Christopher Thomas Woodward

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Academic Employment

Rutgers University Department of Mathematics. Assistant Professor, July '98 – June '02. Associate Professor, July '02 – June '07. Professor July '07 – '17. Distinguished Professor '17 – present. Acting Chair '16–'17. Vice-chair for administration '22–'24. Acting Chair '25–Jun '25. Chair Jul '25 – Jun '26.

Simons Center for Geometry and Physics, Stony Brook, New York. Visiting Professor, Spring '11.

Harvard University Department of Mathematics. July '96 – June '98. National Science Foundation Postdoctoral Fellow and Instructor. Mentor S. Sternberg.

Education

Massachusetts Institute of Technology. September '92 – May '96. Ph.D. in Mathematics (Symplectic Geometry) supervised by Prof. V. Guillemin received in June '96, for the thesis *Multiplicity-free Hamiltonian actions and existence of invariant Kähler structure.*

Emmanuel College, Cambridge University, England. October '91 – June '92. Certificate of Advanced Study, with Distinction, for Part III of the Math. Tripos, June '92.

Harvard College. September '87 – May '91. A.B. Summa cum Laude in Mathematics and Physics, June '91.

St. Louis University High School. September '83 – May '87. Diploma June '87.

Visiting Positions

Simons Center for Geometry and Physics, Stonybrook, New York. Visiting Professor, Spring '11.

Massachusetts Institute of Technology, Cambridge, Massachusetts. Visiting Scholar, Fall '10.

University of Otago, Dunedin, New Zealand. Visiting Scholar, Fall '03.

Fields Institute, Toronto, Canada. Member, June '01.

Mathematical Sciences Research Institute, Berkeley, California. Postdoctoral fellow, Spring '99. Mentor A. Weinstein.

Fourier Institute, Grenoble, France. Visiting Professor, June '97.

Research Interests

Symplectic geometry, and relations with Lie theory, algebraic geometry, and mathematical physics.

Mathematical Publications (including those to appear)

(1) J. Palmer and C. Woodward. Invariance of immersed Floer cohomology under surgery. 96 pages. arXiv:1903.01943. To appear in *Quantum Topology*.
(2) Venugopalan, Sushmita; Woodward, Chris T.; Xu, Guangbo Fukaya categories of blowups. J. Inst. Math. Jussieu 25 (2026), no. 1, 85–214. http://arxiv.org/abs/2006.12264.
(3) S. Venugopalan, C. Woodward. Tropical Fukaya Algebras. Venugopalan, Sushmita; Woodward, Chris T. Tropical Fukaya algebras. EMS Monographs in Mathematics. EMS Press, Berlin, 2025. ix+367 pp. http://arxiv.org/abs/2004.14314.
(4) E. Gonzalez and C. Woodward, Quantum Witten localization. Pure Appl. Math. Q. 19 (2023), no. 4, 1943–1973.
(5) E. Gonzalez and C. Woodward. A wall-crossing formula for Gromov-Witten invariants under variation of git quotient. *Math. Ann.* 388 (2024), no. 4, 4135–4199.
(6) J. Palmer and C. Woodward. Immersed Floer cohomology and Maslov flow. Algebr. Geom. Topol. 21 (2021), no. 5, 2313-2410. arXiv:1804.06799.
(7) E. Gonzalez and C. Woodward. Quantum Kirwan for quantum K-theory. Facets of algebraic geometry. Vol. I, 265–332, London Math. Soc. Lecture Note Ser., 472, Cambridge Univ. Press, Cambridge, 2022. arxiv:1911.03520.
(8) E. Gonzalez and C. Woodward. Quantum cohomology and toric minimal model programs. Adv. Math. 353 (2019), 591–646. arxiv:1207.3253.
(9) F. Charest and C. Woodward. Floer theory and flips. Mem. Amer. Math. Soc. 279 (2022), no. 1372, v+166 pp. arXiv:1508.01573
(10) K. Wehrheim and C. Woodward, Floer field theory for coprime rank and degree. *Indiana Math. Jour.* 69 (2020), no. 6, 2035–2088. arxiv:1601.04924.
(11) K. Wehrheim, S. Ma'u and C. Woodward. A_∞-functors for Lagrangian correspondences. Selecta Math. 24(3), p. 1913–2002, 2018.
(12) E. Gonzalez, P. Solis, and C. Woodward. Properness for scaled gauged maps. J. Algebra, 490:104–157, 2017.
(13) E. Gonzalez, P. Solis and C. Woodward. Stable gauged maps. *Algebraic geometry: Salt Lake City 2015*, 243–275, Proc. Sympos. Pure Math., 97.1, Amer. Math. Soc., Providence, RI, 2018.
(14) F. Charest and C. Woodward. Floer trajectories and stabilizing divisors. Jour. Fixed Point Theory. June 2017, Volume 19, Issue 2, pp 1165–1236.
(15) K. Wehrheim and C. Woodward, Exact triangle for fibered Dehn twists. Res Math Sci 3 (2016) 3: 17. 40 pages. arxiv:1503.07614.
(16) Sushmita Venugopalan and Christopher T. Woodward, Classification of affine vortices. Duke Math. J. 165 (2016), 1695–1751. arxiv:1301.7052.
(17) Chris T. Woodward. Quantum Kirwan morphism and Gromov-Witten invariants of quotients III. Transformation Groups 20 (2015) 1155–1193. arXiv:1408.5869.
(18) Chris T. Woodward. Quantum Kirwan morphism and Gromov-Witten invariants of quotients II. Transformation Groups 20 (2015) 881–920. arXiv:1408.5864.
(19) Chris T. Woodward. Quantum Kirwan morphism and Gromov-Witten invariants of quotients I. Transformation Groups 20 (2015) 507–556. arXiv:1204.1765.
(20) Katrin Wehrheim and Chris T. Woodward. Pseudoholomorphic Quilts. Journal of Symplectic Geometry 13 (2015) 745–764. arxiv:0905.1369.
(21) K. Nguyen, C. Woodward, and F. Ziltener. Morphisms of cohomological field theory algebras and quantization of the Kirwan map. *Symplectic, Poisson, and Noncommutative Geometry*, MSRI Publications Volume 62, 2014, 131–170. arxiv:0903.4459.

