

Mathematics & Statistics
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Hans U. Boden

Research Interests

Gauge theory; low-dimensional topology; invariants of knots, links, and 3-manifolds; character varieties; moduli spaces of holomorphic bundles

Employment

- 2006 – **Professor**, *McMaster University*, Hamilton, Ontario Canada.
- 2009 – 2018 **Chair**, *Mathematics & Statistics, McMaster University*, Hamilton, Ontario Canada.
Introduced the following undergraduate and graduate programs: *Honours Program in Actuarial and Financial Mathematics*, *Professional Masters in Financial Mathematics (M-Phimac)*, and a new *Ph.D. Program in Statistics*.
- 2000 – 2006 **Associate Professor**, *McMaster University*, Hamilton, Ontario Canada.
- 2000 – 2001 **Associate Professor**, *Ohio State University*, Mansfield, Ohio USA.
- 1997 – 2000 **Assistant Professor**, *Ohio State University*, Mansfield, Ohio USA.
- 1995 – 1997 **Postdoctoral Fellow**, *McMaster University*, Hamilton, Ontario Canada.
- 1993 – 1995 **Research Mathematician**, *Max Planck Institute for Mathematics*, Bonn, Germany.
- 1990 – 1993 **Assistant Professor**, *University of Michigan*, Ann Arbor, Michigan USA.

Visiting Positions

- 7/14–6/2015 **Visiting Mathematician**, *Fields Institute*, Toronto, Canada.
- 1/12–6/2012 **Visiting Researcher**, *Max Planck Institute for Mathematics*, Bonn, Germany.
- 7/2006 **Participant**, *Park City Mathematics Institute*, Park City, Utah USA.
- 4/05–6/2005 **Visiting Researcher**, *Max Planck Institute for Mathematics*, Bonn, Germany.
- 9/04–4/2005 **Visiting Mathematician**, *Fields Institute*, Toronto, Canada.
- 6/02–7/2002 **Visiting Researcher**, *Max Planck Institute for Mathematics*, Bonn, Germany.
- 5/01–7/2001 **Visitor**, *Institut des Hautes Études Scientifiques*, Bures-sur-Yvette, France.
- 9/98–12/1998 **Visiting Professor**, *Indiana University*, Bloomington, Indiana USA.
- 7/1994 **Participant**, *Park City Mathematics Institute*, Park City, Utah USA.
- 4/1994 **Visitor**, *Institut des Hautes Études Scientifiques*, Bures-sur-Yvette, France.

Education

- 1991 **Ph.D. Mathematics**, *Brandeis University*.
Thesis: *Representations of orbifold groups and parabolic bundles*
Advisor: *Daniel Ruberman*
- 1984 **B.S. Mathematics**, *University of New Hampshire*.

Books Edited

- 2 *Chern Simons Gauge Theory: 20 Years After*, Edited by J. E. Anderson, H. U. Boden, A. Hahn and B. Himpel, *AMS/IP Studies in Advanced Mathematics* **50**, American Mathematical Society & International Press 2011

- 1 *Geometry and Topology of Manifolds*, Edited by H. U. Boden, I. Hambleton, A. J. Nicas and B. D. Park, Fields Institute Communications **47**, American Mathematical Society, 2005

