

Date Revised: 2/5/2013

WAYNE STATE UNIVERSITY

Professional Record

CLAUDE L. SCHOCHET

Office Address:

Visiting Professor, The Technion
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Home Address:

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DEPARTMENT/COLLEGE: Department of Mathematics/College of Science

PRESENT RANK & DATE OF RANK

Full Professor 09-1981
Associate Dean, College of Liberal Arts 01-1987 - 08-1991

WSU APPOINTMENT HISTORY

Year Appointed/Rank 1976 Associate Professor
Year Awarded Tenure 1979
Year Promoted to Full Professor 1981
Sabbatical Leave: 1984-1985, 1991-1992, 1998-1999, 2006, 2010
Leave of Absence: 1979-1980, 1983-1984

CITIZEN OF: U.S.A.

EDUCATION:

Baccalaureate:

B.A. University of Minnesota 1965 mathematics (*summa cum laude*)
and economics (*magna cum laude*)

Masters:

M.S. University of Chicago 1967 mathematics

Doctoral:

PH.D. University of Chicago 1969 mathematics

FACULTY APPOINTMENTS AT OTHER INSTITUTIONS (non-administrative appointments)

Amenuensis, Aarhus University, Denmark, 1970-71
 Post-Doctoral Fellow, Hebrew University, Jerusalem, Israel, 1971-72
 Assistant Professor, Indiana University, Bloomington, IN, 1972-76
 Visiting Associate Professor, University of California at LA, 1979-80
 Visiting Professor, State University of New York at Stony Brook, 1983-84
 Member, Math. Sci. Research Institute, University of California Berkeley,
 1984-85
 Visiting Professor, University of Chicago, 1987
 Visiting Scholar, U. of California, Berkeley, February, 1988
 Visiting Scholar, U. of California, Berkeley, March, 1989
 Visiting Professor, U. of Maryland, 1991-92
 Visiting Professor, The Technion, Haifa, Israel, 1998-1999
 Visiting Professor, The Hebrew University, Jerusalem, 1999
 Visitor Inst. Hautes Etudes Sci., Paris, March, 1999
 Visitor, Copenhagen University, March, 1999
 Visiting Professor, The Hebrew University, Jerusalem, 2006
 Visiting Professor, University of Puerto Rico, 2010

PROFESSIONAL SOCIETY MEMBERSHIPS

American Mathematical Society
 London Mathematical Society
 European Mathematical Union
 Israel Mathematical Union
 American Mathematical Society Committee on Professional Ethics
 Member 1994-2000 -- Chair 1995-2000
 American Mathematical Society Committee on the Profession, 2003-2006.
 Phi Beta Kappa, Gamma Chapter (WSU) President-Elect 2001-2002. President 2002-2004,
 Treasurer 2004-present

HONORS/AWARDS

Phi Beta Kappa
 WSU Board of Governors Faculty Recognition Award June 1983
 American Men/Women of Science
 WSU Board of Governors Faculty Recognition Award June 1989
 WSU Board of Governors Faculty Recognition Award June 2004

I. TEACHING**A. Years at Wayne State**

1976 to Present (on leave 1979-80, 1983-85, 1991-1992, 1998-1999, W-2006, W-2010)

B. Years at Other Colleges/Universities

Assistant Professor, Roosevelt University, 1969-1970
Amanuensis, Aarhus University, Denmark, 1970-71
Post-Doctoral Fellow, Hebrew University, Jerusalem, Israel, 1971-72
Assistant Professor, Indiana University, Bloomington, IN, 1972-76
Visiting Associate Professor, University of California at LA, 1979-80
Visiting Professor, State University of New York at Stony Brook, 1983-84
Member, Math Sci, Res.Inst., Berkeley, CA 1984-85
Visiting Professor, University of Maryland, College Pk. 1991-92
Visiting Professor, The Technion, Haifa, Israel, 1998-1999
Visiting Professor, The Hebrew University, Jerusalem, 1999
Visitor Inst. Hautes Etudes Sci., Paris, March, 1999
Visitor, Copenhagen University, March, 1999
Visitor, The Hebrew University, Jerusalem, 2006
Visitor, University of Puerto Rico, 2010
Visitor, The Hebrew University, Jerusalem, 2010

C. Courses Taught at Wayne State in Last Five Years

1. Undergraduate

2006 MAT 2860x6130
2006 MAT 6140
2007 MAT 2860x6130
2007 MAT 2020
2007 MAT 2860x6130
2008 MAT 1000
2008 MAT 2020
2009 MAT 2020
2009 MAT 2860x6130
2011 MAT 2250
2011 MAT 2020
2012 MAT 2020
2012 STA 1020
2013 STA 1020

2. Graduate

2007 MAT 5070
2007 MAT 6140
2008 MAT 5070
2008 MAT 5520
2008 EER 7630
2009 MAT 5070
2009 MAT 5420
2009 MAT 8000
2010 EER 7630
2010 MAT 5070
2010 MAT 6140
2011 MAT 5520
2011 MAT 5070
2012 MAT 5520
2012 MAT 5600

2013 MAT 5520

D. Directed Studies/Essays/Theses/Dissertations Directed

Andre H. Deutz - Doctoral Dissertation.
The Splitting of the Kunnet Sequence in K-Theory, 12/1981.

II. RESEARCH

Please see note “Puerto Rico Initiative” at the end of this document.

B. Funded Research

Operator algebras and K-theory, (6-1-79 to 11-30-80), National Science Foundation, \$9,000.

Research Development Fund, (5-1-79 to 4-30-80), Operator Algebras and K-Theory, (6-1-80 to 11-30-84) MCS-80-01857, National Science Foundation, \$52,659.

Operator Algebras and K-Theory, (6-1-84 to 11-30-87) National Science Foundation, \$50,950.
DMS 84-01367

Geometric Design, (5-1-86 to 5-1-88), Institute for Mathematics and its Applications - University of Minnesota, \$2,000.

Conference in Geometric Design, (2-1-87 to 2-1-88), National Science Foundation, \$10,000 DMS-8618030

Conference in Geometric Design, (2-1-87 to 2-1-89), Argonne U. Assoc. \$10,000

Conference in Geometric Design, (2-1-87 to 2-1-89), U.S. Army Research Office, \$4,000 (via DMS-8618030).