(22) E. Gonzalez and C. Woodward. Gauged Gromov-Witten theory for small spheres. *Math. Zeit.* 273 (2013) 485–514. arxiv:0907.3869.
(23) Glen Wilson and Christopher T. Woodward, Quasimap Floer cohomology and singular symplectic quotients. Canadian Jour. of Math. 65 (2013) 467–480. arxiv:1105.0712
(24) Katrin Wehrheim and Chris T. Woodward. Floer Cohomology and Geometric Composition of Lagrangian Correspondences. Adv. Math. 230 (2012) 177–228. arxiv:0905.1368.
(25) Christopher T. Woodward. Gauged Floer theory of toric moment fibers. Geometric And Functional Analysis 21 (2011) 680-749. arxiv:1004.2841. Corrected from the published version by permission of the editors.
(26) Katrin Wehrheim and Chris Woodward. Quilted Floer Cohomology. *Geometry and Topology* 14 (2010) 833–902. Journal article. Quilted Floer trajectories with constant components: Corrigendum to *Quilted Floer cohomology. Geometry and Topology* 16 (2012), 127–154. arxiv:1101.3770
(27) C. Manolescu and C. Woodward, Floer homology on the extended moduli space. Perspectives in Analysis, Geometry, and Topology Progress in Mathematics, 2012, Volume 296, 283–329. arxiv:0811.0805.
(28) E. Gonzalez and C. Woodward, Deformations of symplectic vortices. Annals of Global Anal. and Geom. 39 (2011) 45–82. arxiv:0811.3711.
(29) S. Ma'u and C. Woodward. Geometric realizations of the multiplihedron and its complexification. Compos. Math. 146 (2010), no. 4, 1002—1028. Journal article.
(30) Katrin Wehrheim and Chris T. Woodward. Functoriality for Lagrangian correspondences in Floer theory. Quantum Topol. 1 (2010), no. 2, 129—170. arxiv:0708.2851.
(31) Christopher T. Woodward. Moment maps and geometric invariant theory. Expanded notes for lectures given at the school on Hamiltonian actions and their invariants at CIRM, Luminy, April 2009. 66 pages. CIRM Lecture Notes Vol. 1. Book chapter.
(32) Constantin Teleman and Christopher T. Woodward. The Index Formula on the Moduli of G-bundles. Annals Math. 170 (2009) 495–527. Journal article. The material in arxiv e-print math.AG/0512486 was combined into this paper.
(33) C. Woodward. The Yang-Mills heat flow on the moduli space of framed bundles on a surface. Amer. J. Math. 28 (2006) 311–359. arxiv:0211231.
(34) Christopher T. Woodward. Localization for the norm-square of the moment map and the two-dimensional Yang-Mills integral. Jour. Symplectic Geom. 3 (2005) 17–54. Journal article.
(35) Y. Taylor and C. Woodward. Non-Euclidean tetrahedra and $6j$ symbols for $U_q(sl_2)$, Selecta Mathematica 11 (2005) 539–571. arxiv:0305113
(36) C. T. Woodward. On D. Peterson's comparison formula for Gromov-Witten invariants of G/P. Proc. Amer. Math. Soc. 133 (2005), 1601–1609. Journal article.
(37) A. Knutson, T. Tao, and C. Woodward. A positive proof of the Littlewood-Richardson rule using the octahedron recurrence. Electronic Journal of Combinatorics 11 (2004) R61. Journal article.
(38) W. Fulton and C. Woodward. On the quantum product of Schubert classes. J. Algebraic Geom. 13 (2004), 641–661. arxiv:0112183.
(39) Allen Knutson, Terence Tao, and Christopher Woodward. The honeycomb model of $GL_n(C)$ tensor products II: Facets of the Littlewood-Richardson cone. J. Amer. Math. Soc. 17 (2004) 19–48. arxiv:0107011.
(40) C. Teleman and C. Woodward. Parabolic bundles, products of conjugacy classes, and quantum cohomology. Ann. Inst. Fourier (Grenoble) 53 (2003) 713–748. Journal article.
(41) A. Alekseev, E. Meinrenken, and C. Woodward. Duistermaat-Heckman measures and moduli spaces of flat bundles over surfaces. Geom. funct. anal. 12 (2002) 1–31. arxiv:9903087.