Publications

36. *Signature and concordance of virtual knots*, H. U. Boden, M. Chrisman, and **R. Gaudreau**¹, 2017 preprint, ArXiv math.GT/1708.08090, to appear in *Indiana University Mathematics Journal* (2019)
35. *Virtual and welded periods of classical knots*, H. U. Boden and A. J. Nicas, 2017 preprint, ArXiv math.GT/1711.04051, to appear in *Proceedings of Symposia in Pure Mathematics* (2018)
34. *Alexander invariants of periodic virtual knots*, H. U. Boden, A. J. Nicas, and **L. White**, *Dissertationes Mathematicae* **530** (2018) 1–59
33. *Virtual knot cobordism and bounding the slice genus*, H. U. Boden, M. Chrisman, and **R. Gaudreau**, *Experimental Mathematics*, published online February 2, 2018
32. *Concordance group of virtual knots*, H. U. Boden and **M. Nagel**, *Proceedings of the American Mathematical Society* **145** (2017), no. 12, 5451–5461
31. *Virtual knot groups and almost classical knots*, H. U. Boden, **R. Gaudreau**, **E. Harper**, A. J. Nicas, and **L. White**, *Fundamenta Mathematicae* **138** (2017), no. 2, 101–142
30. *The $SU(2)$ Casson-Lin invariant of the Hopf link*, H. U. Boden and C. M. Herald, *Pacific Journal of Mathematics* **285** (2016), no. 2, 283–288
29. *The $SU(N)$ Casson-Lin invariants for links*, H. U. Boden and **E. Harper**, *Pacific Journal of Mathematics* **285** (2016), no. 2, 257–282
28. *The $SL(2, \mathbb{C})$ Casson invariant for knots and the \widehat{A} -polynomial*, H. U. Boden and C. L. Curtis, *Canadian Journal of Mathematics* **68** (2016), no. 1, 3–23
27. *Alexander invariants for virtual knots*, H. U. Boden, **E. Dies**, **A. I. Gaudreau**, **A. Gerlings**, **E. Harper**, and A. J. Nicas, *Journal of Knot Theory and Its Ramifications*, **24** (2015), no. 3, ID: 1550009, 62 pp.
26. *Bridge numbers for virtual and welded knots*, H. U. Boden and **A. I. Gaudreau**, *Journal of Knot Theory and Its Ramifications*, **24** (2015), no. 2, ID: 1550008, 15 pp.
25. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups IV: twisted Alexander polynomials*, H. U. Boden and S. Friedl, *Mathematical Proceedings of the Cambridge Philosophical Society* **156** (2014), no. 1, 81–97
24. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups III: deformations*, H. U. Boden and S. Friedl, *Quarterly Journal of Mathematics* **65** (2014), no. 3, 817–840
23. *Nontriviality of the M -degree of the A -polynomial*, H. U. Boden, *Proceedings of the American Mathematical Society* **142** (2014), no. 6, 2173–2177
22. *The $SL(2, \mathbb{C})$ Casson invariant for Dehn surgeries on two-bridge knots*, H. U. Boden and C. Curtis, *Algebraic and Geometric Topology* **12** (2012), no. 4, 2095–2126
21. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups II: fixed points*, H. U. Boden and S. Friedl, *Pacific Journal of Mathematics* **249** (2011), no. 1, 1–10
20. *Splitting the spectral flow and the $SU(3)$ Casson invariant for spliced sums*, H. U. Boden and B. Himpel, *Algebraic and Geometric Topology* **9** (2009), no. 2, 865–902
19. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups*, H. U. Boden and S. Friedl, *Pacific Journal of Mathematics* **238** (2008), no. 1, 7–25
18. *Splicing and the $SL_2(\mathbb{C})$ Casson invariant*, H. U. Boden and C. L. Curtis, *Proceedings of the American Mathematical Society* **136** (2008), no. 7, 2615–2623

