Pedram Hekmati

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Research Interests

Gauge theoretic moduli spaces, character varieties, gerbes, K-theory, Floer homology, knot theory, vertex operator algebras, generalized geometry and topological T-duality.

Employment

2016 –	University of Auckland, New Zealand Senior Lecturer in Mathematics
2015 – 2017	Instituto Nacional de Matemática Pura e Aplicada, Brazil Postdoctorate of Excellence
2012 – 2015	University of Adelaide, Australia Australian Research Council DECRA Fellow
2010 – 2012	University of Adelaide, Australia Research Associate

Education

2006 – 2010	Royal Institute of Technology, Stockholm, Sweden Doctor of Philosophy in Mathematical Physics Thesis: *Abelian Extensions, Fractional Loop Groups and Quantum Fields* Supervised by Jouko Mickelsson
2008 – 2009	Massachusetts Institute of Technology, Cambridge, USA Visiting Scholar. Supervised by Victor Kac
2000 – 2005	Royal Institute of Technology, Stockholm, Sweden Master of Science in Engineering Physics
2008 – 2009	École Polytechnique, Paris, France Stage d'Option Supervisor: Jean-Pierre Bourguignon

Short-Term Academic Visits

2022	Instituto de Ciencias Matemáticas (ICMAT), Visiting Researcher, September–October
2022	Mathematical Research Institute at the University of Sydney, Visiting Researcher, April–May
2019	Geometry and Physics of Hitchin Systems at the Simons Center, Visiting Researcher, May–June
2018	Focus Program at the Fields Institute, Visiting Researcher, June–July
2016/2017	University of São Paulo, ICMC, Visiting Researcher, June/March
2014	Hausdorff Research Institute for Mathematics, Mathematics Research Fellow, September–October
2013	Abdus Salam International Centre for Theoretical Physics, Visiting Researcher, August–September
2013	International School for Advanced Studies (SISSA), INdAM Research Fellow, July–August
2010	Università di Roma, La Sapienza, Department of Mathematics, Visiting Researcher, January

Publications

2022 Equivariant Seiberg-Witten Floer Cohomology (with David Baraglia),
Algebraic and Geometric Topology, **24** 1 (2024), pp. 493–554

   A Foliated Hitchin–Kobayashi Correspondence (with David Baraglia),
Advances in Mathematics, **408** (2022), 42 pages

2020 Sign Choices for Orientifolds, (with Michael Murray, Richard Szabo and Raymond Vozzo),
Communications in Mathematical Physics, **378** 3 (2020), pp. 1843–1873

2019 Real Bundle Gerbes, Orientifolds and Twisted KR-Homology, (with Michael Murray,
Richard Szabo and Raymond Vozzo), *Advances in Theoretical and Mathematical Physics*,
23 8 (2019), pp. 2093–2159

2017 Arithmetic of Singular Character Varieties and their E-polynomials, (with David Baraglia)
Proceedings of the London Mathematical Society, **114** (2017) pp. 293–33

2016 Moduli Spaces of Contact Instantons, (with David Baraglia)
Advances in Mathematics, **294** (2016) pp. 562–595

   Projective Families of Dirac Operators on a Banach Lie Groupoid, (with Jouko Mickelsson)
Journal of Noncommutative Geometry, **10** (2016) pp. 1–28

2015 A Fourier-Mukai Approach to K-theory of Compact Lie Groups, (with David Baraglia)
Advances in Mathematics, **269** (2015) pp. 335–345

   A Geometric Model for Odd Differential K-theory, (with Michael Murray, Vincent Schlegel
and Raymond Vozzo), *Differential Geometry and its Applications*, **40** (2015) pp. 123–158

   Transitive Courant Algebroids, String Structures and T-duality, (with David Baraglia)
Advances in Theoretical and Mathematical Physics, **19** 3 (2015) pp. 613–672