(42) A. Alekseev, E. Meinrenken, and C. Woodward. Linearization of Poisson actions and singular values of matrix products. Ann. Inst. Fourier 51 (2001) 1691–1717. Journal article.
(43) A. Alekseev, E. Meinrenken and C. Woodward. The Verlinde formulas as fixed point formulas. Jour. of Symplectic Geom. 1, 1–46 (2001), 2, Publisher's Correction 427–434 (2001). Journal article.
(44) C. Woodward. Gromov-Witten invariants of flag manifolds and products of conjugacy classes in *Advances in algebraic geometry motivated by physics (Lowell, MA, 2000)*, 279–286, Contemp. Math., 276, Amer. Math. Soc., Providence, RI, 2001.
(45) E. Meinrenken and C. Woodward. Canonical bundles for Hamiltonian loop group actions. Pacific J. Math. 198 (2001) 477–487. Journal article.
(46) A. Alekseev, E. Meinrenken, and C. Woodward. Group-valued equivariant localization. Invent. Math. 140 (2000) 327–350. arxiv:9905130.
(47) A. Canas, V. Guillemin, and C. Woodward. On the unfolding of folded symplectic structures. Math. Res. Lett. 7 (2000), 35–53. Journal article.
(48) E. Meinrenken and C. Woodward. Cobordism for Hamiltonian loop group actions and flat connections on the punctured two-sphere. Math. Zeit. 231 (1999), 133–168. 9707019.
(49) S. Agnihotri and C. Woodward. Eigenvalues of products of unitary matrices and quantum Schubert calculus. Math. Res. Lett. 5 (1998), 817–836. Journal article.
(50) E. Meinrenken and C. Woodward. Moduli spaces of flat connections on 2-manifolds, cobordism, and Witten's volume formulas, in *Advances in geometry*, 271–295, Progr. Math., 172, Birkhäuser, Boston, Boston, MA, 1998. arxiv:9707018.
(51) E. Meinrenken and C. Woodward. Hamiltonian loop group actions and Verlinde factorization. J. Differential Geom. 50 (1998), 417–469.
(52) Eugene Lerman, Eckhard Meinrenken, Sue Tolman, and Chris Woodward. Non-abelian convexity by symplectic cuts, Topology 37 (1998) 245–259. arxiv:9603015.
(53) Chris T. Woodward. Spherical varieties and existence of invariant Kähler structures. Duke Math. Jour. 93 (1998), 345–377. Journal article with subscription.
(54) Chris Woodward. Multiplicity-free Hamiltonian actions need not be Kaehler. Invent. Math. 131 (1998), 311–319. arxiv:9506009.
(55) Chris Woodward. The classification of transversal multiplicity-free group actions. Ann. Global Ann. Geom 14 (1996), 3–42. Journal article with subscription.

