

Rajinder Mavi

Department of Mathematics
Michigan State University
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Experience

- **Michigan State University** East Lansing, MI
Visiting Assistant Professor 2015 - present
- **University of Virginia** Charlottesville, VA
Whyburn Instructor 2012 - 2015

Education

- **University of California, Irvine** Irvine, CA
Ph.D. in Mathematics June 2012
– Advisor: Svetlana Jitomirskaya
- **Rensselaer Polytechnic Institute** Troy, NY
M.S. Applied Mathematics June 2006
- **University of California, Santa Barbara** Goleta, CA
B.S. in Mathematics June 2003

Scholarship

Preprints

- [10] Rajinder Mavi and Jeffrey Schenker. Localization in the disordered Holstein model. *arXiv preprint, arXiv:1709.06621*, 2017. (submitted).
- [9] Rajinder Mavi and Jeffrey Schenker. Resonant tunneling in a system with correlated pure point spectrum. *arXiv preprint, arXiv:1705.03039*, 2017. (submitted).
- [8] Rajinder Mavi. Localization for the Ising model in a transverse field with generic aperiodic disorder. *arXiv preprint, arXiv:1605.06514*, 2016. (submitted).

Publications

- [7] Rajinder Mavi and Mei Yin. Ground states for exponential random graphs. *Journal of Mathematical Physics*, 59(1):013303, 2018.
- [6] Ira Herbst and Rajinder Mavi. Can we trust the relationship between resonance poles and lifetimes? *Journal of Physics A: Mathematical and Theoretical*, 49(19):195204, 2016.
- [5] Svetlana Jitomirskaya and Rajinder Mavi. Dynamical bounds for quasiperiodic schrödinger operators with rough potentials. *International Mathematics Research Notices*, 2017(1):96–120, 2017.
- [4] John Z Imbrie and Rajinder Mavi. Level spacing for non-monotone Anderson models. *Journal of Statistical Physics*, 162(6):1451–1484, 2016.
- [3] Svetlana Jitomirskaya and Rajinder Mavi. Continuity of the measure of the spectrum for quasiperiodic Schrödinger operators with rough potentials. *Communications in mathematical physics*, 325(2):585–601, 2014.

- [2] Rajinder Mavi. Measure of the spectrum of the almost Mathieu operator. In Artur Avila, David Damanik, and Svetlana Jitomirskaya, editors, *Arbeitsgemeinschaft: Quasiperiodic Schrödinger Operators*, pages 1074–1076. Mathematisches Forschungsinstitut Oberwolfach, 2012.
- [1] Chjan C Lim and Rajinder Singh Mavi. Phase transitions of barotropic flow coupled to a massive rotating spherederivation of a fixed point equation by the Bragg method. *Physica A: Statistical Mechanics and its Applications*, 380:43–60, 2007.

Teaching Experience

- Instructor** MSU

 - *Undergraduate Classes* 2015 - Present
 - Introduction to Financial Mathematics, Calculus.
 - Use of Active Learning, Technology in the classroom.
- Instructor** UVa

 - *Undergraduate Classes* 2012 - 2015
 - Complex Analysis; Probability; Stochastic processes; Mathematics of Financial Derivatives.
- Mathematical Physics Seminar** UVa

 - *Graduate Student Seminars, 3-4 seminars per topic* 2012 - 2015
 - Ground States of Quantum Spin Models; Anderson Localization; Quantum Dynamics and Spectral Theory; Lieb-Robinson Bounds.
- Teaching Assistant** UC, Irvine

 - *Undergraduate Classes* 2006 - 2012
 - Calculus; Multi-variable Calculus; Linear Algebra; Differential Equations; Graph Theory; Differential Geometry; Group Theory; Galois Theory; Probability and Statistics.
- UCI Learning Seminar** UC, Irvine

 - *Graduate Student Seminars, 3-4 seminars per topic* 2010 - 2012
 - Kotani Theory; Periodic Schrödinger Equations; Quasiperiodic Operators.
- Teaching Assistant** Rensselaer

 - *Undergraduate Classes* 2004 - 2006
 - Calculus; Differential Equations.
 - Technology in the classroom.

Conferences and Seminars

- Invited Talks
 - *Spectral Theory*, Portland State University, April 2018
 - *Western States Mathematical Physics Meeting*, UC Irvine, February 2018
 - *Colloquium*, Albion College, February 2018
 - *Analysis on Graphs and Spectral Graph Theory*, Denver University, October 2016
 - *Almost-Periodic and Other Ergodic Problems*, Newton Institute, Cambridge, April 2015
 - *Spectral Theory, Disorder and Quantum Many Body Physics*, MSU, East Lansing, March 2015