2013 The Faddeev-Mickelsson-Shatashvili Anomaly and Lifting Bundle Gerbes, (with Michael Murray,
Danny Stevenson and Raymond Vozzo), *Communications in Mathematical Physics*, **319** 2 (2013),
pp. 379–393

2012 T-duality of Current Algebras and their Quantization, (with Varghese Mathai)
Contemporary Mathematics, AMS **584** (2012), pp. 17–38

   The General Caloron Correspondence, (with Michael Murray and Raymond Vozzo)
Journal of Geometry and Physics, **62** (2012), pp. 224–241

2011 Calculus Structure on the Lie Conformal Algebra Complex and the Variational Complex,
(with Alberto De Sole and Victor Kac), *Journal of Mathematical Physics*, **52** (2011), 35 pages

2010 Fractional Loop Groups and Twisted K-theory, (with Jouko Mickelsson)
Communications in Mathematical Physics, **299** 3 (2010), pp. 741–763

   Integrability Criterion for Abelian Extensions of Lie Groups,
Proceedings of the American Mathematical Society, **138** 11 (2010), pp. 4137–4148

Preprints

2024 New Invariants of Involutions from Seiberg-Witten Floer Theory (with David Baraglia),
53 pages, `arXiv:2403.00203`

2023 Equivariant Index on Toric Contact Manifolds (with Marcos Orseli), 31 pages, `arXiv:2306.08811`

2022 Brieskorn Spheres, Cyclic Group Actions and the Milnor Conjecture (with David Baraglia),
36 pages, `arXiv:2208.05143`

Research Grants

2024	RDF Near-Miss Faculty Grant, *Real Structures and Knot Invariants*
2023–2024	RDF Faculty Grant, *Periodicity in Knot Theory and Dynamical Systems*
2021	Faculty Teaching Development Grant, *Minimal Surfaces: A New Initiative for Connecting Calculus to Real-World Applications*
2021	Impact Strategic Grant for the outreach project *Orbifolds in Music*
2018–2021	Marsden Faststart Grant (with D. Baraglia) *Exploiting Gauge Theory and Duality in Geometry*
2018–2021	Australian Research Council Discovery Project (with M. Murray, R. Vozzo, D. Stevenson, D. Evans), *Twisted K-theory, Operator Algebras and Higher Geometry*
2017–2018	FRDF Faculty Grant, *Symmetries and Quantum Theory: A New Synthesis*
2017, 2023	PBRF Faculty Research Grant
2014	ECMS Faculty Research Grant, *New Applications of Gauge Theory to Geometry*
2013–2015	Australian Research Council Discovery Project, (with M. Murray) *Geometric Transforms and Duality*
2012–2014	Australian Research Council Discovery Early Career Researcher Award *Group Actions and K-theory: A New Direction*
2010, 2011	OCLS Faculty Research Grant
2010	Category 1 Faculty Research Grant
2008, 2008	Alice and Knut Wallenberg Foundation Travel Grant
2007	Royal Swedish Academy of Sciences Research Grant

Conference Funding and Visiting Fellowships

2023	Kalman Visiting Fellowship for Francesco Lin (Columbia University)
2022	PBRF funding for the workshop *Moduli Spaces and Vertex Algebras*
2021	MSI funding for *Character Varieties, E-Polynomials and Representation Zeta Functions* at the ANU (with D. Baraglia, M. Kamgarpour, U. Onn)
2020	PBRF funding for an *Analysis, Geometry and Topology Postgraduate Workshop*
2019	Hood Visiting Fellowship for Edward Witten (IAS, Princeton)
	Faculty funding for the conference *Geometry of Quantum Fields and Strings*
	Kalman Visiting Fellowship for Fanny Kassel (IHES, Paris)
2018	PBRF funding for *Character Varieties and TQFT* (with V. Jones)
	NZMS funding for graduate students
2017	PBRF funding for *Conformal and Symplectic Geometry* (with R. Gover)
	NZMS funding for graduate students
2016	CAPES and FAPERJ funding for *String Geometries and Dualities* (with H. Bursztyn and R. Heluani)
2010–2017	AMSI and AustMS funding for seven IGA conferences at the University of Adelaide,

