

January 2019

## VITA

**Martin Walter**

## EDUCATION:

B.S. summa cum laude	University of Redlands, Redlands, Calif.	1966
M.S.	University of California, Irvine, Calif.	1968
Ph.D.	University of California, Irvine, Calif.	1971

THESIS ADVISOR: B. Russo (Irvine), M. Takesaki (U.C.L.A.)

THESIS TITLE:  $W^*$ -algebras and non-abelian harmonic analysis

## POSITIONS HELD:

Functional Analysis Year Fellow	U.C.L.A.	1970–71
Research Associate	Queen's University Kingston, Ontario	1971–73
Assistant Professor	University of Colorado	1973–77
Associate Professor	University of Colorado	1977–84
Professor	University of Colorado	1984–
Alfred P. Sloan Fellow	University of Pennsylvania	1977
Alfred P. Sloan Fellow	University of California, Berkeley	1978
Visiting Professor	K. Univ. le Leuven, Belgium	1980 [January–June]
Visiting Professor	Universitetet i Trondheim	1982 [August–January]
Research Fellow	Mathematical Sciences Research Institute, Berkeley	1984
Chair, Dept. of Mathematics	University of Colorado	1996–2000

## PUBLICATIONS:

1.  *$W^*$ -algebras and non-abelian harmonic analysis*, Journal of Functional Analysis, **11** (1) (September 1972), 17–38.
2. *Group duality and isomorphisms of Fourier and Fourier–Stieltjes algebras from a  $W^*$ -algebra point of view*, Bull. Am. Math. Soc., **76** (6) (November 1970), 1321–1325. (Abstract).
3. *Non-abelian Pontriagin duality* (with C. A. Akemann), Duke Journal of Mathematics, (September 1972), 451–463.
4. *The dual group of the Fourier–Stieltjes algebra*, Bull. Am. Math. Soc., (September 1972), 824–827. (Abstract).
5. *A duality between locally compact groups and certain Banach algebras*, J. of Functional Analysis **17** (1974), 131–160.
6. *On the structure of the Fourier–Stieltjes algebra*, Pacific J. of Math., **58** (1) (1975), 267–281.
7. *Convolution on the reduced dual of a locally compact group*, Math. Scand. **37** (1975), 145–166.
8. *The Riemann–Lebesgue property for arbitrary locally compact groups* (with C. A. Akemann), Duke Math Journal, **43** (2) (1976), 225–236.

9. *On a theorem of Figa-Talamanca*, P.A.M.S. **60** (1976), 72–74.
10. *The R–L Property for Groups* (with C. A. Akemann), Symp. Math. **XVII** (1977), 283–289.
11. *The duality theory of non-commutative locally compact groups*, Symp. Math. **XVII** (1977), 47–59.
12. *The Riemann–Lebesgue property* (with C. A. Akemann), Queen’s Papers in Pure and Applied Mathematics **48**; Lie Theories and Their Applications, 1978, 575–577. (Printed version of invited address).
13. *Unbounded negative definite functions* (with C. A. Akemann), Canadian Journal of Mathematics, **XXXIII** (4) (1981), 862–871.
14. *Differentiation on the Dual of a Group*, Rocky Mountain Journal of Mathematics, **12** (3) (1982), 497–536.
15. *Semiderivations*, American Math Society, P.S.P.M. “Operator Algebras and Their Applications,” **38** Part 2 (1982), 367–369. (Printed version of invited address).
16. *Unbounded negative definite functions and property T for locally compact group* (with C. A. Akemann), Amer. Math. Soc. P.S.P.M., **38** Part 2 (1982), p. 625.
17. *The Levy Khinchin formula and order structure*, Lecture Notes in Mathematics, Vol. 1064, Springer–Verlag, 1984, pp. 576–588.
18. *Dual and dual space algebras*, Math. Scand. **58** (1986), 77–104.
19. *On the norm of a Schur product*, J. of Linear Algebra and Its Applications **79** (1986), 209–213.
20. *Towards a Duality Theory for Algebras*, Springer–Verlag, Vol. 1210, 1986, pp. 353–364.
21. *On a new method of defining the norm of the Fourier–Stieltjes algebra*, Pacific J. of Math, **137** (1) (1989), 209–223.
22. *C\*-algebras and the classification of finite groups*, Proceedings of Symposia in Pure Math. **51**, Part 2 (1990), 345–354.
23. *Isomorphisms of ordered semigroups*, Proceedings of an Oberwolfach Conference, Pergamon Press, 1991.
24. *Fourier Stieltjes Algebras of Locally Compact Groupoids* (with Arlan Ramsay), Contemporary Math. **120** (1991), 143–156.
25. *A complete invariant of a locally compact group*, Probability Measures on Groups **X**, Plenum Press, New York, 1991, p. 435.
26. *Isomorphisms of Hypergroups* (with W. Bloom), Australian J. of Math. **52** (Series A) (1992), 383–400.
27. *Non-Commutative Harmonic Analysis on Groupoids* (with Arlan Ramsay), Topics in Operator Theory, Operator Algebras and Applications, Institute of Mathematics of the Romanian Academy, Bucharest (1995), 251–264.
28. *Fourier–Stieltjes Algebras of Locally Compact Groupoids* (with A. Ramsay), Journal of Functional Analysis **148** (2) (August 15, 1997), 314–367.
29. *Semigroups of Positive Definite Functions*, Harmonic Analysis and Hypergroups, Birkhäuser, 1997, pp. 215–226.
30. (with Suraje Dessai), *Self-Organized Criticality and the Atmospheric Sciences: Selected Review, New Findings and Future Directions*, XE Extreme Events: Developing a Research Agenda for the 21st Century, National Center for Atmospheric Research, August 2000, pp. 34–44.
31. *Algebraic Structures Determined by 3 by 3 Matrix Geometry*, Proceedings of the American Math. Society, 13 (2003), No. 7, 2129–2131..
32. *Introduction to the Mathematics of Populations, Infections and Invasions*, Math. Association of America, appeared January 2003 ( See books)..

33. *An Explicit Duality for Finite Groups* (with Robert A. Cohen), American Mathematical Society Contemporary Mathematics Series, Volume 414, 2006, pp. 87-96..
34. *Off-Diagonal Matrix Coefficients are Tangents to State Space: Orientation and C\*-Algebras*, Proceedings of the American Math. Society, Vol. 137, No. 7, July 2009, pp. 2311 -2315..
35. *One Mathematical Perspective of Economics, Ecology and Society: Some Natural Necessities in Elementary Interdisciplinary Mathematical Education*, The International Journal of Science in Society, Volume 1, Issue 2, November 2009, pp.111-120. Article: Print (Spiral Bound). Article: Electronic (PDF File; 1.632MB). (<http://ijy.cgpublisher.com/product/pub.187/prod.25>).
36. *Earthquakes, Weatherquakes, Mathematics and Climate Change*, Notices of the American Math. Society, Volume 47, Number 10, November 2010..
37. *Mathematics for the Environment, (see books)*, CRC Press, Taylor & Francis Group, A Chapman & Hall Book, Boca Raton, FL, 2011..
38. *Motivating Mathematics With Make-or-Break Topics and Some Fun Ones*, New York State Mathematics Teachers' Journal, Volume 63, Number 2, 2013, pp.75-84..
39. (with Nicholas Perrone) *Negative Definite Length Functions on Finite Abelian Groups, submitted (2015-16 accepted modulo some revisions)*.
40. *Matrix-Valued Euler Phi-Functions preprint*.

#### BOOKS:

*Introduction to the Mathematics of Populations, Infections and Invasions*, a chapter in the book "Environmental Mathematics in the Classroom," edited by Ben Fusaro and Pat Kenschaft, published by the Mathematical Association of America, December 2002 - January 2003.

*Mathematics for the Environment*, CRC Press, Taylor & Francis Group, A Chapman & Hall Book, Boca Raton, FL, 2011.

#### RESEARCH WORK IN PROGRESS:

Operator algebras, non-commutative harmonic analysis, finite and topological groups, environmental modeling, self-organizing systems.

*An algebra-geometry duality for groups and quantum groups, with applications*. A classification of finite groups based on matrix order and the orientation of a cycle.

#### REVIEWS:

I (used to) review about one paper a month for Zentralblatt in the areas of von Neumann and C\*-algebras, harmonic analysis, Lie groups, and Banach algebras.

#### REFEREEING:

Approximately 4 papers per year for Pacific Journal of Mathematics, Rocky Mountain Journal of Mathematics, Canadian Journal of Mathematics, Proceedings AMS, Transactions AMS, American Mathematical Monthly, Zeitschrift, Publications Mathematiques, Journal of Operator Theory.

#### INVITATIONS:

- Canadian Symposium on Operator Algebras  
 1972 University of Toronto; 1973 University of British Columbia;  
 1975 Dalhousi University, Halifax, Nova Scotia.
- Harmonic Analysis Conference, Oberwolfach, Germany, 1973.
- Nordic Summer School on Operator Algebras and Groups, University of Copenhagen,  
 1973.
- Colloquium talks: Tulane University, University of Oregon, University of Toronto,  
 Queen's University, University of Colorado, University of Alberta, University  
 of British Columbia. (1970-1975)
- Invited participant (gave talk), Regional NSF Conference on "C\*-algebras and their  
 applications to physics," Bozeman, Montana, (August 1975).
- Invited participant (gave talk), Regional NSF Conference on "Transference  
 methods in  
 harmonic analysis," Lincoln, Nebraska, (1976).
- Invited by the C.U. Engineering Department to talk at the Pre-Engineering  
 Program  
 for minority and disadvantaged—but high ability—students. My talks: "Everything  
 is Connected to Everything Else," "Mathematics as the Basis for  
 the Practice of Engineering," (June 4–22, 1976).
- Colloquium talks:  
 University of California, Irvine (January 1976).  
 University of California, Santa Barbara (January 1976).
- Harmonic Analysis Conference (Convegno di Analisis Armonica e Spazi di  
 Funzioni  
 su Gruppi Localmente Compatti). (Invited address), Rome, Italy, (March  
 1976).
- York University, Toronto, Canada, 1977 (Invited talk).
- Queen's University, Kingston, Canada, 1977 (Invited talk).
- University of Pennsylvania, Philadelphia, Pennsylvania, 1977 (Invited talk).
- Active participant in summer conference on "Lie groups, Lie algebras and their  
 applications" (gave lecture), June 20 to July 8, 1977.
- Active participant in group representation seminar, University of Colorado,  
 University of Pennsylvania, 1977.
- Active participant in functional analysis seminar, University of Pennsylvania,  
 1977.
- Active participant in functional analysis and group representation seminars,  
 University of California, Berkeley, 1978.
- Functional Analysis Colloquium speaker (invited talk), University of California,  
 Los Angeles, 1978.
- Invited speaker: University of California, Santa Barbara Conference on  
 "Ergodic Theory and Operator Algebras," 1979 (NSF sponsored).

