Stanford



Ralph Cohen

The Barbara Kimball Browning Professor in the School of Humanities and Sciences, Emeritus

Mathematics

Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Mathematics

ADMINISTRATIVE APPOINTMENTS

- Senior Associate Dean, Natural Sciences, College of Humanities and Sciences, Stanford University, (2010- present)
- Barbara Kimball Browning Professor, Humanities and Sciences, Stanford University, (2009- present)
- Inaugural Fellow, American Mathematical Society, (2013-2013)
- Distinguished Visiting Professor, University of Copenhagen, Denmark, (2009-2010)
- Fellow in Undergraduate Education, Bass University, (2005-2010)
- Professeur Invit´e, Univ. of Paris, (2005-2005)
- Visiting Professor, Trondheim University, Norway, (2004-2004)
- Professeur Invit´e, Univ. of Lille, France, (2003-2003)
- Visiting Professor, Oxford University, (2002-2002)
- Visiting Professor, Cambridge University, (1997-1997)
- Visiting Professor, Univ. of Paris, (1989-1989)
- Visiting Professor, Oxford University, (1988-1989)
- Professor of Mathematics, Stanford University, (1987- present)
- Associate Professor of Mathematics, Stanford University, (1983-1987)
- Assistant Professor of Mathematics, Stanford University, (1980-1983)
- Visiting Professor, Nankai Institute, China, (1987-1987)
- Visiting Professor, Princeton University, (1983-1984)
- L.E. Dickson Instructor of Mathematics, University of Chicago, (1978-1980)
- Visiting Professor, Northwestern University, (1982-1982)

HONORS AND AWARDS

- Dean’s Award for Distinguished Teaching, Stanford University (2002)
- International research award, National Science Foundation (1988 - 1989)
- Presidential Young Investigator Award, National Science Foundation (1984 - 1989)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editor, Journal of Geometry and Topology (1997 - present)
- Editor, Homotopy, Homology, and its Applications (2004 - present)
- Chair, Editorial Board, Mathematical Surveys and Monographs, American Math. Society (2007 - present)
- Editor of Graduate Text Series, Oxford University, Press (1996 - present)
- Founding Editor, Journal of Topology (2007 - 2013)
- Editor, Topology (1988 - 2007)
- Editor, Proceedings of the American Mathematical Society (1997 - 2001)
- Editor, Transactions of the American Mathematical Society, and of Memoirs of the American Mathematical Society (1985 - 1992)
- Director, Stanford's "Mathematics Research Center" (2000 - 2009)
- Elected member, American Math. Society Executive Commitee
- Member, Scientific Advisory Board, Banff International Research Station (2008 - 2012)
- Member, American Mathematical Society (1975)
- Senior Associate Dean for the Natural Sciences, School of Humanities of Sciences, Stanford University (2010 - present)
- Director, Mathematics Research Center, Stanford University (2000 - 2009)
- University Academic Senate, Stanford University (2000 - 2002)
- University Academic Senate, Stanford University (2005 - 2007)
- University Academic Senate, Stanford University (2011 - 2013)
- Chair, Academic Senate Committee on Committees, Stanford University (2011 - present)
- Chairman, Dept. of Mathematics, Stanford University (1992 - 1995)
- Consultant to State Board of Education on K-12 Mathematics Content Standards, State of California (1997 - 2000)
- California State Mathematics Framework Committee, State of California (1997 - 1997)
- Co-founder, with R. Mazzeo, Stanford University Mathematics Camp (1995 - 1995)

PROFESSIONAL EDUCATION

- Ph.D., Brandeis University , Mathematics (1978)
- M.A., Brandeis University , Mathematics (1975)
- B.S., University of Michigan , Mathematics (1973)

Publications

PUBLICATIONS

- **MORSE FIELD THEORY** *ASIAN JOURNAL OF MATHEMATICS*
  Cohen, R., Norbury, P.
  2012; 16 (4): 661-711
- **Stability for closed surfaces in a background space** *Homology, Homotopy, and Applications*
  Cohen, R. L.
  2011; 13 (2): 301 - 313
- **The Floer Homotopy Type of the Cotangent Bundle** *PURE AND APPLIED MATHEMATICS QUARTERLY*
  Cohen, R. L.
  2010; 6 (2): 391-438
- **Stability phenomena in the topology of moduli spaces** *Surveys in Differential Geometry XIV*

