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Education:

Princeton University, Princeton, NJ	6/74	A.B. in Mathematics
Harvard University, Cambridge, MA	6/76	A.M. in Mathematics
Harvard University, Cambridge, MA	11/79	Ph.D. in Mathematics

Title of Doctoral Dissertation: Variation of Hodge Structure and the Local Torelli Problem

Dissertation advisor: Phillip Griffiths

Academic Career:

Teaching Fellow, Harvard University, Cambridge, 7/76–6/78
 Hildebrandt Assistant Professor, University of Michigan, Ann Arbor
 9/79–8/81, 9/82–6/83 (on leave 9/81–8/82)
 Assistant Professor, Johns Hopkins University, Baltimore, 7/83–6/86
 Assistant Professor, Tufts University, Medford, 7/86–8/88
 Associate Professor, Tufts University, Medford, 9/88–8/08
 Professor, Tufts University, Medford, since 9/08

Editorial Responsibilities:

Series Editor of SpringerBriefs in Mathematics, 2011–2014, 2022–present
<http://www.springer.com/series/10030>

Series Editor, *Developments in Mathematics*, Springer, March 2018–present.
<https://www.springer.com/series/5834>

Editor, *Asian-European Journal of Mathematics*, March 2020–June 2022.
<https://www.worldscientific.com/page/aejm/editorial-board>

Principal Research Areas: Algebraic Geometry, Algebraic and Differential Topology, Differential Geometry

Visiting Positions:

Member, Institute for Advanced Study, Princeton, 9/81–8/82
Chercheur, Institut Henri Poincaré, Paris, France, 1/95–7/95, 9/01–8/02
Professeur invité, Université de Lille, France, one month in May–June 1996, and one week February 25–March 1, 2002.
Chercheur, Institut Henri Poincaré, Paris, France, September 2001–August 2002.
Invité, Université Paris 7, June 2002.
Professeur Invité, Université Paris 7 Diderot, January 2008.
Invité, Université Paris 7 Diderot, September 2009–August 2010.
Guest, Max Planck Institute for Mathematics, Bonn, Germany, February–March 2014.
Adjunct Professor, National Taiwan University and National Center for Theoretical Sciences, Taipei, Taiwan, February–May 2017.

Publications:

- [1] *Differential Forms in Algebraic Topology* (with Raoul Bott), Graduate Texts in Mathematics 82, Springer Verlag, New York, 1982, xiv + 331 pp.
Second printing, 1986.
Third corrected printing, 1995.
Chinese reprint published by World Publishing Corporation, Beijing, China, 1988.
New Chinese reprint, World Publishing Corporation, Beijing, China, 2009.
- [2] *Hodge Theory and the Local Torelli Problem*, Memoirs of the American Mathematical Society 279, Providence, 1983, vi + 64 pp. (MR 84k:14008)
- [3] On symmetric and skew-symmetric determinantal varieties (with Joe Harris), *Topology* 23 (1984), 71–84. (MR 85c:14032)
- [4] Chern numbers of kernel and cokernel bundles (with Joe Harris), *Invent. Math.* 75 (1984), 467–475. (MR 86j:14025)
- [5] Variation of Hodge structure (Lecture by Phillip Griffiths, written and revised by Loring Tu), in *Topics in Transcendental Algebraic Geometry*, Annals of Mathematics Studies 106, Princeton University Press, Princeton, 1984, pp. 3–28.
- [6] Curvature properties of the Hodge bundles (Lecture by Phillip Griffiths, written and revised by Loring Tu), in *Topics in Transcendental Algebraic Geometry*, Annals of Mathematics Studies 106, Princeton University Press, Princeton, 1984, pp. 29–49.
- [7] Infinitesimal variation of Hodge structure (Lecture by Phillip Griffiths, written and revised by Loring Tu), in *Topics in Transcendental Algebraic Geometry*, Annals of Mathematics Studies 106, Princeton University Press, Princeton, 1984, pp. 51–61.
- [8] Asymptotic behavior of a variation of Hodge structure (Lecture by Phillip Griffiths, written and revised by Loring Tu), in *Topics in Transcendental Algebraic Geometry*, Annals of Mathematics Studies 106, Princeton University Press, Princeton, 1984, pp. 63–74.
- [9] Asymptotic behavior of a variation of Hodge structure (Lecture by Phillip Griffiths, written and revised by Loring Tu), in *Topics in Transcendental Algebraic Geometry*, Annals of Mathematics Studies 106, Princeton University Press, Princeton, 1984, pp. 227–237.