- Invited one semester course on “Abstract Harmonic Analysis,” Leuven, Belgium,  
(January-June 1980).
- Invited talk, May 1979, Canadian Math. Congress, Saskatoon, Sask., Canada,  
Special Session on Harmonic Analysis.
- Participant in conference on “Convolution Operators on Groups,” Wisla, Poland,  
May 1980.
- Invited talk, conference on “Derivations and  $C^*$ -algebras,” Tubingen, West  
Germany,  
May 1980.
- Invited colloquium talk, University of Genova, Genova, Italy, March 1980.
- Invited colloquium talk, University of Rome, Rome, Italy, March 1980.
- Invited talk, AMS Summer Institute on Operator Algebras and Their Appli-  
cations,  
Kingston, Ontario, Canada, August 1980.
- Invited to conference on Operator Algebras and Group Representations,  
Increst, Romania, September 1980. (Unable to attend for personal rea-  
sons.)
- Invited talk, Northridge Functional Analysis Symposium, Northridge, Califor-  
nia,  
November 1980.
- Colloquium talk, University of California, Irvine, November 1980.
- American Math. Society Meeting, January 1981.
- Invited participant, Great Plains Operator Algebra Conference, Lawrence,  
Kansas,  
May 1981.
- Invited talk, Automorphisms of von Neumann Algebras Conference, (C.B.M.S.),  
Iowa City, Iowa, April 1982.
- Invited seminar, University of Trondheim, Norway, Fall 1982.
- Invited talk, University of Trondheim, Norway, October 1982.
- Invited talk, University of Osnabruck, W. Germany, November 1982.
- Invited talk, University of Copenhagen, Denmark, November 1982.
- Invited talk, University of Leuven, Belgium, December 1982.
- Invited talk, University of Oslo, Norway, December 1982.
- American Math Society Meeting, Denver, January 1983, special session on  
 $C^*$ -algebras.
- Invited to give paper “Differentiation on the Dual of a Group” at Oberwolfach,  
West Germany, March 1983.
- Invited to give paper “Dual and Dual Space Algebras,” Special Session, Sum-  
mer  
AMS Meeting, Albany, New York, August 1983.
- Invited one week series of talks, UCLA Math Dept., February 1984.
- Attended AMS summer conference on Natural Resource Mathematics,  
Bob McKelvey presiding.

Selected as one of 45 Mathematical Science Research Institute Fellows, Berkeley,  
 Fall 1984.

Invited participant in G.P.O.T.S. Conference, Texas A&M, May 1985.

Invited to do research and give lecture, June-July 1985, University of Trondheim,  
 Norway, Institute for Mathematics.

Invited colloquium talk, Math Dept., University of Oslo, Norway, June 1985.

Invited address, Math. Institute, Oberwolfach, Germany, November 1985.

Invited colloquium talk, University of California, Irvine, CA, November 1985.

Invited to give talk, American Mathematical Society Special Session on Operator Algebras,  
 November 1985.

Invited address to MAA meeting, Grand Junction, Colorado, May 1986.

Attended the International Congress of Mathematicians, Berkeley, August, 1986.

Invited talk, International Conference on Operator Algebras, Santa Barbara, California,  
 July 23–August 3, 1986.

Attended January meeting of AMS in New Orleans, 1986.

Gave “Slow Pitch” Colloquium, C.U. Boulder, September 1986.

Invited (but could not attend) participant, Harmonic Analysis Conference, Poland,  
 January 1987.

Invited talk on “Mathematics Education,” Math. Assoc. of America, Denver, January 1987

Gave “Slow Pitch” Colloquium, September 1987, Duality between Algebra and Geometry.

Gave research paper at American Mathematical Society meeting, Honolulu, March 1987.

Invited participant, Great Plains Operator Theory Seminar, Univ. of Kansas, May 27-30, 1987.

Invited research address at special session for Operator Theory & Operator Algebras,  
 American Mathematical Society, Lincoln, Nebraska, August 1987.

Invited to do research at Univ. of Trondheim, Norway, awarded Norwegian Marshall Fund Travel Grant, Summer 1987.

Invited to attend Selberg Symposium, Oslo, Norway, June 1987.

A main speaker, “Colorado on the Edge”, Environmental Conf., Glenn Miller Ballroom, C.U., February 12–13, 1988.

Invited (but could not attend) participant, Oberwolfach meeting on Probability Measures on Groups, January 1988.

Invited lecture, 16th Canadian Symposium on Operators and Operator Algebras,  
 May 16–20, 1988, University of Western Ontario, London, Ontario, Canada.

- Invited lecturer/participant, Am. Math. Summer Institute on Operator Algebras,  
July 3–July 23, 1988, Durham, New Hampshire.
- Slow Pitch Colloquium, “Playing with Finite Groups”, Sept. 14, 1988.
- Invited lecturer/participant, Mittag-Leffler Institute, Djursholm, Sweden,  
January 2–22, 1989 and May 1–30, 1989.
- Invited research, University of New South Wales, July–August 1989,  
gave 3 talks.
- Invited talk, Murdoch University, August 22, 1989.
- Invited talk, Univ. of Western Australia, August 23, 1989.
- Invited talk at South East Analysis Meeting, March 1989.
- Invited talk: Environmental Law Society, C.U. Boulder, “The Wittemyer Project,”  
April 13, 1989.
- Invited talk to Journalism Dept., C.U. Boulder, “My experiences with the  
media,”  
November 1989.
- Invited talk, Special Session AMS, January 17-20, 1990, Louisville, Kentucky.  
Report on Finite groups, hypergroups, and groupoids from a  $C^*$ -algebra  
point of view.
- CU Math Dept. “Slow Pitch” Colloquium, April 25, 1990.
- Invited speech to 6,000 people, Earth Day eve, Norlin Quad 1990.
- Organized Save Bowen Gulch Rally, July 1, 1990.
- Invited talk, Special Session AMS Albuquerque meeting on Operator Algebras,  
April 1990.
- Invited talk, Isomorphisms of ordered semigroups, Conference on Probability  
Measures on  
Groups, Oberwolfach, Germany, November 1990.
- Invited talk, International Green’s Conference, Estes Park, September 15,  
1990.
- Invited talk, FINA — Earth Day, CU Boulder, April 1990.
- Attended AMS Meeting, San Francisco, included Special Session on Operator  
Algebras,  
January 14–21, 1991.
- Invited talk, Academia Sinica, Beijing, China, June 20, 1991.
- Invited talk, Academia Sinica, Wuhan, China, June 1991.
- Invited talk, Department of Mathematics, Wuhan University, Wuhan, China,  
June 1991.
- Invited talk, Fudan University, Shanghai, China, June 1991.
- Invited talk, Tokyo Metro. University, Tokyo, Japan, June 21–July 3, 1991.
- Invited talk, Hokkaido University, Sapporo, Japan, July 1991.
- Invited talk, Girl Scout Summer Institute, Institute for Arctic and Alpine  
Research,  
July 10, 1991.
- Invited talk, Prof. Smith’s class, Auraria Campus, Science Bldg., Rm 103,  
November 20, 1991.

- Invited talk, T. Povilitis' class, Boulder campus, Saving Old Growth Forest, April 24, 1991.
- Invited talk, Save the Forest's Art Project, Norlin Quad, April 25, 1991.
- Invited talk, Prof. Lee's Sociology class, Debated Forest Service, November 21, 1991.
- Invited talk, Prof. David Smaltz Science class, 3:30–4:40, November 1991.
- Invited talk, Sewall Hall, 6–7:40, Old Growth Forests, December 4, 1991.
- Invited talk, Prof. S. Havlick/S. Zemmler Ecology Design class, 1991.
- Invited talk, CU Henderson Museum, Yosemite: Fate of Heaven, March 4, 1991.
- Invited talk, Wilderness Study Group and EPO Biology Club, Through the Eyes of the Forest,  
April 17, 1991.
- Invited talk, Smoky Hills High School, All Stars Conference, September 20, 1991.
- Invited talk, Student Environmental Action Coalition National Meeting, October 4–5, 1991.
- Invited talk, Canadian Mathematics Society, Victoria, B.C., Duality for Groups, Groupoids  
and Hypergroups, December 1991.
- Invited to speak to CU Wilderness Study Group, Hellem's on the "History of Bowen Gulch  
Rescue," 1992.
- Guest speaker on KUCB radio, Envirospiro program, 1992.
- Attended GPOTS Conference on Operator Algebras, Iowa City, IA, May 1992.
- Note: Unable to travel most of 1992 due to ruptured disk.
- Invited Research Lecturer, Arizona State University, March 1993.
- Invited talk, FINA, CU Boulder, April 17, 1993.
- Invited Earth Day Speech, Araria Campus, April 22, 1993.
- Invited Panelist, "Religion and Ecology," UMC Forum Room, April 26, 1993.
- Talk on "Ancient Forests of Honduras," Sierra Club, September 15, 1993.
- Invited talk, Chem 142, Ancient Forests of Colorado, September 27, 1993.
- Invited talk, Boulder High School, "Ancient Forest Rescue — Science and Activism,"  
September 28, 1993.
- Invited talk, Sierra Club of Arvada, "Ancient Forests," September 29, 1993.
- Invited talk, UMC, "Clinton's Forest Plan," Option #9, September 30, 1993.
- Invited speaker, Colorado College, "Colorado's Ancient Forests," November 13, 1993.
- Invited talk, Boulder Rainforest Action Group, November 17, 1993.
- Invited talk, United Methodist Church, November 21, 1993.
- Invited talk (by Dan Daniels), University Housing Recycling, "Science/Economics of  
Recycling," December 14, 1993.
- Invited participant, NSF sponsored workshop: Biology and Math Modeling, University of  
Montana, Missoula, MT, May 1–May 29, 1993.



Submitted letters on the state of the university to the CU Regents, Secretary of Education  
(U.S.), and Governor Romer, 1994 (all year).

Attended Annual AMS/MAA meeting, January 1994, Cincinnati, Ohio.

Invited testimony before the Mined Land Reclamation Board on the definition of Acid Mine  
Drainage: Modeling consequences of various definitions, March 1994.