Articles and books in preparation

(1) C. Woodward. Holomorphic disks and tropical Lagrangians arXiv:2604.27079. 65 pages.
(2) S. Venugopalan, C. Woodward. Tropical disk potential for almost toric manifolds. arXiv:2604.03161. 90 pages.
(3) K. Blakey, S. Chanda, Y. Sun, C.T. Woodward. Augmentation varieties and disk potentials I, II, III. 157 pages. http://arxiv.org/abs/2310.17821, http://arxiv.org/abs/2401.13021. http://arxiv.org/abs/2401.130 2023
(4) C. Woodward and G. Xu. An open quantum Kirwan map. 106 pages. arXiv:1806.06717. This received a reasonably positive referee report, but we decided we wanted to re-write it with a stronger result and so have temporarily withdrawn.
(5) K. Wehrheim and C. Woodward, Floer field theory for tangles. arxiv:1503.07615. 43 pages.

(6) K. Wehrheim and C. Woodward, Orientations for pseudoholomorphic quilts. arxiv:1503.07803. 56 pages.
(7) Yuka Taylor and Christopher T. Woodward. Spherical tetrahedra and three-manifold invariants. 18 pages. arxiv:0406228
(8) A. Alekseev, E. Meinrenken and C. Woodward. Verlinde-type formulas for non simply-connected groups. 28 pages. arxiv:0005047.

Non-mathematical publications

(1) N. T. Maitra, T. Todorov, C. Woodward, K. Burke. On the density-potential mapping in time-dependent density functional theory. Phys. Rev. A Vol. 81 (a), no. 4, 042525.1–7 (2010).
(2) Neepa T. Maitra, Kieron Burke, and Chris Woodward. Memory in time-dependent density functional theory. 4 pages. Phys. Rev. Letts. 89, 023002 (2002).

Educational Involvement

Research supervisor for the doctoral research of Yiyan Liu, '24 – present.

Postdoctoral mentor for Yao Xiao. (PhD, SUNY, 2024), Hill Assistant Professor and postdoctoral Fellow, '25 – present.

Supervision of a Research Experience for Undergraduates on Lagrangian fillings, co-supervisor with Yiyang Liu and Dennis Hou with undergraduate Kyan Valencik (Rutgers), Summer '25.

Co-organizer for the Rutgers Symplectic Seminar '23 – present, joint with G. Xu.

Supervision of a Research Experience for Undergraduates on Lagrangian fillings, co-supervisor with Soham Chanda with undergraduate Jemma Schroder (MIT), Summer '23.

Supervision of a Research Experience for Undergraduates on Morse flow trees, co-supervisor with Soham Chanda with undergraduates Kenneth Blakey (Brown), Summers of '21 and '22, and Sangjun Ko (Rutgers), summer of '21.

Postdoctoral mentor for Yuhan Sun (PhD, SUNY, 2020), HIll Assistant Professor and postdoctoral Fellow, '20 – '23. Now Postdoctoral Fellow at Imperial College, London.

Research supervisor for the doctoral research of Sumeet Khandelwal, '21 – present.

Short course on *Disk potentials and Fukaya algebras*, 3 hours, Oberwolfach session on superpotentials, February 2020.

Supervision of a Research Experience for Undergraduates on mutations of Laurent polynomials, co-supervisor with Marco Castronovo, with undergraduates Anna Antal (Rutgers) and Samuel Panitch (Univ. Penn.), Summer 2020.

Research supervisor for the doctoral research of Marco Castronovo, '15 – '21, on Fukaya categories of Grassmannians. Now Ritt Assistant Professor at Columbia University.

Research supervisor for the doctoral research of Xindi Zhang, '17 – present, on immersed Floer theory and Hamiltonian displaceability.

Research supervisor for the doctoral research of Soham Chanda, '19 – '24, on generalized Lagrangian surgeries and Floer theory. Now Postdoctoral Fellow at University of Southern California.

Postdoctoral mentor for Joseph Palmer, Honors College Assistant Professor and postdoctoral Fellow, '16-'19.

Co-organizer for the Rutgers Geometry, Symmetry and Physics seminar '09 – 21, joint with L. Borisov (Rutgers mathematics) E. Diaconescu (Rutgers physics), and A. Gibney (Rutgers mathematics).

Supervision of a Research Experience for Undergraduates on curve-shortening flow on surfaces, Summer '18, supervisee Scott Harman (Rutgers undergraduate).

Research supervisor for the doctoral research of Doug Schultz, '12 – '17, on Floer theory in Mori fibrations.

Supervision of a Research Experience for Undergraduates on non-displaceable Lagrangians. Summer '16. George Jeffreys, Rutgers, and Daniel Gallagher, Boston College.

Lecturer, course on Lagrangian Floer theory, Miraflores de la Sierra summer school on Symplectic Geometry, Classical Mechanics and Interactions with Spectral Theory, July '15. 4 hours.