¹Names of supervised students and postdocs supervised are in boldface font

17. *The $SL_2(\mathbb{C})$ Casson invariant for Seifert fibered homology spheres and surgeries on twist knots*, H. U. Boden and C. L. Curtis, *Journal of Knot Theory and Its Ramifications* **15** (2006), no. 7, 813–837
16. *The integer valued $SU(3)$ Casson invariant for Brieskorn spheres*, H. U. Boden, C. M. Herald and P. A. Kirk, *Journal of Differential Geometry* **71** (2005), no. 1, 23–83
15. *The Calderón Projector for the Odd Signature Operator and Spectral Flow Calculations in 3-Dimensional Topology*, H. U. Boden, C. M. Herald and P. Kirk, *Contemporary Mathematics* **366** (2005) 125–150
14. *On the integer valued $SU(3)$ Casson invariant*, H. U. Boden, C. Herald and P. Kirk, 2001 Georgia International Topology Conference, *AMS Proceedings of Symposia in Pure Mathematics* **71** (2003) 209–236
13. *The $SU(3)$ Casson invariant for 3-Manifolds split along a 2-sphere or a 2-torus*, H. U. Boden and C. Herald, *Topology and Its Applications* **124** (2002), no. 2, 187–204
12. *An integer valued $SU(3)$ Casson invariant*, H. U. Boden, C. Herald and P. Kirk, *Mathematical Research Letters* **8** (2001), no. 5-6, 589–603
11. *Gauge theoretic invariants of Dehn surgeries on knots*, H. U. Boden, C. Herald, P. Kirk, and E. Klassen, *Geometry and Topology* **5** (2001) 143–226
10. *Universal formulae for $SU(n)$ Casson invariants of knots*, H. U. Boden and A. Nicas, *Transactions of the American Mathematical Society* **352** (2000), no. 7, 3149–3187
9. *A connected sum formula for the $SU(3)$ Casson invariant*, H. U. Boden and C. Herald, *Journal of Differential Geometry* **53** (1999), no. 3, 443–464
8. *Rationality of moduli spaces of parabolic bundles*, H. U. Boden and K. Yokogawa, *Journal of the London Mathematical Society (2)* **59** (1999), no. 2, 461–478
7. *The $SU(3)$ Casson invariant for integral homology 3-spheres*, H. U. Boden and C. Herald, *Journal of Differential Geometry* **50** (1998), no. 1, 147–206
6. *Invariants of fibred knots from moduli*, H. U. Boden, in *Geometric Topology*, Ed. W. Kazez, *AMS/IP Studies in Advanced Mathematics* (1997) 259–267
5. *Integrality of the averaged Jones polynomial of algebraically split links*, H. U. Boden, *Journal of Knot Theory and Its Ramifications* **6** (1997), no. 3, 303–307
4. *Moduli spaces of parabolic Higgs bundles and parabolic $K(D)$ pairs over smooth curves*, H. U. Boden and K. Yokogawa, *International Journal of Mathematics* **7** (1996), no. 5, 573–598
3. *Variations of moduli of parabolic bundles*, H. U. Boden and Y. Hu, *Mathematische Annalen* **301** (1995), no. 3, 539–559
2. *Unitary representations of Brieskorn spheres*, H. U. Boden, *Duke Mathematical Journal* **75** (1994), no. 1, 193–220
1. *Representations of orbifold groups and parabolic bundles*, H. U. Boden, *Commentarii Mathematici Helvetici* **66** (1991), no. 3, 389–447

Preprints

2. *Virtual concordance and the generalized Alexander polynomial*, H. U. Boden and M. Chrisman, 2019 preprint
1. *Rationality of the moduli space of vector bundles over a smooth curve*, H. U. Boden, 1995 IHES preprint

Supervision

Doctoral Students

- 2018 **Homayun Karimi**, Ph.D. thesis: *Alternating Virtual Knots*
- 2016 **Lindsay White**, Ph.D. thesis: *Alexander Invariants of Periodic Virtual Knots*
- 2011 **George Dragomir**, Ph.D. thesis: *Closed Geodesics on Compact Developable Orbifolds*

Masters Students

- 2019 **Jie Chen**, M.Sc. thesis: *Algebraic Unknotting for Virtual Knots* (expected)
- 2016 **Robin Gaudreau**, M.Sc. thesis: *Parities of Virtual Braids and String Links*
- 2014 **Chris Gatopoulos**, M.Sc. thesis: *Braid Group Cryptography*
- 2013 **Homayun Karimi**, M.Sc. thesis: *The Ribbon-Slice Conjecture*
- 2012 **Chris Henry**, M.Sc. thesis: *The (Nested) Word Problem*
- 2011 **Michael Parchimowicz**, M.Sc. thesis: *An Examination of Four Knot Classes*
- 2010 **Lokman Tsui**, M.Sc. thesis: *Chern-Simons Gauge Theory and the Jones Polynomial*
- 2006 **David Lorne** M.Sc. project: *Jones Polynomial, Knot Cohomology and Torus Knots*
- 2005 **George Dragomir**, M.Sc. thesis: *Orbifolds of Nonpositive Curvature and Their Loop Space*
- 2003 **Richard Smeltzer**, M.Sc. thesis: *Linear Representations of Braid Groups*

