

David Renfrew

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Education

- **PhD in Applied Mathematics** (June 2012)
 - University of California at Davis
 - **Advisor:** Alexander Soshnikov
- **MS in Electrical Engineering**
 - California Polytechnic State University at San Luis Obispo
- **BS in Math and Electrical Engineering**
 - California Polytechnic State University at San Luis Obispo

Research Interests

- Random Matrix Theory, Probability, Mathematical Physics, and Free Probability

Academic Experience

- UCLA- RTG Assistant Adjunct Professor (2012-present)
 - Research postdoc in probability
 - Teach undergraduate math courses

Research Papers

- *Eigenvalues of block structured asymmetric random matrices*,
joint work with Johnatan Aljadeff and Merav Stern
Journal of Mathematical Physics, v. 56, Issue 10, (2015)
- *Central limit theorem for linear eigenvalue statistics of elliptic random matrices*,
joint work with Sean O'Rourke
accepted to **Journal of Theoretical Probability**, available at arXiv:1410.4586 math.PR
- *Products of independent elliptic random matrices*,
joint work with Sean O'Rourke, Alexander Soshnikov, and Van Vu
Journal of Statistical Physics, v. 160, Issue 1, 89-119, (2015)
- *Low rank perturbations of large elliptic random matrices*,
joint work with Sean O'Rourke
Electronic Journal of Probability, v. 19, no. 43, 1-65, (2014)
- *On Finite Rank Deformations of Wigner Matrices II: Delocalized Perturbations*,
joint work with Alexander Soshnikov
Random Matrices: Theory and Applications, v. 02, Issue 01, (2013)
- *Fluctuations of Matrix Entries of Regular Functions of Sample Covariance Matrices*,
joint work with Sean O'Rourke and Alexander Soshnikov
Teor. Veroyatnost. i Primenen., v. 58, Issue 4, 752-780, (2013)
- *On Fluctuations of Matrix Entries of Regular Functions of Wigner Matrices with Non-Identically Distributed Entries*,
joint work with Sean O'Rourke and Alexander Soshnikov
Journal of Theoretical Probability v. 26, No. 3, 750-780, (2013)
- *On Finite Rank Deformations of Wigner Matrices*,
joint work with Alessandro Pizzo and Alexander Soshnikov
Annales de l'Institut Henri Poincaré (B), v. 49, No. 1, 64-94, (2013)

- *Fluctuations of Matrix Entries of Regular Functions of Wigner Matrices*, joint work with Alessandro Pizzo and Alexander Soshnikov
Journal of Statistical Physics, v. 146, Issue 3, 550-591, (2012)
- *Spectral Properties of Large Random Matrices with Independent Entries* joint work with Pierre Dueck, Sean O'Rourke, and Alexander Soshnikov
Noncommutative Harmonic Analysis with Applications to Probability III, Banach Center Publications. vol. 96, 115-134, (2012)
- *Numerical ranges of cube roots of the identity*, joint work with Thomas Ryan Harris, Michael Mazzella, Linda J. Patton, Ilya M. Spitovsky
Linear Algebra Appl., 435, (2011), pp. 2639-2657

Awards and Scholarships

- Deans Graduate Student Prize Division of MPS, UC Davis (2012)
 - Award for most outstanding graduate in the Division of Mathematical and Physical Sciences (including Chemistry, Geology, Mathematics, Physics, and Statistics departments).
- GAANN Fellowship (2008-2009)
- VIGRE Fellowship (2010, 2011)
- Alice Leung Scholarship in Mathematics, UC Davis (2011)
 - Award for exceptional promise all aspects of Mathematics, including research, scholarship and teaching.
- Yueh-Jing Lin Scholarship in Mathematics, UC Davis (2010)
 - Award for high achieving students in mathematics.
- Charles J. Hanks Excellence in Mathematics Award, Cal Poly (2008)
 - Award award goes to a math student who demonstrates excellence and outstanding ability.

Teaching experience at UCLA

- **Reading Seminar Instructor**, Spectral Theory of Random Graphs, (Fall 2014)
 - Organized graduate students and post docs in reading seminar on current literature in Probability.
- **Instructor**, Calculus, Linear Algebra, Probability, Fourier Analysis (2012-present)
 - Duties included writing lecture notes, teaching, assigning homework, writing exams and assigning final grades.

Teaching experience at UC Davis

- **Instructor**, Multivariable Calculus, (Summer 2010)
 - Duties included writing lecture notes, teaching, assigning homework, writing exams and assigning final grades.
- **Teaching Assistant**, Graduate Analysis (Winter 2010)
 - Duties including running discussion sections, lecturing on new material and grading homework.
- **Director**, Math Modeling Experience (Fall 2010)
 - Director for undergraduate and high school quarter long class on topics in math modeling in preparation for national competition.
 - Duties including directing other instructors, writing interactive lectures and problem sets, teaching, organizing competition and open house.
- **Instructor**, Math Modeling Experience (Fall 2009)
 - Instructor for undergraduate and high school quarter long class on topics in math modeling in preparation for national competition.

Teaching experience at Cal Poly

- **Instructor**, Precalculus, (Winter, Spring 2008)
 - Duties included writing lecture notes, teaching, assigning homework, writing exams and assigning final grades.
- **Workshop Leader**, Undergraduate Analysis (Fall 2007)
 - Duties included writing practice problems and exams and facilitating group discussion.
- **Workshop Leader**, Calculus (2006-2007)
 - Duties included writing practice problems and exams and facilitating group discussion.

Conferences Attended

- Free Probability Concentration Week, Texas A&M, 2014- *Presented research talk*
- Free probability and the large N limit IV, Berkeley, 2014- *Presented research talk*
- Advanced School and Workshop on Random Matrices and Growth Models, ICTP, Trieste, 2013- *Presented research talk*
- Randomness in Physics and Mathematics- From Quantum Chaos to Free Probability, Bielefeld, 2013- *Presented research talk*
- Random matrices and their applications, Paris, 2012
- Cornell Probability Summer School, Cornell, 2012- *Presented research talk*
- Free probability and the large N limit III, Berkeley, 2012- *Presented research talk*
- Pan-American Advanced Studies Institute (Topics in percolative and disordered systems), Chile and Argentina, 2012
- GranMa Random Matrices, Institut Henri Poincaré, Paris, 2011
- School on Mathematical Statistical Physics, Prague, 2011- *Presented research talk*
- The Versatility of Integrability, Columbia, 2011
- Graduate Student Probability Conference, Georgia Tech, 2011 - *Presented research talk*
- Workshop in Universality in Random Matrices, AIM, 2010
- Random Matrix Theory and Its Applications II, MSRI, 2010
- Random Matrix Theory and Its Applications I, MSRI, 2010
- Summer school in Random Matrix Theory, MSRI, 2009

Academic Service

- Journal Referee- various probability and math physics journals
- Math Graduate Group president 2011-2012
- Math Graduate Group vice president 2010-2011

Last updated: October 16, 2015