

## John McCleary

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### Education

B.A. in Mathematics      LaSalle College, 1974  
M.A. in Mathematics      Temple University, 1976  
Ph.D. in Mathematics      Temple University, 1979

Thesis: *Obstructions to realization of morphisms between modules over the Steenrod algebra for very nice spaces.* Written under the direction of James Stasheff.

- University Fellowship, Temple University, 1975-76, 1977-78.
- Graduated *Maxima cum laude*, LaSalle College, 1974.

### Employment

Vassar College, New York, Chair of the department, 1986-1989, Spring 1997-1998, 2000-present  
Professor, 1993-present, Associate professor, 1987-1993,  
Assistant professor, 1979-1987.

Bates College, Maine, Assistant professor, 1978-1979.

### Grants, Fellowships, Honors, Awards

- Professeur invité, Université Louis Pasteur, Strasbourg, France, 7/96-7/97 (partially funded by CNRS, one-month salary).
- Hewlett-Mellon Grant (\$4500) in support of the conference, Higher Homotopy Structures in Topology and Mathematical Physics, through the Office of the President, Vassar College, June, 1996.
- Visitor, Mathematical Sciences Research Institute, Berkeley, California, 6/89-7/90, special year in algebraic topology (no funding).
- Visiting researcher, University of Sydney, Sydney, Australia, 6/87-9/87 (fully funded by NARC).
- Gästforscher, SFB 170 (Geometrie und Analysis), Math. Institut, Göttingen, Germany, 9/84-6/85 (partially funded by DFG, three-months salary).
- Summer member, Institute for Advanced Study, Princeton, 6/82-8/82, 6/83-8/83 (no funding).

### Other Professional Activity

- Led REU program at Vassar (URSI) with three students on odd perfect numbers; summer, 2000.
- Member of the Joint AMS-MAA Committee on Archives, 1997-99.
- Reviewed materials for a promotion decisions at Drexel University, Saint Joseph's University, Santa Clara University, Hamilton College, and Indiana University at Purdue.
- Organizer of Conference, Higher Homotopy Structures in Topology and Mathematical Physics, 6/96, Vassar College.
- Organizer of Conference on the History of Modern Mathematics, 6/88, Vassar College (with David Rowe).
- Organizer of Fall Foliage Topology Seminar, fall of 1986, 87, 88, New Hampshire (with Paul Latiolais).
- Co-organizer (with Bob Szczarba) and speaker for the Topics in Topology Seminar at Yale University; spring of 87, Cyclic Homology; fall of 87, The Transfer; spring of 88, The Immersion Conjecture; summer of 88, Elliptic Genera; fall of 88, Gauge Theory; fall of 91, Spin Geometry.
- Co-organizer (with Ronnie Lee) of the annual Yale-Vassar Topology Day, since 1992.
- Panel member, Mathematical Association of America Panel of Visiting Lecturers, 1990-93.
- Participant in the New York Chapter Mathematical Speakers Bureau of the Mathematical Association of America, and in Greater Hudson Valley Mathematical Speakers Bureau.
- Outside examiner on Ph.D. thesis defense in topology, Queen's University, August 1990. Outside examiner on Ph.D. thesis defense in the history of mathematics, CUNY, April, 1992.
- Outside examiner of students for the Honors Program, Swarthmore College, 1988 (Topology and Algebra), 1989 (Topology and Analysis).
- Outside evaluator in Mathematics Department Review; Goucher College, April, 1987; Rider College, May, 1988; Union College, April, 2000.

- Principal instructor for the 1986 Dutchess County High School of Excellence, *Number Theory and Public Key Codes*, held at Bard College, Annandale-on-Hudson, NY.
- AAAS-NSF Chautauqua course no. 23, *Methods of Mathematical Modelling in the Biological Sciences*, 11/81 and 3/82, Polytechnic Institute of New York.
- Continuing Engineering Education Program no. 20, *Operations Research*, 6/80, George Washington University.
- Referee for *Proceedings, Memoirs, and Transactions of the AMS, Pacific Journal of Mathematics, Topology and its Applications, Journal of Pure and Applied Algebra, Journal of Algebra, Journal of Symbolic Computation, International Journal of Mathematics, Differential Geometry and its Applications, K-Theory, Journal of the Society of Architectural Historians, American Mathematical Monthly, and Mathematics Magazine*.
- Reviewer for *Math Reviews, Zentralblatt, CHOICE*.

## PUBLICATIONS

### Books

1. “User’s Guide to Spectral Sequences”, second edition, Cambridge University Press, NY, NY, 2001. (First edition: Publish or Perish, Inc., Wilmington, DE, 1985.)
2. “Higher Homotopy Structures in Topology and Mathematical Physics,” Proceedings of a Conference, Vassar College, Poughkeepsie, NY, 1996, (editor), American Mathematical Society, Contemporary Mathematics 227, Providence, RI, 1999.
3. “Geometry from a Differentiable Viewpoint,” Cambridge University Press, NY, NY, 1994.
4. “The History of Modern Mathematics: Volume I, Ideas and their Reception; Volume II, Institutions and Applications,” Proceedings of a Conference, Vassar College, Poughkeepsie, NY, 1988, (editor with David Rowe), Academic Press, Orlando, FL, 1989.