- *Workshop on Dynamical Methods in Spectral Theory of Quasicrystals*, UC Irvine, May 2013
 - *Recent advances in classical, quantum, and statistical mechanics*, UVa, March 2013
 - *AIMS Conference on Dynamical Systems*, Orlando, July 2012
 - *Analysis seminar*, Hebrew University of Jerusalem, June 2012
 - *Math physics seminar*, Technion, Haifa, June 2012
 - *Western States Mathematical Physics Meeting*, Caltech, Pasadena, February 2011.
- Contributed talks
 - *117th Statistical Mechanics Conference*, Piscataway, May 2017
 - *ORAM*, Cincinnati, March 2017
 - *TexAMP*, Houston, October 2016
 - *ORAM*, Lexington, March 2015
 - *ICMP - YRS*, Santiago, July 2015
 - *The dynamical systems, ergodic theory, and probability conference dedicated to the memory of Nikolai Chernov*, Birmingham, May 2015
 - *TexAMP*, Austin, November 2014
 - *AMS/MAA Joint Meeting*, Baltimore, January 2014
 - *Arizona School of Analysis and Mathematical Physics*, Tucson, March 2012
- Attended
 - *Spectral Theory of Quasi-Periodic and Random Operators*, Montreal, November 2018
 - *Mathematical Aspects of Disordered Systems*, Zurich, May 2017
 - *Frontiers in Mathematical Physics*, Montreal, August 2016
 - *Conference on Methods of Modern Mathematical Physics*, Toronto, August 2016
 - *Analysis and Beyond*, Princeton, May 2016
 - *Mathematical Physics Days in Hagen 2016*, Hagen, May 2016
 - *37th Midwest Probability Colloquium*, Evanston, October 2015
 - *ICMP*, Santiago, July 2015
 - *Ergodic Theory Workshops*, Chapel Hill, April 2014
 - *2011 Seminar on Stochastic Processes*, Irvine, 2011.
 - *Western States Meeting*, California Institute of Technology, 2010.
 - *Southern California Analysis and PDE Conference*, 2009, 2011.
- Short Schools/Courses
 - *MAA Minicourse, Directing Undergraduate Research*, Atlanta, 2017.
 - *10th Cornell Probability Summer School*, Ithaca, 2014.
 - *NSF/CBMS Conference, Quantum Spin Systems*, Birmingham, 2014.
 - *Arbeitsgemeinschaft: Quasiperiodic Schrödinger operators*, Oberwolfach, 2012.
 - *Arizona School of Analysis with Applications*, Tucson, 2010.
 - *Number Theory and Random Matrix Theory*, Rochester, 2006.
 - *Graduate Student Mathematical Modeling Camp*, Rensselaer, 2005.

Service & Synergy

- SURIEM: Leading undergraduate research, Summer 2018
- Organizer: JMM 2018 AMS special session *Spectral Theory, Disorder, and Quantum Physics*, San Diego.
- Organizer: MSU Graduate Student Reading Seminar, *Ergodic Schrödinger Operators*.
- Graduate Student Evaluator for UURAF.
- JMM 2017 Undergraduate Student Poster Session Judge.
- MathSciNet Reviewer.
- Professional Organizations: AMS, IAMP, MAA.
- Organizer / Instructor, UVa Putnam exam preparation seminar, 2012, 2013 and 2014.
- Organizer, *UCI Math Circle*, 2011-2012.
- Organizational Committee, *Southern California Analysis and PDE Conference*, 2009, 2011.
- Organizer, *Mathematical physics summer study group*, 2010.
- UAW, 2865 local, Steward.

Primary References

Ira Herbst (<i>Mentor</i>) University of Virginia	iwh@virginia.edu (434) 924-4933
Svetlana Jitomiskaya (<i>Thesis Advisor</i>) University of California, Irvine	szhitomi@math.uci.edu (949) 824-3221
Andrew Krause (<i>Teaching Reference</i>) Michigan State University	krausea3@math.msu.edu (517) 884-7436
Jeffrey Schenker (<i>Mentor</i>) Michigan State University	jeffrey@math.msu.edu (517) 353-4650

Further References

Alexander Elgart (<i>Senior Colleague</i>) Virginia Tech	aelgart@vt.edu (540) 231-6593
Richard Froese (<i>Senior Colleague</i>) University of British Columbia	rfroese@math.ubc.ca (604) 822-3042
Peter Hislop (<i>Senior Colleague</i>) University of Kentucky	peter.hislop@uky.edu (859) 257-5637
John Imbrie (<i>Mentor</i>) University of Virginia	imbrie@virginia.edu (434) 924-4910

Awards, Grants & Honours

NSA - SURIEM: REU funding grant (Senior Personnel)	July, 2018
CRM - Mathematical Challenges in Many-Body Physics, travel grant	November, 2018
NSF - Frontiers in Mathematical Physics travel grant	July, 2016
International Congress of Mathematical Physics, travel grant	July, 2015 + 2018
Newton Institute, travel grant	April, 2014
NSF - Oberwolfach, travel grant	April, 2012
Math Circle Organizer Fellowship	Winter, Spring, 2012
Dissertation Fellowship	Fall, 2011
GAANN Fellowship	2007 - 2008, 2008-2009
Raymond L. Wilder Award, University of California, Santa Barbara	2003

Further Background

- SOA exams passed: P and FM
- Computer Knowledge
 - Experience with computing and visualization software in teaching mathematical courses.
 - “Mathematica”, “Maple”, “Matlab”, “Python”, “Java”, “Latex”.
 - Creator and webmaster of <http://math.uci.edu/~mathphysics/> while at UCI
- Languages
 - Reading comprehension of German and Spanish
- United States Citizen