Invited Earth Day Speaker, April 1994.

Half-hour interview on KGNU (public radio) on Mathematics and the Environment,  
April 1994.

Invited and attended Colloque tournant d'Analysis Numerique, Nancy, France, June 1994.

Invited to 15th Annual Conference on Operator Algebras, Timisoara, Romania.

Invited address, NSF sponsored Workshop on Math Modeling of Biological Systems, Cody,  
Wyoming, July 1994.

Slow Pitch Colloquium, CU Boulder Mathematics Dept., September 1994. Understanding  
Finite Groups.

Invited talk, Ancient Forests, CU Wilderness Study Group, September 12, 1994.

Invited Research Address, 1 hour, West Coast Operator Algebra Seminar, UCLA, September  
24, 1994.

Invited address, Mining Reform Rally, sponsored by Environmental Center, September  
28, 1994.

Invited talk, Forest Ecosystems and Complexity, Rocky Mountain Climbers Club, October  
8, 1994.

Participated in AAUP Budget Analysis Seminar, Rutgers, New Brunswick, New Jersey,  
November 1994.

Invited talk, Analysis of Political Campaigns, Green Corps, University of Colorado, Boulder,  
November 1994.

Interview with "60 Minutes," CBS television. Purpose of tenure at Universities,  
December 1994.

Attended AMS/MAA Annual meeting, San Francisco, California, January 4, 1995.

Gave invited minicourse on Environmental Numeracy at the AMS/MAA annual meeting,  
San Francisco, January 1995.

Invited address U.S.A.–Russia Conference on Mathematics and the Environment, sponsored  
by the Greve Foundation, U.C. Davis, January 6–7, 1995.

Attended Ad Hoc Committee on Math and the Environment, for Math Association of America,

- San Francisco, January 1995.
- Invited talk, after dinner speaker, Andrews Hall, January 17, 1995.
- Invited talk: “Consequences for the Environment of the Contract on America,”  
host Green  
Corps, March 10, 1995. UMC, UC Boulder.
- Interview/ “debate” with Congressman Dan Schaefer on KCFR, March 16,  
1995, Denver,  
Colorado Public Radio. Topic: “Takings Legislation; the Taylor–Young–  
Dicks Amendment”.
- Invited Colloquium talk, March 20, 1995, Katholieke Universitet le Leuven,  
Belgium. “Duality,  
Chinese, Ecology, Chaos, Fractals and Groups”.
- Invited Analysis seminar talk, March 21, 1995 Katholieke Universitet le Leu-  
ven, Belgium.  
“ $C^*$ -algebras and Fourier–Stieltjes Algebras and Duality”.
- Invited public lecture/slide show, April 19, 1995, UMC, UC Boulder. “Envi-  
ronmental  
Consequences of the Contract on America”, for Sierra Club.
- Invited talk, April 22, 1995, University of Southern Colorado, Pueblo, MAA  
Meeting.  
“Environmental Numeracy”.
- Invited talk, April 17, 1995, Denver, Green Corps. “Environmental Conse-  
quences of the  
Contract on America”.
- Invited participant, Resource Modeling Association’s International Conference,  
Pietermaritzburg, South Africa, July 5–10, 1995.
- Invited talk, UMC, UC Boulder, September 13, 1995,  
to students for Environmental Center. “Environmental Wrap-up 1995?”
- Invited talk, Region II U.S.F.S., parking lot, Lakewood, September 19, 1995.  
“Quantitative  
Effects on Colorado of the Recisions Bill”.
- Talk, 6th graders at Southern Hills Middle School, September 19, 1995. “What  
is Math?”
- Talk/slide show, at Thornton Middle School, November 30, 1995. “What is  
Math?” (talk)  
and “Citizen Activism” (slide show).
- Invited talk, International Conference on Harmonic Analysis, University of  
Delhi, Delhi, India,  
December 18–22, 1995. “Semigroups of Positive Definite Functions”.
- Invited address, 83rd Indian Science Congress, Patiala, India, January 7, 1996.  
“Mathematics  
and the Environment”.
- Invited Colloquium talk, Punjab University, Chandigarh, India, January 8,  
1996. “Negative  
Definite Functions”.
- Invited address to Harayana–Punjab–Jamal–Kashmir College Teachers, Chandi-  
garh, India,  
January 9, 1996. “Teaching Mathematics and Environmental Numeracy”.

- Invited talk, Indian Statistical Institute, Delhi, India, January 10, 1996. “C\*-algebras and semigroups of completely positive maps”.
- Invited talk, University of Delhi, South Campus, January 11, 1996. “Isomorphisms of Group Algebras”.
- Invited talk, University of Delhi, North Campus, January 12, 1996. “Mathematics and the Environment”.
- Fourier–Stieltjes Algebras of Locally Compact Groupoids, presented at American Mathematical Society meeting, Iowa City, March 22-23, 1996 (invited).
- Operator Algebras & Groups, invited colloquium talk/preprint, University of Iowa, March 26, 1996.
- Invited paper, An Algebraic Product Determined by Geometric Order, Great Plains Operator Theory Symposium, Tempe, Arizona, May 22, 1996.
- Kempner Colloquium, September 10, 1996, “A 3 by 3 Matrix Trick with Applications”.
- Invited paper, Population Growth, Infections and Invasions, AMS–MAA meeting, and
- Invited talk, San Diego, CA, January 10, 1997. To appear as Introduction to the Mathematics of Populations, Invasions and Infections, in a volume published by the MAA.
- Invited talk. “Simple Mathematical Patterns in Complex Situations, World Conference on Resource Modeling, CSIRO, Hobart, Tasmania, December 1997.
- Invited lectures (3 hours, March 1998), Rocky Mountain Institute for Botanical Studies, “Mathematics, Forest Ecology and Food”.
- Two invited talks, Jiao Tong University, Shanghai, China, May 1998. “Geometry, Operator Algebras and Groups,” “Simple Patterns in Complex Situations.”
- Two invited talks, Fudan University, Shanghai, China, “Geometry, Operators Algebras and Groups,” “Simple Patterns in Complex Situations,” 1998.
- Invited talk, Ocean Research Station, Ensenada, Mexico, “Mathematics and Global Economics,” May 1998.
- Invited participant, National Mathematics Chairs Conference, sponsored by National Academy of Sciences, Washington, DC, November 1997, November 1998, November 1999.
- Invited guest speaker, KGNU, December 15, 1998, Hemispheres: Mathematics, Forests and the FBI.

- Invited guest speaker, KGNU, March 11, 1999, 6–7 pm, State of Mathematics at CU.
- Invited paper, AMS–MAA joint meeting, January 2000, Washington, DC, “Mathematics, Economics and the Environment.”
- Invited paper, Operator Theory Conference, Timisoara, Romania, June 27–July 1, 2000.  $C^*$ -Duality: Algebra and Geometry.
- Invited colloquium Vanderbilt University: “Duality for Groups and Quantum Groups”.  
December 2000.
- Invited talk Vanderbilt University: “Mathematics, the Environment and Economics”.  
December 2000.
- Invited talk University of Tennessee, Knoxville, “Mathematics, the Environment and Economics”. December 2000.
- Invited participant AMS/MAA Meeting January 2001, New Orleans “Special Session on Environmental Mathematics”.
- Invited participant to Conference in Honor of Richard V. Kadison, University of New Hampshire, July 2001.
- Invited talk at the Special Session on Operator Spaces, Operator Algebras and Applications, Regional AMS Meeting, Irvine, California, November 10–11, 2001. “Duality for Groups”
- Invited presentation KGNU (local radio station) November 29, 2001, “Herbicide Use/Misuse in Boulder County”.
- Organized Special Session on Mathematics and the Environment (with Prof. Ben Fusaro)  
for the AMS/MAA January 2002 Meeting, San Diego, CA. I gave a talk on “Mathematics and the Environment: Some Things You Won’t Learn Anywhere Else—Most Likely”.
- Invited one hour radio presentation, “Math Medley,” November 2002, broadcast in New Jersey, Arizona and on the web. The title of my presentation was “Weatherquakes, Economic quakes, the future of Social Security and other Mathematical Phenomena.”
- Invited 1.5 hour address: “Mathematics and Current Events,” delivered December 12, 2002,  
to the Denver School of Arts.
- Invited talk, January 15, 2003, “Introducing a Mathematical Perspective Where It Has Rarely (In Public) Gone Before,” at the Annual meeting of AMS/MAA in Baltimore, Md.
- Invited panelist, AMS/MAA meeting, Baltimore, Md., January 16, 2003, “Sample mathematics lessons integrating environmental issues.”
- October 2003 I gave a one hour talk: “Groupoids and Duality,”  
at the 989th meeting of the American Mathematical Society, Boulder.

April 8, 2003 I gave a one hour invited address

to the Phi Beta Kappa High Table at the University of Redlands, California

March 2003 I gave an invited address at the University of Puerto Rico,

Department of Mathematics Colloquium, on “Operator Algebras and Groups.”

March 2003 I gave a one hour invited address at the University of Puerto Rico (general audience) on Mathematics and the Environment.

I was an invited participant at the Vanderbilt Conference on Noncommutative Geometry, May 2 - 13, 2003.

Invited participant/attended GPOTS (Great Plains Operator Theory Seminar), June 2005, Orlando, Florida (University of Central Florida). I delivered an invited paper on operator algebra inspired duality theories for locally compact groups.

Invited participant/attended the World Resource Modeling

Association Conference held at Humboldt State University, Arcata California, June 2005, as a resource person.

Invited participant at the annual American Mathematical Society/MAA meeting in New Orleans, LA, January, 2007.

Invited participant at the annual American Mathematical Society/MAA meeting in San Diego, Calif., January, 2008.

Invited participant at the GPOTS, Great Plains Operator Theory Symposium, held at the University of Cincinnati, Ohio; where I presented a paper; June 2008.

Invited participant at the annual American Mathematical Society/MAA meeting in Washington, D.C., January 2009; where I presented a paper, “The Mathematics of Climate Change,” at a special session, and I was an invited panelist at another special session.

I gave an invited paper at a special session of the American Math. Society/MAA/SIAM annual meeting in San Francisco, “Necessary Environmental Numeracy for a Sustainable Society,” January 2010.

I attended the AMS/MAA/SIAM annual meeting in New Orleans, January 2011, and I am on the board of the Environmental Mathematics SIG of the MAA.

I was a co-organizer and attendee of the Great Plains Operator Algebra Symposium held in Boulder, 2009 and at UC Denver, 2010.

