

## Andy Hammerlindl

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CONTACT INFORMATION	School of Mathematical Sciences Monash University VIC 3800 Australia	<i>Web:</i> <a href="http://users.monash.edu.au/~ahammerl">users.monash.edu.au/~ahammerl</a> <i>Email:</i> <a href="mailto:andy.hammerlindl@monash.edu.au">andy.hammerlindl@monash.edu.au</a>
ACADEMIC POSITIONS	<ul style="list-style-type: none"><li>• <b>Senior Lecturer</b> (<i>July 2021 – present</i>) Monash University</li><li>• <b>Lecturer</b> (<i>March 2015 – June 2021</i>) Monash University</li><li>• <b>Postdoctoral Fellow</b> (<i>July 2012 – March 2015</i>) University of Sydney and the University of New South Wales</li><li>• <b>Postdoctoral Fellow</b> (<i>January 2010 – May 2012</i>) Instituto Nacional de Matemática Pura e Aplicada, Rio de Janeiro, Brazil</li><li>• <b>Postdoctoral Fellow</b> (<i>August 2009 – December 2009</i>) The Fields Institute, Toronto, Canada</li></ul>	
EDUCATION	<ul style="list-style-type: none"><li>• <b>Ph.D.</b> Mathematics (<i>2009</i>) University of Toronto Thesis: <i>Leaf conjugacies on the torus.</i> Advisor: C. C. Pugh</li><li>• <b>M.Sc.</b> Mathematics (<i>2005</i>) University of Toronto Thesis: <i>Modular Polynomials.</i> Advisor: K. Murty</li><li>• <b>B.Sc.</b> Honors Mathematics, Computer Science Minor (<i>2004</i>) Graduated with the Lieutenant-Governor’s Gold Medal in Science and the John Ross McGregor Gold Medal in Mathematics. University of Alberta</li></ul>	
RESEARCH AREA	Dynamical systems and ergodic theory	
PEER-REVIEWED JOURNAL ARTICLES	<ul style="list-style-type: none"><li>• Determining the global manifold structure of a continuous-time heterodimensional cycle, (with B. Krauskopf, G. Mason, and H. Osinga,) <i>J. Comput. Dyn.</i> <b>9</b> no. 3, 393–419 (2022).</li><li>• Classification of partially hyperbolic surface endomorphisms, (with L. Hall), <i>Geom. Dedicata</i> <b>216</b>, no. 3, 19 pp, (2022).</li><li>• Quantitative global-local mixing for accessible skew products, (with P. Giulietti and D. Ravotti,) <i>Ann. Henri Poincaré</i> <b>23</b> no. 3, 923–971, (2022).</li><li>• Accessibility of Derived-from-Anosov systems, (with Shi Yi), <i>Trans. Amer. Math. Soc.</i> <b>374</b>, no. 4, 2949–2966, (2021).</li><li>• Partially hyperbolic surface endomorphisms (with Layne Hall), <i>Ergodic Theory Dynam. Systems</i> <b>41</b>, no. 1, 272–282, (2021).</li><li>• Horizontal vector fields and Seifert fiberings <i>Algebr. Geom. Topol.</i> <b>20</b>, no. 6, 2779–2820, (2020).</li></ul>	

ARTICLES  
(CONTINUED)