Conference in Geometric Design", (5-1987), University of Missouri, Contract, \$4,000.

Mathematical Sciences: Conference in Geometric Design, (6-1987), National Science Foundation, \$4,000

Conference in Geometric Design, (6-1987) University of Missouri, Contract, \$6,000

Conference in Geometric Design, General Motors Research/Electronic Data System \$2,000.

Conference in Geometric Design, Ford Motor Company \$1,000

Conference in Geometric Design, Silicon Graphics \$100

Operator Algebras and Non-commutative topology (6-1-87 to 11-30-90) National Science Foundation \$26,700. DMS - 87-01455

"Mathematical Sciences: Conference in Geometric Modeling and Design; Wayne State University, (May 6-8, 1990) National Science Foundation \$12,000. DMS - 89-22729. (Co-principal investigator)

"Operator Algebras and Algebraic Topology" (10-92), National Science Foundation not funded

"Operator Algebras and Non-Commutative" (12-2-93), National Science Foundation, not funded

"Fine Structure of the Kasparov Groups" (10-10-94), National Science Foundation, not funded

"The Fine Structure of the Kasparov Groups" (10-11-95) National Science Foundation, not funded

"Research in C^* -Algebras and Non-Commutative Topology", Small Research Grant Appl., WSU, 11/95, \$650.

"Studies in Non-Commutative Topology" (10/96), National Science Foundation, not funded.

"The topological structure of the unitary group of a C^* -algebra, (9/02) not funded.

"Homotopy Invariants for C^* -algebras, Simons Foundation, \$35,000, pending.

III. PUBLICATIONS

Note: In accord with custom in the field, joint authors are listed alphabetically.

A. Scholarly Books Published

Schochet, Cobordism from an Algebraic Point of View, Aarhus Universitet (1971), 190 pages.

J. Rosenberg and C. Schochet, The Kunneth Theorem and the Universal Coefficient Theorem for Equivariant K- and KK-Theory, Mem. Amer. Math. Soc., No. 348, 1986, 95 pages.

C.C. Moore and C. Schochet, Global Analysis on Foliated Spaces Math. Sci. Res. Inst. Publ. No. 9, Springer-Verlag, New York, 1988, 337 pages.

C. Schochet, A Pext Primer: Pure extensions and \lim^1 for infinite abelian groups, NYJM Monographs, No. 1, New York Journal of Mathematics, Albany, N.Y. 2002.

C.C. Moore and C. Schochet, Global Analysis on Foliated Spaces, second edition, Cambridge University Press, 2005. 293 pages. Also available as e-book from Cambridge University Press. (The second edition is a major revision of the 1988 first edition.)

C. Editorships of Books/Proceedings

R. G. Douglas and C. Schochet, eds. Operator Algebras and K-theory. Contemporary Math., Vol. 10, Amer. Math. Soc., Providence, R.I. 1982.

J. Kaminker, K. Millett, and C. Schochet, eds. Index Theory of Elliptic Operators, Foliations, and Operator Algebras. Contemporary Math., Vol. 70, Amer. Math. Soc, Providence, 1988.

D. Journal Articles Published

1. Refereed Journals

- C. Schochet, A two-stage Postnikov system where $E_2 \neq E_\infty$ in the Eilenberg-Moore Spectral sequence, *Trans. Amer. Math. Soc.* 157 (1971), 113-118.
- J. Harper and C. Schochet, Coalgebra extensions in two-stage Postnikov systems, *Math. Scand.* 29 (1971), 232-236.
- D. Kraines and C. Schochet, Differentials in the Eilenberg-Moore spectral sequence, *J. Pure and Appl. Algebra* 2 (1972), 131-148.
- C. Schochet, On the structure of graded formal groups of finite characteristic, *Proc. Camb. Phil. Soc.* 73 (1973), 215-221.
- C. Schochet, On the bordism ring of complex projective space, *Proc. Amer. Math. Soc.* 73 (1973), 267-270.
- J. Kaminker and C. Schochet, Ext (X) from a homological point of view, *Lecture Notes in Mathematics* Vol. 345 (1973), Springer-Verlag, N.Y., 129-140.
- J. Kaminker and C. Schochet, Steenrod homology and operator algebras, *Bull. Amer. Math. Soc.* 81 (1975), 431-434.
- L.G. Brown and C. Schochet, K_1 of the compact operators is zero, *Proc. Amer. Math. Soc.* 59 (1976), 119-122.
- J. Kaminker and C. Schochet, K-theory and Steenrod homology: Applications to the Brown-Douglas-Fillmore theory of operator algebras, *Trans. Amer. Math. Soc.* 227 (1977), 63-107.
- J. Kaminker and C. Schochet, Topological obstructions to perturbations of pairs of operators, *Lecture Notes in Math.* 575 (1977), Springer-Verlag, N.Y. 70-77.
- D.S. Kahn, J. Kaminker, and C. Schochet, Generalized homology on compact metric spaces, *Michigan Math J.* 24 (1977), 203-224.
- R. Loebl and C. Schochet, Covariant representations on the Calkin algebra I, *Duke Math J.* 45 (1978), 721-734.
- J. Kaminker and C. Schochet, Analytic equivariant K-homology, *Lecture Notes in Math*, Vol. 657, Springer-Verlag, N.Y., 292-302.
- C. Schochet, Acyclic ideals and Koszul complexes, *J. Pure Appl. Alg.* 14 (1979), 311-314.
- L. G. Brown, P. de la Harpe, and C. Schochet, Perfection du group de Fredholm, *C.R. Acad. Sc. Paris*, 290 (1980), 151-154.
- C. Schochet, Covariant representations on the Calkin algebra II, *Duke Math. J.* 47 (1980), 451-460.