I was invited to give a lecture on the Mathematics of Sustainability, November 22, 2010, Western State College, Gunnison, Colorado.

I attended the East Coast Operator Algebra Symposium at Dartmouth College, Fall 2010.

assorted other invited talks listed in the next section as well.

I was an invited participant to the GPOTS conference held at the Arizona State University, 2011.

I gave an invited talk at the AMS-MAA January, 2012 meeting, Boston, MA, on “The Mathematics of Sustainability.”

I was an invited panelist, and made a presentation at the AMS-MAA January 2012 meeting, “Teaching the Mathematics of Climate Change.”

I was an invited participant to the GPOTS conference held at the University of Houston, Houston, Texas, 2012.

I was an invited participant/presenter to the MAA sponsored Webinar, December 2012, on “Math for a Sustainable Future.”

I gave an invited talk to a special session of the AMS-MAA January 2013 meeting, San Diego, (for MPE13, Mathematics for Planet Earth 2013): “Earthquakes, Weatherquakes and Logicquakes in the College Mathematics Curriculum.”

I gave a 45 minute invited address at a special session of the AMS-MAA meeting, San Diego, (on the mathematics of sustainability), “The Logic of Nature versus the Logic of Industrial Humans: End Game.”

I gave an invited colloquium talk to the Dept. of Mathematics, University of California, Irvine, January 2013, “Group Duality: It’s Past, Present and Future.”

I gave a talk to the Mathematics Club: University of California, Irvine, January 2013: “Teaching (and learning) Mathematics as if Our Survival Mattered.”

I gave the inaugural class lecture for the Freshman Seminar on Mathematics and the Environment, January 2013, University of California, Irvine.

I gave an invited talk: “Representation Theory of Groups and Arveson’s Non-linear Complete Positivity,” Great Plains Operator Algebra Symposium, U.C. Berkeley, May, 2013.

Invited Presenter at a week-long workshop organized by the Mathematical Association of America: “The Mathematics of Sustainability,” March 2013. (some materials published on-line)

Invited co-leader (with B. Fusaro and C. Hadlock) of three hour workshop on “Communicating the Mathematics of Sustainability,” sponsored by the MAA at the January AMS-MAA joint meeting in Baltimore, Maryland, 2014.

Invited talk at a special session of the AMS-MAA January 2014 meeting, Baltimore, MD, “Some Mathematics of Sustainability.”

I attended the Canadian Math Society Meeting, December, 2014.

I was invited to give a plenary lecture at the international Hellenic Mathematical Society Conference, Thessaloniki, Greece, March 19, 2015.

I was invited to give a plenary lecture at the Athens Science Festival, March, 2015.

I was invited to give a 4 hour workshop on the mathematics of climate science and the mathematics of finance, Thessaloniki, Greece, March 2015.

I was invited to give an “all school lecture” at the Municipality of Lagadas, Greece, March 20, 2015.

I gave a talk on Negative Definite Functions and Analysis, at the Groupoid/Analysis Seminar, Feb 3, 2015, Boulder, Colorado.

I gave a talk on the Eigenvalues of the regular length function matrix of a finite abelian group, at the ALT seminar, Feb. 17, 2015, CU, Boulder.

I was an invited participant to the Canadian Operator Algebra Symposium, June, 2015.

I gave an invited colloquium, Fudan University, Summer 2016, China.

I attended the JMM, Seattle, Washington, January, 2016

I gave an invited talk at Ben Fusaro’s session and the JMM, Atlanta, Ga, January 5, 2017.

I attended the JMM, January 2018, San Diego, California

“Matrix-Valued Euler Phi-Functions: algebraic aspects,” talk presented to the Algebraic Lie Theory Seminar, CU, April 25, 2017

“Climate Models: It May Be Worse than You’ve Been Told,” invited talk/paper at Joint AMS-MAA Meeting, January 2017, Atlanta, Georgia. (preliminary Chapter of book in preparation for Taylor-Francis, to appear)

Gave a talk at the Functional Analysis Seminar, April 11, 2017, CU, “Functional Analysis Meets Number Theory.”

Gave a presentation, led an interactive discussion at the Teaching Seminar, CU, March 2017

Gave a talk to the CU Mathematics Club, April 5, 2017, “Mathematics from Beginning to End,” covering some history of mathematics and current research.

Gave an invited talk at a special session of the joint AMS-CMA (American Mathematical Society-Chinese Mathematical Society) meeting, Shanghai, China, June 11-14, 2018.

## AWARDS AND FELLOWSHIPS:

Woodrow Wilson Fellowship, 1966.

NSF Fellow, 1966-1970, Summer NSF grants: 1974, 1975, 1977, 1978, 1979, 1980,

1981, 1982, 1983, 1984, 1985.

(Honorary due to NSF), Summer Research Grant by C.U. Council on Research and

Creative Work (1974).

Golden Apple Teacher of the Year Award, 1973, Queen's University, Kingston, Ontario.

Alfred P. Sloan Fellow, 1976-1978.

Teacher of the Year Award (Nominee).

Distinguished Alumnus, University of Redlands, 1979.

Research Award (in form of travel money to pursue research) from Norwegian Marshall Fund, 1985-1986.

Marshall Fund Travel Grant, activated summer 1987.

Conservationist of the Year Award, 1990, Sierra Club.

I was chosen by the Alumni as a "CU Favorite Professor" and my teaching was featured in an

article in the March 1996 issue of Colorado Alumnus.

Green Faculty Award (Campus Earth Summit, April 20, 1998), University of Colorado,

Boulder.

Certificate of recognition for service to the Boulder Faculty Assembly, 2000.

Selected for inclusion in the book: "American Environmental Leaders: From Colonial Times

to the Present" by Anne Becher, ABC-Clio, December 2000.

Elected on 16 April 2001 as distinguished alumnus member of the University of Redlands

Xi Chapter of California Chapter of Phi Beta Kappa

I was awarded a Certificate of Appreciation for Mentoring High

School Science Students, by the Boulder Valley School District, 2002.

Certificate of Appreciation for service as Chair of the Student Affairs Committee for the Boulder Faculty Assembly (2002).

Certificate of Appreciation for service as Chair of the Student Affairs Committee for the Boulder Faculty Assembly (2003).

I was inducted into Phi Beta Kappa on April 8, 2003

for my academic accomplishments.

In 2003 I was chosen for listing in

Strathmore's Who's Who. I was chosen for listing in Marquis Who's Who.

I was chosen for listing in AcademicKeys Who's Who in Sciences Higher Education (WWSHE) <http://sciences.academickeys.com/> (and I did not buy any of the volumes!).

I received a certificate of appreciation from the

Boulder Faculty Assembly for chairing the Student Affairs Committee (2004).

Invited to the "Silver Celebration" by Chancellor Phil DiStefano,



a reception honoring faculty with twenty-five or more years of dedicated service to the CU Boulder campus.

Selected to be in Who's Who in Sciences Higher Education (WWSHE) (2006). I was co-recipient of NSF funding to hold the Great Plains Operator Theory Symposium 2009-2010.

I applied for and received a CRCW Conference Award, 2009, for GPOTS, June 2009.

I was selected for inclusion in the book: American Environmental Leaders: From Colonial Times to the Present, Grey House Publishing, New York, 2008-2009.

I was awarded Honoris Causa, by the Municipality of Lagadas, Greece, March 20, 2015.

I was presented with the Boulder Faculty Assembly "Leadership and Service Award," 2016.

## DEPARTMENTAL/UNIVERSITY SERVICE/TEACHING(besides usual courses):

New Appointments Committee, three times, as recently as 1978–79.  
 Library Committee for two years.  
 Numerous book selection committees; M.A. and Ph.D. thesis examining committees;  
     thesis prelim committees, etc. (at least two per semester).  
 Four independent study students since 1977.  
 One thesis student (Eric Larsen), 1979.  
 Personnel Committee, 1981–1982.  
 Numerous thesis committees, see yellow sheets.  
 Eric Larsen, Ph.D. (degree awarded, 1982).  
 Topology/Reals Prelim Committees  
 Independent Study, 1984–85  
 Personnel Committee, 1984 (spring)  
 New Appointments Committee, 1984 (spring).  
 Executive Committee, 1985, 1986, 1987, 1992.  
 Teaching Committee, 1987–  
 Administered language exam, 1988  
 Don Pierce, Ph.D. (degree awarded 1988)  
 Library Committee 1988–89  
 Thesis examining committees (Pierce, Brislawn), 1988  
 Honor's Calculus Committee, 1988–  
 Coordinator Math 240, Sp. 1988  
 Real prelim committee  
 Ph.D. orals for Rod Cole (Math), Jeff de la Beaujardierre (APPS)  
 Master's oral for Greg Schamp  
 Supervised Neil Endsley  
 Co-Chair, Boulder Faculty Assembly Budget Committee, 1990–91.  
 Member, Boulder Faculty Assembly Budget Committee, 1992.  
 Minority Arts and Sciences Faculty Advisory Council, 1992.  
 Chair, Real Prelims Committee, 1992–93.  
 Member, Faculty Senate Budget Committee, 1992.  
 Member, Boulder Faculty Assembly Budget Committee, 1992, 1993.  
 On Knutt Aas, committee for Ph.D. defense, April 7, 1993.  
 Chair of session at World Affairs Conference, April 9, 1993.  
 Participant, Roybal Workshop for Minority Education Issues, May 17-18, 1993.  
 Member, MASP, Minority Arts and Science Program, Faculty Advisor, 1993–1995.  
 Active participant, 1995 Council on Academic Programs in Residence Halls (talks with students/dinners, etc.).  
 Mathematics Department Executive Committee (stressful times!) 1994–95.  
 BFA Budget Committee, 1994.  
 University-wide Budget Committee, 1994.  
 Supervised Neil Endsley, Ph.D. candidate, 1994.  
 Chair, Real Prelim Exam Committee, 1994.  
 Special Committee to choose Director of Minority Arts and Sciences Program, 1994.

Finished supervision, Neil Endsley, 1995.

Supervised independent study, Brian Holdt, Statistical Analysis and Math Modeling, CU

Recycling Course 4900, Spring 1995.

Masters Thesis Defense Committee, Jeff Dunn, April 14, 1995.

Member of K. Babbitt's thesis exam, April 27, 1995.

Member, Executive Committee of Math Department, 1995.

Member, Boulder Faculty Assembly Executive Committee, 1995.

Member, "Be a CU Student for a Day" program "CU Sampler Program" sponsored by the

Office of Admissions, 1995.

Second reader, Dean Moore's Thesis Committee, May 31, 1995.