Cohen, R. L.
edited by Ji, L., Wolpert, S., Yau, S. T.
International Press.2010: 23–56

- **Topological Hochschild homology of Thom spectra and the free loop space** *GEOMETRY & TOPOLOGY*
  Blumberg, A. J., Cohen, R. L., Schlichtkrull, C.
  2010; 14 (2): 1165-1242
- **Universal moduli spaces of surfaces with flat bundles and cobordism theory** *ADVANCES IN MATHEMATICS*
  Cohen, R. L., Galatius, S., Kitchloo, N.
  2009; 221 (4): 1227-1246
- **Floer Homotopy Theory, Realizing Chain Complexes by Module Spectra, and Manifolds with Corners** *4th Abel Symposium*
  Cohen, R. L.
  SPRINGER.2009: 39–59
- **UMKEHR MAPS** *HOMOLOGY HOMOTOPY AND APPLICATIONS*
  Cohen, R. L., Klein, J. R.
  2009; 11 (1): 17-33
- **A Morse Theoretic Description of String Topology** *Conference on New Perspectives and Challenges in Symplectic Field Theory held in honor of Yasha Eliashberg*
  Cohen, R. L., Schwarz, M.
  AMER MATHEMATICAL SOC.2009: 147–172
- **Surfaces in a background space and the homology of mapping class groups** *AMS Summer Research Institute on Algebraic Geometry*
  Cohen, R. L., Madsen, I.
  AMER MATHEMATICAL SOC.2009: 43–76
- **Open-closed field theories, string topology, and Hochschild homology** *3rd Arolla Conference on Algebraic Topology*
  Blumberg, A. J., Cohen, R. L., Teleman, C.
  AMER MATHEMATICAL SOC.2009: 53–76
- **The homotopy invariance of the string topology loop product and string bracket** *JOURNAL OF TOPOLOGY*
  Cohen, R. L., Klein, J. R., Sullivan, D.
  2008; 1 (2): 391-408
- **String topology of Poincar´e duality groups** *Geometry and Topology Monographs*
  Cohen, R. L., Abbaspour, H., Gruher, K.
  2007; 13: 1 - 10
- **The topology of the category of open and closed strings** *Conference on Homotopy Theory to Celebrate Sam Gitler 70th Birthday*
  Baas, N. A., Cohen, R. L., Ramirez, A.
  AMER MATHEMATICAL SOC.2006: 11–26
- **String Topology and Cyclic Homology** *Adv. Courses in Math, CRM*
  Cohen, R. L., Hess, K., Voronov, A. A.
  Birkhauser Verlag.2006
- **Notes on String Topology** *String Topology and Cyclic Homology, Adv. Courses in Math: CRM, Barcelona,*
  Cohen, R. L., Voronov, A.
  Birkhauser.2006: 1–95
- **Morse theory, graphs, and string topology** *Conference of the NATO-Advanced-Study-Institute on Morse Theoretic Methods in Nonlinear Analysis and in Symplectic Topology*
  Cohen, R. L.
  SPRINGER.2006: 149–184
- **String topology: homotopy and geometric perspectives** *Encyclopedia of Mathematical Physics*
  Cohen, R. L.
  edited by Francoise, J. P., Naber, G. L., T, T. S.

