate)
- Financial support to attend PIMS-UBC Summer School in Probability, 2008
- MSRI financial support to attend IAS/PCMI summer school on Statistical Mechanics, 2007
- CSIR (Council of Scientific and Industrial Research- India) Junior Research Fellowship
- Second Rank in B. Sc. Examination, Bangalore University, Bangalore, India, 2001
- Gold Medal in Mathematics in B.Sc., Bangalore University, Bangalore, India, 2001

## Service

**NSF Panel:** Served on NSF review panels.

### Refereeing:

#### 1. Journals:

- Annals of Probability
- SIAM Journal on Financial Mathematics
- Stochastic Processes and their Applications
- Electronic Communications in Probability
- IMA Journal of Management Mathematics
- Quantitative Finance
- Mathematical Finance
- International Journal of Theoretical and Applied Finance

2. **Books:** Reviewed book manuscript for Springer Briefs Series, Springer Books.

### Organized Conferences:

- Organizer, Minisymposium “Asymptotic techniques in financial mathematics” in 2016 SIAM conference on Financial Mathematics and Engineering, November 2016
- Co-Organizer, Second Annual Graduate Student Conference in Probability, University of Wisconsin-Madison, May 2008
- Co-Organizer, First Annual Graduate Student Conference in Probability, University of Wisconsin-Madison, April 2007

## Mentoring

### Ph.D. students:

1. Hussein Nasrallah - current

### Undergraduate Thesis:

1. Nicholas Scott Hurley-2015

## Teaching

### At WSU

- MAT 2010-Calculus I,
- MAT 2030- Vector Calculus
- MAT 5070-Elementary Analysis
- MAT 5000- Fundamental concepts of mathematics and proof writing
- MAT 5710-Introduction to stochastic processes
- MAT 2210-Probability and statistics
- MAT 5700-Introduction to probability
- MAT 5610-Introduction to Analysis II
- MAT 7700- Advance Probability theory I
- MAT 7710-Advance Probability theory II
- MAT 7770- Topics in Probability

### At UCSB

- Introduction to Probability and Statistics - An upper division undergraduate class; University of California- Santa Barbara, Spring and Fall 2010
- A series of lectures in the Graduate Probability course - “Special Topics in Financial Mathematics”:
  - An Introduction to Large Deviations ; University of California- Santa Barbara, Winter 2010
  - Convergence of viscosity solutions, applications to large deviation theory and finance ; University of California- Santa Barbara, Winter 2011

### At UW-Madison

- Geometric Inference and Reasoning; University of Wisconsin-Madison, Fall 2008 and Spring 2009