- [10] Macaulay's theorem and local Torelli for weighted hypersurfaces, *Compositio Mathematica* 60 (1986), 33–44.
- [11] Degeneracy loci, *Proceedings of the International Conference on Algebraic Geometry* (Berlin, 1985), Teubner Verlagsgesellschaft, Leipzig, 1986, 296–305.
- [12] Generic Torelli for weighted hypersurfaces (with Ron Donagi), *Math. Ann.* 276 (1987), 399–413.
- [13] Variational Torelli implies generic Torelli (with David Cox and Ron Donagi), *Invent. Math.* 88 (1987), 439–446.
- [14] The connectedness of symmetric and skew-symmetric degeneracy loci: even ranks, *Trans. Amer. Math. Soc.* 313 (1989), 381–392.
- [15] *Differentsial'nye formy v algebraicheskoi topologii* (with Raoul Bott, in Russian) [Differential forms in algebraic topology] Translated from the English by I. V. Savel'ev and G. S. Shmelev. Translation edited and with a preface by A. A. Kirillov. "Nauka", Moscow, 1989. 336 pp.
- [16] The connectedness of degeneracy loci, in *Topics in Algebra*, Banach Center Publications 26, PWN (Polish Scientific Publishers), Warsaw, 1990, 235–248.
- [17] The connectedness of symmetric degeneracy loci: odd ranks (with Joe Harris), in *Topics in Algebra*, Banach Center Publications 26, PWN (Polish Scientific Publishers), Warsaw, 1990, 249–256.
- [18] Theta divisors for vector bundles (with Montserrat Teixidor), *Contemporary Mathematics* 136 (1992), 327–342.
- [19] Semistable bundles over an elliptic curve, *Advances in Mathematics* 98 (1993), 1–26.
- [20] Theta functions for $SL(n)$ versus $GL(n)$ (with Ron Donagi), *Mathematical Research Letters* 1 (1994), 345–357.
- [21] *Differential Forms in Algebraic Topology* (with Raoul Bott, in Japanese), Springer-Verlag Tokyo, 1996.
- [22] Equivariant characteristic classes in the Cartan model (with Raoul Bott), *Geometry, Analysis, and Applications (Varanasi, 2000)*, World Scientific Publishing, River Edge, NJ, 3–20.
- [23] The life and works of Raoul Bott, in *The Founders of Index Theory: Reminiscences of Atiyah, Bott, Hirzebruch, and Singer*, edited by S.-T. Yau, International Press, Somerville, MA, 2003, pp. 85–112. An updated version appeared in the *Notices of the American Mathematical Society* 53 (2006), 554–570.
- [24] Reminiscences of working with Raoul Bott, in *The Founders of Index Theory: Reminiscences of Atiyah, Bott, Hirzebruch, and Singer*, edited by S.-T. Yau, International Press, Somerville, MA, 2003, 121–124.