Oxford: Elsevier.2006: 111–114

- **The topology of the category of open and closed strings** *Contemporary Mathematics*
  Cohen, R. L., Bass, N. A., Ramirez, A.
  2005; 407: 11 - 26
- **A polarized view of string topology** *Topology, Geometry, and Quantum Field Theory, London Math. Soc. Lecture Notes*
  Cohen, R. L., Godin, W. V.
  2004; 308: 127 - 154
- **Multiplicative properties of Atiyah duality** *Homology, Homotopy, and its Applications*
  Cohen, R. L.
  2004; 6 (1): 269 - 281
- **Fourier decompositions of loop bundles** *Contemporary Mathematics*
  Cohen, R. L., Stacey, A.
  2004; 346: 85 - 95
- **The loop homology algebra of spheres and projective spaces** *International Conference in Algebraic Topology*
  Cohen, R. L., Jones, J. D., Yan, J.
  BIRKHAUSER VERLAG AG.2004: 77–92
- **A homotopy theoretic realization of string topology** *MATHEMATISCHE ANNALEN*
  Cohen, R. L., Jones, J. A.
  2002; 324 (4): 773-798
- **Holomorphic K-theory, algebraic co-cycles, and loop groups** *K-THEORY*
  Cohen, R. L., Lima, P.
  2001; 23 (4): 345-376
- **Stability for holomorphic spheres and Morse theory** *Contemporary Mathematics*
  Cohen, R. L., Segal, G., Jones, J. S.
  2000; 258: 87 - 106
- **Holomorphic spheres in loop groups and Bott periodicity** *Asian Jour. of Math.*
  Cohen, R. L., Lupercio, E., Segal, G. B.
  1999; 3 (4): 801 - 818
- **On the algebraic K-theory of simply connected spaces** *DUKE MATHEMATICAL JOURNAL*
  Bokstedt, M., Carlsson, G., Cohen, R., Goodwillie, T., HSIANG, W. C., Madsen, I.
  1996; 84 (3): 541-563
- **Stabilizing moduli spaces of self dual connections** *Turkish Journal of Math.*
  Cohen, R. L.
  1995; 19: 179 - 187
- **Floer's infinite dimensional Morse theory and homotopy theory** *Floer Memorial Volume, Birkhauser Verlag Prog. in Math.*
  Cohen, R. L., Jones, J. S.
  1995; 133: 287 - 325
- **The homotopy type of gauge theoretic moduli spaces** *Algebraic Topology and its Applications M.S.R.I publication series*
  Cohen, R. L., Milgram, R. J.
  1994; 27: 15 - 55
- **Moduli spaces of graphs and cohomology operations** *Turkish Journal of Math.*
  Cohen, R., Betz, M.
  1994; 18: 23 - 41
- **Algebraic Topology and its Applications** *M.S.R.I publication series*
  Cohen, R. L.
  edited by Cohen, R. L., Carlsson, G., Jones, J. S., Hsiang, W. C.

1994; 27

- **MONOPOLES, BRAID-GROUPS, AND THE DIRAC OPERATOR** *COMMUNICATIONS IN MATHEMATICAL PHYSICS*
  Cohen, R. L., Jones, J. D.
  1993; 158 (2): 241-266
- **THE HOMOTOPY TYPE OF RATIONAL FUNCTIONS** *MATHEMATISCHE ZEITSCHRIFT*
  Cohen, F. R., Cohen, R. L., Mann, B. M., Milgram, R. J.
  1993; 213 (1): 37-47
- **Morse theory via moduli spaces** *Proceedings of workshop on gauge theory, Matematica Contemporanea, Soc. Brasileira de Matematica*
  Cohen, R. L.
  1992: 19 - 66
- **THE TOPOLOGY OF RATIONAL FUNCTIONS AND DIVISORS OF SURFACES** *ACTA MATHEMATICA*
  Cohen, F. R., Cohen, R. L., Mann, B. M., Milgram, R. J.
  1991; 166 (3-4): 163-221
- **Rational functions, labelled configurations, and Hilbert schemes** *Journal of the London Math. Society*
  Cohen, R. L., Shimamoto, D.
  1991; 43: 509 -528
- **ALGEBRAIC K-THEORY OF SPACES AND THE NOVIKOV-CONJECTURE** *TOPOLOGY*
  Cohen, R. L., Jones, J. D.
  1990; 29 (3): 317-344
- **Representations of braid groups and operators coupled to monopoles** *London Math. Society Lecture Note Series*
  Cohen, R. L., Jones, J. S.
  1990; 150: 191 - 205
- **LECTURES ON IMMERSION THEORY** *LECTURE NOTES IN MATHEMATICS*
  Cohen, R. L., Tillmann, U.
  1989; 1369: 71-124
- **Divisors and configurations on a surface** *Proceedings of the Conference in Algebraic Topology, Northwestern Univ. 1988, Contemporary Mathematics*
  Cohen, R. L., Cohen, F., Mann, B., Milgram, R. J.
  1989; 96: 103 - 108
- **Proceedings of the International Conference on Algebraic Topology**
  Cohen, R. L.
  edited by Cohen, R. L., Carlsson, G., Miller, H., Ravene, D.
  1989
- **Generalized Tate homology, homotopy fixed points, and the transfer** *Proceedings of the conference in Algebraic Topology, Northwestern Univ. 1988, Contemporary Mathematics*
  Cohen, R. L., Adem, A., Dwyer, W.
  1989; 96: 1 - 13
- **THE ADAMS SPECTRAL SEQUENCE OF THE REAL PROJECTIVE SPACES** *PACIFIC JOURNAL OF MATHEMATICS*
  Cohen, R. L., Lin, W. H., Mahowald, M. E.
  1988; 134 (1): 27-55
- **A MODEL FOR THE FREE LOOP SPACE OF A SUSPENSION** *LECTURE NOTES IN MATHEMATICS*
  Cohen, R. L.
  1987; 1286: 193-207
- **The free loop space and the algebraic K - theory of spaces** *K - theory*
  Cohen, R. L., Carlsson, G., Goodwillie, T., Hsiang, W.
  1987; 1: 53 - 82