- C. Schochet, Homogeneous extensions of C^* -algebras and K-theory I, *Bull. Amer. Math. Soc.* 3 (1980), 715-718.
- C. Schochet, Topological methods for C^* -algebras I: spectral sequences, *Pacific J. Math.*, 96 (1981), 193-211.
- C. Schochet and B. Schreiber, Open centralizers and the continuity of group representations, *Proc. Amer. Math. Soc.* 82 (1981), 99-104.
- J. Rosenberg and C. Schochet, Comparing functors classifying extensions of C^* -algebras, *J. Operator Theory*, 5 (1981), 267-282.
- J. Rosenberg and C. Schochet, The classification of extensions of C^* -algebras. *Bull. Amer. Math. Soc.* 4 (1981), 105-110.
- C. Schochet, Topological methods for C^* -algebras II: geometric resolutions and the Kunnetth formula, *Pacific J. Math.* 98 (1982), 443-458.
- C. Schochet, Geometric resolutions and the Kunnetth formula for C^* -algebras, in *Operator Algebras and Applications*, R. V. Kadison, ed., *Proc. Symp. Pure Math.*, Vol. 38, Part 1, Amer. Math. Soc., Providence, R.I. 1982, 77-79.
- C. Schochet, Homogeneous extensions of C^* -algebras and K-theory II. *Amer. J. Math.*, 105 (1983), 595-621.
- C. Schochet, Topological methods for C^* -algebras III: axiomatic homology, *Pacific J. Math.* 114 (1984), 399-445.
- C. Schochet, Topological methods for C^* -algebras IV: mod p homology. *Pacific J. Math.* 114 (1984), 447-468.
- J. Rosenberg and C. Schochet, The Kunnetth Theorem and the Universal coefficient Theorem for Kasparov's Generalized K-functor, *Duke Math J.*, 55 (1987), 431-474.
- C. Schochet, The Kasparov Groups for Commutative C^* -algebras and Spanier - Whitehead Duality, Summer Res. Inst., *Operator Theory/Operator Algebras and Applications*, Durham, NH, July 19, 1988, *Proc. Symp. Pure Math* 51 Part II (1990), 307-321.
- E. Park and C. Schochet, On the K-theory of quarter plane Toeplitz algebras, *International J. Math.* 2 (1991), 195-204.
- C. Schochet, On equivariant Kasparov theory and Spanier-Whitehead duality, *K-Theory* 6 (1992), 363-385.
- C. Schochet, Equivariant Kasparov theory for generalized operator algebras. *J. Austral. Math. Soc.*, 56 (1994), 183-211.
- C. Schochet, Algebraic Topology and C^* Algebras, *Contemp. Mathematics* Vol. 167, (1994), 219-231
- C. Schochet, Rational Pontryagin classes, local representations, and equivariant K-theory, *Pacific J. Math* 175 (1996), 187-233.

- C. Schochet, The UCT, the Milnor Sequence, and a canonical decomposition of the Kasparov Groups, *K-theory* 10 (1996), 49 - 72.
- C. Schochet, Correction to: The UCT, the Milnor Sequence, and a canonical decomposition of the Kasparov Groups, *K-theory* 14 (1998), 197-199.
- C. Schochet, The topological snake lemma and corona algebras, *New York J. Math.* 5 (1999), 131-137.
- C. Schochet, K-theoretic p-primary decomposition of C^* -algebras, *International J. Math* 12 (2001), 373 – 381.
- C. Schochet, The fine structure of the Kasparov groups I: continuity of the KK-pairing, *J. Functional Analysis* 186 (2001), 25 – 61
- C. Schochet, The fine structure of the Kasparov Groups II: topologizing the UCT, 24 pages, *J. Functional Analysis* 194 (2002), 263 – 287.
- C. Schochet, The fine structure of the Kasparov Groups III: relative quasidiagonality, *J. Operator Theory*, *J. Operator Theory* 53:1, 2005), 101-129.
- C. Schochet, Gap Labeling, featured review in *Mathematical Reviews* 2005f:46121.
- J. Cuzzocrea, D. Drucker, S. Sawilowsky, and C. Schochet, Jacques Salomon Hadamard and the use of symbols in teaching differential calculus, *J. Modern Appl. Stat. Method* 7(1) (2008), 358-367.
- G. Lupton, N.C. Phillips, C. Schochet, and S. Smith, Banach Algebras and Rational Homotopy Theory, *Trans. Amer. Math. Soc.* 361 (2009), 267-295.
- J. Klein, C. Schochet, and S. Smith, Continuous trace C^* -algebras, gauge groups and rational homotopy, *J. Topology and Analysis* 1 (2009), 261-288.
- C. Schochet, The Dixmier-Douady invariant for Dummies, *Notices Amer. Math. Soc.* 56 (2009), 809-816.
- C. Schochet and S. Smith, Localization of grouplike function and section spaces with compact domain. Homotopy theory of function spaces and related topics, 189–202, Contemp. Math., 519, Amer. Math. Soc., Providence, RI, 2010,*
- J. Klein, C. Schochet, S. Smith, From rational homotopy to K-theory for continuous trace algebras, *Superstrings, Geometry, Topology and C^* -algebras*, R. S. Doran, G. Friedman, and J. Rosenberg, eds., *Proc. Symp. Pure Math.* 81 (2010), 165-171.
- E. Dror Farjoun and C. Schochet, Spaces of sections of Banach algebra bundles, *J. K-Theory* 10 (2012), 279-298.
- C. Schochet, Banach algebras, Samelson products, and the Wang differential., submitted.

Abstracts Published in Academic Journals

Have occasionally published abstracts in The Notices, Amer. Math. Soc., either as an early announcement of significant work or in connection with an invited address to a meeting of the Amer. Math. Soc. As these results are subsequently reported upon in full detail in refereed publications, it seems unnecessary to list the abstracts separately.

H. Article/Book Reviews Published

1. Article Reviews

Have written reviews for the Amer. Math. Monthly, Zentralblatt fur Math. and (many) for Math. Reviews. These are scholarly reviews of work of others and also occasional self-reviews of my own papers.

L. Papers Presented

K-theory and operator algebras. Colloquium. Michigan State University. Oct. 7, 1976.

K-theory and Steenrod homology. Topology Seminar. University of Michigan. Dec. 1, 1976.

Invited to give a talk at the Michigan Topology Conference at the University of Michigan on Dec. 4, 1976, but had to decline this invitation for religious reasons.

K-theory and operator algebras. Colloquium. U. of Western Ontario, Canada. Feb. 24, 1977.

K-theory and operator algebras. Colloquium. Oakland University. March 17, 1977.