- [25] Une courte démonstration de la formule de Campbell-Hausdorff (A short proof of the Campbell-Hausdorff formula), *Journal of Lie Theory* 14 (2004), 501–508.
- [26] A partial order on partitions and the generalized Vandermonde determinant, *Journal of Algebra* 278 (2004), 127–133.
- [27] On the localization formula in equivariant cohomology (with Andrés Pedroza), *Topology and Its Applications* 154 (2007), 1493–1501.
- [28] *An Introduction to Manifolds*, Universitext, Springer, New York, 2008, xvi + 360 pages.
- [29] Computing characteristic numbers using fixed points, in *A Celebration of the Mathematical Legacy of Raoul Bott*, CRM Proceedings and Lecture Notes, vol. 50, American Mathematical Society, Providence, RI, 2010, pp. 185–206.
- [30] *An Introduction to Manifolds*, second edition, Universitext, Springer, New York, 2011, xviii + 411 pages.
Chinese reprint published by World Publishing Corporation, Beijing, China, 2015.
- [31] What is equivariant cohomology, *Notices of the American Mathematical Society* 58 (2011), pp. 423–426.
- [32] The Abdus Salam School of Mathematical Sciences in Pakistan, *Notices of the American Mathematical Society* 58 (2011), pp. 938–943.
- [33] Remembering Raoul Bott (1925–2005), with contributions from Rodolfo Gurdian, Stephen Smale, David Mumford, Arthur Jaffe, Shing-Tung Yau, and Loring Tu, *Notices of the American Mathematical Society* 60 (2013), pp. 398–416.
- [34] From sheaf cohomology to the algebraic de Rham theorem (with Fouad El Zein), Chapter 2 in *Hodge Theory*, edited by E. Cattani, F. El Zein, P. A. Griffiths, L. D. Trang, Princeton University Press, 2014, pp. 69–121.
- [35] On the genesis of the Woods Hole fixed point theorem, *Notices of the American Mathematical Society* 62 (2015), pp. 1200–1206.
- [36] Computing the Gysin map using fixed points, in *Algebraic Geometry and Number Theory*, Proceedings of the CIMPA Summer School on Algebraic Geometry and Number Theory (Istanbul, June 2–11, 2014), edited by H. Mourtada, C. C. Sarioğlu, C. Soulé, A. Zeytin, Birkhäuser, 2017.
- [37] *Differential Geometry: Connections, Curvature, and Characteristic Classes*, Graduate Texts in Mathematics 275, Springer, New York, 2017.
- [38] Computing topological invariants using fixed points. *Proceedings of the Sixth International Congress of Chinese Mathematicians*. Vol. II, 285–298, Adv. Lect. Math. (ALM), 37, Int. Press, Somerville, MA, 2017.
- [39] Equivariant characteristic classes, in *Raoul Bott: Collected Papers*, Vol. 5, pp. 103–105, Birkhäuser,

2017.

- [40] *Raoul Bott: Collected Papers*, Vol. 5, editor, Birkhäuser, 2017.
- [41] *An Introduction to Manifolds* (Japanese translation), Shokabo Publisher, Tokyo, Japan, 2019.
- [42] *Introductory Lectures in Equivariant Cohomology*, Annals of Mathematics Studies vol. 204, Princeton University Press, Princeton, New Jersey, 2020.
- [43] Dodging a bullet, in *Math in the Time of Corona*, edited by A. Wonders, *Mathematics Online First Collections*, Springer Nature Switzerland AG 2020. https://doi.org/10.1007/16618_2020_15
- [44] Lefschetz fixed point theorems for correspondences, to be published in *Mathematics Going Forward*, Lecture Notes in Mathematics vol. 2313, Springer, 2023.
- [45] Gysin formulas and equivariant cohomology, to be published in *Group Actions and Equivariant Cohomology*, Contemporary Mathematics, American Mathematical Society, 2023.

Senior Honors Thesis Supervised:

Michael Burr, “Mechanics on affine varieties”. Michael Burr graduated summa cum laude with highest thesis honors in May 2004.

Mukesh Gimire, “The mathematical correspondence between classical and quantum mechanics.” Professor Krzysztof Sliwa of the Physics Department was a co-advisor. Mukesh Gimire graduated summa cum laude with highest thesis honors in May 2016.

Joao Marcos Vensi Basso, “Coordinate-free tensor analysis,” to graduate summa cum laude with highest thesis honors in May 2020.

Masters Theses Supervised:

Seunghun Hong, “Equivariant Cohomology for Circle Actions”, May 2006.

Matthew Goodman, “Elliptic Curves in Cryptography”, May 2006.

Zachary Himes, “The Equivariant de Rham Theorem in Equivariant Cohomology”, May 2015.

Ph. D.’s Supervised:

Burt Feinberg, “On the dimension and irreducibility of Brill-Noether loci for vector bundles”, 1991.

Burt Feinberg subsequently wrote with Aaron Bertram an article “On stable rank 2 bundles with canonical determinant and many sections”, which was included in the references of the third edition of the classic book *Geometric Invariant Theory* by D. Mumford, J. Fogarty, and F. Kirwan.

Andrés Pedroza, “Equivariant formality and localization formulas”, 2004.

Andrés Pedroza is now an associate professor at the Facultad de Ciencias, Universidad de Colima, in Colima, Mexico.

Jeffrey D. Carlson, "On the equivariant cohomology of homogeneous spaces," May 2015. Jeffrey Carlson is currently a postdoc at Imperial College London, England.

Christopher Watson, current Ph. D. candidate at Tufts University.

Grants and Fellowships:

NSF Research Grant (including summer support for 1980 and 1981), 7/80–6/82.