Spent all day August 9 and one-half day August 10, 1995 being an examiner for CU Dept. of

Human Resources. We examined candidates to fill "Administrative Program Specialist Intern" H1A1IX, Position #07523.

Member, Phillip De Leon's Electrical Engineering thesis defense, November 6, 1995.

Invited talk to 6th graders at Southern Hills Middle School, September 19, 1995. "What is

Math?"

Active participant, Chancellor's Symposium on Diversity, Hotel Boulderado, September 22,

1995.

Invited talk, Thornton Middle School, November 30, 1995. "What is Math?"

Volunteer, "Council on Academic Programs in Residence Halls", 1995.

March Coffey's Ph.D. examining committee, April 25, 1996, in Electrical Engineering.

Carolyn Ford's Ph.D. examining committee, September 27, 1996, in Electrical Engineering.

Melinda Richey's M.A. examining committee, April 26, 1996, in Mathematics.

I am working with undergraduate student, Eli Karplus, on Competition/Cooperation models.

We will be doing SURF project summer 1997.

Developing Mathematical Modeling Course, upper division. 1996-97.

Assisting Goodrich's group in creating Business Math track. 1996-97.

Co-authored proposal to reconfigure the mathematics modules. 1996-97.

Vice Chancellor's Environmental Studies Task Force, Summer-Fall, 1996.

Minority Arts and Sciences Advisory Panel. Beginning 1998.

Mathematics Dept. representative to the Natural Sciences Cluster "Budget Summit"

discussions, 1996.

Served as at large elected member on Executive Committee of the Boulder Faculty Assembly. The Mathematics Dept. representative to Boulder Faculty Assembly.

Curtis Caravone's comprehensive exam committee.

Supervised UROP/SUFF student in summer 1997, Eli Karplus.

Member of Carolyn Ford, Electrical Engineering, Ph.D. Final Exam, Nov. 21, 1997.

Member of Eric Weber, Mathematics, Ph.D. comprehensive exam, 11/20/97.

Member of Joel K. Glenn, Mathematics, Doctoral Exam, 10/30/97.

Member of Jennifer Courter's Comprehensive Exams, 3/20/97.

Member, Examination Committee for Matthew Lowry's Honors Thesis "Does the Market

Give a Hoot? An Empirical Look at the Effects of Environmental Performance on Firm Financial Performance."

On advisory board of multimillion dollar NSF funded project "Learning to Teach Secondary

Mathematics in Two Reform-Based Teacher Education Programs." CU School of Education, 1997-98, 1999.

Advisor of Math Muse Project of Roberta Flexer and Steven Guberman, School of Education,

1997-98.

Doctoral thesis exam committee for Mark A. Coffey, July 2, 1998 (Electrical Engineering).

Served on Boulder Faculty Assembly ad hoc ("self-appointed") Committee offering a critique

of the Administrative Streamlining Program.

Boulder Faculty Assembly Mathematics Dept. Representative, 1994-1999.

Minority Arts and Science Program faculty advisor, 1993-1999.

Ph.D. Thesis Committee, Melissa Richy, Mathematics, 1998.

Mathematics Dept. reinvestment committee chair and program review committee studying

methods to improve mods/QRMS and undergraduate mathematics instruction.

Invited talk, April 1998, Campus Earth Summit: "State of the World 1998."

Invited participant to National Research Council's Math. Chairs Conference, November 1998,

Washington, D.C..

Advising Joan Schunck's Honors Thesis on  $C^*$ -Algebras, summa cum laude, 1998-1999.

Thesis committee, Diana Boyd, Mathematics Dept., January 7, 1999.

Advisor for Robin Neumann's Master's Thesis "Mathematical Model of Goshawk Populations

on the Kaibals Plateau".

Elected Co-Chair (with Ira Chernus) of Boulder Faculty Assembly Student Affairs Committee.

Boulder Faculty Assembly Representative from Mathematics Dept., 1999 and also Member of

BFA Executive Committee, 1999.

Independent Study Student, Suraje Dessai, 1999-2000, Climate Modeling.

Referee for *Mathematica Scandinavica*, 1999.

Organized application of Department for NSF VIGRE grant, 1998 and 1999.

Applied for Interdisciplinary Grant in the Mathematical Sciences from NSF for 2000-2001, pending.

Participated in University Outreach Program, 1999-2000, e.g., Ouray, Ignacio, etc.

Organizing transition from Math Mods to classes, 1999-2000.

Co-supervisor of Wendy Smith's Doctoral Thesis, joint between Mathematics Department and School of Education, 1997–2002.

Ph.D. thesis advisor for Robert Cohen, 1996–2002.

Chair of the Department of Mathematics, 1996–2000.

Summer Chair of the Department of Mathematics, May–August 20, 2000.

Member Masters Thesis Committee, Kirsten Anderson.

Member Ph.D. Defense Examining Committee, Sharon L. Shaffer.

Selected by CU Vice President's office to be a member of the CU Colorado Peak Performance Implementation Team, 2000–2001.

Curtis Caravone's thesis committee, 2001.

Analysis Prelim Committee Chair, December 2001–January 2002.

Chair Boulder Faculty Assembly Student Affairs Committee, 2001–2001.

Elected to Boulder Faculty Assembly Executive Committee, 2001–2002.

Elected to Boulder Faculty Assembly Executive Committee, 2002–2003.

Chair Boulder Faculty Assembly Student Affairs Committee, 2002–2003.

I was the guest on "Good, Ol' CU," a radio program, hosted by Professor Juhasz for community radio KGNU, November, 2002.

I served on the Graduate Part-Time Instructor Teaching Excellence Awards Committee. I visited and reviewed four different instructors, and participated in the committee deliberations to pick awardees.

I visited Professor Wang Bin's class twice for his reappointment file.

I visited Professor Siye Wu's class for his tenure review.

I serve on the Mathematics and Environment Committee (at the national level) for the Mathematical Association of America. (2001–2002) I am on the national MAA (Math. Association of America) SIGMAA for the Environment and Mathematics. (Note: A SIGMAA is less formal than a committee, and organizes educational events, conferences and so forth.)

Doctoral thesis advisor for Wendy H. Smith, jointly with the School of Education, who is getting her degree (PhD) in May 2003

Doctoral thesis advisor for Robert Cohen

Member of doctoral thesis committee for Curtis Caravone

I was on the committee of Wendy H. Smith's Comprehensive Exam, 3/19/02

I was on the committee for the comprehensive exam of Chrisine Jerritts, April 4, 2002

I was on Will Kerwin's Master's Exam, December 5, 2002

I was the mentor for high school student, Dimitriy Zinchenko, who created a mathematics project for the Science Fair. He won the first place in mathematics and the federal credit union award for the first place in mathematics at the district science fair. (2001–2002)

August 2003 I was the thesis advisor for Wendy Hageman-Smith and co-chair of the PhD Thesis Defense Committee for Wendy Hageman-Smith, in Mathematics and Education.

All of 2003 I continued to be the thesis advisor for Robert Cohen, in Mathematics.

2003 I served as a co-chair of Prospectus Defense Committee of Anastasia Brelias, in Mathematics Education.

- December 2003 I served on the Comprehensive Exam Committee for Kevin Manley, in Mathematics.
- November and December 2003 I served on the Masters Thesis Committee for Stephanie Tidwell, in Journalism.
- April 2003 I served on the Comprehensive Exam Committee of Jennifer Horne, in Mathematics.
- September 2003 I served on the Comprehensive Exam Committee for Amy Chambers, in Mathematics.
- September 2003 I served on the Comprehensive Exam Committee of Veronica Furst, in Mathematics.
- Fall 2003 I taught an advanced graduate level independent study course in Mathematical Physics/Differential Geometry to Carlos F. Martino (from Engineering), 2 credit hours.
- I encouraged and mentored three of our best graduate students (Chris. S., Bob C., and Erich M.) to attend the Vanderbilt Conference on Noncommutative Geometry, May 2 - 13, 2003.
- I was the main contact person/local organizer for the 989th meeting of the American Mathematical Society (for a period of 1.5 years), held October 2-4, 2003.
- I was the main local contact and local organizer for the summer meeting of the Mathematical Association of America, held July 31 - August 2, 2003.
- I organized 6 local trips for the participants of the MAA meeting held in Boulder, July 31 - August 2, 2003 (including 3 "tree walks" around the Boulder Campus). item 2003 served on the national Environmental Mathematics Committee of the Mathematical Association of America. item In 2003 I am on the MAA (Mathematical Association of America) SIGMA for the Environment and Mathematics. (Note: A SIGMA is less formal than a committee, and organizes educational events, conferences and so forth.)
- 2003 Served all year on the Undergraduate Committee.
- 2003 Member of the Boulder Faculty Assembly Executive Committee, all year. item 2003 Chair of the Boulder Faculty Assembly Student Affairs Committee, all year. item 2003 Chair of the Environmental Concerns Committee of the Boulder Faculty Assembly, all year. item 2001-2004 I served on the Graduate Part-Time Instructor Teaching Excellence Awards Committee. I visited and reviewed various instructors, and participated in the committee deliberations to pick the awardees.
- 2003-2004 Appointed to (by Vice Chancellor Tabolt) and served on the Recycling Futures Advisory Board for the University of Colorado, Boulder Campus.
- 2003 Represented the University and/or department in a number of newspaper interviews and at a number of public meetings.
- Helped organize and was the master of ceremonies of a FASAW meeting of the university faculty (in Math 100, March 2003). item 2003 Chaired the ad hoc committee of Faculty for Civil Liberties.

Helped organize a university-wide meeting concerned about the treatment of foreign students (some of whom were unlawfully detained by the federal government). Worked closely with Larry Bell of the Foreign Students Office.