Equivariant K-homology. Geometric Appl. of Homotopy Theory Conference. Northwestern U. March 23, 1977.

Equivariant K-homology. Colloquium. University of Pennsylvania. April 26, 1977.

Equivariant K-homology. Colloquium. Indiana University -Purdue University at Indianapolis. May 13, 1977.

Liftings from the Calkin algebras. Colloquium. SUNY-Stony Brook. July 20, 1977.

Liftings from the Calkin algebra. Colloquium. University of Western Ontario, Canada, Nov. 3, 1977.

Global Theory of Elliptic Operators. Topology Seminar. University of Michigan. Nov. 17, 1977.

Covariant C^* -algebras. Analysis Seminar. University of Cincinnati. Nov. 30, 1977.

Covariant lifting from the Calkin algebra. Colloquium. Arizona State University. Feb. 16, 1978.

Covariant lifting from the Calkin algebra. Colloquium. University of Kansas. May 24, 1978.

Group actions on C^* -algebras. Functional Analysis seminar. Indiana University. Feb. 14, 1979.

Group actions on C^* -algebras. Colloquium. Tulane University. March 22, 1979.

- Group actions on C^* -algebras. Colloquium. University of Texas. March 26, 1979.
- Group actions on C^* -algebras. Colloquium. University of Kansas. March 29, 1979.
- Group actions on C^* -algebras. Colloquium. Ohio State University. April 26, 1979.
- Homogeneous extensions of $C(X)$ $K(H)$ and K -theory. CBMS Conference. Oakland University. June 26, 1979.
- C^* -algebras & K -theory. Analysis Seminar. University of South California. October 23, 1979.
- Invited to give a talk at the South California functional analysis seminar, in California State Northridge, on November 1979, but had to decline for religious reasons.
- Some uses of K -theory in analysis. South California Topology Colloquium. U.C., Irvine. Nov. 5, 1979.
- Operator algebras & algebraic topology. Colloquium. U.C., San Diego, Feb. 14, 1980.
- Operator algebras & algebraic topology. Colloquium. SUNY, Stony Brook. March 18, 1980.
- Unexpected effectiveness of K -theory. Seminar. SUNY, Stony Brook. March 19, 1980.
- Unexpected effectiveness of K -theory. Colloquium. University of Minnesota. April 4, 1980.
- Unexpected effectiveness of K -theory. Functional Analysis Seminar. U.C. Berkeley. April 14, 1980.
- K -theory tells all. K -theory Seminar. U.C. Berkeley. April 15, 1980.
- Operator algebras and K -theory. Colloquium. California Institute of Technology, May 1, 1980.
- Operator algebras and K -theory. Colloquium. University of Mass. June 3, 1980.
- Operator algebras and K -theory. Colloquium. U.C.L.A. June 5, 1980.
- Operator algebras and K -theory. Topology Seminar. University of Chicago. Feb. 4, 1981.
- Operator algebras and K -theory. Colloquium. Oakland University. Feb. 19, 1981.
- Invited to give a talk at the Meeting on "Functional analysis: C^* -algebraen" in Oberwolfach, GERMANY, on Sept. 27 -Oct. 3, 1981 but had to decline for religious reasons.
- Operator algebras and K -theory. Colloquium. University of Michigan. April 16, 1981.
- Operator algebras and K -theory. Canadian Operator Alg.Symp. University of Waterloo, Canada, May 12, 1981.
- Localization of C^* -algebras Seminar. University of California, Berkeley. July 14, 1981.
- Localization of C^* -algebras. London Math Soc. Symposium on Operator Algebras. Durham, ENGLAND. July 28, 1981.

Tangential Cohomology. Seminar. University of North Carolina. April 1, 1982.

Axiomatic Homology for C^* -algebras. Colloquium. IUPUI. May 13, 1982.

Axiomatic Homology for C^* -algebras. Seminar. SUNY at Stony Brook. June 16, 1982.

Axiomatic Homology for C^* -algebras. Special Lecture. University of California - Berkeley. July 13, 1982.

Axiomatic Homology for C^* -algebras. Seminar. Hebrew U. Jerusalem, Israel. November 5, 1982.

Axiomatic Homology for C^* -algebras. Colloquium. University of Waterloo, Canada. Nov. 11, 1982.

Axiomatic Homology for C^* -algebras. AMS special Session. Denver, CO. Jan. 6, 1983.

K-theory for C^* -algebra. Colloquium and two seminar talks. University of Ottawa, Canada. Jan. 17-21, 1983.

The Index Theorem for Foliated Spaces. Conf. on Operator Algebras (Douglas). IUPUI. Oct. 27, 1983.

Cyclic Homology. MSRI. Berkeley, CA. March 9, 1984.

Cyclic Homology. Seminar. Princeton University. March 20, 1984.

C^* -algebra of a Foliation. Colloquium. SUNY-Stony Brook. March 22, 1984.

Cyclic Homology. Seminar. Courant Institute. May 9, 1984.

Tangential Cohomology. AMS Meeting. Plymouth, NH. June 29, 1984.

Cyclic Homology. Colloquium. WSU. Nov. 14, 1984.

Noncommutative Topology. Colloquium. California State U. at Sacramento. Feb. 13, 1985.

C^* -algebra of a Foliation. Colloquium. University of Southern California. April 17, 1985.

Noncommutative Topology. Colloquium. University of California Irvine. April 18, 1985.

Equivariant K- and KK- theory. Closing Conference. MSRI - Berkeley. June 10, 1985.

Cyclic Homology. University of Michigan, 2 talks in Oct., 1985.

Series of talks on the Index Theorem for foliated spaces, U. of Illinois, February 24-27, 1986.

A Partial Chern Character for foliated spaces, AMS special session, Indianapolis, IN, April 11, 1986.

The Index Theorem for Foliations, Seminar, U. of Chicago, IL, May 14, 1986.

A Primer on the Kasparov Groups, Seminar, U. of Chicago, IL, May 15, 1986.

The Index Theorem for Foliations, Seminar, U. of Chicago, IL, May 19, 1987.

Invariant Transverse Measures, Seminar, U. of Chicago, IL, May 27, 1987.

Tangential pseudo differential operators and the analytic index, Seminar, U. of Chicago, IL, June 11, 1987.