University of Michigan Faculty Research Grant, 6/81–12/82.

Summer Research Grant (awarded by the Institute for Advanced Study at Princeton, but funded by the NSF), summer 1982.

Tufts University Summer Faculty Fellowship, summer 1988.

Bourse de Haut Niveau (Senior Fellowship), Ministère de l'Enseignement Supérieur et de la Recherche (Ministry of Higher Education and Research), Paris, France, sponsored by the Ecole Normale Supérieure, Paris, January 10–July 9, 1995, amount: six-month salary.

Tufts FRAC New Directions in Research Award, 2007–2008, one semester leave with pay.

Max Planck Institute in Mathematics, Bonn, Germany, Localization in Geometry and Topology, fellowship for the period from February 1, 2014 to March 31, 2014.

National Center for Theoretical Sciences, Taipei, Taiwan, February 16–May 8, 2017.

Invited Talks:

American Mathematical Society 789th Meeting, University of Massachusetts, Amherst, Special session on algebraic geometry, one talk on "A local Torelli theorem for varieties of dimension at most four with ample cotangent map", October 18, 1981.

Institute for Advanced Study, Princeton, Algebraic Geometry Seminar, One lecture on "Porteous' formula for symmetric determinantal varieties", March 1982.

Rutgers University, Colloquium, March 19, 1982.

Amherst College, Amherst, Colloquium, February 3, 1983.

Louisiana State University, Baton Rouge, Colloquium, February 21, 1983.

University of Illinois at Chicago, Chicago, Colloquium, March 31, 1983.

Michigan State University, East Lansing, Colloquium, April 28, 1983.

University of Pennsylvania, Philadelphia, Algebraic Geometry Seminar, October 31, 1983.

The Johns Hopkins University, Baltimore, Colloquium, "The period map in algebraic geometry",

November 2, 1983.

International Conference on Algebraic Geometry (March 5-11, 1984), Kühlungsborn, German Democratic Republic, One talk on "Numerical properties of the dualizing sheaf and the period map", March 7, 1984.

Humboldt-Universität (University of Berlin), Berlin, German Democratic Republic, Two lectures, March 13-15, 1984.

American Mathematical Society 89th Summer Meeting, Laramie, Wyoming, Special session on commutative algebra and algebraic geometry, One talk on "Macaulay's theorem and local Torelli for weighted hypersurfaces", August 13, 1985.

American Mathematical Society 822nd Meeting, University of Massachusetts, Amherst, Special session on transcendental algebraic geometry, One talk on "Generic Torelli for weighted hypersurfaces", October 26, 1985.

International Conference on Algebraic Geometry (November 13-19, 1985), Berlin, German Democratic Republic, One lecture on "Degeneracy loci", November 15, 1985.

Purdue University, West Lafayette, Algebraic Geometry Seminar, January 29, 1986.

University of Notre Dame, South Bend, Colloquium, January 30, 1986.

McGill University, Montreal, One seminar talk on "Degeneracy loci", February 6, 1986, and one colloquium talk on "Periods of integrals in algebraic geometry", February 7, 1986.

Oklahoma State University, Stillwater, Colloquium, February 14, 1986.

University of Arizona, Tucson, Colloquium, February 17, 1986.

University of Georgia, Athens, Colloquium, February 19, 1986.

American Mathematical Society 827th Meeting, Johns Hopkins University, Baltimore, Special session on Hodge theory, One talk on "Hodge groups of a hypersurface", May 3, 1986.

MIT, Cambridge, Mass., Algebraic Geometry Seminar, One talk on "The period map of weighted hypersurfaces", November 7, 1986.

Mountain West Algebraic Geometry Workshop (June 18-20, 1987), Colorado State University, Fort Collins, Colorado, One talk on "The connectedness of degeneracy loci", June 19, 1987.

Boston University, Algebra Seminar, One talk on "The connectedness of projective varieties", January 29, 1988.

Minisemester on Commutative Algebra and Algebraic Geometry (April 5-16, 1988), Banach International Center, Warsaw, Poland, One talk on "The connectedness of degeneracy loci", April 13, 1988.

Institute of Mathematics, Academia Sinica, Taiwan, One talk, June 10, 1989.

University of Massachusetts, Amherst, Valley Geometry Seminar, One talk on “Theta divisors for vector bundles”, December 7, 1990.