Co-Supervision of a Research Experience for Undergraduates on cyclic Heegaard splittings, Summer '14, Jacob McNamara, Harvard University, co-supervised with David Duncan.

Co-instructor (with A. Cohen) of a course for in-service middle school math teachers, New Jersey Institute for Excellence in Middle School Mathematics, July '11, July '12, July '13, based on the common core state standards in mathematics. On average 25 hours of instruction per course and involved approximately 100 in-service New Jersey teachers.

Co-Supervision of a Research Experience for Undergraduates on cyclic Heegaard splittings, Summer '13, Eric Fay (Rutgers) and Tynan Lazarus (Hawaii), with the help of Doug Schultz and Alejandro Ginory, Rutgers graduate student.

Co-Supervision of a Research Experience for Undergraduates on cyclic Heegaard splittings, Summer '12, Andrew Schultz, Rutgers University, with the help of David Duncan.

Supervision of a Research Experience for Undergraduates on Hamiltonian displaceability, Summer '10, Glen Wilson, College of New Jersey.

Co-Mentor with Lev Borisov for Alexandra Popa, Postdoctoral Fellow at Rutgers in Symplectic Geometry, '12 – '15.

Research supervisor for the doctoral research of D. Duncan, '10 – '13, on compactness results for the quilted Atiyah-Floer conjecture.

Research supervisor for the doctoral research of Sushmita Venugopalan, '08 – '12, on the heat flow for gauged holomorphic maps. Now tenured at IMSc Chennai.

Research co-supervisor for the doctoral research of Andreas Ott (ETH-Zurich), joint with D. Salamon, '07 – '10, on symplectic vortex invariants.

Lecturer, course on Gromov-Witten invariants and symplectic vortices, Winter School on Mathematical Physics, Les Diablerets, Switzerland, February 2010. 4 hours.

Lecturer, course on the Kempf-Ness theorem, School on Hamiltonian actions and their invariants, Luminy, April '09. 4 hours.

Supervision of a Research Experience for Undergraduates on Yang-Mills-Higgs equations, Summer '09 Amanda Hood, Rutgers, Joseph Shao, Rutgers, and Khoa Nguyen, MIT.

Supervision of a Research Experience for Undergraduates on moduli spaces of points, Summer '08 Joseph Shao, Rutgers, and Khoa Nguyen, MIT.

Research supervisor for the undergraduate research of Eric Wayman (Rutgers) and Anna Fuller (UC Berkeley), Summer '06.

Organizer for the Rutgers Junior/Senior Honors Seminar, Spring '07, on expander graphs.

Research supervisor for the doctoral research of Reza Rezazadegan, '05 – '09, of a thesis "Holomorphic quilts and Khovanov homology."

Mentor for Eduardo Gonzalez, Assistant Professor at Rutgers in Symplectic Geometry, '05 – '08. Now tenured at UMass Boston.

Research supervisor for the doctoral research of Sikimeti Ma'u, '04 – '08. Her thesis title was "The multiplihedra in Lagrangian Floer theory."

Supervisor for a Research Experience for Undergraduates on Khovanov tangle invariants, Matthew Meola and Joseph Walsh (Rutgers) with the help of Padmini Mukkamala (Rutgers). Summer '05.

Co-organizer for the Junior/Senior Honors Seminar, Spring '05, with J. Tunnell.

Supervisor for a Research Experience for Undergraduates on the McKay correspondence, Summer '04, Stephen Curran (Rutgers) and Andrew Dudzik (Chicago).

Research Supervisor for the '03 Ph.D. thesis of Yuka Taylor, on Semiclassics of $6j$ symbols and Quantum Three-Manifold Invariants.

Co-organizer for the Rutgers Topology/Geometry Seminar '00 – '09.

Supervisor for a Research Experience for Undergraduates on Lie Theory and Wireless Antennae Networks Rupert Venzke, Summer '02, Alexandra Ovetsky (undergraduate students), and Shawn Robinson (postdoctoral fellow).

Curriculum Revision with R. Goodman for the MATLAB component of Math 250: Linear Algebra to improve visualization, Fall '02.

Supervisor for a Research Experience for Undergraduates on Non-Euclidean Tetrahedra and 6j-symbols, Summer '01, participants Michael McDuffee, Will Toler, Ken Golden (undergraduate students) Yuka Taylor (graduate student) Matt Leingang (postdoctoral fellow).

Mentor for Matthew Leingang, Assistant Professor at Rutgers in Symplectic Geometry, Fall '00 - Spring '03.

Supervisor for a Research Experience for Undergraduates on Quantum Schubert Calculus, Summer '00, participants Nickolai Roussanov (undergraduate students) Pieter Blue, Aaron Lauve, Michael Weingart (Rutgers graduate students).