- (yearly, for example, in 2003) I wrote numerous letters of recommendation for students and some faculty at other institutions.
- Doctoral student, Robert A. Cohen, PhD, December 2004.
- I was the principal advisor for Adil Kaymaz, who successfully gained a Master's Degree in Mathematics in 2004.
- I was the undergraduate thesis advisor (3 units) for Laura Serna whose honors thesis was titled "Are there correlations between geopolitical conflicts and resources?"
- I was on Chris Brown's PhD thesis defense committee, Nov. 18, 2004.
- I was on the PhD thesis defense committee for Will Kirwin, March 2004.
- I taught a 3 unit independent study course for Robert Bailey (2004) (a graduate student in electrical engineering) titled "Differential Inclusions."
- I taught a 3 unit independent study at the graduate level for Adil Kaymaz titled "Operator Algebras."
- I co-supervised (with Professor Larry Baggett) 3 units of independent study for mathematics graduate student, Brent G. Pohlmann. Professor Baggett did most of the work for this student (2004).
- I advised an undergraduate student, Jessica Ann Foster (2004), from Western American Studies, whose project title was "How environmentalists use statistics to argue their cause, correctly or not."
- (2004) I refereed (confidentially) 3 technical mathematical papers.
- (2004 - 2006) I am on the MAA (Mathematical Association of America) SIGMAA for the Environment and Mathematics. (Note: A SIGMAA is less formal than a committee, and organizes educational events, conferences and so on.)
- (2003-2006) I served all year on the Undergraduate Committee for the Department of Mathematics.
- I served on the real analysis preliminary examination committee, creating and grading problems (2004).
- (2004 - 2006) I was elected to and am serving on my department's executive committee.
- I served on the Boulder Faculty Assembly all year as Chair of the Environmental Concerns Committee (ad hoc), and Chair of the Student Affairs Committee (several years including 2004).
- I served on the Graduate Part-Time Instructor Teaching Excellence Awards Committee. I visited and reviewed various instructors and participated in the committee deliberations to pick the awardees (several years including 2003-2006).
- I served on the Alfred P. Sloan Math Focus Group at the request of the UC Boulder administration. Contact: Candice Miller, Vice Chancellor's office (2004).
- I served on the April Campus Environmental Roundtable, itemitem sponsored by the CU Environmental Center (2004-2005).
- I represented the Boulder Faculty Assembly at a conference held

- March 17, 2004, in the University Memorial Center, organized by the Institute of International Education.
- I was appointed to (by Vice Chancellor Tabolt) and served on The Recycling Financial Advisory Board for the University of Colorado, Boulder, Campus (several years up to and including 2005).
- I visited the classes of and wrote a report on the teaching of instructor Alejandro Spina for the Department of Mathematics (2004-5).
- I attended a class of Professor Agnes Szendrei and wrote a report for the Department of Mathematics (2004).
- I wrote many letters of recommendation for students and one for a faculty member elsewhere (nearly every year, including 2004-5).
- Served on the comprehensive examination committee of Sooran Kang, 3/31/05.
- Supervised high school student, Carrie Luhan, regarding a project for the Native American Science Fair.
- (2005) I Helped a local businessman/medical professional find a solution to a problem.
- (2005) Served on the promotion committee for Professor Farsi.
- (2005) Served on the committee for the reappointment of Professor Gorokhovskiy.
- (2005) Attended the classes of A. Spina and wrote up a review.
- Chaired the Analysis prelim committee, co-wrote, proctored and co-graded the exam, August 2005.
- Gave a two-hour invited Earth Day Talk, with questions, April 22, 2005, to the Environmental Center/Wilderness Study Group/Rainforest Action Group.
- Gave a talk to the Rainforest Action Group, Boulder Campus, April 7, 2005.
- Gave a talk on the history of environmental activism at CU to an assembly of student groups, September, 2005.
- Gave a panel presentation to the SaveOurSchool2005.org event on Academic Freedom, Fall, 2005. I also was a moderator at a panel discussion for the same group held in Chem 140.
- Participated in the Campus Environmental Roundtable February, 17, 2005.
- (2005) Assisted a student group working to get CU to join the Workers Rights Consortium. (Eventually successful effort.)
- Invited to give a talk at the Dalton Trumbo Free Speech Fountain area on academic freedom, Spring 2005.
- Guided a Wilderness Study Group trip to Bowen Gulch Wilderness, February 5, 2005.
- Made (an invited) presentation at a press conference, February 1, 2005, regarding a faculty proposal to make educational materials, such as textbooks, more affordable to students.
- (2005) Attended a workshop on "Integrating Electronic Library Resources into Teaching and Research."
- (2005) Cochaired (with David Grant) the tenure committee of Professor Bin Wang.
- (2005-2006) Chair of the search committee for filling a mathematics department position in analysis, differential equations to be precise.
- (2005) I refereed a few technical mathematics papers for



mathematics journals (confidentially).  
 Active participant in “Art and Mathematics Year” organized  
 by Professor Carla Farsi (2005-2006).  
 Master’s Degree/Thesis Committee for Joel Nibert, April 2006.  
 PhD Comprehensive Exam Committee for Ilia Mishev, February 2006.  
 Master’s Committee for Tiffany Tasset, November 2006.  
 Master’s Committee for Joseph Newhall, November 2006.  
 I served on the departmental puec (committee) for promotion of Carla Farsi  
 to Full Professor, 2006.  
 I served on the departmental puec (committee) for promotion of Keith Kearnes  
 to Full Professor, 2006.  
 I gave an invited talk to the International Brazilian Conference on Operator  
 Algebras and Mathematical Physics, Florianopolis, Brazil, July 2006.  
 I served on the Undergraduate Committee, helped select the text for calculus  
 and evaluated various on-line homework systems (none of which were fully  
 functional).  
 Appointed to the Graduate Committee for 2007.  
 Served on the Math. Association of America’s (SIGMA) for Environmental  
 Mathematics as a Board Member (national level 2006, 2007, 2008).  
 Invited talk, February 2, 2006, on the Importance of Activism for Environ-  
 mental and Social Justice, Education 220.  
 Invited participant to the Environmental Center Round Table on Sustainabil-  
 ity, UMC425.  
 Advisor to Students Against Sweatshop Apparel, 2006.  
 Attended classes of Keith Kearnes and wrote up a review. (2006)  
 Served on the GPTI teaching excellence committee (2006).  
 Pro Bono consulting for the national Affordable Textbooks Campaign (2006).  
 Did a press interview with Laura Snider for the School of Journalism (2006).  
 Did an interview with Steve Graff for the School of Journalism (2006).  
 Letter to the editor on technical issues relating to 9/11 attack.(October 2006)  
 Attended the National Meeting of the AMS/MAA, New Orleans, January 2006.  
 Discussed my book submission, Mathematics for the Environment with AMS  
 editor Ed Dunne.  
 I am the Phd advisor for Christopher Eller 2007.  
 I am the Master’s advisor for Carolyn Wagner, Mathematical Ecological Eco-  
 nomics, 2007.  
 Member of Joshua Sanders’ Master’s Thesis committee, Nov. 07.  
 Member of Michael J. Daniel’s PhD Thesis examing committee, June 12, 2007.  
 Member of John Fuhman’s master’s committee, November 15, 07 (topic Jones  
 Polynomial).  
 Selected to be on Anastasia Brelias’s PhD committee (School of Education),  
 meeting postponed until Spring 08.  
 Member of Elizabeth Googin’s Master’s Thesis committee, Nov. 07.  
 Supervise/mentor Keegan Boyle, high school senior on his Science Fair Project  
 2007-2008.  
 Independent Study Course on Operator Algebras for Christopher Eller, 3 units,  
 graduate level, 2007.

Independent study course on finite group representations and physics, for Ellery B. Ames, undergraduate level, 3 units (co taught with Prof. Gorokhovsky), 2007.

I gave a presentation to the Algebraic Lie Theory Seminar, organized by Professors Green and Theim, 2007.

I gave a presentation to the Geometry Seminar, organized by Professor Preston, 2007.

Refereed articles in confidentiality for research journals, 2007.

Served on the Board of the Environmental Mathematics section of the Math. Association of America, 2007.

Chair of the Tenure Committee for Professor Gorokhovsky, 2007-2008.

Served on the reappointment committee for Professor Brian Rider, 2007-2008.

Served on the Graduate Committee, 2007-2008.

Member of the Mosquito Abatement Board, for the Boulder County Department of Public Health. Contribute knowledge of mathematical models, and other service, 2006,2007,2008.

Chair of the PhD preliminary examination in analysis, 2007-2008.

Served on the Innovative Grant Proposal (IGP) review panel, 2007, chaired by Russell Moore.

Member of Eitan Angel's PhD comprehensive (qualifying) exam, March, 2007.

Member of Julia Pearson's Master's Thesis Committee, April, 2007.

The Boulder Faculty Assembly representative from the Mathematics Department, 2007-2008.

Served on the Boulder Faculty Assembly Student Affairs Committee, 2007-2008.

I taught an independent study on topology to Alexander Tilly, 3 units, Spring 2007.

Invited participant in the Fifth Noncommutative Geometry and Operator Algebra Institute, Vanderbilt, May, 2007.

Submitted manuscript to the American Mathematical Society, which I have been asked to revise, shorten, possible write one book and a sequel, 2007-2008.

Appeared twice on the KGNU radio show, "Good Old CU," hosted by Joe Juhasz, 2007.

Aappeared on KGNU radio show, hosted by Bob MacFarland, 2007.

Invited to present testimony to Cheyenne Wolf Hearings on behalf of the Sierra Club, Wilderness Society, Sinapu, Feb. 2007.

Assisted doctoral student, Krista Kelley, in pilot study of academic engagement based on the Harvard Assessment Project, 2007.

I served on the promotion committee of Carla Farsi, 2007.

Invited participant at the annual American Mathematical Society/MAA meeting in New Orleans, LA, January, 2007.

Member of Honor's thesis Examining Committee for Ellery Ames: "Characterization of Voltage Reference Noise for the Laser Interferometer Space Antenna," April 8, 08, CU/JILA.

Dissertation committee member (PhD) for Anastasia G. Brelas, Math. Education (postponed to 09)

Master's Examination Committee for Louisa Harria, Dec. 9, 2008.

Brent Pohlman's PhD Thesis defense committee, May 29, 2008.

Tim J. Schumacher's PhD Thesis Defense Committee, April 8, 2008.

Tiffany Nicole Tasset's PhD comprehensive examining committee, April 22, 2008.

Joseph Newhall's PhD comprehensive examining committee, April 22, 2008.

Zachary Strider McGregor-Dorsey's Master's Thesis examining committee, Sept. 2, 2008.

Dana Campbell Ernst's PhD Thesis defense examining committee, May, 2008.

Completed supervision of Keegan Boyle's high school senior Science Fair project: "Black, Blue and Green: Sustainability after the end of Cheap Oil." Spring 2008.

Invited participant, June 2008, University of Cincinnati, GPOTS, Great Plains Operator Theory Symposium, presented a paper on operator algebras.

Wrote and co-directed a play/skit for the Environmental Mathematics SIGMAA, presented at the January 2008 joint meeting of the American Mathematical Society and the Math. Association of America.

Served on the Board of the Environmental Mathematics section of the Math. Association of America, 2008.

Chair of the tenure committee for Professor Brian Rider, 2008-2009.