University of Liverpool, England, Workshop on Brill-Noether Theory for Vector Bundles, One talk on “Semistable bundles over an elliptic curve”, July 25, 1991.

Boston University, Algebra Seminar, One talk on “Moduli spaces of bundles over an elliptic curve”, October 21, 1991.

Harvard University, Two guest lectures in Raoul Bott’s graduate course on differential geometry, October 29 and 31, 1991.

Harvard University, Algebraic Geometry Seminar, One talk on “Verlinde-type formulas for elliptic curves”, November 12, 1991.

Harvard University, Mather House Math Table, One talk on “Topological invariants”, November 12, 1991.

Harvard University, Guest lecture on “The Campbell-Hausdorff formula” in Raoul Bott’s graduate course on differential geometry, March 19, 1992.

American Mathematical Society 895th Meeting, Oklahoma State University, Stillwater, Special Session on Algebraic Geometry, One talk on “Theta functions for vector bundles”, October 28, 1994.

Suffolk University, Boston, Colloquium, “Computing Pi by throwing toothpicks”, November 30, 1994.

Université de Nantes, France, Seminar, June 2, 1995.

Institut Henri Poincaré, Paris, France, Seminar, “Theta functions for $SL(n)$ versus $GL(n)$ ”, June 9, 1995.

Université de Lille, France, Seminar, “La connexité des lieux de dégénérescence”, June 14, 1995.

Université de Lille, France, Seminar, “Les fonctions thêta pour les fibrés vectoriels”, June 12, 1996.

American Mathematical Society 914th Meeting, Rider University, Lawrenceville, NJ, Special Session on Moduli Spaces of Vector Bundles With or Without Additional Structure, One talk on “Strange duality over an elliptic curves”, October 6, 1996.

Tufts University, Department Seminar, One talk on “Matrices of bounded rank”, February 14, 1997.

Tufts Geometry Seminar, two talks, “Introduction to equivariant cohomology”, February 10, 2000, and “Equivariant cohomology of homogeneous spaces”, February 17, 2000.

Université Paris 7, Séminaire de Théorie des Groupes, one talk on “Classes caractéristique et cohomologie équivariante”, January 11, 2002.

Université Paris 7, Conférence Exceptionnelle, one talk on “Classes caractéristique équivariante en topologie et en géométrie différentielle”, January 11, 2002.

Université de Lille, Séminaire de géométrie algébrique, “Nombres de Chern des variétés homogènes et cohomologie équivariante”, le February 27, 2002.

Université Paris 7, Séminaire de géométrie algébrique, “Nombres de Chern des variétés homogènes et cohomologie équivariante”, March 28, 2002.

Université Paris 7, Séminaire de Théorie des Groupes de Lie, “Une courte démonstration de la formule de Campbell-Hausdorff”, January 24, 2003.

Tufts University, Department of Math Colloquium, “Localization formulas for spaces with a group action”, November 14, 2003.

MIT, Geometric Analysis Seminar, “A short proof of the Campbell-Hausdorff formula”, April 5, 2004.

University of Colima, Mexico, “Euler characteristics and localization formulas”, March 20, 2006.

A Celebration of Raoul Bott’s Legacy in Mathematics, Centre de recherches mathématiques, Université de Montréal, “Computing the Gysin map using fixed points”, June 12, 2008.

Everytopic Seminar, Brandeis University, Waltham, MA, “Computing the Gysin map using fixed points”, October 24, 2008.

Tufts University European Center, Talloires, France, a public lecture on “A glimpse of modern mathematics for poets,” June 16, 2009.

Summer School on Hodge Theory, International Center for Theoretical Physics, Trieste, Italy, four lectures on “Topology, cohomology, and sheaf theory” and one lecture on “A simple introduction to spectral sequences,” June 14–15, 2010 and June 20, 2010.

National Center for Theoretical Sciences, National Tsing Hua University, Taiwan, a talk on “Computing integrals using fixed points,” July 29, 2010.

Abdus Salam School of Mathematical Sciences, GC University, Lahore, Pakistan, twelve lectures on “An introduction to equivariant cohomology,” January 3–14, 2011.

American Mathematical Society Special Session on “Generalized Cohomology Theories in Engineering Practice,” a 40-minute talk on “Computing integrals using equivariant cohomology,” Joint Mathematics Meetings, Boston, MA, January 4, 2012.