Courses Taught and Student Evaluations

Undergraduate: Calculus I, Calculus II, Multivariable Calculus, Linear Algebra, Honors Linear Algebra, Geometry for Teachers, Mathematical Reasoning, Abstract Algebra, Topology, Junior/Senior Honors Seminar. Graduate: Algebraic Topology, Topology of Manifolds, Differential Geometry, Symplectic Geometry.

Service to the Department

Acting Chair, '16–'17 and Spring '25. **Chair**, Spring '25-Summer '26. Rutgers University, New Brunswick, Department of Mathematics, School of Arts and Sciences.

Vice-Chair for Administration, '22–'25. This means that I drafted the dossiers for those faculty under consideration for promotion.

Chair, Diversity and Inclusion/Climate Committees, '21–'24.

Member, Personnel Planning and Policy Committee, September '04 – October '06, October '07 – '09, October '11– '14, September '17–May '26.

Member, Information Technology Committee, '17–present.

Deputy Director for the Graduate Assistance in Areas of National Need (GAANN) program at Rutgers Mathematics '12-'15.

Member, Committee on Honors and Prizes, September '14 - '15. This includes policy on the Mathematics Department Honors Track.

Director, Professional development for graduate students, October '07 – August '12.

Member, Graduate Committee, September '06 – '08.

Co-organizer of the Department Colloquium, September '04 – September '07.

Service to the University

School of Arts and Sciences Nomination Committee, '22–'26.

School of Graduate Studies Executive Council. Spring '18–'22. This committee handles policy issues for the Graduate School.

School of Graduate Studies Executive Council. Math and Physical Sciences Cluster Committee Spring '18–'22. This committee approves new graduate courses in our area.

Promotion and Review Committee. Fall '08 – Spring 2010.

Service to the Profession

Program Co-organizer, Lagrangian Floer theory and applications, with D. Auroux and J. Evans, Sep-Nov '26 at the Center for Mathematical Sciences and Applications, Harvard University, Cambridge, Massachusetts.

Editorial Board, Symmetry, Integrability and Geometry: Methods and Applications (SIGMA), 2017–present. I handle a small volume of papers for SIGMA, compared to the other editorship Selecta below.

Conference Co-organizer, Workshop on Lagrangian Floer theory, Simons Center for Geometry and Physics, with Y. Lekili and K. Fukaya, May '21 at Stonybrook, New York.

AMS Simons Travel Grants Committee, 2014–16. Chair, 2015-16.

Conference Co-organizer, AMS Special Session on Modern Schubert Calculus, with A. Buch, Nov '15 at Rutgers University, New Brunswick.

Conference Co-organizer, Equivariant Gromov-Witten theory, with E. Gonzalez, May '14 at the Simons Center for Geometry and Physics.

Conference Co-organizer, Equivariant Gromov-Witten theory and symplectic vortices, CIRM (Luminy), July '09.

Conference Co-organizer, Geometric analysis and mathematical physics, University of Toronto, January '08.

Associate Editor, Selecta Mathematica, January '07 – present. I handle approximately one paper per month for Selecta.

Editor for Differential Geometry and Global Analysis, Transactions and Memoirs of the American Mathematical Society, February '09 – '17.

Conference Co-organizer, AMS Special Session on Schubert Calculus, Northeastern University, October '02.

Conference Co-organizer, Symplectic Geometry and Microlocal Analysis, M.I.T., September '98.

Service to the Community

Member '19-'24 (Appointed '19 then elected '20,'23), Board of Education, Highland Park School District, New Jersey. Member, Personnel '19-'22, Finance '22-'23 and Math Reform Committees.

Honors and Awards

NSF Conference Award 2533558 for a Rutgers Gauge Theory, Low-Dimensional Topology, and Geometric Analysis ICM Satellite Conference July 13-17 2026.

NSF Award DMS 2105417 in Geometric Analysis. Adiabatic Limits of Quantum Invariants of Symplectic Manifolds.

NSF Award DMS 1711070 in Geometric Analysis. Lagrangian Floer Theory and Quantum Invariants of Symplectic Manifolds.

Simons Fellowship for the academic year 2014-2015.

Fellow, American Mathematical Society, elected in 2015.

NSF Award DMS 1207194 in Geometric Analysis, 6/1/2012–5/31/2016, "Vortices, quilts, and quasimaps".

NSF Award DMS 0904358 in Geometric Analysis. "Gauged Gromov–Witten theory and holomorphic quilts" 7/01/09–6/31/12.