Appointments, Fellowships and Awards

2023	*Change One Thing Challenge* Teaching Award at the University of Auckland
2022	Visiting Fellowship at the University of Sydney Mathematical Research Institute
2018–2020	Deputy Chair of the Australian and New Zealand Association of Mathematical Physics
2016	Member of the NSF funded research network *Geometric Structures and Representation Varieties*
2014	Research Fellowship at the Hausdorff Research Institute for Mathematics
2013	ICTP Mathematics Research Fellowship
2013	INdAM Research Fellowship from the Italian Research Council
2011, 2012	Head of School's Award for Lecturing and Tutoring Excellence
2003	Sandviken Award for Outstanding Academic Merit
2003	Anna Whitlock Award for Overseas Studies
2000	Rotary Club Award for Outstanding Academic Merit

Selected Invited Conference Talks

2023	Representations in Higher Structures, *University of Greifswald*, June
	Gauge Theory, Canonical Metrics, and Geometric Structures, *ICMAT Madrid*, June
2021	Index Theory and Complex Geometry, *National University of Singapore*, September
	Perspectives on Algebra, Geometry and Number Theory, *Queenstown*, April
2020	A Mathematical Medley, *University of Auckland*, November
	The 8th Pacific Rim Conference, Representation Theory Session, *UC, Berkeley*, August
	The Annual AZNAMP Meeting, *University of Queensland*, February
2019	The Butcher–Kalman Plenary Lecture, *New Zealand Mathematical Society Colloquium*, December
	Spring Operator Algebras Program, *East China Normal University, Shanghai*, April
2018	Geometric Quantization and Applications, *CIRM, Luminy*, October
	Index Theory and Applications to Positive Scalar Curvature and Related Areas, *University of Adelaide*, June
2017	Third Pacific Rim Mathematical Association Congress, *Oaxaca*, August
	Mathematical Congress of the Americas, *McGill University*, July
	Loop Spaces, Supersymmetry and Index Theory, *Chern Institute*, July
	K-theory, Subfactors and Conformal Field Theory, *Isaac Newton Institute, Cambridge*, June
	T/U-dualities and Generalized Geometry, *University of Zagreb*, June
2016	II Brazilian Meeting for Young in Pure and Applied Mathematics, *Campinas*, December
	The Latin American Congress of Mathematicians, *Barranquilla*, July
	Gromov-Witten theory, Gauge Theory and Dualities, *Australian National University*, January
2015	First Brazil-Spain Joint Meeting in Mathematics, *Fortaleza*, December
	Interactions between Geometry and Physics, *São Paulo*, August
	Infinite-Dimensional Structures in Higher Geometry and Representation Theory, *University of Hamburg*, Feb.

2014   Positive Curvature and Index Theory, *National University of Singapore*, November

Quantum Physics and Noncommutative Geometry, *Hausdorff Research Institute for Mathematics*, September

Poisson 2014, *University of Illinois at Urbana-Champaign*, August

String Geometry and Loop Spaces, *University of Greifswald*, July

2013   Representation Theory in Geometry, Topology and Combinatorics, *University of Melbourne*, November

Geometry of Strings and Fields, *The Galileo Galilei Institute for Theoretical Physics*, August

Moduli Spaces and Mathematical Physics, *CIMAT, Guanajuato*, January

A complete list is available at http://pedram.hekmati.se

Student Supervision

PhD Students

2022–   Stuart Teisseire (co-supervisor, joint with R. Gover)

2017–2024   Bartek Ewertowski, (co-supervisor, joint with R. Gover)

2021–2024   Xavier Coulter (main supervisor, joint with N. Do)