### Publications in topology

1. *Tortoises and hares: a history of manifolds and bundles*, to appear in *Supp. Rend. Circ. Mat. di Palermo*.
2. *A history of spectral sequences: Origins to 1953*, in *History of Topology*, 631–663, edited by Ioan James, North-Holland, Amsterdam, 1999.
3. *An appreciation of the work of Jim Stasheff*, in *Higher homotopy structures in topology and mathematical physics* (Poughkeepsie, NY, 1996), 1–16, *Contemp. Math.*, 227, Amer. Math. Soc., Providence, RI, 1999.
4. *Hochschild homology, cyclic homology and the cobar construction* (with John D.S. Jones), in the Adams Memorial Symposium in Algebraic Topology, London Mathematical Society Lecture Note Series **175**(1992), 53–65, Cambridge University Press.
5. *On homotopy associative mod 2 H-spaces*, *Journal of Mathematics, Kyoto University* **32**(1992), 451–499; also MSRI reprint series, May 1990, 05925-90.
6. *The Morava K-theory and the free loop space* (with Dennis McLaughlin), *PAMS* **114**(1992), 243–250; also MSRI reprint series, May 1990, 04725-90.
7. *A topologist’s account of Yang-Mills theory*, *Expositiones Mathematicae*, **10**(1992), 311–352.
8. *Homotopy theory and closed geodesics*, *Lecture Notes in Mathematics* **1418**, Homotopy theory and related topics. Proceedings, Kinoshita, Japan, 1988, 86–94.
9. *On the problem of closed geodesics*, in the Proceedings of the International Colloquium on Algebraic Topology and Global Analysis, held August, 1989, Guanajuato, Mexico.
10. *On the free loop space of homogeneous spaces* (with W. Ziller), *Amer. Jour. Math.* **109**(1987), 765–782. *Correction*, *Amer. Jour. Math.* **113**(1991), 375–377.
11. *On the mod p Betti numbers of loop spaces*, *Inven. Math.* **87**(1987), 643–654.
12. *Closed geodesics on Stiefel manifolds*, *Mathematicae Göttingensis Heft 12*, 1985. Also in *Lecture Notes in Mathematics* **1172**, Algebraic Topology Göttingen 1984, 157–162.
13. *Cartan’s cohomology theories and spectral sequences*, *CMS Conf. Proc.*, ‘Current trends in algebraic topology,’ **2**(1982), 499–506.
14. *Mod p decompositions of H-spaces; another approach*, *Pac. J. Math.* **87**(1980), 373–388.

### Other publications

1. *Un théorème remarquable sur les courbes de l’espace: Jacobi, Euler, Gauss, Clausen, L’Ouvret*, **90**(1998), 1–11.
2. *On Jacobi’s remarkable curve theorem*, *Historia Mathematica* **21**(1994), 377–385.

3. *A theory of reception for the history of mathematics*, in *The History of Modern Mathematics*, volume I, edited by D. Rowe and J. McCleary, Academic Press (1989), 3–14.
4. *How not to prove Fermat's Last Theorem*, *American Mathematical Monthly*, **96**(1989), 410–420.
5. *What Mathematics isn't* (with Audrey McKinney), *Math. Intell.*, **8**(1986),51-54.
6. *There are infinitely many primes*, *UMAP Journal* **3**(1982),407–421.
7. *An application of Desargues' theorem*, *Math. Mag.* **55**(1982),233–235.

### Invited book reviews

1. Review: *Gödel, Escher, Bach: An Eternal Golden Braid* by Douglas Hofstadter, in *Cognition and Brain Theory*, **3**(1979), 74–75.
2. Review: *Mathematical Visions* by Joan L. Richards, *Science* **246**(1989), 940.
3. Review: *Riemann, Topology, and Physics* by Michael Monastyrsky, *Historia Mathematica* **17**(1990), 389–390.
4. Review: *Mathematics and Science*, edited by Roland E. Mickens, *American Scientist* **80**(1992), 91-92.
5. Review: *A History of Non-Euclidean Geometry* by B. Rosenfeld, *the Mathematical Intelligencer* **14**(1992), 73–74.
6. Review: *Revolutions in Mathematics* edited by Donald Gillies, *Science* **259**(1993), 995–996.
7. Review: *Modern Mathematics in the Light of the Fields Medal* by Michael Monastyrsky, *American Scientist* **85**(1997), 390.
8. Review: *Rings, Modules, and Algebras in Stable Homotopy Theory*, by A. D. Elmendorf, I. Kriz, M. A. Mandell, and J. P. May; *Equivariant Homotopy and Cohomology Theory*, J. P. May, with contributions by M. Cole, G. Comezana, S. Costenoble, A. D. Elmendorf, J. P. C. Greenlees, L. G. Lewis, Jr., R. J. Piacenza, G. Triantafyllou, and S. Waner; *A Concise Course in Algebraic Topology*, by J. P. May. to appear in *Bull. Amer. Math. Soc.*