Finite propagation and asymptotic expansion along the leaves, Seminar, U. of Chicago, IL, June 18, 1987.

K-Theory with coefficients for C*-algebras, Functional Analysis Colloquium, U. Calif. Berkeley, Feb. 16, 1988.

KK for Commutative C*-algebras, Amer. Math. Soc. Summer Res. Inst., Operator Theory/Operator Algebras and Applications, Durham, NH, July 19, 1988.

KK for Beginners, Functional Analysis Seminar, Univ. of California, Berkeley, March 29, 1990.

KK for Commutative C*-algebras, Algebraic Topology Seminar, MIT, March 5, 1990.

K - Theories for Stable C*-algebras, Algebra seminar, Bar Ilan Univ., (Tel Aviv), July 27, 1990.

Inverse Limits of G-C*-algebras and KK-theory, Seminar, UCLA, October 31, 1990

Equivariant Spanier - Whitehead duality, Seminar, U. Maryland, January 22, 1991

A Quick Tour of Quantum Topology, Colloquium, U. Maryland, September 20, 1991

A Quick Tour of Quantum Topology, Colloquium, George Washington U., October 11, 1991

Equivariant K-theory for C*-algebras, seminar, Courant Institute, NYU, November 15, 1991

A Quick Tour of Quantum Topology, seminar, U.S. Naval Academy Annapolis, Jan. 29, 1992

A Quick Tour of Quantum Topology, Fellowship of the Ring Seminar, Brandeis U., February 2, 1992

Equivariant K-Theory, Topology Seminar, Brandeis U., February 6, 1992

Equivariant K-Theory and Pontryagin classes, seminar, U. Maryland, February 24, 1992

A Quick Tour of Quantum Topology, colloquium, VPI, Blacksburg, VA, February 26, 1992

Equivariant K-Theory and Pontryagin classes, Seminar, U. Pennsylvania, March 5, 1992

Equivariant K-theory and Pontryagin classes, Amer. Math. Soc. regional meeting, Springfield, Missouri, March 20, 1992

Equivariant K-Theory and Pontryagin classes, seminar, Purdue, March 23, 1992

Equivariant K-theory and Pontryagin classes, seminar, Princeton U., April 27, 1992

Equivariant K-theory and Pontryagin classes, Conference on Operator Algebras, U. Maryland, May 3, 1992

Local Representations, Equivariant K-Theory, and Pontryagin classes, "50 Years of C*-Algebras", Special session, annual winter meeting, Amer. Math. Soc., San Antonio, TX, January 13, 1993

Quantum Topology: a case study, University de Lyon, France, January 25-29, 1993

Quantum Topology: a case study, University of Michigan, March 3, 1993

Local Representations, Equivariant K-theory, and Pontryagin classes, seminar, CUNY Graduate Center, NY, March 17, 1993

Analysis and Geometry and Foliated Manifold, Santiago de Compostela, Spain, July 26-30, 1994 (declined for medical reasons)

A Canonical Decomposition of the Kasparov Groups, Seminar, Fields Institute, Waterloo, May 30, 1995

A Canonical Decomposition of the Kasparov Groups, annual Winter meeting, American Math. Soc., Orlando, January 11, 1996

A Canonical Decomposition of the Kasparov Groups, Topology Seminar, Brandeis University, March 14, 1996

KK-theory and relative quasidiagonality, Functional analysis seminar, Berkeley, April 30, 1996.

Non-commutative topology, physical chemistry seminar, Wayne State Univ., Dec. 11, 1996.

KK-theory and relative quasidiagonality, annual Winter meeting, Amer. Math. Soc., Jan. 8, 1997.

Non-commutative topology, colloquium, U. of Western Ontario, Feb. 13, 1997.

Non-commutative topology, colloquium, U. of Colorado, Mar. 12, 1997.

The natural topology on the Kasparov groups, regional meeting, Amer. Math. Soc. (Special session on C*-algebras), May 2-4, 1997, Detroit.

Index Theory for Foliation, Seminar, Hebrew University, Jerusalem, 5/7/97

Index Theory for Foliation, Seminar, Tel Aviv University, 5/8/97

Non-Commutative Topology, Tel Aviv University, 5/19/97

Survey of C*-Algebras, Bar Ilan University, 5/19/97

The Topology of the Kasparov Groups, Amer. Math. Session, Summer Conference on Algebraic K-Theory, Seattle, 7/22/97

The Topological Structure of the Kasparov Groups, Univ. Copenhagen, Nov. 5, 1997

Topology snake lemma and corona algebras, Fields Institute, Toronto, June 6, 1998.

A case study in non-commutative topology seminar, The Technion, Oct. 29, 1998.

A case study in non-commutative topology, colloquium, The Hebrew University, Jerusalem, Nov. 26, 1998.

A history of topological K-theory, seminar, The Technion, Dec. 1, 1998.

A case study in non-commutative topology, colloquium, Brande College, Karmiel, Dec. 21, 1998.

Quasi-diagonal operators and C^* -algebras, seminar, The Technion, Dec. 31, 1998.

Quasi-diagonal operators and C^* -algebras and K-theory colloquium, Tel Aviv University, Jan. 25, 1999.

Survey of the Kasparov groups, seminar, The Technion, Feb. 4, 1999.

The fine structure of the Kasparov groups, colloquium, University of Copenhagen, Denmark, Feb. 17, 1999.

K-theoretic p-primary decomposition of C^* -algebras, seminar, Aarhus University, Denmark, Feb. 22, 1999.

The index theorem for foliations, seminar, Aarhus University, Denmark, Feb. 23, 1999.

K-theory for C^* -algebras, colloquium, Haifa University, April 29, 1999.

Quasi-diagonality, C^* -algebras, and K-theory, special session, annual meeting of Israel Mathematical Union, May 26, 1999.

A case study in non-commutative topology, physics seminar, The Technion, June 27, 1999.

A Pext Primer, GPOTS, San Juan, May 25, 2000.

Rational Homology for C^* -algebras, U Victoria Conference in dynamical systems, operator algebras, topology, August 8, 2002.

Rational Homology for C^* -algebras, Satellite Conference on Operator Algebras of the International Congress of Mathematicians, Chengde, Hebei, China, August 15, 2002.