2019–2023   Marcos Orseli (main supervisor, joint with D. Baraglia)
            Equivariant Index on Toric Contact Manifolds

2019–2022   Mostafa Raziebrahimsaraei (main supervisor, joint with T. ter Elst)
            Deformations of the Verlinde Algebra

2018–2022   Olivia Sorto, (main supervisor, joint with R. Gover)
            Twisted Milnor Torsion for Finite Group Actions

2016–2022   Daniel Snell, (co-supervisor, joint with R. Gover)
            Distinguished Curves and Submanifolds in Conformal Geometry

2016–2019   Keegan Flood, (co-supervisor, joint with R. Gover)
            The Geometry of Solutions to the Metrisability Equation in Projective and C-Projective Geometry

Masters Students

2023–2024   Lavender Marshall
            Concordance Invariants from Grid Homology

2021–2022   Chris Pirie
            Real Symplectic Implosion

2021–2022   Oliver Li
            Moduli of Vector Bundles over Algebraic Curves

2019–2020   Elizabeth Jagersma
            Analytic Torsion and the Cheeger-Müller Theorem

2012–2013   Vincent Schlegel (co-supervised with M. Murray),
            The Caloron Correspondence and Odd Differential K-theory

Honours Students

2024   Baylee Verzyde, *The Vortex Equations on Non-Orientable Surfaces*

        Yihang Zeng, *Weyl's Law for the Laplace Operator*

2023   Levi Li, *Differential Geometry of Surfaces and the Willmore Conjecture*

2022   Joshua Lehman, *A Poincaré-Hopf Theorem for Orbiline Fields*

        Ben Allen, *Aspects of Monstrous Moonshine*

2021   Chris Pirie, *Donaldson's Diagonalisability Theorem for Four-Manifolds*

2020   Oliver Li (co-supervised with J. Schillewaert), *Sheaves in Algebraic Geometry*

        Xavier Coulter, *Hurwitz Numbers and the Infinite-Wedge Algebra*

2019   Hunter Linton, *Localisation in Equivariant Cohomology*

        David Farrell, *Stone Duality and its Generalisations*

2018   Louis Christie, *An Analytic Proof of the Morse Inequalities*

2013   Thi Quynh Trang Nguyen (co-supervised with D. Baraglia), *Einstein Metrics on Principal Circle Bundles*

2011   Adrián F. Tojo (co-supervised with M. Varghese), *Birkhoff Factorisation Applied to Holomorphic Bundles*

Research Students

2024   Chloe Wang, *Applying AI to Find Faster Matrix Multiplication Algorithms*, Summer Research Student

        Yan Liu, *Higher-Dimensional Regression*, Summer Research Student

        Tony Schaufelberger, *Neural Network Application on the Minimum Hybridization Problem*, Research Student

2023   Oscar Obioha, *Properties of the Minkowski Space-Time*, Research Student

2022   Joshua Lehman, *Chen-Ruan Cohomology of Orbifolds*, Summer Research Student

        Louis Baragwanath, *Mathematics of Machine Learning*, Science Scholar Student

        Benjamin Matson, *Problems in Number Theory*, Science Scholar Student

2021   Matthew French, *Clifford and Geometric Algebras*, Summer Research Student

        Pankaj Ghodla, *Differential Geometry of Curves and Surfaces*, Summer Research Student

2020   Luis Carlos Soldevilla, *Proof of the Poincare-Hopf Index Theorem*, Research Student

        Juan Kim, *The Riemann Mapping Theorem*, Summer Research Student

        Anish Sachdeva, *Geometry of Möbius Transformations*, Summer Research Student

        Yourong Frank Wang, *Geometry of Chiral Anomalies in Quantum Field Theory*, Summer Research Student

        Dannin Eccles, *Algebraic K-theory and Quadratic Reciprocity*, Summer Research Student