Elected to serve on the Executive Committee of the Department of Mathematics, 2008-2010.

Served on the PhD preliminary examination in analysis, 2008-2009.

I served as chair of the promotion committee for Richard M. Green, 2008-2009.

Served as the Boulder Faculty Representative from the Mathematics Department, 2008-2009.

Served on the BFA Student Affairs Committee, 2008-2009.

Invited participant at the annual American Mathematical Society/MAA meeting in San Diego, January, 2008. Developing content for interdisciplinary/environmental mathematics classes at the undergraduate level.

I am serving on the organizing committee for the Great Plains Operator Theory Symposium, 2009; in an international meeting that has been held annually for decades. The 2009 meeting is to be held, June, in Boulder, Colorado.

I was on the PhD comp. exam of Zachary Strider McGregor-Dorsey, Dec. 3, 2009.

I was on the PhD comp exam of Robin Michael Chestnut, April 23, 2009.

I was on the Master's Examination Committee for Rachael Krieger, April 14, 2009.

I was on the PhD comprehensive exam committee of Patrick Newbery, 4/30/09.

I was on the PhD comprehensive exam committee of Camilo Mesa, April 30, 2009.

I was on the PhD comprehensive exam committee for Jacob harper, Sept. 17, 2009.

I was on Richard Paul Dodson's Masters committee defense exam, May 27,2009.

I was on Eun Hyea Kim's PhD comprehensive exam committee, April 16, 2009.

I was on Anastasia G. Brelias's PhD dissertation defense committee, School of Education, May 15, 2009 (this exam was postponed from 2008).

I was a member of the PURC for the evaluation/retention of S. Preston (B. Rider chair).

I was an invited participant and delivered a paper, "Arrhenius's Law of CO2 Induced Delta F," for the 2009 World Conference on Natural Resource Modeling, June, 2009, Juneau, Alaska.

I gave an invited lecture to the International Science and Society Conference, Cambridge, UK, August, 2009, on a “Mathematical Perspective of the Financial Crisis and Climate Change.”

I gave an invited talk to the Mathematics Department, University of Trondheim, Norway, on the “Mathematics of Climate Change,” August, 2009.

I hosted a campus visit for Amber Verser, a potential Boettcher Scholar, February 2009.

I am the thesis advisor for PhD candidate Chris Eller for all of 2010.

I was a member of the PhD thesis defense committee of Joe Newhall, April 2010.

I was a member of the Masters defense committee for Nicholas Pratarelli, April 2010.

I was a member of the Masters defense committee for Matthew Jones, March 18, 2010.

I was a member of the PhD thesis defense committee for Tiffany Tasset, April 28, 2010.

I was a member of the PhD comprehensive exam committee for William Stanton, October 28, 2010.

I was a member of the PhD comprehensive exam committee for Ben Purkis, 8/20/10.

I was on the PhD comprehensive exam committee for John Hower, April 22, 2010.

I was a member of the PhD comprehensive exam committee for Michael Martinez, April 22, 2010.

I was a member of the PhD comprehensive exam committee for Chao Ma, 2010.

I was a member of the PhD comprehensive exam committee for Justin Heller, August, 2010.

I am the thesis advisor for PhD candidate Chris Eller for all of 2010, 2011.

I am the advisor for Masters candidate Jessica Kenigson, 2009-2012.

I was on the PhD Thesis Committee for Eun Hyea Kim 2011.

I was on the Master’s Thesis Committee for Masaya Sato 2011.

I was on the committee for Kayla Crosbie’s (undergraduate) Honor’s Thesis defense 2011.

I was on Michael Stone’s Honor’s Thesis defense committee 2011.

I was on the PhD Comprehensive Exam Committee for David H. Wayne 2011.

I was on the PhD Comprehensive Exam Committee for Bryce Christenson 2011.

I was on the PhD Comprehensive Exam Committee for Tyson Gern 2011.

I taught an independent study course in Functional Analysis for Matthew Krupa 2011.

I referred some papers for mathematics journals (in confidentiality).

I did a classroom visit, evaluation of Dr. Janos Englander, 2011.

I did a classroom visit, evaluation of Dr. Shaulis, for BFA teaching award, 2011.

I did a classroom visit, evaluation of Dr. Markus Pflaum, for promotion to full professor, 2011.

I was on the PUEC for Dr. Englander’s tenure case 2011-2012.

I was on the promotion and tenure PUEC for Dr. Thiem 2011-2012.

I was chair of the PUEC for promotion of Markus Pflaum to Full Professor, 2011-2012.

I was on the Honor's Thesis Committee for Daniel Jason Nichols (English Dept.) February, 2012.

I was on the Honor's Thesis Committee for Benjamin Bentele (Physics Dept.) April, 2012.

I served on the PUEC for promotion to Full Professor for Brian Rider, but the committee was terminated by the administration (2012).

I was on the PhD Comprehensive Exam Committee for Joseph Migler, Nov. 29, 2012.

I was on the PhD Thesis defense committee for Patrick Newberry, May 26, 2012.

I was chair of the Master's Thesis Defense Committee for my student, Jessica Kenigson, 4/17/12. Ms. Kenigson was awarded a Masters of Science degree.

I was on the PhD Comprehensive Exam Committee of Scott Andrews, May 13, 2012.

I was on the Master's project committee of Fuchong Liu, 2012.

I was on the PhD Thesis Defense Committee for Camilo Mesa, April 12, 2-12. My student, Christopher James Eller, was awarded a Master's Degree, summer, 2012.

I was chair of the PUEC for the promotion and tenure case of Stephen Preston 2012-2013.

I was on the PUEC for the retention of A. Spina 2012-2013.

I was co-chair, along with Eric Stade, of the hiring committee in charge of filling a position in Analysis, 2012-2013.

I introduced the web tool PIAZZA to my classes, 2011-2012.

I serve as Departmental Representative (Math Dept) to the Boulder Faculty Assembly, 2012-2013.

I serve on the the Boulder Faculty Assembly Committee for Faculty and Administrative Affairs, 2012-2013.

I taught an independent study course, undergraduate, for Nick Perrone, 2012.

I supervised/advised an undergraduate research project on "Finite Groups, Order Structures, and Analysis," by Nicholas Perrone, 2013.

Member of PhD comprehensive exam committee for Matthew Krupa, October 28, 2013.

I was on the PhD comprehensive exam committee of Lian Zhang, March 22, 2013.

Member of PhD comprehensive exam committee of Trubee H. Davison, February 28, 2013.

Member of PhD defense-examination committee for Chao Ma, February 12, 2013.

Member of PhD. comprehensive exam committee for Erica Shannon, April, 2013.

Invited to present the "Mathematical Basis for Al Bartlett's Famous Talk," sponsored by the CU Physics Dept and CU Environmental Center, September, 2013.

Member of the PhD thesis defense-examination committee of Zachary Strider McGregor-Dorsey, April, 2013.

Member of the PhD defense-examination committee of Bryce Daniel Christenson, March 21, 2013.

Member of PhD thesis defense-examination committee of Tyson Gern, March 18, 2013.

Member of PhD thesis defense-examination committee of Michael Martinez, May 14, 2013.

Member of PhD comprehensive examination committee of Alexandru Nita, April, 2013.

I serve as a member of the Environmental Mathematics section of the Math. Association of America, 2013.

Member of the Mosquito Abatement Board, for the Boulder County Department of Public Health. Contribute knowledge of mathematical models, and other service, 2006,2007,2008, 2009, 2010, 2011, 2012. 2013.

I serve on the PUEC for promotion to full professor of Jeanne Clelland, 2013-2014.

I did a classroom visit-evaluation for the tenure case of Sebastian Casalaina-Martin, 2013.

I did a classroom visit-evaluation of a graduate course taught by Alexander Gorokhovskiy, 2013.

I served as the Department of Mathematics representative to the Boulder Faculty Assembly, 2013.

I served on the Boulder Faculty Assembly Faculty Affairs committee, 2013.

I am an affiliated faculty member of the Peace and Conflict Studies and 3CG Center, 2013.

Member of Thesis Committee for John Hower, July 10, 2014.

Independent Study for Ryan Knight, Fall 2014.

Comprehensive Exam committee for Pearce Clifford Washabaugh, Jan, 30, 2015

PhD Thesis committee for Scott Andrews, April 3, 2014.

PhD Thesis Defense Committee for Benjamin Purkis, March 20, 2014.

PhD Thesis Defense committee for Justin Keller, April 3, 2014

A non-credit independent study with Nicholas Perrone, Fall 2014.

Public Lecture: The Mathematics of Global Warming: From Arrhenius's Law to Weatherquakes. May 28, 2014. (on campus).

I was a member of the PhD comprehensive exam committee for Nathan Davidoff, Dec. 10, 2015.

I was a member of Ian Long's PhD comprehensive exam committee, 11/12/15.

I was a member of Jon Belcher's PhD comprehensive exam committee, Nov.e 10, 2015.

I taught Ryan Knight, independent study, Spring 2015.

I taught Ian Long, Independent Study, Fall 2015.

I taught Nathan Davidoff, Independent Study, Fall 2015.

I was a member of Jae Min Lee's PhD Comprehensive exam committee, Sept 1, 2015.

I was a member of Mason Pelfrey's PhD comprehensive exam committee, August 13, 2015.

I was on Megan Ly's PhD Comprehensive exam committee, April, 30, 2015.

I was on Jonathan Lamar's PhD Comprehensive exam committee, April 2, 2015.

I was on Shawn Burkett's PhD comprehensive exam committee, 2/17/15.

I was the second reader for the PhD examination, thesis defense, committee, 3/4/15.

I was a member of Liang Zhang's PhD comprehensive exam committee, May 12, 2015.

I serve as a member of the Environmental Mathematics section of the Math. Association of America, 2015.

I served on the PhD Analysis Prelim Committee, Fall 2015.

I served as the Department of Mathematics representative to the Boulder Faculty Assembly, 2015.

I was/am Chair of the Boulder Faculty Assembly Faculty Affairs committee, 2015.

I am a member of the Graduate Committee, Department of Mathematics, 2015.

I served on the Learning Assistant Interview/Selection Committee for the Department of Mathematics, 2015.

I was chair of Sion Ledbetter's PhD comprehensive exam committee, April 26, 2016.

I was on the PhD thesis defence committee of Erika Shannon, April 5, 2016.

I was on the PhD defence committee of Matt Krupa, 7-13-16.

I was on the PhD thesis defence committee of Alex Nita, 4-8-16

I taught Sion Ledbetter, Independent Study, 2016.

