

Biographical Sketch

David Damanik

Rice University
Department of Mathematics MS-136
Houston, TX 77251
USA

Academic Degrees

- Ph. D., Mathematics, Johann Wolfgang Goethe-Universität, Frankfurt, Germany, July 22, 1998
- Diplom, Computer Science, Johann Wolfgang Goethe-Universität, Frankfurt, Germany, December 16, 1996
- Diplom, Mathematics, Johann Wolfgang Goethe-Universität, Frankfurt, Germany, February 24, 1995

Education

- Graduate studies (Mathematics) at the Johann Wolfgang Goethe-Universität, Frankfurt, Germany, 1995–1998
Thesis advisor: Prof. Dr. J. Weidmann
Thesis title: Singular continuous spectrum for substitution Hamiltonians
- Undergraduate studies (Computer Science) at the Johann Wolfgang Goethe-Universität, Frankfurt, Germany, 1992–1996
Thesis advisor: Prof. Dr. D. Wotschke
Thesis title: Finite automata with restricted two-way motion
- Undergraduate studies (Mathematics) at the Johann Wolfgang Goethe-Universität, Frankfurt, Germany, 1990–1995
Thesis advisor: Prof. Dr. J. Weidmann
Thesis title: On the spectrum of the almost Mathieu operator

Professional Experience

- Robert L. Moody, Sr. Chair in Mathematics, Rice University, Houston, TX, 2015 — present
- Department Chair, Rice University, Houston, TX, 2014 — 2017
- Wiess Career Development Chair, Rice University, Houston, TX, 2011 — 2016
- Professor of Mathematics, Rice University, Houston, TX, 2009 — present
- Associate Professor of Mathematics, Rice University, Houston, TX, 2006 — 2009

- Sherman Fairchild Senior Research Fellow, California Institute of Technology, Pasadena, CA, 2003 — 2006
- Sherman Fairchild Postdoctoral Scholar, California Institute of Technology, Pasadena, CA, 2001 — 2003
- Visiting Assistant Professor, University of California, Irvine, CA, 2000 — 2001
- Visiting Associate, California Institute of Technology, Pasadena, CA, 1999 — 2000
- Research Assistant, Johann Wolfgang Goethe-Universität, Frankfurt, Germany, 1995 — 2000

Awards, Honors, and Prizes

- NSF grant # DMS-2054752, July 2021 — June 2024, \$294,000.00
- Simons Fellowship, Award # 669836, January 2021 — December 2021
- NSF grant # DMS-1907439, August 2019 — July 2020, \$15,000.00
- Humboldt Prize 2018
- NSF grant # DMS-1745670 (Co-PI; PI: S. Harvey), June 2018 — July 2023, \$1,049,586.00
- NSF grant # DMS-1700131, September 2017 — August 2022, \$200,999.00
- NSF grant # DMS-1309391, November 2016 — October 2017, \$24,550.00
- Annales Henri Poincaré Prize 2014
- NSF grant # DMS-1361625, September 2014 — February 2018, \$318,000.00
- NSF grant # DMS-1309391, June 2013 — May 2014, \$20,565.00
- NSF grant # DMS-1148609, August 2012 — July 2018, \$1,627,723.00
- Simons Fellowship, Award # 229536, July 2012 — June 2013
- Fellow of the American Mathematical Society (Member of Inaugural Class)
- NSF grant # DMS-1067988, July 2011 — June 2015, \$303,000.00
- NSF grant # DMS-0800100, September 2008 — August 2012, \$305,932.00
- NSF grant # DMS-0653720, September 2006 — August 2009, \$82,912.00
- NSF grant # DMS-0500910, September 2005 — January 2007, \$82,912.00
- NSF grant # DMS-0227289, September 2001 — July 2004, \$20,914.00
- NSF grant # DMS-0010101 (Co-PI; PI: S. Jitomirskaya), August 2001— October 2001, \$40,899.00
- Science dissertation award, Johann Wolfgang Goethe-Universität, Frankfurt, Germany (July 1999)
- Postdoctoral fellowship, German Academic Exchange Service, January 1999 — September 2000
- Graduate student fellowship, German Academic Exchange Service, January 1997 — June 1997

Selected Publications

- The isospectral torus of quasi-periodic Schrödinger operators via periodic approximations (with Michael Goldstein and Milivoje Lukic), *Invent. Math.* **207** (2017), 895–980
- The Fibonacci Hamiltonian (with Anton Gorodetski and William Yessen), *Invent. Math.* **206** (2016), 629–692
- On the existence and uniqueness of global solutions for the KdV equation with quasi-periodic initial data (with Michael Goldstein), *J. Amer. Math. Soc.* **29** (2016), 825–856
- On the inverse spectral problem for the quasi-periodic Schrödinger equation (with Michael Goldstein), *Publ. Math. Inst. Hautes Études Sci.* **119** (2014), 217–401
- Opening gaps in the spectrum of strictly ergodic Schrödinger operators (with Artur Avila and Jairo Bochi), *J. Eur. Math. Soc.* **14** (2012), 61–106
- Perturbations of orthogonal polynomials with periodic recursion coefficients (with Rowan Killip and Barry Simon), *Ann. of Math.* **171** (2010), 1931–2010
- Absolute continuity of the integrated density of states for the almost Mathieu operator with non-critical coupling (with Artur Avila), *Invent. Math.* **172** (2008), 439–453
- Upper bounds in quantum dynamics (with Serguei Tcheremchantsev), *J. Amer. Math. Soc.* **20** (2007), 799–827
- Jost functions and Jost solutions for Jacobi matrices, I. A necessary and sufficient condition for Szegő asymptotics (with Barry Simon), *Invent. Math.* **165** (2006), 1–50
- Half-line Schrödinger operators with no bound states (with Rowan Killip), *Acta Math.* **193** (2004), 31–72