Undergraduate Students

- 2018 **Jiakai Li**, Research project: *Yang Mills Equations on Riemann Surfaces*
- 2018 **Colin Bijaoui**, USRA project: *Invariants of Virtual Knot Concordance*
- 2018 **Marco Handa**, USRA project: *Invariants of Virtual Knot Concordance*
- 2017 **Matthew Jordan**, Research travel award: *Mathematics of cognition*
- 2016 **Guillian Ballisi**, USRA project: *Geometry of Infinite Groups*
- 2014 **Emily Dies**, USRA project: *Invariants of Welded Knots*
- 2014 **Ervin Thiagalingam**, USRA project: *Algebraic Curves and Knot Theory*
- 2014 **Jamal Kawach**, Honours thesis: *Khovanov Homology, Slice Invariants, and Exotic \mathbb{R}^4*
- 2013 **Emily Dies**, USRA project: *The Virtual and Welded Braid Groups*
- 2013 **Anne Isabel Gaudreau**, USRA project: *Alexander Invariants of Virtual Knots*
- 2013 **Adam Gerlings**, USRA project: *Alexander Invariants of Virtual Knots*
- 2011 **Christopher Lam**, USRA project: *The Volume Conjecture*
- 2010 **Vanessa Foster**, USRA project: *Knots, Links, and Braids*
- 2009 **Chris Henry**, USRA project: *Research in Geometric Group Theory*
- 2008 **Chris Henry**, USRA project: *Groups via Topology, Combinatorics, and Geometry*
- 2007 **Sylvia Andreae**, ArtSci thesis: *Explorations in Braid Theory*
- 2007 **Chris Henry** USRA project: *Automatic Structures and Combinatorial Group Theory*
- 2006 **Steffen Marcus** ArtSci thesis: *Mathematical Logic and Point-Set Topology*
- 2006 **Steffen Marcus** USRA project: *Algebraic Curves and Algebraic Geometry*

Doctoral Examining Committees

- 2018 **Michael Clemens**, *Framing Nature and Nation: The Environmental Cinema of the National Film Board, 1939–1974*, McMaster University
- 2016 **Lauren DeDieu**, *Newton-Okounkov Bodies of Bott-Samelson and Peterson Varieties*, McMaster University
- 2015 **Oleg Chterental**, *Virtual Braids and Virtual Curve Diagrams*, University of Toronto
- 2013 **Nima Anvari**, *Equivariant Gauge Theory and Four Manifolds*, McMaster University
- 2012 **Reza Taleb**, *Equivariant Iwasawa theory and the Coates-Sinnot Conjecture*, McMaster University
- 2009 **Liam Watson**, *Involutions on 3-manifolds and Khovanov homology*, Université du Québec à Montréal
- 2007 **Jian Xu**, *Mei – A Module System for Mechanized Mathematics*, McMaster University

Postdoctoral Fellows

William Rushworth
Matthias Nagel
Prayat Poudel
Tolga Etgü
Brendan Owens
Sašo Strle

David Duncan
Eric Harper
Hee Jung Kim
Jonathan Yazinski
Ke Zhu

George Dragomir
Eduardo Martinez Pedroza
Martin Niepel
Ben Mares
Brad Safnuk

Doctoral Supervisory Committee

Nima Anvari
Semra Pamuk

Lauren DeDieu
Lucian Savin

Mehmetcik Pamuk

Masters Examining Committee

Nima Anvari
Piotr Jagiello
Qiuping Lu

Darren Gray
Carolyn Junkins
Wangshan Lu

Praphat Fernandes
Qun Li
Ami Mamolo

Conference Organization (since 2009)

