

## Curriculum Vitae

- Name** Haynes Robert Miller
- Birth** January 29, 1948, Princeton, NJ; U.S. Citizen
- Education** BA, Harvard University, 1970  
PhD, Princeton University, 1974
- Positions** Instructor, Princeton University, 1974–1975  
Benjamin Pierce Assistant Professor, Harvard University, 1975–1979  
Visiting Assistant Professor, Northwestern University, 1976–1977  
Assistant Professor, University of Washington, 1979–1981  
Associate Professor, University of Washington, 1981–1984  
Visiting Associate Professor, Northwestern University, 1981–1982  
Member, Institute for Advanced Study, Princeton, 1982–1983  
Professor, University of Washington, 1984  
Professor, University of Notre Dame, 1985  
Professor, Massachusetts Institute of Technology, 1986–2021  
Professor, post-tenure, Massachusetts Institute of Technology, 2021–2022  
Professor, emeritus, Massachusetts Institute of Technology, 2022–
- Visiting Positions** Aarhus University, summer 1979  
University of Cambridge, summer 1982  
Professeur Associé, Université de Paris VII, February–June 1986  
Ordway Professor, University of Minnesota, January 1991  
Göttingen University, August 1991  
Université de Paris XIII, June 1993  
Institut Mittag-Leffler, Djursholm, Sweden, September 1993  
Kyoto University, January 1997  
Max-Planck-Institut für Mathematik, Bonn, July 1997  
Australian National University, Canberra, January 2001  
Maître de recherche, Ecole Polytechnique, June 2005  
Institut Mittag-Leffler, Djursholm, Sweden, May–June 2006  
Center for Symmetry and Deformation, University of Copenhagen, May 2011  
Mathematical Sciences Research Institute, Berkeley, January–February 2014  
Hausdorff Research Institute for Mathematics, June–July 2015
- Editorships** Proceedings of the AMS, 1984–1988  
Bulletin of the AMS: editor 1993–1999, managing editor 1995–1996,  
associate editor 1996–2004  
Geometry and Topology, 1996–  
Topology and its Applications, 1998–2001  
International Mathematical Research Notices, 2000–2004  
Mathematische Zeitschrift, 2000–2006  
Journal of the American Mathematical Society (Associate Editor), 2006–2012  
Journal of the Institute of Mathematics of Jussieu, 2008–2015  
International Journal of Research in Undergraduate Mathematics Education, 2014–  
Journal of Homotopy and Related Structures, 2015–  
Tunisian Mathematics Journal, 2017–

**Grants**

NSF Graduate Fellow, 1970–1973  
Dodds Fellow, Princeton University, 1973–1974  
Harvard Graduate Society Fellow, 1978–1979  
Sloan Fellow, 1980–1983  
NSF research grants, 1975–2015  
MIT d’Arbeloff grant “Computer-aided Teaching of Mathematics,” 2001–2006  
Cambridge-MIT Institute grant, 2002–2005  
MIT Alumni Class Funds grant “Mathematics for Aerospace Engineers,” 2002–2003  
ACF grant “Explicit Linking of Mathematics,” 2004–2005  
d’Arbeloff grant “Coordinating the MIT Mathematics GIR Curriculum,” 2009–2011  
ACF grant “Flash-forward/Flash-back in OpenCourseWare,” 2010–2011  
NSF grant, “Mathematical Communication Space,” 2011–2012  
Davis Educational Foundation Grant, “Quantifying Uncertainty,” 2012–15  
ACF grant “A Module on Laplace Transform,” 2014–2015  
ACF grant “Crosslinks,” 2015–2016  
MIT Office of Digital Learning grant to develop 18.03x, 2016–2017  
MIT Office of the Vice-provost for International Activities and Office of Digital Learning,  
“Building a library of Kreyòl based resources for further outreach,” 2017–  
NSF grant, “2017–2019 Talbot Workshops,” 2017–2022  
MITx grant to build a Kreyòl version of 18.01, 2017–  
MIT J-WEL/pK-12, “An MIT-Haiti Center for Educational Innovation,” 2019–  
NSF grant, “2019–2021 Talbot Workshops on Mathematics Centered  
on Algebraic Topology,” 2019–2022  
NSF grant “Classical Methods in Motivic Homotopy Theory,” 2019–2022  
MIT Office of the Vice-Provost for International Engagements,  
“Third Gathering for Science in Palestine,” January, 2020  
MIT J-WEL/Higher Education, “MIT-Palestine UROPs,” 2021 –