Rational Homology for Operator Algebras, Canadian Operator Symposium, University of Waterloo, May 20, 2004

A Report on the Group of Invertibles of a Banach Algebra, colloquium, University of Waterloo, November 2, 2004.

A Report on the Group of Invertibles of a Banach algebra, Kaminker Fest, Penn State University, May 8, 2005

The Index Theorem for foliated spaces, series of eight lectures at U. Western Ontario, Jan 16-27, 2006.

A Report on the Group of Invertibles of a Banach algebra, colloquium, U. Oregon, February 28, 2006.

Twisted K-theory, seminar, U. Oregon, March 1, 2006

Gap Labeling, seminar, U. Oregon, March 2, 2006

A Report on the Group of Invertibles of a Banach algebra, functional analysis seminar, U. Victoria, March 6, 2006.

Aspects of the Index Theorem for foliated spaces, seminar, U. Victoria, March 7, 2006.

A Report on the Group of Invertibles of a Banach algebra, colloquium, Georgia Tech, April 27, 2006.

A Short course on Rational Homotopy, Hebrew University, June 7-14, 2006.

Invertibles in Banach algebras, seminar, Hebrew University, June 12, 2006

Group of Invertibles of a Banach algebra, Israel Functional Analysis Seminar, Technion, Haifa, Israel, June 8, 2006

Group of Invertibles of a Banach algebra, colloquium, Ben Gurion U., Beersheva, Israel, June 13, 2006.

Group of Invertibles of a Banach algebra, colloquium, Odense U. Denmark, June 20, 2006.

Group of Invertibles of a Banach algebra, Copenhagen U., Denmark, June 22, 2006.

Update on Invertibles, seminar, U. Western Ontario, July 19, 2006.

Gauge groups, C*-algebras, and Rational Homotopy, Lehigh University, March 24, 2007

A Case Study in Non-Commutative Topology, student seminar, U. Puerto Rico, Rio Piedras, January 30, 2008

The Group of Unitaries of a C*-algebra, colloquium, U. Puerto Rico, Rio Piedras, January 31, 2008

The Group of Unitaries of a C*-algebra, colloquium, U. Puerto Rico, Mayaguez, February 4, 2008

A Case Study in Non-Commutative Topology, student seminar, U. Puerto Rico, Mayaguez, February 5, 2008

Bundles of C*-algebras and a Theorem of Eilenberg-Steenrod, seminar, Georgia Tech, Atlanta, April 7, 2008.

Bundles of C*-algebras and a Theorem of Eilenberg-Steenrod, GPOTS Conference, U. of Cincinnati, June 17, 2008.

Dixmier-Douady for Dummies, seminar, York University, Toronto, March 17, 2009-11-18

Introduction to K-Theory, student seminar, WSU, April 24, 2009.

An Update on the Unitary Group, NSF/CBMS Regional Conference in the Mathematical Sciences: *Topology, C*-algebras, and String Duality*, at Texas Christian University, May 18-22, 2009.

Four Lectures on K-theory, University of Puerto Rico, Rio Piedras, Jan-Feb, 2010.

What is K-theory and Why Should I be interested in it?, University of Puerto Rico, Mayaguez, February 16, 2010

What is K-theory and Why Should I be interested in it?, University of Puerto Rico, Humacao, February 16, 2010

What is K-theory and Why Should I be interested in it?, Technion, Haifa, March 22, 2010

What is K-theory and Why Should I be interested in it?, Special Joint Seminar, Hebrew University, Jerusalem, March 24, 2010.

Rational Homotopy I, Hebrew University, Jerusalem, April 7, 2010.

An Update on the Unitary Group, Trilateral Operator Algebras / Operator Theory Seminar, Tel Aviv University, April 8, 2010.

What is K-theory and Why Should I be interested in it?, Ben Gurion University, Beersheva, April 13, 2010.

Rational Homotopy II, Hebrew University, Jerusalem, April 14, 2010.

What is K-theory and Why Should I be interested in it?, University of Haifa, April 18, 2010.

An Update on the Unitary Group, Vanderbilt University, November 10, 2011.

Fibred C*-algebras, NSF/CBMS Regional Conference in the Mathematical Sciences: Topological and algebraic regularity properties of nuclear C*-algebras, at University of Louisiana at Lafayette, May 11-15, 2012.

Homotopy Groups of Gauge Groups, Deformation Theory Seminar, U. Pennsylvania, June 7, 2012

The Unitary Group of a C*-algebra, Functional Analysis Seminar, UCLA, Nov. 21, 2012

Topological Invariants of Operator Algebras, WSU Colloquium, Dec. 3, 2012

N. Other Scholarly Work

Have acted as referee for many scholarly articles for major research journals, most recently for *Annals of Math.*, *Pacific J. Math.*, *Publ. Math. Inst. Hautes Etudes Scient.*, *Proc. Amer. Math. Soc.*, *J. Differential Geometry*, *Michigan Math. J.*, *Trans. Amer. Math. Soc.*, *J. London Math. Soc.*, *Canadian Math. Bull.*, *Israel J. Math.*, *J. Functional Analysis*, *J. Operator Theory*, *K-theory*. As refereeing is anonymous, the precise details cannot be listed.

Unpublished circulated research manuscripts

Stable homotopy of spheres. (mimeo).

Attendance at Scholarly Meetings and Conferences

Midwest Topology Seminar. University of Chicago, Chicago, IL. Nov. 20, 1976.

Michigan Topology Conference. University of Michigan. Dec. 4, 1976.

Amer. Math. Soc. Annual Meeting. St. Louis, MO. Jan. 26- Feb. 2, 1977.

Geometric Applications of Homotopy Theory. Northwestern University. March 20-25, 1977.

Midwest Topology Seminar. U. of Notre Dame. Oct. 15, 1977.

Michigan Topology Conference. University of Michigan. Dec. 3, 1977.

Amer. Math. Soc. Atlanta, GA. Jan. 6-8, 1978.

Michigan Topology Conference. Lansing, MI. March 3, 1978.

Midwest Topology Seminar. University of Chicago. April 8, 1978.

Michigan Topology Seminar. University of Michigan. May 21, 1978. Algebraic Topology Symposium. Aarhus University. Aarhus, Denmark. August 7-10, 1978.

