Curriculum Vitae

Rowan Killip
UCLA Mathematics Department
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Education and Employment

2007–8 Member, Institute for Advanced Study, Princeton NJ.

2006– Associate Professor, Department of Mathematics, UCLA, Los Angeles, CA.

2003–6 Assistant Professor, Department of Mathematics, UCLA, Los Angeles, CA.

2002–3 Olga Taussky–John Todd Instructor, California Institute of Technology, Pasadena, CA.

2002 Visitor, Institut Mittag-Leffler, Stockholm, Sweden. (Aug–Sept)

2001 Member, Institute for Advanced Study, Princeton NJ. (Jan–Dec)

2000–2 Hans Rademacher Instructor, University of Pennsylvania, Philadelphia, PA. (Sept–Dec 2000, Jan–Aug 2002)

2000 Visitor, Ecole Polytechnique, Palaiseau, France. (Jan–May)

1996–2000 Ph.D., California Institute of Technology, Pasadena, CA.
Thesis: *Perturbations of one-dimensional Schrödinger operators preserving the absolutely continuous spectrum.* Defended: August 8, 2000. Degree conferred: June 2001.
Advisor: B Simon.

1995–6 M.Sc. with distinction, University of Auckland, Auckland, New Zealand.
Theses: *Sub-ground state phenomena in narrow channels.*
Advisor: B Pavlov.
An appraisal of phase measurements.
Advisor: H M Wiseman.

1991–4 B.Sc.(hons) with 1st class honours, University of Auckland, Auckland, New Zealand.

Publications and Preprints

- R. Killip and M. Visan, *Nonlinear Schrödinger equations at critical regularity.* Lecture notes for Clay Summer School. 112pp.
- R. Killip, D. Li, M. Visan, and X. Zhang, *Characterization of minimal-mass blowup solutions to the focusing mass-critical NLS.* Submitted. arXiv:0804.1124
- R. Killip and M. Visan, *The focusing energy-critical nonlinear Schrödinger equation in dimensions five and higher.* Submitted. arXiv:0804.1018
- R. Killip, M. Visan, and X. Zhang, *The mass-critical nonlinear Schrödinger equation with radial data in dimensions three and higher.* Submitted. arXiv:0708.0849
- R. Killip, T. Tao, and M. Visan, *The cubic nonlinear Schrödinger equation in two dimensions with radial data.* Submitted. arXiv:0707.3188
- R. Killip, *Gaussian fluctuations for β Ensembles.* Int. Math. Res. Not. (2008) 19pp.
- D. Damanik, R. Killip, B. Simon, *Perturbations of Orthogonal Polynomials With Periodic Recursion Coefficients.* Submitted. arXiv:math/0702388

- R. Killip, M. Visan, X. Zhang, *Energy-critical NLS with quadratic potentials.* Submitted. `arXiv:math/0611394`

- R. Killip, M. Stoiciu, *Eigenvalue Statistics for CMV Matrices: From Poisson to Clock via $C\beta E$.* To appear in Duke Math. `math-ph/0608002`

- R. Killip, F. Nakano, *Eigenfunction statistics in the localized Anderson model.* Ann. Henri Poincaré **8**, (2007), 27–36. MR2299191

- R. Killip, R. Sims, *Absence of reflection as a function of the coupling constant.* J. Math. Phys. **47** (2006). MR2239949

- R. Killip, *Spectral theory via sum rules.* In "Spectral theory and mathematical physics: a Festschrift in honor of Barry Simon's 60th birthday," 907–930, Proc. Sympos. Pure Math., 76, Part 2, Amer. Math. Soc., Providence, RI, 2007. MR2310217

- R. Killip, B. Simon, *Sum rules and spectral measures of Schrödinger operators with L^2 potentials.* To appear in Ann. Math.