- Classification of systems with center-stable tori (with Rafael Potrie), *Michigan Mathematical Journal*, **1**, 147–166, (2019).
- Seifert manifolds admitting partially hyperbolic diffeomorphisms (with Rafael Potrie and Mario Shannon), *Journal of Modern Dynamics*, **12**, 193–222, (2018).
- Properties of compact center-stable submanifolds, *Mathematische Zeitschrift*, **28:3**, 741–755, (2018).
- Constructing center-stable tori, *Annales de l'Institut Henri Poincaré, Analyse non linéaire*, **35:3**, 713–728, (2018).
- Partial hyperbolicity and classification: a survey, (with R. Potrie), *Ergodic Theory and Dynamical Systems*, **38:2**, 201–443, (2018).
- Ergodic components of partially hyperbolic systems, *Comentarii Mathematici Helvetici*, **92:1**, 131–184, (2017).
- A trajectory-free framework for analysing multiscale systems, (with G. Froyland and G. A. Gottwald), *Physica D*, **328/329** 34–43 (2016).
- Center bunching without dynamical coherence, *Dynamical Systems: An International Journal*, **31:2**, 842–870 (2016).
- Classification of partially hyperbolic diffeomorphisms on 3-manifolds with solvable fundamental group (with R. Potrie), *Journal of Topology*, **8:3**, 842–870, (2015).
- On expanding foliations, *Bulletin of the Brazilian Mathematical Society*, **46:3**, 407–420, (2015).
- A computational method to extract macroscopic variables and their dynamics in multiscale systems (with G. Froyland and G. A. Gottwald), *SIAM Journal on Applied Dynamical Systems*, **13:4**, 1816–1846, (2014).
- Pointwise partial hyperbolicity in 3-dimensional nilmanifolds (with R. Potrie), *Journal of the London Mathematical Society*, **89:3**, 853–875, (2014).
- Polynomial global product structure, *Proceedings of the American Mathematical Society*, **142:12**, 4297–4303, (2014).
- Ergodicity and partial hyperbolicity on the 3-torus, (with R. Ures), *Communications in Contemporary Mathematics*, **16:4**, 1350038, (2014).
- Partial hyperbolicity on 3-dimensional nilmanifolds, *Discrete and Continuous Dynamical Systems*, **33:8**, 3641–3669, (2013).
- Leaf conjugacies on the torus, *Ergodic Theory and Dynamical Systems*, **33:3**, 893–933, (2013)
- The dynamics of quasi-isometric foliations, *Nonlinearity*, **25**, 1585–1599, (2012).
- Quasi-isometry and plaque expansiveness, *Canadian Mathematical Bulletin*, **54:4**, 676–679, (2011).
- Integrability and Lyapunov exponents, *Journal of Modern Dynamics*, **5:1**, 107–122, (2011).
- Asymptote: A vector graphics language, (with J. Bowman), *The Communication of the T<sub>E</sub>X Users Group*, **29:2**, 288–294 (2008).

SOFTWARE

- *Asymptote: The vector graphics language*, with J. Bowman and T. Prince. An open-source scripting language for drawing mathematical and scientific figures. The program has thousands of downloads per month. (2004 – present)  
<http://asymptote.sourceforge.net>

GRANTS, HONORS  
AND FELLOWSHIPS

- ARC Discovery Project (DP220100492),  
“Computer-aided proofs for non- hyperbolic dynamics and blenders”  
joint with Warwick Tucker Lorenzo Díaz and Katsutoshi Shinohara (2022 – 2024)
- Marsden Fund Grant  
“Fingerprints of wild chaos: from theory to practical relevance” joint with Professor  
Hinke Osinga, Bernd Krauskopf and Katsutoshi Shinohara, New Zealand (2023 –  
2025)
- ARC Discovery Project (DP180101385),  
“The shape of chaos: geometric advances in partially hyperbolic dynamics”  
joint with Georg Gottwald, Christian Bonatti, and Rafael Potrie, (2018 – 2020)
- Marsden Fund Grant  
“Understanding the geometry of dynamics: invariant manifolds and their interactions,”  
joint with Hinke Osinga, John Guckenheimer, and Bernd Krauskopf, New Zealand  
(2017 – 2019)
- Kalman Visiting Fellowship, Auckland, New Zealand (2017)
- Pos-doutorado de Excelência, IMPA, Brazil (2010 – 2012)
- Postdoctoral Research Fellowship, National Council for Scientific and Technological  
Development (CNPq Grant No. 151321/2009-4), Brazil (2010 – 2012)
- University of Toronto Fellowship, University of Toronto (2008)
- Research Assistantship, University of Toronto (2008)
- Canada Graduate Scholarship, Natural Sciences and Engineering Research Council  
of Canada (NSERC), Canada (2006 – 2008)
- Post Graduate Scholarship, NSERC, Canada (2005)
- Julie-Payette Research Award, NSERC, Canada (2004)  
Awarded annually to two Masters students in Mathematics for all of Canada.
- Lieutenant-Governor’s Gold Medal, University of Alberta (2004)  
Awarded to the top Honours student graduating from the Faculty of Science, a class  
of 826 graduates.
- John Ross McGregor Gold Medal, University of Alberta (2004)  
Awarded biennially to the top Honours student in Mathematics.
- The Ernest Sheldon Memorial Prize, University of Alberta (2004)
- The JW Campbell Memorial Prize, University of Alberta (2001)