2019   Odette Jennings, *q-Polynomials of Rooted Trees*, Science Scholar Student

        Chris Pirie, *Topics in Differential Topology*, Research Student

        Ruta Sliazkaite, *K-theory and Adams Operations*, Northern Hemisphere Summer Research Student

2018   Xavier Coulter, *Classification of Root Systems*, Summer Research Student

        Aria Hart, *Geometry of Minimal Surfaces*, Summer Research Student

        Chris Pirie, *Milnor's Exotic 7-Spheres*, Summer Research Student

Odette Jennings, *Introduction to Knot Invariants*, Summer Research Student

Dannin Eccles, *Computations in Khovanov Homology*, Summer Research Student

2013 Parsa Kavkani, *Integer Partitions and Young Diagrams*, Summer Research Student

2012 Thi Quynh Trang Nguyen, *Geometric Aspects of Yang-Mills Theory*, Adelaide Vacation Research Scholar

Teaching

University of Auckland

2025 General Mathematics II, Summer Semester, Lecturer

2024 General Mathematics II, Summer Semester, Lecturer
Calculus, Semester 2, Lecturer and Tutor
Fundamental Concepts of Mathematics, Semester 2, Lecturer

2023 General Mathematics II, Summer Semester, Lecturer
Lie Algebras and Lie Groups, Semester 2, Lecturer and Tutor

2022 Calculus, Semester 1, Lecturer and Tutor

2021 General Mathematics I, Summer Semester, Lecturer
Lie Algebras and Lie Groups, Semester 2, Lecturer and Tutor
Real Analysis, Semester 2, Lecturer and Tutor

2020 Calculus, Semester 1, Lecturer and Tutor
Calculus, Semester 2, Lecturer and Tutor

2019 General Mathematics I, Summer Semester, Lecturer
Calculus, Semester 2, Lecturer and Tutor
Advancing Mathematics 2: Calculus, Semester 2, Lecturer and Tutor

2018 Analysis on Manifolds and Differential Geometry, Semester 2, Lecturer
Advancing Mathematics 3: Calculus, Semester 2, Lecturer and Tutor
Functional Analysis, Semester 2, Lecturer
Advancing Mathematics 2: Calculus, Semester 2, Lecturer and Tutor

2017 Advancing Mathematics 2: Calculus, Semester 2, Lecturer and Tutor
Advancing Mathematics 3: Calculus, Semester 2, Lecturer and Tutor

Instituto Nacional de Matemática Pura e Aplicada

2016 Index Theory, Advanced Graduate Course, Lecturer

University of Queensland

2015 K-theory and its Applications, Mini-Course at the AMSI Winter School in Brisbane, Lecturer

University of Adelaide

2015 Mathematics for Information Technology I: Probability Theory, Semester 1, Lecturer and Tutor

2014 Mathematics for Information Technology I: Discrete Mathematics, Semester 1, Lecturer and Tutor
Algebraic Topology, Semester 1, Lecturer and Tutor

2013 Mathematics IA: Calculus, Semester 1, Lecturer and Tutor

2012	Integration and Analysis III, Semester 2, Lecturer and Tutor
	Mathematics IB: Calculus, Semester 1, Lecturer and Tutor
2011	Topics in Analysis IV, Semester 2, Lecturer and Tutor
	Introduction to Financial Mathematics I, Semester 1, Lecturer and Tutor

Royal Institute of Technology

2009	Advanced Quantum Mechanics, Undergraduate Course, Semester 2, Tutor
2009	Vector Calculus, Undergraduate Course, Semester 2, Tutor
2009	Thermodynamics, Undergraduate Course, Semester 2, Tutor
2008	Relativity Theory, Undergraduate Course, Semester 2, Lecturer and Tutor
2007	Relativity Theory, Undergraduate Course, Semester 2, Tutor