**Awards**

Cambridge-MIT Institute Fellowship, 2002–2003  
Margaret MacVicar Faculty Fellow, 2005–2014  
Graduate Student Council Teaching Award, 2006  
Fellow of the American Mathematical Society, 2012  
Alan J. Lazarus Award for Excellence in Advising, 2021

**MIT****Committees**

Committee to Study TA Training at MIT, 2002  
Presidential Task Force on the Undergraduate Educational Commons, 2004–2006  
Dean for Undergraduate Education Faculty Advisory Committee, 2006–2012  
Impact Study Group for the Communication Requirement, 2007  
OpenCourseWare Faculty Advisory Committee, 2008–2022  
Committee on the Undergraduate Program, 2009–2011  
Faculty Advisory Committee to MIT Information Systems and Technology  
on Learning Management Systems, 2010  
Provost’s Working Group on Educational Initiatives, 2010  
MITx Task Force on Concepts and Learning Pathways, 2013  
MIT-Haiti Initiative, 2013–  
Faculty Policy Committee, 2016–2019  
Presidential ad hoc committee on the role of OCW, 2016–2017  
Higher Education Advisory Group for the Jameel World Education Lab, 2017–

**Departmental Service** MIT Pure Mathematics Committee, 1987–1995, 2000–2013; Chairman, 1993–1995  
 Chairman, Education Committee, and Undergraduate Officer, 2004–2013  
 Associate Head, Department of Mathematics, 2011–2013  
 Cambridge-MIT Exchange liaison, 2001–2013, 2016–2017.

**External Committees** AMS Committee on Summer Institutes and Special Symposia, 1988–1990  
 AMS Editorial Boards Committee, 1989–1992; Chairman, 1991–1992  
 AMS ad hoc Committee to Review Membership Publications, 1992–1993  
 AMS Progress in Mathematics Committee 1992–1993; Chairman, 1993  
 AMS Committee on Publications, 1993–1995  
 External Review Committee, Purdue University, March 1996  
 Executive Committee, Geometry and Topology Publications, 2001–2005  
 Graduate Program Review Committee, University of California  
 at San Diego, chairman, January 2007  
 Committee to Visit the Department of Mathematics, Harvard University,  
 chairman, February 2008, March 2011, and November 2013  
 Northeast Region Judge, Siemens STEM Competition, 2009, '10, '12, '13, '15, '16  
 Committee to Visit the Department of Computer Science and Mathematical  
 Sciences, University of Toronto, Scarborough, November 2011  
 MAA MathDL Advisory Board, 2011–2013  
 Committee to Visit the Department of Mathematics, the Johns Hopkins  
 University, February 2012  
 Committee to Visit the Department of Mathematics, University of Oregon,  
 February 2012  
 Technical Advisory Committee for the AAU Undergraduate STEM Education  
 Initiative, August 2012–  
 AMS Committee on Education, 2012–2015  
 Committee to Visit the Department of Mathematics, Swarthmore College,  
 April 2013  
 Board of Directors, Math for America/Boston, 2014–2021  
 TPSE Mathematics Advisory Group, 2014–  
 Scientific Advisory Board, Center for Topology and Geometry Based  
 Technologies, Hebei Normal University, 2020–  
 Bisan Lecture Series steering committee, 2021–  
 AMS Lecture on Education Selection Committee, 2022–2024; chair, 2022