NSF Award DMS 0605097 in Geometric Analysis. "Holomorphic Curves and Two-Dimensional Gauge Theory". 7/01/06–6/31/09.

NSF Career Award DMS 0093647 "Symplectic geometry, physics, and algebraic combinatorics" 9/01/01 – 08/31/06.

Rutgers University Board of Trustees Research Fellowship for Scholarly Excellence, 5/02.

NSF Award DMS 9971357 "Moduli spaces of flat connections and Hamiltonian actions of loop groups" in Geometric Analysis. 9/01/99 – 8/31/02.

NSF Post-Doctoral Fellowship, '96-'99, held at Harvard (four semesters), Rutgers (one semester), and MSRI (one semester).

Sloan Doctoral Dissertation Fellowship, for the year '95-96 of graduate study at M.I.T.

Office of Naval Research Graduate Fellowship, for graduate study at M.I.T.

Herchel Smith Harvard Scholarship, for study at Emmanuel College, Cambridge, England in '91-'92.

Hoopes Prize for Outstanding Undergraduate Research, for a '91 Harvard Senior Thesis *Non-commutative Geometry and Quantum Field Theory.*

Selected Conference and Seminar Talks (including upcoming)

"Disk counting for tropical Lagrangians" Minnesota Yamabe Memorial Symposium: October 4 - 6, 2024.

"Tropical disk counting" IUIC Symplectic Seminar and colloquium, March 2025. Rutgers mathematical physics seminar February 2025.

"Disk potentials and Fukaya categories", ICTP Trieste, Italy, September 2023.

"AMS Sectional Conference" Augmentation varieties and disk potentials. April, 2023.

"Bangalore Conference on Vortices and Applications". Course on the Quantum Kirwan map. February 2023.

"Toronto Conference on Categorical Structures and Symmetry" Augmentation varieties and disk potentials. January, 2023.

" Augmentation varieties and disk potentials", AMS Sectional Conference', August, 2022.

"Notions of Stability", AIM Workshop, April, 2022.

" The open minimal model program", Western Hemisphere Symplectic Seminar, October, 2020.

" Floer theory in the tropics", Invited AMS address, AMS Sectional Meeting at Medford, March 2022.

"Tropical Fukaya algebras", Columbia University Symplectic Seminar, February 2020.

"Quantum Kirwan for quantum K-theory", Simons Center for Geometry and Physics, November 2019. University of Georgia algebra seminar, October 2020.

"Invariance of immersed Floer theory under Lagrangian surgery", Cambridge conference on Symplectic Geometry, June 2019. Park City Summer School on Symplectic Geometry and Gauge Theory, July 2014. University of Massachusetts, Amherst, Geometry Seminar, April 2019.

"Lagrangian Floer theory and mirror symmetry", Colloquia at Tata Institute, Mumbai, January 2019 and University of Massachusetts at Amherst, April 2019.

"Floer theory and Maslov flow" Princeton Symplectic Seminar, January 2018. UCLA Conference on Floer theory and homotopy theory, July 2017.

"Computations in Fukaya categories" Institut Mittag-Leffler Conference on Holomorphic Curves, August 2017. Hong Kong, May 2017.

"Nag Memorial Lectures" Symplectic Geometry and Floer theory, January 2017.

"Quantum Kirwan map and quantum K-theory". Rutgers Geometry, Symmetry, and Physics seminar March '15. Beijing conference on non-abelian gauged sigma models and representation theory, June '15. Utah conference on algebraic geometry, July '15.

"Floer-non-trivial Lagrangians via minimal model transitions". Columbia gauge theory seminar April '15. University of Pittsburgh colloquium, February '15. University of Toronto colloquium, October '14. Univ. of Penn. Math/Physics seminar, February '14. Princeton topology seminar, March '14. KIAS conference on Pseudoholomorphic curves, July '14. POSTECH conference in Mirror Symmetry, August '14. Simons Center for Geometry and Physics conference on Vortices and Gauged Gromov-Witten theory, November '14.

"Archimedes' epitaph and its generalizations". Colloquium-style talk. Mathematical Association of America regional meeting, May '14.

"Gauged Gromov-Witten invariants and applications" Max-Planck Institut, Bonn, November '12. Columbia conference on Gauged Gromov-Witten theory, April '13.

"Quilted Floer theory" Aarhus Conference on Geometry and Quantization of Moduli Spaces, July '06, Courant Differential Geometry Seminar, April '06; Princeton Moduli and Geometry seminar March '06. Banff Conference on Floer theory, May '07. Workshop on Mirror Symmetry and Symplectic Geometry, May '08. Oberwolfach workshop on categorical aspects of physics, June '10. Montreal conference on low-dimensional topology after Floer, July '13.