Academic Service

- Head of the Analysis, Geometry and Topology Unit, 2023–

- The Departmental NZMS Correspondent, 2023–

- The Departmental PhD Coordinator 2019–2022

- Organiser of the Student Prizes in Mathematics, 2017–2022

- Jury for the Departmental Student Research Conference in Auckland, 2021

- Examiner for 5 PhD theses (U. Adelaide, U. Melbourne, U. Queensland, ANU, NUS Singapore) and 7 Masters theses (U. Auckland, U. Queensland, ANU, U. São Paulo)

- Member of the Hiring Committee for a Lecturer Position in Applied Mathematics, 2020

- Member of the Departmental Research Committee, 2018–2022

- Member of the DATUM 2 Group on Development and Analysis of Teaching in Mathematics, 2019–2021

- Member of the Stage I Course Restructuring Committee, 2018–2019

- Managing Guest-Editor of the Special Issue *String Geometries, Dualities and Topological Matter*, for Elsevier's Journal of Geometry and Physics, 2017–2018

- On the Advisory Committee for the biannual international conference *Poisson 2022, 2024*

- Reviewer for the AMS Mathematical Reviews and Zentralblatt MATH

- Assessor for the Australian Research Council's Discovery Project Scheme, the Dutch Research Council's Innovational Research Incentives Scheme, the Spanish Agencia Estatal de Investigación, and FRDF Faculty Grants

- Referee for *Duke Mathematical Journal, Advances in Mathematics, Documenta Mathematica, International Mathematics Research Notices, Journal of Symplectic Geometry, Proceedings of the American Mathematical Society, Mathematische Nachrichten, Journal of Topology and Analysis, International Journal of Mathematics, Journal of Geometry and Physics, Journal of the Australian Mathematical Society, AMS Contemporary Mathematics, Vietnam Journal of Mathematics, New Zealand Journal of Mathematics, Journal of Mathematical Physics, Differential Geometry and its Applications, New York Journal of Mathematics.*

Conference and Workshop Organisation

2024   Co-organiser of the special session *Mathematical Physcs* at the Joint Meeting of the AMS, AustMS and NZMS

    Co-organiser of the special session *Index Theory* at the Joint Meeting of the AMS, AustMS and NZMS

2023   Co-organiser of the special session *Topology* at the 67th Annual AustMS at the University of Queensland

    Organiser of a workshop on *Analysis on Singular Spaces* in Auckland

    Organiser of a lecture series by the Kalman Fellow *Prof Francesco Lin* in Auckland

    On the local organising committee for *String Math 2023* at the University of Melbourne

    Co-organiser of the conference *Moduli Spaces and Vertex Algebras* in Auckland

2022   Co-organiser of the MSI Workshop *Character Varieties, E-Polynomials and Zeta Functions* at ANU, Canberra

2021   Organiser of the workshop on *Poisson Geometry, Groupoids and Quantisation* in Auckland

2020   Co-organiser of the special session *Recent Trends in Geometric Analysis* at the 8th Pacific-RIM Conference on Mathematics at the University of California, Berkeley

    Organiser of an AGT Postgraduate Workshop in Auckland

    Organiser of a public lecture by the Hood Fellow *Prof Edward Witten* in Auckland

    Organiser of the conference *Geometry of Quantum Fields and Strings* in Auckland

2019   Co-organiser of the conference *Moduli Spaces, Representation Theory and Quantization* at RIMS, Kyoto

    Co-organiser of a lecture series by *Dr Ramis Movassagh* in Auckland

2018   Co-organiser of the conference *Character Varieties and Topological Quantum Field Theory* in Auckland

    Co-organiser of the conference *Conformal and Symplectic Geometry* in Auckland

    Co-organiser of the annual *ANZAMP* conference in Auckland

2017   Co-organiser of a lecture series by *Prof Frances Kirwan* in Adelaide

    Co-organiser of a lecture series by *Prof Jörgen Ellegaard Andersen* in Adelaide

    Co-organiser of the AMSI/IGA conference *Gauge Theory and Higher Geometry* in Adelaide

