Jessica V. Zúñiga curriculum vitae

Department of Mathematics
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EDUCATION

- **Cornell University** PhD in Mathematics, expected May 2008
  Advisor: Laurent Saloff-Coste
- **Rice University** BA in Mathematics, 1998–2002.

RESEARCH INTERESTS

- Theoretical and applied probability
- Quantitative analysis of finite Markov chains

PUBLICATIONS

- *Convergence of some time inhomogeneous Markov chains via spectral techniques* (with L. Saloff-Coste) Stochastic Processes and their Applications 117 (2007) 961-979

- *Refined estimates for some basic random walks on the symmetric and alternating groups.* (with L. Saloff-Coste) (in preparation)

- *Algebraic Geometry Curves and Elkies Codes .* (with B. Rivera and E. Summerville) Summer Institute in Mathematics for Undergraduates 2001 Technical Reports, University of Puerto Rico - Humacao, p.51–68

AWARDS AND HONORS

- **Robert J. Battig Award.**
  Cornell Mathematics award for outstanding graduate research. (2007)
- **VIGRE Fellowship.**
  Two year fellowship for graduate study, provided by Cornell University and funded through the National Science Foundation. (2003–2005)
- **Cornell Sage Fellowship.**
  One year fellowship for graduate study in the Department of Mathematics. (2002–2003)
- **Mellon Mays Undergraduate Fellowship.**
  Two year fellowship for undergraduate research in major field. (2000–2002)

TALKS

- **Probability Seminar, Cornell University**
  Convergence of some time inhomogeneous Markov chains via spectral techniques,
  Fall 2007
- **Probability Seminar, Purdue University**
  Convergence of some time inhomogeneous Markov chains via spectral techniques,
  Spring 2007
- **Probability Seminar, University of Rochester**
  Convergence of some time inhomogeneous Markov chains via spectral techniques,
  Spring 2007

- **Olivetti Club, Cornell University**
  Analysis of a shuffle, Fall 2006
- **Ithaca College**
  Finite projective planes and balanced incomplete block designs, Fall 2005
- **Olivetti Club, Cornell University.**
  Finite projective planes and balanced incomplete block designs, Fall 2001
- **Student Probability Seminar, Cornell University.**
  Five talks in an weekly informal student run seminar from 2003 to 2005.

Seminars and Conferences

- Geometric Group Theory: Random Walks on Groups at C.I.R.M. (Marseilles, France), February 2007
- Fifth Northeast Probability Seminar, November 2006
- Fourth Northeast Probability Seminar, November 2005
- First Cornell Summer School in Probability, July 2005
- Second Conference on Analysis and Probability on Fractals, May 2005
- Markov Chains in Algorithms and Statistical Physics at the Mathematical Science Research Institute, January 2005
- Tenth Seminar on Analysis of Algorithms at the Mathematical Science Research Institute, June 2004

Teaching Experience

- **Cornell University**
  - **Instructor:** MATH 105 - Finite Mathematics, Fall 2007
    Instructor for introductory Mathematics course, held classes three times a week, and assisted in creating exams and worksheets.

  - **Teaching Assistant:** MATH 671- Probability Theory I, Fall 2006
    Held weekly office hours for graduate probability class and graded student work.

  - **Teaching Assistant** MATH 192 - Multivariable Calculus for Engineers, Spring 2005
    Taught biweekly recitation sections, proctored exams, and graded student work.

  - **Research Assistant:** Analysis on Fractals REU, Summer 2005
    Assisted students in research projects and computer programing.

  - **Teaching Assistant:** MATH 311 - Introduction to Analysis, Fall 2004
    Held weekly office hours and graded student work.

- **Math Explorer's Club, Ithaca High School**
  - Organize weekly workshops for advanced Ithaca High School students to introduce them to more advance topics in mathematics, Fall 2005

- **Rice University**
  - Grader for undergraduate courses in the Math department (calculus II,III) 1998–2001

Professional Memberships

- American Mathematical Society
- Association for Women in Mathematics
- Institute of Mathematical Sciences

REFERENCES

- Laurent Saloff-Coste   `lsc@math.cornell.edu`
- Richard Durrett   `rtd1@cornell.edu`
- Rodrigo Banuelos   `banuelos@math.purdue.edu`
- Maria Terrell   `maria@math.cornell.edu`