- R. Killip, I. Nenciu, *CMV: the unitary analogue of Jacobi matrices.* Comm. Pure Appl. Math. **60** (2007), 1148–1188. MR2330626

- D. Hundertmark, R. Killip, S. Nakamura, P. Stollmann, I. Veselic, *Bounds on the spectral shift function and the density of states.* Comm. Math. Phys. **262** (2006), 489–503. MR2200269

- D. Damanik, R. Killip, B. Simon, *Schrödinger Operators With Few Bound States.* Commun. Math. Phys. **258** (2005) 741–750. MR2172016

- D. Damanik, R. Killip, *Ergodic potentials with a discontinuous sampling function are non-deterministic.* Math. Research Letters **12** (2005) 187–193. MR2150875

- D. Damanik, R. Killip, *Almost everywhere positivity of the Lyapunov exponent for the doubling map.* Commun. Math. Phys. **257** (2005), 287–290. MR2164599

- D. Damanik, R. Killip, *Half-line Schrödinger operators with no bound states.* Acta Math. **193** (2004), 31–72. MR2155031

- R. Killip, I. Nenciu, *Matrix models for circular ensembles.* Int. Math. Res. Not. **2004**, 2665–2701. MR2127367

- D. Damanik, R. Killip, B. Simon, *Necessary and sufficient conditions in the spectral theory of Jacobi matrices and Schrödinger operators.* Int. Math. Res. Not. **2004**, 1087–1097. MR2041649

- M. Erdogan, R. Killip, W. Schlag, *Energy Growth in Schrödinger's Equation with Markovian forcing.* Commun. Math. Phys. **240** (2003), 1–29. MR2004977

- D. Damanik, D. Hundertmark, R. Killip, B. Simon, *Variational estimates for discrete Schrödinger operators with potentials of indefinite sign.* Commun. Math. Phys. **238** (2003), 545–562. MR1993385

- R. Killip, B. Simon, *Sum rules for Jacobi matrices and their applications to spectral theory.* Ann. of Math. (2) **158** (2003), 253–321. MR1999923

- R. Killip, A. Kiselev, Y. Last, *Dynamical Upper Bounds on Wavepacket Spreading.* Amer. J. Math. **125** (2003), 1165–1198. MR2004433

- R. Killip, *Perturbations of 1-dimensional Schrödinger operators preserving the absolutely continuous spectrum.* Int. Math. Res. Not. **2002**, 2029–2061. MR1925875

- R. Killip, C. Remling, *Reducing Subspaces.* J. Funct. Anal. **187** (2001) 396–405. MR1875153
- D. Damanik, R. Killip, *Reflection symmetries of almost periodic functions.* J. Funct. Anal. **178** (2000) 252–257. MR1802894
- D. Damanik, R. Killip, D. Lenz, *Uniform spectral properties of one-dimensional quasicrystals, III. α-continuity.* Commun. Math. Phys. **212** (2000) 191–204. MR1764367
- P. Deift, R. Killip, *On the absolutely continuous spectrum of one-dimensional Schrodinger operators with square summable potentials.* Commun. Math. Phys. **203** (1999) 341–347. MR1697600
- H. Wiseman, R. Killip, *Adaptive single-shot phase measurements: The full quantum theory.* Phys. Rev. A **57** (1998) 2169–2185.
- H. Wiseman, R. Killip, *Adaptive single-shot phase measurements: A semiclassical approach.* Phys. Rev. A **56** (1997) 944–957.
- H. Wiseman, F. Harrison, M. Collett, S. Tan, D. Walls, R. Killip, *Nonlocal momentum transfer in welcher Weg measurements.* Phys. Rev. A **56** (1997) 55–75.

Teaching Experience

UCLA

2008 Instructor, Math 32b (Calculus of Several Variables)

2008 Instructor, Math 255a (Functional Analysis)

2006 Instructor, Math 115a (Linear Algebra)

2005-6 Instructor, Math 250ab (Ordinary Differential Equations)

2005 Instructor, Math 32b (Calculus of Several Variables)

2004-5 Instructor, Math 247ab (Classical Fourier Analysis)

2004 Instructor, Math 254a (Topics in Real Analysis: Hamiltonian Mechanics)

2004 Instructor, Math 135a (Ordinary Differential Equations)

2003–6 Co-organizer, Math 290g (Seminar: Current Literature in Analysis)