"Quantum cohomology of toric orbifolds" Stanford conference on holomorphic curves and low-dimensional topology, August '12. Oberwolfach, Germany, conference on toric geometry, April '12. Michigan conference on Gauged Sigma Models, March '13. Joint PSU/Cornell Symplectic Seminar, April '13. Montreal conference on Symplectic Topology, May '13. Guanajuato Joint Mathematics Conference of the Americas, August '13.

"Wall-crossing for Gromov-Witten invariants under variation of git quotient" Columbia conference on quantum differential equations, September '11. Simons Institute conference on Mirror Symmetry, May '11. Miami conference on mirror symmetry, January '12.

"Displaceability of toric moment fibers via gauged Floer theory" Kyoto Hayashibara Forum, Nov. '10. MIT conference on Mirror Symmetry, June '10. Institute for Advanced Study, Princeton, May '11. Conference on Symplectic and Poisson Geometry, Lausanne, July '13.

"Morphisms of cohomological field theories and the mirror map" MSRI Workshop on Algebraic Structures in the theory of holomorphic curves, November '09. Kyoto Conference on Algebraic Structures in TFT Feb '09. Midwest Symplectic Geometry Conference March '09.

"Functoriality of Gromov-Witten theory under quotients", Miami Workshop on Homological Mirror Symmetry, Jan '08. Midwest Symplectic Geometry Conference March '09. Winter School in Mathematical Physics, Les Diablerets, Switzerland, Jan. '10. Barcelona conference on Vector Bundles on Curves, June '12. Bonn conference on Vector Bundles over Curves, September '14.

"Gauged pseudoholomorphic maps", CMS Conference in Toronto, Dec. '06. Zurich conference on Mathematical Physics and Symplectic Geometry, Sep. 07. AMS Special Session on Symplectic geometry and algebraic combinatorics, Oct. '07. KIAS (Seoul) conference on Gromov-Witten theory. June '08.

"Localization for the norm-square of the moment map", Toronto Symplectic Geometry seminar, October '04. Montreal Conference on the large N limit in two-dimensional Yang-Mills theory, January '04.

"Non-Euclidean tetrahedra and $6j$ symbols for $U_q(sl_2)$" Porto conference on quantum gravity, July '04. Edinburgh conference on 2+1 dimensional gravity, July '03. Poisson Conference in Lisbon, September '02;

"A Kirwan-Ness stratification for loop group actions" Symplectic Geometry Conference at M.I.T., April '02;

"Quantum products of Schubert classes", CRM (Montreal) Conference on Algebraic Groups, June '02; Fields Institute (Toronto) Conference on Symplectic Geometry and Quantization, June '01.

"Honeycombs and facets of the Littlewood-Richardson cone", AMS Special Session on Modern Schubert Calculus, Toronto, October '00.

"Poisson moment maps and the hyperbolic Duflo theorem", AMS Special Session on Deformation Quantization, Hoboken, April '01; Conference on Representation Theory, ESI, Vienna, July '00.

"Parabolic G-bundles and products of conjugacy classes", Univ. of Maryland Geometry Seminar, February '01; AMS Special Session on Enumerative Geometry and Physics, April '00; Johns Hopkins Analysis Seminar, October '99.

"The Verlinde formula as a fixed point formula", Montreal Conference on Symplectic Geometry and Geometric Quantization, September '99; Ascona Conference on Geometric Quantization and Quantum Integrable Systems, June '99; AMS Special Session on Symplectic Geometry, Pennsylvania State University, October '98;

"Eigenvalue inequalities, moduli spaces of flat connections, and quantum Schubert calculus", Bryn Mawr Colloquium, September '99; Cornell Topology Festival, May '99; Northwestern Colloquium, April '98; AMS Workshop on Quantum Cohomology, June '98; AMS Special Session, Montreal, September '97.

On Hamiltonian loop group actions and moduli spaces of flat connections, Institute Fourier, Grenoble, June '97; AMS Special Session, College Park, April '97;

On the Kählerizability of Hamiltonian actions, Kazimierz Conference on Algebraic Group Actions, June '96; E.N.S. (France) Geometric Quantization Seminar, June '95; Lyon (France) Lie Seminar, June '95.

On the classification of multiplicity-free actions. Isaac Newton Institute (Cambridge, England) Workshop in Hamiltonian Group Actions, November '94; M.I.T. Symplectic Seminar, April '94 and October '94.

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