- 6/2020 *Interactions of Gauge Theory with Contact and Symplectic Topology*, Banff International Research Station, Banff, Alberta (expected)
- 9/2017 *Infinite Groups and Geometric Structures*, 1132nd Meeting of the AMS, University of Buffalo, Buffalo, NY USA
- 12/2016 Scientific Director, *2016 Winter Meeting of the Canadian Mathematical Society*, Niagara Falls, Ontario
- 5/2016 *Flavours of Gauge Theory: Rubermania!*, Fields Institute, Toronto, Ontario
- 3/2016 *Interactions of Gauge Theory with Contact and Symplectic Topology*, Banff International Research Station, Banff, Alberta
- 12/2014 *Geometry and Topology of Manifolds in Low Dimensions*, 2014 Winter Meeting of the CMS, Hamilton, Ontario
- 7/2013 *Low-Dimensional Topology after Floer*, Centre de Recherches Mathématiques, Montréal, Quebec
- 3/2013 *Interactions of Gauge Theory with Contact and Symplectic Topology*, Banff International Research Station, Banff, Alberta
- 6/2011 Research in Teams on *the $SU(3)$ Casson invariant for spliced sums*, Banff International Research Station, Banff, Alberta
- 3/2011 *Interactions between Contact Symplectic Topology and Gauge Theory*, Banff International Research Station, Banff, Alberta
- 8/2009 *Chern-Simons Gauge Theory: 20 years after*, Hausdorff Center and Max Planck Institute for Mathematics, Bonn, Germany
- 3/2009 *Interactions of Geometry and Topology in Dimensions 3 and 4*, Banff International Research Station, Banff, Alberta

Invited Conference Talks (since 2009)

- 3/2019 *International conference on Graph Theory and Combinatorics*, Beijing Jiaotong University, Beijing, China
- 12/2018 *Topology*, 2018 Winter Meeting of the CMS, Vancouver, British Columbia
- 3/2018 *Algebraic, Combinatorial, and Quantum Invariants of Knots and Manifolds*, 1136th Meeting of the AMS, Ohio State University, Columbus, OH USA
- 2/2018 *CNRS–McMaster Joint Workshop*, McMaster Innovation Park, Hamilton, Ontario

- 12/2017 *Low dimensional topology and geometric group theory*, 2017 Winter Meeting of the CMS, Waterloo, Ontario
- 9/2017 *Knots, 3-manifolds and their invariants*, 1132nd Meeting of the AMS, University of Buffalo, Buffalo, NY USA
- 8/2017 *Low-dimensional topology and gauge theory*, Casa Matemática Oaxaca (CMO), Oaxaca, Mexico
- 7/2017 *Interactions between geometric group theory, topology and geometry, and dynamics*, Mathematical Congress of the Americas 2017, Montréal, Quebec
- 12/2016 *Geometry and Topology in Low Dimensions: Interactions with Floer theory*, 2016 Winter Meeting of the CMS, Niagara Fall, Ontario
- 12/2015 *Low dimensional topology and geometric group theory*, 2015 Winter Meeting of the CMS, Montréal, Quebec
- 3/2015 *Floer homology, gauge theory, and symplectic geometry*, 1108th Meeting of the AMS, Michigan State University, East Lansing, MI, USA
- 10/2014 *Interactions between knots and manifolds*, 1104th Meeting of the AMS, San Francisco State University, San Francisco, CA, USA
- 4/2014 *Quantization of moduli spaces*, University of Geneva, Geneva, Switzerland
- 8/2011 *Aarhus gauge theory workshop*, Center for Quantum Geometry and Moduli Spaces, QGM, Aarhus University, Aarhus, Denmark
- 5/2011 *Knots, surfaces and 3-manifolds*, 1071st Meeting of the AMS, UNLV, Las Vegas, NV USA
- 4/2010 *Character varieties in the geometry and topology of low-dimensional manifolds*, Banff International Research Station, Banff, Alberta
- 12/2009 *Knot theory and related topics*, Joint meeting of the KMS-AMS, Ewha Womans University, Seoul, Korea
- 6/2009 *Algebraic Geometry and Topology*, CMS/CSHPM Meeting, Memorial University, St. Johns, Newfoundland
- 3/2009 *Geometric Topology*, Spring Topology and Dynamics Conference, University of Florida, Gainesville, FL USA
- 1/2009 *Geometry, Algebra, and Topology of Character Varieties*, 115th Annual Meeting of the AMS, Joint meeting of the AMS and MAA, Washington, DC