2003 Instructor, Math 255a (Functional Analysis)

Caltech

2003 Instructor, Math 109bc (Introduction to Geometry and Topology)

University of Pennsylvania

2002 Instructor, Math 151 (Calculus II for Biology and Social Sciences)

2000 Instructor, Math 360 (Advanced Calculus I)

Caltech

1998–9 Head Teaching Assistant Ma2a,b(Analytical)

1997–8 Teaching Assistant Ma1a, Ma2b(Practical)

University of Auckland

1996 Supervisor: advanced physics lab

1995 Demonstrator: first year physics lab

1994 Demonstrator: first year physics lab

1993 Graded 26:241 (Accelerated Calculus)

1992 Graded 26:121/141 (Introductory Algebra/Calculus)

Grants/Awards

2007 NSF Grant DMS-0701085.

2004 NSF Grant DMS-0401277.

2004 Alfred P. Sloan Research Fellowship.

2000 Clay Mathematics Institute Lift-off Fellowship

1999 Alfred P. Sloan Doctoral Dissertation Fellowship.

1996 William Pickering Fellowship.

1995 Faculty of Science Scholarship.

1995 Fowlds Prize

1994 University of Auckland Masters/Honors Scholarship.

1994 Annual Prize in Mathematics.

1994 Senior Scholarship in Physics.

1993 Senior Scholarship in Pure Mathematics.

Talks (by institution)

- AMS-IMS-SIAM Summer Research Conference, "Spectral Theory and Inverse Spectral Theory for Jacobi Operators", Snowbird UT, June 2003.
- AMS Southeastern Sectional Meeting. Birmingham, Alabama, November 2000.
- BIRS workshop "Order, Disorder, and Transport: Recent Advances in Schrödinger Operator Theory", September 2005.
- BIRS workshop "Modern Approaches in Asymptotics of Polynomials", November 2007.
- California Institute of Technology, Oct 1997, Dec 1998, Nov 1999, Aug 2001, Nov 2002, Jan 2006, Aug 2006.
- Calderón–Zygmund Seminar, University of Chicago, Oct 2006.
- Courant Institute, Mar 2002, Oct 2006, Feb 2007.
- ETH-Hönggerberg, Zürich, Switzerland, May 2000.
- "Foundations of computational mathematics", Hong Kong, June 2008.
- KTH/Mittag-Leffler Workshop, Stockholm, Sweden, September 2002.
- Institute for Advanced Study, Princeton, New Jersey, December 2001.
- Institute of Mathematics, Polish Academy of Sciences, Poland, May 2002.

- International Conference on Differential Equations and Mathematical Physics, Birmingham AL, March 1999, March 2002.
- IAS/Park City Conference "Harmonic Analysis and Partial Differential Equations", Park City UT, 2003.
- Massey University, Auckland, New Zealand, December 2005.
- Northwestern University, October 2007.
- "Orthogonal polynomials, Special functions and Applications", Luminy, France, July 2007.
- "Partial Differential Equations: analysis, applications, and inverse problems", Waitangi, New Zealand, January 2007.
- Peking University, July 2008.
- Princeton University, November 2001, October 2006.
- Quantum Mathematics International Conference (QMath10), Moeciu, Romania, September 2007.
- Spectral Theory and Mathematical Physics Conference, Pasadena CA, March 2006.
- University of California Irvine, November 1999, May 2004.
- University of California Los Angeles, Dec 1999, Mar 2002, Oct 2003, Jun 2005, Jan 2007.
- University of Geneva, Geneva, Switzerland, May 2000.
- University of Paris XIII, Paris, France, May 2000.
- University of Pennsylvania, September 2000, February 2002.
- University of Toronto, April 2007.
- Western States Mathematical Physics Meeting, Pasadena CA, February 1999, February 2002, February 2008.
- Workshop on Spectral Theory of Schrödinger Operators. Centre de Recherches Mathématiques, Montreal, Canada, July 2004.

Conferences Co-organized.

- Summer School, "Hamiltonian Mechanics and Integrable Systems", Lake Arrowhead, California, September 2004.
- Special Session, "Nonlinear and Harmonic Analysis", at the AMS Western Sectional Meeting, USC, Los Angeles, California, April 2004.

PhD students.

- Eric Ryckman (Degree conferred 2007).