American Mathematical Society Special Session on “Topology and Generalized Cohomologies in Modern Condensed Matter Physics,” a 45-minute talk on “Raoul Bott’s later work on physics-inspired mathematics,” Boston College, Chestnut Hill, MA, April 6, 2013.

International Congress of Chinese Mathematicians, 45-minute invited talk on “Computing topological invariants using fixed points,” National Taiwan University, Taipei, Taiwan, July 16, 2013.

Colloquium, Okayama University, Okayama, Japan, July 26, 2013.

CIRGET Seminar, Université de Montréal à Québec, Montreal, Québec, Canada, September 13, 2013.

OberSeminar, Max Planck Institute for Mathematics, One-hour talk on “The rotation index of a plane curve,” Bonn, Germany, March 6, 2014.

Algebraic Geometry Seminar, Humboldt University in Berlin, One-hour talk on “Computing integrals using fixed points,” Berlin, Germany, March 7, 2014.

CIMPA Summer School on Algebraic Geometry and Number Theory, Galatasaray University, a course on “Sheaf Cohomology”, four lectures, Istanbul, Turkey, June 2–11, 2014.

Research talk, CIMPA Summer School on Algebraic Geometry and Number Theory, Galatasaray University, One hour talk on “Computing integrals and Gysin maps using fixed points,” Istanbul, Turkey, June 11, 2014.

Colloquium, University of Patras, One-hour talk on “Computing integrals using fixed points,” Patras, Greece, June 13, 2014.

Algebraic Geometry Seminar, National Tsinghua University, Hsinchu, Taiwan, one talk on “Equivariant formality in algebraic geometry,” December 1, 2014.

Fourteenth Taiwan Geometry Symposium, Taipei, Taiwan, one talk on “The Lefschetz fixed point theorem for correspondences,” April 15, 2017.

Geometry Seminar, National Cheng Kung University, Tainan, Taiwan, one talk on “The Lefschetz fixed point theorem for correspondences,” April 26, 2017.

Colloquium, National Taiwan Normal University, Taipei, Taiwan, “The Lefschetz fixed point theorem for correspondences,” May 3, 2017.

Keynote Speaker, International Conference on Recent Advances in Mathematics (virtual), University of Education, Lahore, Pakistan, one talk on “Recent Advances in Tensors: Eigenvectors and Eigenvalues,” October 15–16, 2020.

Guest Lecture, University of Colima, Colima, Mexico, virtual talk on “Application of differential forms to electricity and magnetism,” June 4, 2021.

Courses Taught:

For Non-Math Majors: Algebra and Trigonometry, Finite Mathematics, Engineering Mathematics

For Undergraduate Math Majors: Calculus I, II, III, Linear Algebra, Differential Equations, Real Analysis I, II, Abstract Algebra I, II, Point-Set Topology, Elementary Number Theory, Probability, Statistics, Differential Geometry

Graduate Courses: Algebraic Geometry, Complex Analysis, Algebra, Lie Groups and Representations, Geometry and Topology (Manifolds), Differential Geometry, Algebraic Topology, Differential Forms in Algebraic Topology, Equivariant Cohomology, Algebraic Number Theory

Teaching Awards:

A Certificate of Appreciation from the Order of Omega, the honors society of the fraternities and sororities at Tufts, for dedication to the student body in 2006–2007.

Elected Professor of the Year 2007 by the mathematics majors at Tufts.

Other Awards and Honors:

J. W. McConnell Scholarship in Science, McGill University, 1969–70, 70–71, 71–72.

Placed second in Canada in the 1970 Canadian Mathematical Olympiad.

Redpath Exhibition (highest average in first-year class), McGill University, 1970.

John B. Lynch Scholarship, Princeton University, 1973–74.

Member of Princeton Putnam team which ranked among top five in the US and Canada in the 1973 Putnam Competition.

Honorable mention: George B. Covington Prize in Mathematics, Princeton University, 1974.

Graduation with Highest Honors, Phi Beta Kappa, Sigma Xi, Princeton University, 1974.

Included in Who's Who in the East, 23rd edition, 1991–92.

Included in Who's Who in American Education, 3rd edition, 1992–93.

Scholar-in-residence, Tufts University European Center, Talloires, France, May 12–June 25, 2009.

Consulting:

Reviewer for Mathematical Reviews, 1984–1989.