International Congress of Mathematicians. Helsinki, Finland. August 14-20, 1978.

Applied Math. Seminar. Leningrad, USSR. August 22, 1978.

Midwest Topology Seminar. University of Chicago. Jan. 13, 1979.

Math Assoc. of Amer. Regional Meeting. University of Detroit. May 3, 1979.

CBMS Conference on Operator Algebras. Oakland U. Jan. 25-29, 1979.

Midwest Topology Seminar. Northwestern University. May 19, 1979.

Southern California Topology Colloquia. U.C. Irvine, UCLA. 1979-1980 meetings. (4 meetings in all).

Amer. Math. Soc. Annual Meeting. San Antonio. TX. Jan. 2-6, 1980.

Amer. Math. Soc. Summer Institute on Operator Algebras. Kingston, Ontario. July 14-25, 1980.

Amer. Math. Soc. Annual Meeting. San Francisco, CA. Jan. 5-10, 1981.

Michigan Topology Seminar. University of Michigan. March 28, 1981.

Canadian Operator Algebra symposium. U. of Waterloo, CANADA. May 11-14, 1981.

London Math. Soc. Symposium on Operator Algebras. U. Durham. ENGLAND. July 27 - Aug. 5, 1981.

Amer. Math. Soc. Annual Meeting. Cincinnati, OH. Jan. 13-16, 1982.

CBMS Conference on Operator Algebras (Takesaki). University of Iowa, Iowa City. April 26-30, 1982.

Amer. Math. Soc. Annual Meeting. Denver, CO. Jan. 4-9, 1983.

Conf. on Operator Algebras. IUPIU, Indianapolis. October 27-29, 1983.

Amer. Math. Soc. Regional Meeting. Plymouth, NH. June 27 - July 1, 1984.

Opening Conference - Operator Algebras, K-theory. MSRI -Berkeley. August 20-25, 1984.

Amer. Math. Soc. Annual Meeting. Oakland, CA. Jan. 8-11, 1985.

Topology Conference. Stanford, CA. March 24-26, 1985.

Closing Conference - Operator Algebras & K-theory; MSRI, Berkeley. June 5-12, 1985. Amer. Math. Soc. Annual Meeting. New Orleans, LA. Jan. 7-9, 1986.

Midwest Topology Seminar, Evanston, IL. Feb. 15, 1986.

Amer. Math. Soc. Regional Meeting, Indianapolis, IN, April 11-12, 1986.

Operator Algebra Conference, Santa Barbara, CA, July 28 - August 1, 1986.

International Congress of Mathematicians, Berkeley, CA, August 3-11, 1986.

London Math. Soc. Symposium on Operator Algebras, U. of Durham, England, July 2-12, 1987.

Amer. Math. Soc. Annual Meeting, Atlanta, GA Jan. 6-8, 1988.

Amer. Math. Soc. Summer Res. Inst., Operator Theory/Operator Algebras and Applications, Durham, NH, July 17-22, 1988.

AMS-IMS-SIAM Joint Summer Res. Conf., Geometric and Topological Invariants of Elliptic Operators, Bowdoin College, Brunswick, Maine, July 24-29, 1988.

Amer. Math. Soc. Annual Meeting, Phoenix, AZ, Jan. 10-13, 1989.

Amer. Math. Soc. Annual Meeting, Boulder, CO, Aug. 7-11, 1989.

Algebraic Topology Conference, SUNY Albany, Sept. 22-24, 1989.

Amer. Math. Soc. Annual Meeting, Cincinnati, OH, Jan. 17-19, 1990.

Index Theory Conference, MSRI, Berkeley, CA, Jan. 22-26, 1990.

Diff. Geom. Methods in Math. Physics, Baruch College, June 3-7, 1991.

CBMS Conference on K-homology and Index Theory (Baum), Univ. of Colorado, August 5-10, 1991.

West Coast Operator Algebra Seminar, UCLA, October 24-27, 1991

Amer. Math. Soc. Annual winter meeting, Baltimore, MD, January 8-10, 1992

Amer. Math. Soc. regional meeting, Springfield, Missouri, March 20-21, 1992

Conference on C^* algebras, U. Maryland, May 1-5, 1992

Amer. Math. Soc. Annual Winter meeting, January 13-14, 1993

Amer. Math. Soc. Annual Winter meeting, January 11-13, 1994, Cincinnati

Prospects in Math. (cont. in honor of W. Browder), March 16-18, 1994, Princeton

Vassar Topology Day, July 28, 1994

Midwest Topology Seminar, (at WSU) October 9, 1994

Classification of Amenable C^* -Algebras, December 6-8, 1994, Fields Institute Waterloo, Ontario

CBMS Lecture by John Roe, University of Colorado, August 14-17, 1995

Annual Winter meeting of American Math. Soc., Orlando, January 9-11, 1996

Annual Winter meeting of Amer. Math. Soc., San Diego, Jan 8-10, 1997.

Quantization, E-theory, and Deformations, Dartmouth, June 6-8, 1997.

Algebraic K-theory, American Math. Society, Seattle, July 21-24, 1997.

Annual Meeting, Israel Math. Union, Haifa, May 26, 1999.

Vision in Mathematics, Tel Aviv Univ., Aug 25-Sept. 2, 1999.

Great Plains Operator Theory Meeting, San Juan, PR, May 23-27, 2000.

Aperiodic order, dynamical systems, operator algebras and topology, University of Victoria, British Columbia, Canada
August 4-8, 2002.

International Congress of Mathematicians (ICM), Beijing, China, August, 2002.

Satellite Conference of ICM 2002, Operator Algebras and Applications, Chengde, Hebei, China, August 14 to 18, 2002.

Amer. Math. Soc. annual winter meeting, Baltimore, Jan. 16-19, 2003

Miniconference at Fields Institute, March, 2004.

Canadian Operator Symposium, University of Waterloo, May 19-22, 2004.

Kaminker Fest, Penn State U., May 7-8, 2005.

Israel Mathematical Union annual meeting, Neve Ilan, Israel, May 24-26, 2006, .

Canadian Math. Soc. Annual winter meeting, London, Ont., December 8-9, 2007.

