

# Yevgeniy Kovchegov

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**RESEARCH INTERESTS:** Probability theory and stochastic processes, interacting particle systems, coupling method, mixing times, occupation times, reinforced random processes, percolation, self-avoiding walks, applied probability.

## **EDUCATION:**

- *Ph.D. in mathematics* from Stanford University, California, June 2002. Advisor: A.Dembo. Ph.D theses: “Brownian Bridge, Percolation and Related Processes”.
- *M.S. in mathematics* from Stanford University, California, September 2000.
- *B.A. in mathematics, with honors* from New York University, New York, May 1997
- student of mathematics and mechanics, Moscow State University, Russia, Fall 1993

## **ACADEMIC EXPERIENCE:**

- August 2005 - Present *Assistant Professor*, Oregon State University. Was involved in research on mixing times, occupation times, stochastic coupling methods, interacting particle systems, reinforced processes and related topics in probability and stochastic processes. Taught graduate and undergraduate classes in probability and stochastic processes, complex analysis, differential equations, power series, discrete mathematics and linear algebra. Participated in IGERT ecosystem informatics program. Organized probability seminar.
- July 2002 - July 2005 *VIGRE Assistant Professor*, University of California at Los Angeles. Working on interacting particle systems, edge-reinforced processes and random walks in random environments. Teaching classes in probability theory, stochastic processes, calculus and linear algebra. Supervised an REU student.
- September 1997 - June 2002 *Ph.D Student*, Stanford University, California. Studied probability theory and stochastic processes under supervision of A.Dembo. Accomplished research in percolation, random walk and self-avoiding walks.

## RESEARCH PAPERS:

- Robert M. Burton and Yevgeniy Kovchegov, *Mixing time for the Thorp shuffle via coupling*, in preparation
- Yevgeniy Kovchegov, Nick Meredith and Eyal Nir *Occupation times via Bessel functions*, submitted
- Robert M. Burton and Yevgeniy Kovchegov, *Mixing times via super-fast coupling*, submitted
- Yevgeniy Kovchegov, *Multi-particle processes with reinforcements*, to appear in Journal of Theoretical Probability
- Yevgeniy Kovchegov, *Brownian bridge in self-avoiding walks model*, preprint
- Eyal Nir, Xavier Michalet, Kambiz Hamadani, Ted A. Laurence, Daniel Neuhauser, Yevgeniy Kovchegov, Shimon Weiss, *Shot-noise limited single-molecule FRET histogram: comparison between theory and experiments*, Journal of Physical Chemistry B, Vol.110, N.44 (2006), pp.22103-22124
- Yevgeniy Kovchegov, *Exclusion processes with multiple interactions*, Stochastic Processes and Their Applications, Vol.115 (2005), pp.1233-1256
- Yevgeniy Kovchegov, *Brownian bridge asymptotics for the subcritical Bernoulli bond percolation*, Markov Processes and Related Fields, Vol.10, N.2 (2004), pp.327-344
- Yevgeniy Kovchegov and Scott Sheffield, *Linear speed large deviations for percolation clusters*, Electronic Communications in Probability, Vol.8 (2003)
- Ph.D. Theses: *Brownian bridge, percolation and related processes*.

## TALKS AND SEMINARS:

- January 2008 *Tunneling to the future and perfect coupling*, Workshop on Random Walks, Particle Systems and Random media - Santiago, Chile
- August 2007 *Superfast Coupling and Rapid Mixing*, The 32nd Conference on Stochastic Processes and their Applications, University of Illinois at Urbana-Champaign
- May 2007 *Markov Chain Monte Carlo simulations and their mixing rates*, Mathematics Colloquium, Oregon State University
- March 2007 *Mixing times via super-fast coupling*, Stochastics Seminar, University of Utah
- March 2007 *Mixing times via super-fast coupling*, Dynamics Seminar, University of Victoria, Canada

- October 2006 *Mixing times via super-fast coupling*, Probability Seminar, University of Oregon
- October 2005 *Generalized symmetric exclusion processes*, The Seventh Northwest Probability Seminar
- April 2005 *Multi-particle edge-reinforced processes*, Colloquium, Oregon State University
- February 2005 *Multi-particle edge-reinforced processes*, Probability Seminar, University of Minnesota
- January 2005 *Multi-particle processes with reinforcements*, Probability Seminar, University of Pennsylvania
- January 2005 *Multi-particle edge-reinforced processes*, Probability Seminar, University of Rochester
- January 2005 *Edge-reinforced processes*, Probability Seminar, University of California, Berkeley
- November 2004 *Multi-particle edge-reinforced processes*, Probability Seminar, Stanford University, California
- October 2004 *Multi-particle processes with reinforcements*, Probability Seminar, University of California, Los Angeles
- April 2004 *Exclusion processes with multiple interactions*, Probability Seminar, Stanford University, California
- March 2004 *Exclusion processes with multiple interactions*, Probability Seminar, University of California, Los Angeles
- May 2003 *Brownian bridge in percolation and self-avoiding walks models*, Probability Seminar, University of California, Los Angeles
- May 2003 *Finding Brownian bridge in percolation and self-avoiding walk models*, Probability Seminar, University of California, Irvine
- April 2003 *Finding Brownian bridge in percolation and self-avoiding walk models*, Probability Seminar, University of Southern California, Los Angeles
- October 2002 *Recurrence phenomenon in Lorentz lattice gas model*, Probability Seminar, University of California, Los Angeles
- February 2002 *Brownian bridge in percolation and related processes*, Probability Seminar, University of Washington, Seattle.
- January 2002 *Brownian bridge in percolation and related processes*, Probability Seminar, University of British Columbia, Canada.

- October 2001 *Brownian bridge asymptotics in percolation*, Probability Seminar, Stanford University, California
- August 1996 *Measures on the Sierpinski gasket*, MAA National Student Conference, University of Washington.

**LANGUAGES:** Russian, Spanish.

**COMPUTER LANGUAGES:** C, Matlab, Fortran, Pascal, ASP, Visual Basic.