    Organiser of a lecture series by *Dr David Baraglia* in Auckland

2016   Co-organiser of the conference *String Geometries and Dualities* at IMPA, Rio de Janeiro

2015   Co-organiser of the AMSI/IGA conference *Symmetries and Spinors: Interactions between Geometry and Physics* in Adelaide, featuring lectures by Prof José Figueroa-O'Farrill and Prof Maxim Zabzine

2014   Organiser of an IGA lecture series by *Dr Timothy Nguyen* in Adelaide

2013   Co-organiser of the IGA conference *Aspects of Finsler Geometry* in Adelaide, featuring lectures by Prof Robert Bryant

2013   Co-organiser of a *Special Session in Mathematical Physics* at the 57th Annual AustMS in Sydney

    Co-organiser of the IGA conference *Current Groups and Twisted K-theory* in Adelaide, featuring a lecture series by Prof Jouko Mickelsson

2012   Co-organiser of the AMSI/IGA conference *Geometry of Supermanifolds* in Adelaide, featuring a lecture series by Prof Ugo Bruzzo

    Organiser of an IGA lecture series by Dr Ittay Weiss in Adelaide

    Co-organiser of the AMSI/IGA conference *Dualities in Field Theories and the Role of K-Theory* in Adelaide, featuring a lecture series by Prof Jonathan Rosenberg

    Co-organiser of the AMSI/IGA conference *The Mathematical Implications of Gauge-String Dualities* in Adelaide, featuring a lecture series by Prof Rajesh Gopakumar

2011	Co-organiser of the AMSI/IGA conference *Group-Valued Moment Maps with Applications to Mathematics and Physics* in Adelaide, featuring a lecture series by Prof Eckhard Meinrenken
2010	Co-organiser of the AMSI/IGA conference *The Dirac Operators in Geometry, Topology, Representation Theory, and Physics* in Adelaide, featuring a lecture series by Prof Dan Freed

Seminar Organisation

2023	*Seminar on Floer Homology* at the University of Auckland
	Seminar on Low-Dimensional Topology at the University of Auckland
2022	*Seminar on Moduli Spaces* at the University of Auckland
2021	*Geometry Learning Seminar* at the University of Auckland
	Seminar on Index Theory at the University of Auckland
2020	*Differential Topology Learning Seminar* at the University of Auckland
2019	*Geometry and Topology Learning Seminar* at the University of Auckland
	General Relativity Bootcamp at the University of Auckland
2018	*Seminar on Homological Algebra* at the University of Auckland
2018–2020	*Geometry and Analysis Seminar* at the University of Auckland
2017–2019	*Department Colloquium* at the University of Auckland
2010–2013	*Strings Journal Club* at the University of Adelaide
2009	*Seminar in Mathematical Physics* at MIT

Outreach

2024	*Geometry of Rhythms*, the OMV STEAM Lab at the WOMAD New Zealand Festival
2023	*The Mathematics of Dances*, Discovery Centre for Fundamental Research, University of Auckland
	Knots in Nature, Discovery Centre for Fundamental Research, University of Auckland
	Ahuahanga Day, University of Auckland
	Geometry of Musical Rhythms, University of Auckland
2022	*The Monster*, Mathematics Club Seminar, University of Auckland
2017	*Crossing Borders Within Mathematics*, Undergraduate Maths Community Seminar, University of Auckland
2012	*Examples of Counterexamples*, Undergraduate Seminar, University of Adelaide
	Unbroken Symmetries, South Australian Postgraduate Symposium Seminar, Flinders University

Professional Memberships

American Mathematical Society

New Zealand Mathematical Society

Australian Mathematical Society

International Association of Mathematical Physics

Australian and New Zealand Association of Mathematical Physics

Personal Details

Citizenships: Australia, Sweden

Languages: Swedish, Farsi, English, French, Spanish