Midwest Topology Seminar, WSU, April 29, 2007

GPOTS (Great Plains Operator Theory Seminar), U. of Cincinnati, June 17-19, 2008.

NSF/CBMS Regional Conference in the Mathematical Sciences: *Topology, C*-algebras, and String Duality*, Principal Lecturer: Jonathan Rosenberg, at Texas Christian University, May 18-22, 2009.

NSF/CBMS Regional Conference in the Mathematical Sciences: *Topological and algebraic regularity properties of nuclear C*-algebras*, Principal Lecturer: Wilhelm Winter, at University of Louisiana at Lafayette, May 11-15, 2012.

IV. SERVICE

C. Committee Assignments in Last Five Years

2. University Committee Membership

1988 – present	Advisory Board, Center for Judaic Studies
01-2002 – 12-2002	University Research Grants committee
09-2001 – 09-2001	Program Review Advisory Panel for the Department of Economics, WSU
09-2003 – 09-2009	University Library Committee Chairman 2007-2009
02-2004 – 02-2007	University Center/Institute Advisory Committee
02-2005 – 02-2006	Institute for Manufacturing Research Rechartering Committee
02-2005- 02-2006	BOG Faculty Research Award Selection Committee
2008 -2009	Alumni Awards Committee

3. Department Committees Chaired

09-2000 to 09-2001	Colloquium Chairman
09-2001 to 09-2002	Credit by Exam
09-2002 to 09-2003	Academic Program Review
09-2004 to 09-2005	What’s New in ... seminar
09-2005 to 09- 2006	Visiting Scholars
09-2007 to 09-2008	Owens Fund and Visiting Scholars Committee
09-2007 to 09-2012	Puerto Rico Initiative
00-2009 to 09-2011	Academic Program Review

4. College/Department Committee Membership

(This is committee service where I did not chair the committee. If I chaired the committee then I list that above.)

4.a. College

09-2000 to 09-2002	College of Science Salary Committee
02-2003	College of Science Elections committee
09-2007 to 09-2009	College of Liberal Arts and Sciences Salary Committee
09-2011 to 09-2013	College of Liberal Arts and Sciences Salary Committee

4 b. Department

09-1994 to 09-1997	Owens Fund Committee
09-1999 to 09-2000	Graduate Committee
09-2006 to 09-2007	GTA Committee
09-2008 to 09-2009	GTA/AF Supervision Committee
09-2012 to 09-2013	Owens Fund Committee and Visiting Scholar Committee

F. Professional Consultation

3. Consulting to Public Agencies, Foundations, Professional Associations

Since 1973 I have acted as a referee for the National Science Foundation, evaluating research proposals. As this work is confidential in nature the details cannot be listed. These are mostly from the Math. Sciences section but occasionally from other areas. I have also been consulted by the National Research Council (Canada), the US-Israel Binational Science Foundation, and, most recently, by the Azerbaijan-U.S. Bilateral Grants Program.

H. Other Professionally Related Service

4-29-77
Ph.D. Committee for Elizabeth Waara (History).

Ph.D. Committee for Michael Chisholm.

Organizer of Special Session on "Operator Algebras and K-theory" at the annual meeting of the Amer. Math. Soc., San Francisco, Jan. 7-10, 1981.

Organizer (with K. Millett) of Special Session on "Operator Algebras and Foliations" at the annual meeting of the Amer. Math. Soc., New Orleans, Jan. 7-11, 1986.

Organizer of Research Conference on Geometric Design, held at WSU May 4-6, 1987, with 200 participants, including 1/3 from industry and 1/3 from other universities.

Member of National Science Foundation review panel to study proposals submitted to the College Science Instrumentation Program. 1988.

8 - 1989
Ph.D. Committee for Guanghua Zhao.

American Mathematical Society Committee on Professional Ethics, 1994-2000, Chair, 1995, 1996, 1997, 1998, 1999.

Organizer (with J. Kaminker) of Special Session on “ C^* - Algebras” at the Spring regional meeting of the Amer. Math. Soc., Detroit, May 2-3, 1997.

1/97 Ph.D. Committee for Thilak Gunasakera

"Graduate Fellowship Program in Mathematics, U.S. Department of Education, \$480,000, not funded (joint with B. Schreiber)

Outside evaluator and member of committee Ph.D. of Thomas Houghton-Larsen, University of Copenhagen, November, 1997.

American Mathematical Society Committee on the Profession, 2003-2005.

Phi Beta Kappa, President of local chapter, 2002-2004, Treasurer 2004 – present.

Ph. D. Committee for Lori Roy (WSU School of Education, defended PhD thesis 11-6-07)

Outside member of Ph. D. committee for Jean Savinien (Mathematics Dept., Georgia Tech, defending 4-08)

Ph.D. Committee for Michael Lance (WSU School of Education, defended PhD thesis 12-2-10)

Community Service

Board of Governors, Jewish Federation of Metro Detroit, 1990-96.

Board of Directors, Jewish Community Council, 1995-2001.

Board of Directors, Daniel Sobel Friendship Circle, 2002-2005.

Advisory Board, Center for Judaic Studies, WSU, 1988-present

Leading faculty/staff seminar on Maimonides at Center for Judaic Studies, 2011-13.

The Puerto Rico Initiative:

I have headed a departmental Puerto Rico Initiative whose goals are the development of student and faculty ties in both directions and specifically

Graduate student recruitment of Hispanic students
Faculty exchanges in both directions for research purposes
Exchange of knowledge in mathematics education

This effort, barely four years old, has succeeded in concrete terms. We have received a \$5000 grant from the 2008 WSU Global Grants competition, we have received thousands of dollars in support from the Graduate School and from the University of Puerto Rico (UPR), and, most importantly, we have received a new, permanent GTA budget line for this purpose. In the past year several members of our Mathematics Department have visited the Mayaguez and Rio Piedras branches of UPR and we have received visitors from there. On the basis of a King-Chavez-Parks grant prepared by Bert Schreiber, we hosted Hector Salas of UPR-Mayaguez this

semester. This program is in its infancy but shows real potential for growth. We note that even a small growth in the number of Hispanic PhD's in Mathematics would be significant since in the last year when statistics are available there were only 14 granted in the entire US.