Referee of grant proposals for the National Science Foundation, 1984–2002.

Referee of book manuscript for Wadsworth Advanced Books, 1986.

Referee for Duke Mathematical Journal, 1986–88, 1990, 1992, 1993, 1994.

Referee of book manuscript for Springer-Verlag, 1987, 2016.

Referee of book manuscript for Academic Press, 1987.

Referee for Proceedings of the American Mathematical Society, 1989, 1998.

Referee for Compositio Mathematica, 1990.

Referee for Proceedings of Symposia in Pure Mathematics, 1990.

Second Reader on the Ph.D. Thesis Committee of Dan Abramovich, Harvard University, May 1991.

Referee for American Journal of Mathematics, 1991.

Referee for Differential Geometry and Its Applications, 1992.

Referee for International Mathematics Research Notices, 1997.

Referee of book manuscripts for John Wiley & Sons, 1993, 1994.

Referee of book manuscript for Macmillan Publishing Company, 1994.

Referee of grant proposals for Comision Nacional de Investigacion Cientifica y Tecnologica, Chile, 1994, 1999.

Judge for a mathematics exhibition at Boston Arts Academy, February 15, 2001.

Referee for Transactions of the American Mathematical Society, 1987, 1989, 1995, 1996, 1997, 2001.

Panelist on an NSF Panel, National Science Foundation, Arlington, VA, Feb. 14–16, 2002.

Referee for Asian Journal of Mathematics, 2004.

Consultant to Prof. Albert Tarantola, Institut de Physique du Globe de Paris, Université Paris VI, Paris, France, 2003, 2005. I helped him with some mathematics for his book *Elements for Physics - Quantities, Qualities, and Intrinsic Theories*.

Referee for the American Mathematical Monthly, 2005.

Referee for Fundamenta Math., 2006.

Referee for Contributions to Discrete Mathematics, 2008.

Referee for Department of Mathematics, Kyushu University, Japan, 2010.

External reviewer for the promotion case of Rebecca Goldin, George Mason University, Fairfax, Virginia, 2011.

Series Editor, *SpringerBriefs in Mathematics*, 2011–2014.

<http://www.springer.com/series/10030>

Referee for *Homotopy, Homology and Applications*, 2013.

Referee for Proceedings of London Mathematical Society, 2015.

Referee for Springer Lecture Notes in Mathematics, 2016.

External reviewer of the Mathematics Program at Suffolk Univeristy, 2016.

Referee for SpringerBriefs in Mathematics, 2016.

Referee for Springer, 2016, 2019.

Referee for Springer Graduate Texts in Mathematics, 2016.

Referee for Journal of Differential Geometry, 2017, 2018.

Chair, Advisory and Review Committee of the Department of Mathematics at University of Massachusetts, Boston, 2018.

Referee for Springer, 2019.

Referee for Academic Press, 2019.

Reviewer for MIT Press, 2020.

Editor and referee for the *Asian-European Journal of Mathematics*, 2020–present.

Non-Mathematical Activities:

Served as co-panelist with sinologist Ross Terrill on the National Public Radio Program “The Connection”, hosted by Christopher Lydon, August 9, 1999. The topic was “One China, Two Chinas, and Taiwan’s Nationalism”. I discussed the emergence of a Taiwanese identity, democracy in Taiwan, and Taiwan’s relation with mainland China.

One-hour phone interview with the journalist Jeremy Pearce of the New York Times on the works of Raoul Bott, January 5, 2006. A couple of abbreviated quotes appeared in the New York Times obituary of Raoul Bott, January 8, 2006.

Speaker at the memorial service for Raoul Bott, Memorial Church, Harvard University, January 29, 2006.

Speaker at a symposium on the 120th anniversary of Dr. Tsungming Tu, National Taiwan University Medical School, Taipei, Taiwan, August 16, 2013, and again at Kaohsiung Medical University, Kaohsiung, Taiwan, August 19, 2013.

Speaker at the Annual Convention of Kaohsiung Medical University America Alumni Association, Las Vega, September 27, 2014.

Speaker at 10th Award Ceremony of Tsungming Tu Award, Taipei, Taiwan, March 14, 2017.

Speaker, *A City of Sadness* and the February 28 Incident, Taiwanese Association of America, Boston Chapter, Cambridge, MA, February 23, 2018. Coverage of talk in *China Times*, March 2018.