Selected Invited Addresses

- Plenary lecture, 2018 Joint Meeting of KMS and DMV, COEX, Seoul, Korea (Oct. 2018)
- Plenary lecture, Equadiff 2011, Loughborough University, Loughborough, UK (Aug. 2011)
- Invited 50-minute address, Spring AMS Central Section Meeting, University of Iowa, Iowa City, USA (Mar. 2011)
- Plenary lecture, OTAMP 2008, Bedlewo, Poland (June 2008)
- Invited address, International Congress on Mathematical Physics, IMPA, Rio de Janeiro, Brazil (Aug. 2006)

Selected Workshops and Meetings Organized

- Workshop on Almost-Periodic Spectral Problems (with Svetlana Jitomirskaya and Leonid Parnowski), Banff International Research Station, Banff, Canada (April 17–22, 2022)
- Special Session on Dynamical Systems (with Carlangelo Liverani), International Congress on Mathematical Physics, Geneva, Switzerland (August 2–7, 2021)

- Workshop on Geometry, Dynamics and Spectrum of Operators on Discrete Spaces (with Matthias Keller, Tatiana Nagnibeda, Felix Pogorzelski), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (January 3–9, 2021)
- Workshop on Random Matrix Products and Anderson Localization (with Anton Gorodetski), Banff International Research Station, Banff, Canada (September 15–20, 2019)
- Workshop on Spectral Theory of Quasi-Periodic and Random Operators (with Jonathan Breuer, Milivoje Lukic and Simone Warzel), CRM, Montreal, Canada (November 12–16, 2018)
- Mini-Workshop on Reflectionless Operators: The Deift and Simon Conjectures (with Fritz Gesztesy, Peter Yuditskii), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (October 22–28, 2017)
- Workshop on Spectral Structures and Topological Methods in Mathematical Quasicrystals (with Michael Baake, Johannes Kellendonk, Daniel Lenz), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (October 1–7, 2017)
- Half-Workshop on Spectral Properties of Quasicrystals via Analysis, Dynamics, and Geometric Measure Theory (with Anton Gorodetski), Banff International Research Station, Oaxaca, Mexico (September 27–October 2, 2015)
- Program on Periodic and Ergodic Spectral Problems (with Svetlana Jitomirskaya, Frédéric Klopp, Leonid Parnowski, Alexander Sobolev), Isaac Newton Institute for Mathematical Sciences, Cambridge, UK (January 5–June 26, 2015)
- Mini-Workshop on Dynamical versus Diffraction Spectra in the Theory of Quasicrystals (with Michael Baake, Uwe Grimm), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (November 30–December 6, 2014)
- Mini-Workshop on Direct and Inverse Spectral Theory of Almost Periodic Operators (with Michael Goldstein), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (July 21–27, 2013)
- Arbeitsgemeinschaft: Quasiperiodic Schrödinger Operators (with Artur Avila and Svetlana Jitomirskaya), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (April 1–7, 2012)
- Workshop on Almost Periodic Order: Spectral, Dynamical, and Stochastic Approaches (with Daniel Lenz, Michael Baake), Banff International Research Station, Banff, Canada (September 25–30, 2011)
- Mini-Workshop on Dynamics of Trace Maps and Applications to Spectral Theory (with Anton Gorodetski), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (January 16–22, 2011)
- Mini-Workshop on the Pisot Conjecture – From Substitution Dynamical Systems to Rauzy Fractals and Meyer Sets (with Valérie Berthé, Daniel Lenz), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (March 1–7, 2009)

- Mini-Workshop on the Dynamics of Cocycles and One-Dimensional Spectral Theory (with Russell Johnson, Daniel Lenz), Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany (November 13–19, 2005)
- Workshop on Aperiodic Order: Dynamical Systems, Combinatorics, and Operators (with Michael Baake, Ian Putnam, Boris Solomyak), Banff International Research Station, Banff, Canada (May 29–June 03, 2004)

Graduate Students Supervised

- Íris Emilsdottir (current)
- Long Li (current)
- Chunyi Wang (current)
- Philipp Gohlke (Ph. D. 2021)
- Shuzheng Guo (Ph. D. 2021)
- Licheng Fang (Ph. D. 2020)
- Hyunkyu Jun (Ph. D. 2020)
- Fengpeng Wang (Ph. D. 2019)
- Valmir Bucaj (Ph. D. 2018)
- Vitalii Gerbuz (Ph. D. 2018)
- Thomas VandenBoom (Ph. D. 2018)
- Jacob Fillman (Ph. D. 2015)
- Paul Munger (Ph. D. 2014)
- Darren Ong (Ph. D. 2014)
- Zheng Gan (Ph. D. 2012)
- Janine Dahl (Ph. D. 2011)
- Helge Krüger (Ph. D. 2010)
- Landon Jennings (Ph. D. 2008)

Editorial Boards

- Journal of Spectral Theory, 2019–present
- Annales Henri Poincaré, 2021–present