## Conferences co-organized

- Northwestern University Homotopy Theory Conference, 1982 (with S. Priddy)
- Seattle Algebraic Topology Emphasis Year, 1984–1985 (with D. Ravenel)
- Arcata conference on Algebraic Topology, 1986 (with G. Carlsson, R. Cohen, and D. Ravenel)
- Luminy Homotopy Theory Conference, July 1988 (with J.-M. Lemaire, L. Schwartz, and M. Zisman)
- Oberwolfach session, March 1992 (with H.-W. Henn and D. Puppe)
- Cech centennial Homotopy Theory Conference, Northeastern University, June 1993 (with B. Cenk and M. Hopkins)
- MPI-Bonn Workshop on Algebraic Topology and Stable Homotopy Theory, 1997 (with H.-J. Baues, H.-W. Henn, and M. Mahowald)
- Newton Institute program on New Contexts for Stable Homotopy Theory, 2002 (with J. Greenlees, F. Morel, and V. Snaith)
- Barcelona Conference on Algebraic Topology, June 2002 (with J. Aguadé, C. Broto, M. Castellet, and C. Casacuberta)
- Hanoi Conference and Summer School on Algebraic Topology, August 2004 (with N. Hung, J. Hubbuck, G. Nishida, S. Priddy, L. Schwartz)
- Fields Institute Workshop on Loop Spaces and Elliptic Cohomology, September 2004 (with M. Ando, M. Hopkins, and J. Morava)
- Clay Mathematics Institute Workshop on Homotopy Theoretic Applications of the Goodwillie Calculus, March 2005 (with J. Morava)
- Complex cobordism in homotopy theory: Its impact and prospects, the Johns Hopkins University, March 2007 (with M. Boardman, D. Davis, J. Morava, and D. Pengelley)
- Algebraic Topology, Old and New: the M. M. Postnikov Memorial Conference, Bedlewo, Poland, June 2007 (with A. Pajitnov et al.)
- International Conference on Algebraic Topology, in celebration of the 60th birthday of Jean Lannes, Djerba, Tunisia, October 2007 (with H.-W. Henn, L. Schwartz, and Saïd Zarati)
- The Legacy of Daniel Quillen:  $K$ -Theory and Homotopical Algebra, MIT, October 2012 (with C. Barwick and M. Behrens)
- Conference in Algebra and Topology celebrating Lionel Schwartz’s sixtieth birthday, Nantes, France, May 2013 (with B. Oliver and J.-C. Thomas)
- Homotopy Theory, Manifolds, and Field Theories, Hausdorff Institute, Bonn, Germany, May–August 2015 (with S. Galatius, S. Schwede, and P. Teichner)
- Scientific Committee for IHES Summer School “Motivic, Equivariant, and Non-commutative Homotopy Theory,” 2020 (with E. Friedlander, A. Suslin, and B. Toën)
- International Workshop on Algebraic Topology, SUSTech, Shenzhen, China, June 2018 (with A. Beadry, M. Behrens, Z. Huan, N. Stapleton, G. Wang, Z. Xu, and Y. Zhu)
- Third International Gathering for Science in Palestine, MIT, January 2020 (with F.-J. Ulm and Scientists for Palestine)

**Graduate  
Students**

John Palmieri (PhD, 1991)  
Matthew Ando (PhD, 1992)  
Kevin Kelly (MS, 1993)  
James Turner (PhD, 1994)  
Brooke Shipley (PhD, 1995)  
Gerd Laures (PhD, 1996)  
Daniel Christensen (PhD, 1997)  
Nitya Kitchloo (PhD, 1998)  
Andrei Radulescu-Banu (PhD, 1998)  
Ioanid Rosu (PhD, 1999)  
Jesper Grodal (PhD, 2000)  
Donald Yau (PhD, 2002)  
Kári Ragnarsson (PhD, 2004)  
Hugh Robinson (PhD, 2005)  
Michael Ching (PhD, 2005)  
Vigleik Angeltveit (PhD, 2006)  
Francesca Deserti (MS, 2006)  
Peter Lee (PhD, 2008)  
Ricardo Andrade (PhD, 2010)  
Martin Frankland (PhD, 2010)  
Matthew Gelvin (PhD, 2010)  
Olga Stroilova (PhD, 2012)  
Rune Haugseng (PhD, 2013)  
Geoffroy Horel (PhD, 2013)  
Maximilien Holmberg-Péroux (MS, EPFL, 2014)  
Michael Andrews (PhD, 2015)  
Michael Donovan (PhD, 2015)  
Eva Belmont (PhD, 2018)  
Lyuboslav Panchev (PhD, 2019)  
Robert Hood Chatham (PhD, 2020)  
Zhulin Li (PhD, 2021)  
Andrew Senger (PhD, 2021)  
Adela YiYu Zhang (PhD, 2023)