### Selected Talks

- *Hunting odd perfect numbers*, given in the Marist College Mathematics Seminar, Marist College, November, 2000.
- *Manifolds and Bundles; Examples and Definitions; Tortoises and Hares*, an invited lecture given February 4, 2000 at the Mathematisches Forschungsinstitut in Oberwolfach, during the week-long session on the History of Mathematics.
- *A history of spectral sequences*, given at New Mexico State University, March, 1999; also given in the Special Session on the History of Mathematics (invited talks), Regional meeting of the American Mathematical Society, Philadelphia, PA, April, 1998. Also given in the Topology Seminar at Yale, January, 1998.
- *On the closed geodesics problem*, given in the colloquium series at Dartmouth College, February, 1998. Also given in the Séminaire Algèbre/Topologie, Université Louis Pasteur, Strasbourg, September, 1996; Université de Lille, April, 1997; Université de Lausanne, Switzerland, June, 1997.
- *Jacobi comme géometre*, Atelier de l'Histoire de Mathématique, Université Louis Pasteur, Strasbourg, May, 1997 (en français).
- *Invariantes triangulaires supérieures et les opérations homologiques*, in the Séminaire Algèbre/Topologie, Université Louis Pasteur, Strasbourg, May, 1997 (en français).
- *An appreciation of the work of Jim Stasheff*, given at the conference, Higher Homotopy Structures in Topology and Mathematical Physics, Vassar College, June, 1996.
- *On Jacobi's remarkable curve theorem*, given at the University of Massachusetts, Amherst, Five Colleges Geometry Seminar, 11/94. Also given at Special Session in the History of Mathematics, AMS Winter Meeting, San Francisco, 1/95.
- *Hochschild homology and closed geodesics*, given at the Workshop on Algebraic Topology, Oaxtepec, Mexico 8/89, and at Topology Day, Yale University, 6/92.
- *Homotopy associativity and products with the seven sphere*, given at the International Conference on Algebraic Topology, Oaxtepec, Mexico, 7/91.
- *Hochschild homology and the cobar construction*, given at the Adams Memorial Symposium, Manchester, England, 7/90.
- *Homotopy theory and closed geodesics*, given at the International Conference on Topology in Honor of Hiroshi Toda, Kinosaki, Japan, 8/88.
- *Yang-Mills theory and topology*, given at the University of Sydney, 6-8/87.

- *Invariant theory and algebraic topology*, given at the University of Connecticut, Storrs. Also at the AMS Meeting, special session, Los Angeles, 1989.
- *Differential geometry and loop spaces*, given at the Max-Planck Institute in Bonn; in the Fynske Topology Meeting, Odense; Topology Seminar, Regensburg; the Valley Geometry Seminar, Amherst; Homotopy Theory Seminar, Princeton, 85-86.
- *On the problem of closed geodesics*, given at the Free University of Berlin; University of Liverpool; Georg-August University in Göttingen; University of Sydney, 84-85, 87.
- *On the mod  $p$  Betti numbers of loop spaces*, given at the AMS Winter Meeting, New Orleans, 1985.

## COLLEGE ACTIVITY

### Courses taught

ADVANCED COURSES: Topology, Differential Geometry, Modern Algebra, Galois Theory, Linear Algebra, Complex Analysis, Real Analysis, Theory of Differential Equations, Senior Seminar in the History of Mathematics/in Knot theory;

INTERMEDIATE COURSES: Topics in Geometry, Number Theory, Linear Algebra, Methods of Mathematical Modelling, Methods of Applied Mathematics, Probability Models, Multivariable Calculus ;

ELEMENTARY COURSES: Elementary Calculus, Calculus with Discrete Mathematics, Topics in Calculus; Excursions in Mathematics, Non-Euclidean Geometry;

COLLEGE COURSES: Civilization in Question, Time.

### Departmental Service

Chair, 1986–89; 2000–present. Acting chair, b-term 1998. Cochair of Colloquium Committee. Library Liaison.

### Vassar College Committees

FASC, Appeals Committee, Committee on Committees (chair), House Fellows Committee ((co)chair), Advisory Committee on Student Life, Committee on Housing (chair), Steering Committee for the Freshman Course, Committee on Computing, Committee on Student Records, Committee on Scholarships and Financial Aid, Advisory Committee to the ARC, College Regulations Committee.