

## **Vita**

February 8, 2009

Eric S. Key	home:
Professor of Mathematics	4254 North Woodburn Street
University of Wisconsin-Milwaukee	Shorewood, Wisconsin 53211
Milwaukee, Wisconsin 53201	414-963-1932
414-229-4600	
ericskey@uwm.edu	

## **Degrees**

BA magna cum laude in mathematics and with distinction in all subjects 1977, MA 1980, PhD 1983, Cornell University.

## **Employment**

University of Wisconsin-Milwaukee. Assistant Professor of Mathematics, 1983-1989. Associate Professor of Mathematics, 1989-2005. Professor of Mathematics, 2005- . Medical College of Wisconsin, Associate Adjunct Professor in Biostatistics, 1995- . Current Positions: University of Wisconsin-Milwaukee, Professor of Mathematics. Medical College of Wisconsin, Associate Adjunct Professor in Biostatistics.

## **Memberships**

- The Institute of Mathematical Statistics
- The Mathematical Association of America
- American Mathematical Society

## **Personal Information**

Born 22 December, 1954, Hackensack, New Jersey

## **Teaching Experience**

- College Algebra
- Analytic Geometry
- Trigonometry
- Calculus/Precalculus
- Calculus with Physics
- Calculus
- Advanced Calculus
- Real Analysis
- Measure Theory
- Linear Algebra and Differential Equations
- Introductory Abstract Algebra

- Advanced Linear Algebra
- Probability Theory (undergraduate, calculus prerequisite)
- Probability Theory (graduate, measure theory)
- Stochastic Processes (undergraduate, calculus prerequisite)
- Stochastic Processes (graduate, advanced calculus prerequisite)
- Statistics (undergraduate, calculus prerequisite)
- Vector Analysis

### PhD Theses Directed

- A. Abeyratne. May, 1991. Limiting Distributions for Multitype Branching Processes with Immigration in a Random Environment.
- S. Karmakar. August 1992. Compositions of Random Mobius Transformations and Their Applications.
- G. Vachadze. May 2003. Finite Mixture Models and Their Applications in Finance.

### Publications

1. Recurrence and Transience Criteria and a Limit Law for Generalized Random Walk in a Random Environment. PhD thesis, Cornell University, 1983.
2. Recurrence and transience criteria for random walk in a random environment. *The Annals of Probability* Volume 12, Number 2: 529-560, 1984.
3. Using random matrices to give recurrence and transience criteria for random walk in a random environment. In Richard Durrett, editor, *Particle Systems, Random Media and Large Deviations*, pages 253-258. *Contemporary Mathematics* Volume 41, American Mathematical Society, 1985. Revised and reprinted in Joel E. Cohen, Harry Kesten and Charles Newman, Editors, *Random Matrices and Their Applications*, pages 255-261. *Contemporary Mathematics* Volume 50, American Mathematical Society, 1986.
4. Limiting distributions and regeneration times for multitype branching processes with immigration in a random environment. *The Annals of Probability* Volume 15, Number 1: 344-353, 1987.
5. Computable examples of the maximal Lyapunov exponent. *Probability Theory and Related Fields* 75: 97-107, 1987.
6. Lyapunov exponents for matrices with invariant subspaces. *The Annals of Probability* Volume 16, Number 4: 1721-1728, 1988.
7. A probabilistic approach to a conjecture of Ramanujan. *The Journal of the Ramanujan Mathematical Society*, Volume 4, Number 2: 109 - 119, 1989.
8. Lower bounds for the maximal Lyapunov exponent. *Journal of Theoretical Probability*, Volume 3, Number 3: 477 - 488, 1990.
9. Rare numbers. *Journal of Theoretical Probability*, Volume 5, Number 2: 375 - 389, 1992.
10. Disks, shells and integrating Inverses. *The College Mathematics Journal*, Volume 25, Number 2: 136 - 138, 1994.

11. On entire characteristic functions of order 2. *Sankhya*, Series A, Volume 56, Part 3: 431 - 437, 1994.
12. Divergence rates for the number of rare numbers. *Journal of Theoretical Probability*, Volume 9, Number 2: 413 - 428, 1996.
13. Symmetric measure-preserving systems. *Real Analysis Exchange*, Volume 24, Number 1: 411 - 422, 1998-1999.
14. Some characterizations of the normal distribution. With N. Bansal, J. Behboodan, G. G. Hamedani, H. Volkmer and H. Zhang. *Statistics and Probability Letters* 42: 393 - 400, 1999
15. Perturbation of orthonormal bases in  $L^2$ -Spaces. With X. He and H. Volkmer. *Integral Equations and Operator Theory* Volume 41, Number 4: 396 - 409 (2001)
16. Eigenvalue multiplicities of products of companion matrices. With H. Volkmer. *Electronic Journal of Linear Algebra*, Volume 11, pp 103 - 114. 2004.
17. Compositions of random mobius transformations. With S. Karmakar. *Stochastic Analysis and Applications*, Vol. 22, No. 3 pp 525 - 557. 2004
18. Solution to a functional equation and its application to stable and stable-type distributions. With G. G. Hamedani and H. Volkmer. *Statistics and Probability Letters* 69, pp 1 - 9. 2004
19. A characterization of discrete uniform distributions based on orderings. *Journal of Statistical Theory and Applications* 3, No. 1, pp 1 - 4, 2004.
20. A Painless Approach to Least Squares. *The College Mathematics Journal* 36, No. 1, pp 65 - 67, 2005.
21. On the Number of Records in an IID Discrete Sequence. *Journal of Theoretical Probability* 18, No. 1, pp 99 - 108, 2005.
22. On Parrondo's paradox: How to construct unfair games by composing fair games. With D. Abbott and M. M. Klosek. *ANZIAM Journal* 47, pp 495-511, 2006.
23. Differentiating arctangent directly. *College Mathematics Journal*, 2009. To appear.