**Postdoctoral  
Fellows  
Mentored  
since 2010**

Chris Schommer-Pries, 2010–2012  
Vesna Stojanoska, 2011–2014  
Marc Hoyois, 2014–2017  
Håkon Bergsacker 2014  
Sune Reeh, 2014–2017  
Zhouli Xu, 2017–2020  
Tom Bachmann, 2017–2019  
Jeremy Hahn, 2018–2021  
Arpon Raksit, 2021–

## Selected disciplinary talks

- 1974 Homotopy Theory Conference, Northwestern University
- 1975 Topology Seminar, Princeton University
- 1975 Topology Seminar, University of Pennsylvania
- 1975 Topology Seminar, MIT
- 1976 Homotopy Theory Special Session, Winter AMS meeting, San Antonio
- 1976 Topology Seminar, MIT
- 1976 Midwest Topology Seminar
- 1977 Topology Seminar, University of Washington
- 1978 Colloquium, University of Washington
- 1978 Topology Seminar, University of British Columbia
- 1978 Colloquium, University of Rochester
- 1978 Topology Seminar, Princeton University
- 1978 Topology Seminar, Northwestern University
- 1979 Topology Seminar, University of California, San Diego
- 1979 Ontario Topology Seminar, University of Toronto
- 1979 Colloquium, University of Western Ontario
- 1979 Topology Seminar, Princeton University
- 1979 Topology Seminar, MIT
- 1979 Algebraic Topology Colloquium, Aarhus University
- 1980 Topology Seminar, University of British Columbia
- 1980 Southern California Topology Seminar
- 1981 Homotopy Theory Special Session, Winter AMS meeting, San Francisco
- 1981 Topology Seminar, Berkeley
- 1981 Plenary talk, Oxford Conference, Edinburgh
- 1981 Current Trends in Algebraic Topology, University of Western Ontario
- 1981 Colloquium, University of North Carolina
- 1981 Midwest Topology Seminar, University of Chicago
- 1982 Colloquium, Duke University
- 1982 Colloquium, University of Virginia
- 1982 Topology Seminar, Purdue University
- 1982 Topology Seminar, University of Chicago
- 1982 Plenary lecture at Aarhus Topology Conference
- 1982 Upstate Topology Conference, Syracuse University
- 1982 Homotopy Theory Seminar, Princeton University
- 1982 Colloquium, Johns Hopkins University
- 1983 Topology Seminar, Northwestern University
- 1983 Topology Seminar, Ohio State University
- 1983 Topology Seminar, Princeton University
- 1983 Midwest Topology Seminar
- 1983 Dan Christie Memorial Lecture, Bowdoin College
- 1983 Topology Seminar, Rutgers University
- 1983 Cornell Topology Festival
- 1983 Topology Seminar, MIT
- 1983 Colloquium, University of Minnesota
- 1983 Plenary lecture, Centro del I.P.N. Topology Conference, Tlaxcala