SELECTED  
TALKS

- SEPTEMBER 2022 Colloquium  
University of Queensland, Australia
- SEPTEMBER 2019 Workshop on Smooth and Homogeneous Dynamics  
Bangalore, India
- DECEMBER 2018 Dynamics in Valparaíso  
PUCV, Valparaíso, Chile
- JUNE 2018 International Conference on Dynamical Systems  
SUSTech University, Shenzhen, China
- SEPTEMBER 2018 Mini-Course with R. Potrie  
Workshop on Dynamics, Geometry, and Foliations in Dimension 3  
MATRIX Institute, Australia
- SEPTEMBER 2017 Dynamics Seminar  
SUSTC-University, Shenzhen, China
- JULY 2017 Colloquium  
University of Auckland, New Zealand
- JUNE 2017 International Workshop on Dynamics Beyond Uniform Hyperbolicity  
Provo, USA
- JUNE 2016 Dynamical Systems Seminar  
University of Chicago, USA

SELECTED  
TALKS  
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MARCH 2016	Colloquium University of Adelaide, Australia
SEPTEMBER 2015	Dynamics Special Session AustMS2015, Flinders University, Australia
JUNE 2015	Applied Mathematics Seminar University of Auckland, New Zealand
AUGUST 2014	ICM 2014 Satellite Conference on Dynamical Systems and Related Topics Daejeon, South Korea
NOVEMBER 2013	International Conference on Dynamical Systems IMPA, Rio de Janeiro, Brazil
AUGUST 2013	Mathematical Congress of the Americas Guanajuato, Mexico
JUNE 2013	Second Palis-Balzan International Symposium on Dynamical Systems L'Institut Henri Poincaré, Paris, France
MAY 2013	Invited Mini-Course with R. Potrie International Conference Beyond Uniform Hyperbolicity Bedlewo, Poland
MAY 2012	ICTP-ESF School and Conference in Dynamical Systems Trieste, Italy
OCTOBER 2011	Dynamical Systems Seminar University of Chicago, USA
JUNE 2011	International Workshop on Dynamics Beyond Uniform Hyperbolicity Luminy, France
JULY 2010	Dynamical Systems Seminar Northwestern University, USA
APRIL 2010	Bicentennial Workshop on Dynamical Systems San Pedro, Chile
MARCH 2010	International Conference on Dynamical Systems Búzios, Brazil
AUGUST 2009	International Workshop on Dynamics Beyond Uniform Hyperbolicity Peking University, China

TEACHING

- **Unit Coordinator and Instructor** (*2015 to present*)  
Various undergraduate and honours-level courses, Monash University, Australia. Class sizes vary from 4 to 300 students.
- **Instructor** (*January 2019*)  
AMSI Summer School, Monash, Honours-level course in “Dynamical systems: models of chaotic dynamics.” 20 students.
- **Instructor** (*January 2018*)  
AMSI Summer School, Monash, Honours-level course in “Mathematical relativity and Lorentzian manifolds.” 25 students.
- **Instructor** (*Semester One 2013*)  
Differential Calculus, University of Sydney, Australia. A first-year calculus course. My lecture stream had 450 students.
- **Instructor** (*Spring Term 2011*)  
Classification of Anosov Systems, IMPA, Brazil.  
A topics course aimed at postgraduate students in the field of Dynamics. 25 students.
- **Unit Coordinator and Instructor** (*Summer Term 2009*)  
Multivariable Calculus, University of Toronto, Canada.  
Handled all of aspects of course administration including managing a team of five teaching assistants. 150 students.
- **Instructor** (*Winter Term 2008*)  
Linear Algebra, University of Toronto, Canada. 100 students.
- **Teaching Assistant** (*2004 – 2009*)  
For first-year, senior, and graduate level courses. University of Toronto, Canada.

ACADEMIC  
SERVICE

- **Advanced Streams Coordinator** at the School of Mathematics, Monash, 2018 to present.
- **Deputy Honors Coordinator** at the School of Mathematics, Monash, 2017 to present.
- **Local Organiser and Coach** for Monash’s team for the Simon Marais Mathematics Competition, an undergraduate mathematics competition similar to the Putnam, 2017 to present.
- **Colloquium Organiser** for the School of Mathematics, Monash, 2022 to present.
- **Workshop Organisation** for the conferences “Advances in ergodic theory, hyperbolic dynamics and statistical laws” in Canberra, Australia, in November 2016, and the upcoming “Dynamics, foliations, and geometry in dimension 3” conference at the MATRIX Institute in September 2018.
- **Honors Project Supervision** for Layne Hall, 2017. Layne held an Alan Pryde Honours Study Grant during the project and won the award for top overall honors student that year.
- **Referee** for the Annals of Mathematics, Acta Mathematica, Mathematische Zeitschrift, Proceedings of the AMS, Nonlinearity, Ergodic Theory and Dynamical Systems, and others.

REFERENCES

Charles Pugh  
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Department of Mathematics  
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