Thomas G. Goodwillie
Professor
Department of Mathematics

December, 2021

Degrees:

A. B. Harvard, 1976
M. A. Harvard, 1976
Ph. D. Princeton, 1982

Dissertation: "A multiple disjunction lemma for smooth concordance embeddings"

Regular positions held:

1979-1982	Junior Fellow, Harvard
1982-1987	Associate Professor, Harvard (not tenured)
1987-1991	Associate Professor, Brown
1991-present	Professor, Brown

Visiting positions:

Spring 2008	Visiting Professor, Harvard

Refereed monograph:

"A multiple disjunction lemma for smooth concordance embeddings" Memoirs AMS 86 (1990) no. 431, 317 pp.

Refereed articles:

"Cyclic homology, derivations, and the free loopspace, Topology 24 (1985), no. 2, 187-215.

"On the general linear group and Hochschild homology" Annals of Math. (2) 121 (1985) no. 2, 383-407.

"Relative algebraic K-theory and cyclic homology" Annals of Math. (2) 124 (1986) no. 2, 347-402.

"The free loop space and the algebraic K-theory of spaces" K-theory 1 (1987) no. 1, 53-82. (with Gunnar Carlsson, Ralph Cohen, and Wu-chung Hsiang)

"Calculus 1, The first derivative of pseudoisotopy theory, K-theory 4 (1990), no. 1, 1-27.

"The differential calculus of homotopy functors", Proc. International Congress of Mathematicians, vol. 1 (Kyoto, 1990), 621-630, Math. Soc. Japan, Tokyo, 1991.

"Calculus II, Analytic functors" K-theory 5 (1991/92) no. 4, 295-332.

"On the algebraic K-theory of simply connected spaces" Duke Math. J. 84 (1996) no. 3, 541-563 (with Marcel Boekstedt, Gunnar Carlsson, Ralph Cohen, Wu-chung Hsiang, and Ib Madsen)

"A remark on the homology of cosimplicial spaces" J. Pure and Applied Algebra 127 (1998) no. 2, 167-175.

"Embeddings from the point of view of immersion theory II" Geometry and Topology 3 (1999), 103-118 (with Michael Weiss)

"A cohomological bound for the h-topology" American J. Math. 123 (2001) 425-443. (with Stephen Lichtenbaum)

Spaces of smooth embeddings, disjuncton, and surgery" in Annals of Math. Studies 149, Surveys on Surgery Theory (vol. 2) 2000, ed. A. Ranicki and J. Rosenberg, 221-283. (with John Klein and Michael Weiss)

A Haefliger type decription of the embedding calculus tower" Topology 42 (2003) 509-524. (with John Klein and Michael Weiss)

"Calculus III, Taylor series" Geometry and Topology 7 (2003) 645-711.

"Multiple disjunction for spaces of Poincare embeddings", Journal of Topology 1 (2008) 761-803. (with John Klein)

“A stable range description of the space of link maps”, Algebraic and Geometric Topology (2010) 1305-1315 (with Brian A. Munson)

“Multiple disjunction for spaces of smooth embeddings”, Journal of Topology (2015) 8 (3) 651-674 (with John R. Klein)

“An equivariant version of Hatcher’s G/O construction”, Journal of Topology (2015) 8 (3) 675-690 (with Kiyoshi Igusa and Christopher Ohrt)

“Scissors congruence with mixed dimensions”, Contemporary Mathematics (2017) 682 92-151

Book:

“The local structure of algebraic K-theory”, Springer, 2012 (with B. I. Dundas and R. McCarthy)

Selected invited lectures:

"The differential calculus of homotopy functors", ICM, Kyoto, 8/90.

"Calculus of functors, a survey", AMS-MAA-SIAM Joint Meetings, San Diego, 1/97.

"'Calculus' in homotopy theory", Lehigh, 6/00..

"Survey of stable pseudoisotopy theory", series of four lectures at School of high-dimensional manifolds, Trieste, 5/01.

"The calculus of functors", ten lectures (LMS invited Lectures), Aberdeen, 6/01.

"Functor calculus and pseudoisotopy spaces”, Third Arolla Conference on Algebraic Topology, Arolla, Switzerland, 8/09.

“Introduction to functor calculus”, three lectures at the Georgia Topology Canferenc, 5/10.

"Spaces of Graphs and What Lies Beyond Algebraic K-Theory", Joint Meetings, Boston, 1/12.

"Spaces of graphs and automorphisms of manifolds", Conference in honor of Yves Felix, CNRS, 6/12.

"Assembly maps and functor calculus" Quilllen Memorial Conference, MIT, 10/12.

"Topological Cyclic Homology" seminar of Beilinson and Drinfeld, University of Chicago, 1/13.

"Functor Calculus" colloquium, Northwestern University, 5/13.

"Scissors Congruence in Mixed Dimensions" , conference Manifolds, K-Theory, and related Topics, Dubrovnik, 6/14.

"Total Scissors Congruence", Brandeis topology seminar, 11/14.

"Characteristic classes for bundles of manifolds", Northwestern U. Topology Seminar, 1/17.

"Origins of Functor Calculus", two talks at Ohio State functor calculus workshop, 3/2019.

"Embeddings and orthogonal calculus", BIRS Workshop (Banff) 10/19.

"Equivariant Igusa-Klein torsion", Princeton Algebraic Topology Seminar, 4/21

"Manifolds and spaces of graphs", Manifolds and K-Theory: the Legacy of Andrew Ranicki, 6/21

Papers in preparation:

"Functor calculus and assembly" (with M. Varisco)

"Equivariant higher Reidemester torsion" (with K. Igusa)

"Functoriality of spaces of equivariant h-cobordisms" (with K. Igusa, C. Malkievich, and M. Merling)

Service to the university:

DDIAP Chair for Math since July 2017
DGS for Mathematics since December 2016
advisor to 6 freshmen in 1998/99
advisor to 8 freshmen and sophomores in 1999/2000
advisor to 6 freshman in 2008/09
advisor to 12 freshmen and sophomores in 2009/2010
advisor to 3 sophomores in 2010/2011
advisor to 5 freshmen in 2012/13
advisor to 8 freshmen and sophomores in 2013/14
advisor to 6 freshmen in 2015/2016
advisor to 6 freshmen and 6 sophomores in 2016/2017
advisor to 6 sophomores in 2017/2018
DGS for mathematics 1996-2007
Sheridan Center Faculty Teaching Liaison for Mathematics 1999-2007 and since 2018

Sheridan Center Board Member 2002-2005

Service to the profession:

1992-1997 Algebraic topology editor, AMS Transactions
2002-2009 Editorial board member, Geometry and Topology
NSF panelist 2005, 2018

Awards and Honors:

Sloan Fellowship 1987-1988
Harriet S. Sheridan Award 1999-2000
Fellow of the American Mathematical Society

Recent courses taught:

Spring 2020
MATH 1540 Topics in Abstract Algebra
MATH 1910 Race and Gender in the Scientific Community

Fall 2020
MATH 1260 Complex Analysis

Fall 2021
MATH 0141 Topology

Spring 2021
MATH 2420 Algebraic Topology

Fall 2022
MATH 2110 Introduction to Manifolds

Ph.D. students advised in last three years:

Kyle Ferendo, sixth year student