1983 Oberwolfach Session on Homotopy Theory  
 1983 Plenary lecture at Conference on Topology and Algebraic K-theory, Princeton  
 1983 Topology Seminar, University of British Columbia  
 1984 Colloquium, University of Notre Dame  
 1984 Lecture series, Aarhus University  
 1984 Colloquium, Reed College  
 1985 Homotopy Theory Special Session, AMS meeting, Mobile  
 1985 Lecture Series at L.M.S Conference in Algebraic Topology, Durham  
 1985 Topology Workshop Seminar, University of Warwick  
 1985 Conference on Homotopy Theory and its Geometric Applications,  
 in honor of W.S. Massey, Yale University  
 1985 Colloquium, University of Virginia  
 1985 Midwest Topology Seminar  
 1985 Colloquium, Wayne State University  
 1985 Colloquium, Northwestern University  
 1986 Hour address, Winter AMS meeting, New Orleans  
 1986 Algebraic K-theory seminar, Université Paris VII  
 1986 Colloquium, Ecole Polytechnique  
 1986 Plenary lecture, Conference on Rational Homotopy Theory, Louvain-la-Neuve  
 1986 45 minute talk at ICM86, Berkeley  
 1986 Colloquium, University of Toronto  
 1986 Topology Seminar, University of Toronto  
 1986 Colloquium, Princeton University  
 1987 Colloquium, University of Connecticut  
 1987 Lecture Series, University of New Hampshire  
 March 1988 Plenary address at Homotopy Theory Conference, Northwestern University  
 April 1988 Number Theory Seminar, Brown University  
 May 1988 Plenary address at the JDG Conference, Lehigh  
 June 1988 Conference in honor of Ioan James, Cortona  
 August 1988 Conference in honor of Hirosi Toda, Kinosake  
 September 1988 Colloquium in honor of Albrecht Dold, Heidelberg  
 October 1993 Colloquium, Univ. of Kentucky  
 November 1993 Midwest Topology Seminar, Purdue University  
 November 1993 Colloquium, Purdue University  
 June 1994 Lecture series at the Summer School on the Steenrod Algebra  
 and Compact Lie Groups in Homotopy Theory, Warsaw, Poland  
 July 1995 Lecture series at the EEC-sponsored Workshop on Elliptic  
 Cohomology, Barcelona  
 March 1996 Lecture series at Wayne State University, Detroit  
 May 1996 Conference at the retirement of Albrecht Dold and  
 Dieter Puppe, Heidelberg, Germany  
 July 1996 Plenary speaker at AMS Summer Institute, Seattle  
 October 1996 Distinguished Visiting Scholar, Western Michigan University  
 October 1996 Midwest Topology Seminar, Western Michigan University  
 January 1997 Lecture series at Kyoto University  
 March 1997 Notre Dame Lectures in Geometry and Topology,  
 April 1997 Princeton University Colloquium  
 June 1997 Arbeitstagung, Bonn, Germany

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| October 1999   | Special session at AMS regional meeting at Austin, Texas  |
| December 1999  | Homotopy Theory Seminar, Institute for Advanced Study   |
| February 2000  | Colloquium, Brown University  |
| February 2000  | Midwest Topology Seminar, University of Chicago   |
| March 2000     | Homotopy Theory Conference, Johns Hopkins University  |
| January 2001   | Workshop in Topology, Melbourne University  |
| January 2001   | Colloquium, Australian National University  |
| March 2001     | Distinguished Lecture Series, University of Western Ontario   |
| April 2001     | Tercentennial Colloquium, Yale University   |
| July 2002      | Keynote Speaker, BCAT2002, Barcelona  |
| August 2003    | Homotopy Theory Conference in honor of Goro Nishida, Kinosaki, Japan  |
| January 2003   | Special session on Homotopy Theory, AMS Winter Meeting, Baltimore, MD   |
| October 2003   | Workshop on TMF, Münster, Germany   |
| December 2003  | Homotopy Theory Conference in honor of Sam Gitler, San Miguel de Allende, Mexico  |
| August 2004    | Short course on $p$ compact groups, Hanoi, Vietnam  |
| October 2004   | Midwest Topology Seminar, Purdue University   |
| November 2005  | Homotopy Theory Conference in Honor of Joe Neisendorfer's 60th Birthday, Montreal   |
| June 2006      | 45 minute address at the annual meeting of the Swedish Mathematical Society, Stockholm  |
| September 2006 | Colloquium, University of Oslo  |
| March 2007     | Complex bordism in homotopy theory: its impacts and prospects: Conference in honor of Doug Ravenel and Steve Wilson, Johns Hopkins University |
| April 2007     | Graduate Student Topology Conference, University of Chicago   |
| August 2007    | Joint meeting of the AMS and the Polish Mathematical Society  |
| June 2008      | Miller Institute Interdisciplinary Symposium, Tomales Bay, CA   |
| October 2010   | MSRI Hot Topics Workshop on the Kervaire Invariant, Berkeley, CA  |
| November 2010  | Séminaire Bourbaki report on Kervaire Invariant One   |
| May 2011       | SYM Lecture, Center for Symmetry and Deformation, University of Copenhagen  |
| July 2013      | Samuel Eilenberg Centenary Conference, Warsaw   |
| November 2013  | Connecticut Valley Colloquium, Amherst College  |
| July 2014      | Conference in Honor of Jean Lannes and Bob Oliver, Paris  |
| March 2015     | Geometry and Topology: A Conference Honoring Martin Bendersky and Sam Gitler, Princeton, NJ   |
| April 2015     | Colloquium, Georgia Tech, Atlanta, GA   |
| June 2015      | Oberseminar, Max Planck Institute for Mathematics, Bonn   |
| July 2015      | Kepler Lecture, Johannes-Kepler-Research Center for Mathematics, Regensburg   |
| November 2016  | Colloquium, Vanderbilt University   |
| July 2017      | Plenary Lecture, Homotopy Theory: Tools and Applications, UIUC  |
| August 2017    | Plenary Lecture, Homotopy Theory in the Ecliptic, Reed College  |