Invited Seminars and Colloquia (since 2009)

- 4/2019 *Colloquium*, University of Miami, Miami, Florida, USA (expected)
- 10/2018 *Knot Theory Seminar*, Moscow State Technical University, Moscow, Russia (Skype)
- 2/2016 *Topology Seminar*, University at Buffalo, Buffalo, NY, USA
- 4/2015 *Mathematics Seminar*, The College of New Jersey, Ewing, NJ, USA
- 11/2014 *Topology Seminar*, Indiana University, Bloomington, IN, USA
- 9/2014 *Threads Colloquium*, McMaster University, Hamilton, Ontario
- 5/2014 *Knots at Lunch*, University of Toronto, Toronto, Ontario
- 11/2012 *Joint USC/UCLA/CalTech Topology Seminar*, UCLA, Los Angeles, CA, USA
- 11/2012 *Claremont Topology Seminar*, Pomona College, Claremont, CA, USA
- 6/2012 *Geometric Topology Seminar*, Max Planck Institute for Mathematics, Bonn, Germany
- 6/2012 *Séminaire de Topologie*, Institut Mathématiques de Jussieu, Paris VI & VII, Paris, France
- 6/2012 *Séminaire de Topologie, Géométrie et Algèbre*, Université de Nantes, Nantes, France
- 6/2012 *Séminaire de Mathématiques Pures*, Université Blaise Pascal, Clermont-Ferrand, France
- 5/2012 *Topology Seminar*, University of Ljubljana, Ljubljana, Slovenia
- 5/2012 *Seminar Niedrig-dimensionale Topologie*, University of Cologne, Cologne, Germany
- 5/2012 *Oberseminar Globale Analysis*, University of Bonn, Bonn, Germany

- 4/2012 *Geometry & Topology Seminar*, University of Glasgow, Glasgow, Scotland
 3/2012 *Oberseminar*, Max Planck Institute for Mathematics, Bonn, Germany
 1/2012 *Colloquium*, University of Miami, Miami, Florida, USA
 12/2009 *Topology Seminar*, Michigan State University, East Lansing, MI, USA

Teaching Experience

- 2000 – **Instructor**, *Mathematics & Statistics, McMaster University*, Hamilton, Ontario Canada.
- | | | |
|-------------------------------|-------------------------------|-------------------------------|
| Math 1K03 | Math 1M03 | Math 1N03 |
| Math 1X03 | Math 2R03 (4 sections) | Math 2S03 (2 sections) |
| Math 2X03 | Math 3EE3 (2 sections) | Math 3T03 (4 sections) |
| Math 4B03 (3 sections) | Math 4BB3 (2 sections) | Math 4T03 |
| Math 4TT3 (2 sections) | Math 4SF3 (2 sections) | Math 731 |
| Math 761 (2 sections) | Math 762 | Math 795 |