- **Pseudo - isotopies, algebraic K - theory, and homotopy theory** *London Mathematics Society Lecture Note Ser.*
  Cohen, R. L.
  1987; 117: 35 - 72
- **The free loop space and the cyclic groups** *Commentari Math. Helvetici.*
  Cohen, R. L., Carlsson, G.
  1987; 62: 423 - 449
- **A DECOMPOSITION OF THE SPACE OF GENERALIZED MORSE FUNCTIONS** *ANNALS OF MATHEMATICS STUDIES*
  Cohen, R. L.
  1987: 365-391
- **A DECOMPOSITION OF THE SPACE OF GENERALIZED MORSE FUNCTIONS** *ANNALS OF MATHEMATICS STUDIES*
  Cohen, R. L.
  1987: 365-391
- **REALIZING TRANSFER MAPS FOR RAMIFIED COVERINGS** *PACIFIC JOURNAL OF MATHEMATICS*
  Cohen, R. L.
  1986; 122 (2): 347-356
- **THE IMMERSION CONJECTURE FOR DIFFERENTIABLE MANIFOLDS** *ANNALS OF MATHEMATICS*
  Cohen, R. L.
  1985; 122 (2): 237-328
- **THE KERVAIRE INVARIANT OF IMMERSIONS** *INVENTIONES MATHEMATICAE*
  Cohen, R. L., Jones, J. D., Mahowald, M. E.
  1985; 79 (1): 95-123
- **The homotopy theory of immersions**
  Cohen, R. L.
  1985: 627–40
- **SECONDARY COHOMOLOGY OPERATIONS THAT DETECT HOMOTOPY CLASSES** *TOPOLOGY*
  Cohen, R. L., Goerss, P.
  1984; 23 (2): 177-194
- **BUNDLES OVER CONFIGURATION-SPACES** *PACIFIC JOURNAL OF MATHEMATICS*
  Cohen, F. R., Cohen, R. L., Kuhn, N. J., NEISENDORFER, J. L.
  1983; 104 (1): 47-54
- **IMMERSIONS OF MANIFOLDS (NORMAL BUNDLE CLASSIFYING SPACE THOM SPACE)** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA-PHYSICAL SCIENCES*
  Cohen, R. L.
  1982; 79 (10): 3390-3392
- **ODD PRIMARY INFINITE FAMILIES IN STABLE-HOMOTOPY THEORY** *MEMOIRS OF THE AMERICAN MATHEMATICAL SOCIETY*
  Cohen, R. L.
  1981; 30 (242): 1-92
- **Representations of Brown - Gitler spectra** *Proceedings of Topology Symposium*
  Cohen, R. L.
  1980; 788: 399 - 417
- **STABLE PROOFS OF STABLE SPLITTINGS** *MATHEMATICAL PROCEEDINGS OF THE CAMBRIDGE PHILOSOPHICAL SOCIETY*
  Cohen, R. L.
  1980; 88 (JUL): 149-151
- **The Geometry of Ω2S3 and braid orientations** *Inventionnes Mathematicae*
  Cohen, R. L.
  1979; 54: 53 - 67