## Selected educational talks and panel participation

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|----------------|--|
| August 2000    | “Mathematical Visions,” Clay Mathematics Institute/PROMYS, Boston University   |
| April 2001     | “Teaching and learning about differential equations,” at the Bok Center, Harvard University  |
| June 2003      | “Knots and Numbers,” MIT Science and Engineering Program for Teachers  |
| September 2006 | “Some examples of linkage of mathematics and engineering,”<br>Workshop on Curriculum Integration, MIT  |
| June 2007      | “Knots and Numbers,” MIT SEPT  |
| March 2009     | Panelist on “Leading a campus to embrace innovation and assessment,” The Spencer Foundation Forum on Excellence and Innovation, Harvard University                 |
| March 2009     | “New Directions in General Education at MIT,” sponsored by the MacVicar Fellows Program  |
| March 2010     | “The Mathematics Communication-Intensive Webspaces,” a Crosstalk presentation sponsored by the MIT Office of Educational Technology and Innovation                 |
| April 2010     | “Promoting the Use of Instructional Mathlets across the Curriculum,” a Crosstalk presentation sponsored by the MIT Office of Educational Technology and Innovation |
| April 2010     | MIT Office of Educational Innovation and Technology Crosstalk presentation on the Mathematics CI Space (with Susan Ruff)   |
| April 2011     | “Innovations in Communication Instruction,” sponsored by the Subcommittee on the Communication Requirement, MIT  |
| January 2012   | “Interactive Applets for Calculus and Differential Equations,” an MAA Mini-course at the Boston Joint Mathematics Meetings   |
| January 2013   | NSF Workshops on Active Learning, Port-au-Prince, Haiti – also August 2013 and January 2015, and in Limonade, August 2015 and June 2016                            |
| February 2013  | Colloquium, Colby College  |
| June 2013      | Panelist and presenter at “New Directions for Mathematics Research Experiences for Undergraduates,” Mt. Holyoke College  |
| June 2013      | “Mathlets: A case study of the use of technology in and out of the classroom,” MIT SEPT  |
| December 2013  | Presenter and panelist at “Pakistan Teachers Education Project,” MIT OEIT  |
| April 2014     | Marvin I. Freedman Memorial Colloquium, Boston University  |
| April 2016     | Colloquium, Reed College   |
| June 2016      | “Ne ak Nomb,” UEH Campus Henri Christophe, Limonade, Haiti   |
| June 2016      | “Knots and Numbers,” MIT SEPT  |
| October 2017   | “Mathematical manipulatives: the MIT Mathlets,” with Jennifer French, Electronic Seminar on Mathematics Education  |
| June 2019      | “Mathlets: A case study of the use of technology in and out of the classroom,” MIT J-WEL Course and Curriculum Design Workshop                                     |
| September 2019 | Course-based Undergraduate Research Experiences: Two Examples,” with Sunil Chebolu, Electronic Seminar on Mathematics Education.                                   |
| December 2019  | “The Electronic Seminar on Mathematics Education: Creating an online community of educators,” Canadian Math Society Annual Meeting, Toronto.                       |