University Service

- 2018– **Member**, *Senate, McMaster University*, Hamilton, Ontario.
 2009–2018 **Department Chair**, *Mathematics & Statistics, McMaster University*, Hamilton, Ontario.
 2009–2018 **Member**, *Faculty Council, Faculty of Science, McMaster University*, Hamilton, Ontario.
 2005–2007 **Associate Chair (Graduate)**, *Mathematics & Statistics, McMaster University*, Hamilton,
 & 2002–2004 Ontario.
 2009–2018 **Chair**, *Tenure and Promotion Committee*, Mathematics & Statistics, McMaster University,
 Hamilton, Ontario.
 2009–2018 **Chair**, *Appointments Committee*, Mathematics & Statistics, McMaster University, Hamilton,
 Ontario.
 2005–2007 **Chair, Graduate Admissions and Curriculum Committee**, *Mathematics & Statistics, Mc-*
 & 2002–2004 *Master University*, Hamilton, Ontario.
 2003–2004 **Member**, *Tenure and Promotion Committee*, Mathematics & Statistics, McMaster University,
 & 2006–2007 Hamilton, Ontario.
 2002–2003 **Member**, *Appointments Committee*, Mathematics & Statistics, McMaster University, Hamil-
 & 2004–2005 ton, Ontario.
 2002–2003 **Member**, *Graduate Science Curriculum Committee*, School of Graduate Studies, McMaster
 & 2004–2005 University, Hamilton, Ontario.
 2002–2007 **Member**, *McMaster-Fields Supporting University Action Committee*.

Activities & External Service

- 2016– **Associate Editor**, *Canadian Journal of Mathematics*.
 2016– **Associate Editor**, *Canadian Mathematical Bulletin*.
 2018 **Member**, *IQAP Site Visit Team*, Department of Mathematical Sciences, Lakehead University.
 2009– **Member**, *Committee of Academic Sponsors*, Mathematical Research Sciences Institute
 (MSRI), Berkeley, CA USA.
 2009 **Member**, *MSRI Site Visit Team*, Division of Mathematical Sciences, National Science
 Foundation.
 2009–2018 **Member**, *Corporation of the Fields Institute*, Toronto, Ontario.
 2006–2009 **Member**, *Grant Selection Committee 336*, Pure and Applied Math A, Natural Sciences and
 Engineering Research Council.
 2007–2009 **Chair**, *Grant Selection Committee 336*, Pure and Applied Math A, Natural Sciences and
 Engineering Research Council.
 2007–2014 **Member**, *Mathematics NSERC Liaison Committee*.

- 2015– **Referee**, *Proposed Workshops*, Banff International Research Station.
- 1998– **Referee**, *Grants in Mathematics*, National Science Foundation.
- 2001– **Referee**, *Grants in Pure Mathematics*, Natural Sciences and Engineering Research Council of Canada.
- 1997– **Reviewer**, *Mathematical Reviews*, Natural Sciences and Engineering Research Council of Canada.
Reviewed 124 journal articles and 1 book
- 2008– **Reviewer**, *Zentralblatt*.
Reviewed 14 journal articles and 1 book
- 1994– **Referee**, *Math Journals*.
- *Advances in Mathematics*
 - *Algebraic and Geometric Topology*
 - *American Journal of Mathematics*
 - *Bulletin of the London Mathematical Society*
 - *Canadian Journal of Mathematics*
 - *Canadian Math Bulletin*
 - *Communications in Contemporary Mathematics*
 - *Compositio Mathematica*
 - *Experimental Mathematics*
 - *Geometry and Topology*
 - *Geometriae Dedicata*
 - *Indiana University Mathematics Journal*
 - *Journal of Differential Geometry*
 - *Journal of the European Mathematical Society*
 - *Journal of Knot Theory and Its Ramifications*
 - *Journal of Mathematical Sciences*
 - *Journal of Pure and Applied Algebra*
 - *Journal of Topology*
 - *Mathematische Annalen*
 - *Mathematische Zeitschrift*
 - *Memoirs of the American Mathematical Society*
 - *Michigan Mathematical Journal*
 - *Pacific Journal of Mathematics*
 - *Proceedings of the American Mathematical Society*
 - *Proceedings of the London Mathematical Society*
 - *Publicacions Matemàtiques*
 - *Quantum Topology*
 - *Quarterly Journal of Mathematics*
 - *Rocky Mountain Journal of Mathematics*
 - *Tbilisi Mathematical Journal*
 - *Topology*
 - *Topology and Its Applications*
 - *Transactions of the American Mathematical Society*
 - *Transformation Groups*