I recruited and hosted Professor M. Musat, as the De Long Lecturer for 2016.

I served on a review committee for a student complaint against the Math Dept. (confidential).

I am a member of the Mosquito Abatement Board, citizen advisor, for the Boulder County Dept. of Health/ Boulder County Commitssioners.(2016)

I serve on the Environmental Mathematics interest group of the Math. Association of America, 2016.

I have been the representative of the Math Dept to the Boulder Faculty Assembly, 2016.

I served on the Boulder Faculty Assembly Faculty Affairs Committee. 2016.

I did classroom evaluation for Dr. Beaudry.

I served on the Learning Assistant Interview/Selection Committee, Dept. of Math. 2016.

I served on the Graduate Committee, 2016.

I served on the PUEC for the reappointment of Kevin Manley, 2016.

I served on the PUEC for the reappointment of Jonathan Wise, 2016.

I served on the Comprehensive Exam Committee of Sarah Salmon, April 20, 2017

I served on the PhD defense committee of Kathleen Sullivan, March 23, 2017

I served on the Comprehensive Exam Committee of Shen Lu, Dec. 7, 2017

PhD Advisor of Sion Ledbetter 2017

Masters Degree advisor for Isabel Corona 2017

Independent thesis hours Sion Ledbetter 2016

I served on Ian Long's PhD Defense Committee, October 26, 2017.

I served on the Comprehensive Exam Committee of Shen Lu, Dec. 7, 2017

I served on the Comprehensive Exam Committee, of Sarah Salmon, April 20th, 2017.

Served on the PhD defense committee of Kathleen Smith, March 23, 2017

Independent thesis hours Sion Ledbetter 2017

Masters Degree advisor for Isabel Corona, 2017

PhD Advisor of Sion Ledbetter 2017

I was chair of the PUEC for the reappointment of Al Bronstein. (2017)

I served as the Mathematics Department representative to the Boulder Faculty Assembly (2017)

I serve on the Administrative Services and Technology Committee of the Boulder Faculty Assembly (2017)

I serve on the Faculty Affairs Committee of the Boulder Faculty Assembly (2017)

I served on the Analysis Preliminary Exam Committee, (2017)

Masters Degree advisor for Isabel Corona, 2018, who earned her Masters Degree 2018.

PhD Advisor of Sion Ledbetter 2018 who earned his doctorate in 2018.

I taught Sion Ledbetter, Independent Study, 2018.

I taught Richard Dyer independent study/masters degree hours, 2018.

Isabel Corona, ind. study/masters thesis hours. 2018.

Jonathan Lamar, PhD Defense Committee, April 5, 2018.

Masters Degree committee for Richard Dyer, who earned his Masters Degree, 2018.

Served on Megan Ly's PhD defense committee, May 22, 2018.

Served on Shawn Burket's PhD. defense committee, June 22, 2018.

Served on Nate Davidoff's PhD defense committee, Oct.11, 2018.



## PUBLIC SERVICE:

Volunteer consultant for Colorado Wilderness Workshop, Sierra Club, Friends of

the Earth. (Yes, there are numerous mathematical problems involved in the environmental field!)

Talk at Junior High School (in Boulder)

Executive Committee for state level Sierra Club.

Have provided testimony before city, county, state, federal and U.S. congressional

committees and boards on environmental matters—ongoing.

Invited main speaker (one of three), Colorado on the Edge Conference, Glen Miller

Ballroom, February 12–13, 1988

Boulder County Clean Air Consortium, 1988

Executive Committee, Rocky Mountain Chapter, Sierra Club, 1989, 1990, 1991, 1992, 1995.

Chair, Public Lands Committee.

Chair, Forests Committees, 1990–96.

Co-founder, Ancient Forest Rescue, 1989–96.

Math Assoc. of America Committee on Mathematics and the Environment, 1993, 1994, 1995.

Helped direct and played in “The Great Englemann Spruce Tree”, a play for University Hill

Elementary School’s K1 class. (I do not have children at this school.), Spring 1995.

Interview for “The Green Report”, Public Television, Channel 8, May 15, 1995 on “Sustainability”.

Invited slide show, Rocky Mtn. Chapter of Sierra Club Annual Retreat, September 23, 1995.

“African Wildlife—Mathematics and Conservation”.

I refereed several articles for the various journals of the American Mathematical Society and

other journals. These were blind reports which it is not proper to discuss.

I am on the Mathematical Association of America’s “Mathematics and the Environment Stand-

ing Committee”, which met in San Diego, at the Annual AMS–MAA meeting January, 1997 and prior to that each January for the past 3 years.

Consultant, briefly, in January 1996, Nehru University, on Mathematical Modeling.

Consulted with Eagle Crest High School, Interactive Mathematics Program, on several

occasions.

Two lectures (outreach) at North High School, Denver, February 20, 1996.

Lecture/slide show for the Sierra Club, NIST auditorium, April 17, 1996. Endangered Wildlife

of Southern Africa, India and Nepal.

Invited panelist, “Super-Vail, where will it go?” UMC, April 18, 1996.

Invited Talk to Wilderness Study Group, “Colorado’s Ancient Forests”, April 1996.

Invited Panelist, February 14, 1997, “The Power of Money: Boycotts and Divestment Campaigns” UMC, part of conference on Corporations and Governance.

Visitor to Eagle Crest High School, Integrated Math Program, Spring 1997.

Invited speaker: The Power of Money: Boycotts and Divestment Campaigns, Conference February 13–15, 1997, University of Colorado Boulder.

MAA Mathematics/Environmental Board Member, 1997–98.

Invited 1 hours lecture plus 1 hours group discussion at Unitarian Universalist Fellowship,

“The Environment, a sustainable(?) economy and corporations.” 3/9/97.

Editorial, Boulder Daily Camera, 1997. LaSierra faces loss of wildlife and community.

Earth Day speech, April 22, 1997, Denver University.

Invited talk, UMC Fountain, “Rainforests and Media Distortions” for Rainforest Action Week, 10/22/97.

Invited talk, UMC “From Organic Food to the Lowry Landfill and Back,” March 1998.

Worked with Rocky Mountain Farmers Union to preserve the definition of “Organic Food”

during the U.S. Dept. of Agriculture’s standards process. (1998)

Worked with Rocky Mountain Farmers Union to pass initiative 14 to regulate industrial hog

production in Colorado (1998).

Served on oral exam board that chose the Assistant Director of the Environmental

Center/Recycling Program (September 1998).

Sierra Club State of Colorado Forest Chair, 1990–1998.

Co-founder and Activist with Ancient Forest Rescue (AFR). Including: (1) Successful lawsuit

(won by AFR, 1998), filed against Forest Service in 1994 over Trout Mountain Timber sale legal infractions. (2) Consulting with U.S. Forest Service officials in various districts, in Region II and with Chief of Forest Service.

Charter member of Citizens for Pesticide Restraint (1998). I have worked with Tim Seastedt

and Jane Bock in EPO Biology, Organic Farmers, individuals with multiple chemical sensitivity, and the Sierra Club to analyze the pesticide/herbicide burden in Boulder City/County. Have worked with volunteers to manage needs in the the City and County organically.

Research Assessment consultant for National Research Foundation, ROMBURGH@NRF.AC.ZA, 1999.

Testified numerous times before Boulder County Commissioners on county land use and

management issues, 1999.

Letter of thanks from CU President Buechner, February 21, 2000, thanking me for participating

in the Science Research Class Program.

Outside thesis evaluator for Dr. Shri Sandipan Gupta, Indian School of Mines, Phanbad

-826004 India, 1999.

Invited talk, Ecocycle, Mathematics and Forests, April 10, 2000.

Invited talk, Boulder Valley School District, Mathematics and the Environment, May 10, 2000.

Mentored Westminster High School student project on Game Theory and the Mathematics of

Voting, 2000–2001.

Mentored high school student project on Mathematics and Forest Ecology, 2000.

Participated in and helped organize outreach program visit to Ouray, Colorado, 1999–2000.

Participated in and help organize outreach program to Ignacio, Colorado, 2000.

Received letter of recognition from Boulder Valley Schools for support of their University–High

School Collaboration program, 1999–2001.

Received letter of recognition from Teach for America for my continuing support, 1999–2001.

Mathematical consultant (probono) for “The Salt Monument: A Global Symbol of Humanity”

by Margot Weiss, SaltMonument@hotmail.com., 2000–2001

Mentor for High School Student Dmitriy Zinchenko, for a Mathematics–National Fair project, 2001–2001.

2 oped pieces for the Daily Camera on the Environemt (one on the Judi Bari v. FBI

trial) in 2001.

3 oped pieces for the Colorado Daily in 2001. 1. The California Energy “Crisis”, 2. Economics, Forests and Fee Demo, and 3. Nuclear Waste in the Economy.

Voting delegate to the annual meeting of the Rocky Mountain Farmer’s Union, November 2001, Pueblo, Colorado.

Selected for three year term 2002–2005 on the MAA Committee on Mathematics and the

Environment.

2003-2005 Member of the Citizens for Verifiable Voting, made presentations to the Boulder County Commissioners.

(2004) I wrote some articles for newspapers and was a guest on at least one radio show. The topics dealt with were mainly academic but dealt more with environmental matters informed by mathematics.

I was a guest, February 19, 2004, on a radio show on local station KGNU, discussing various topics related to the University of Colorado.

(2004 - 2006) I am on the MAA (Mathematical Association of America) itemitem SIGMAA for the Environment and Mathematics. (Note: A SIGMAA is less formal than a committee, and organizes educational events, conferences and so on.)

Made a lengthy presentation to the student group, itemitem Rainforest Action, in the University Memorial Center, March 31, 2004.

I gave a two hour presentation titled “Mathematics and the Environment” to the First Congregational Church, Boulder, on March 7, 2004.

Participated in an environmental awareness morning regarding the use of potentially harmful herbicides being used on the Boulder Campus (2004).

Consultant, codesigner and coexhibitor (with Linda Everson) of “Trees and Fractals,” an art/math hybrid exhibit in the University Memorial Center Art Gallery, January and February, 2005.

Organized lecture/panel discussion, Jan 19, 2005, “Black Box Voting: How to Steal an Election.” The content of the presentation went into details of how mathematics/computer technology can be used to steal elections – and how to prevent this from happening.

Appointed by the Boulder County Commissioners to the Mosquito Abatement Advisory Board, reporting to the Boulder County Department of Health (2006 – 2013).

Invited participant for a workshop held during the joint Mathematical Association of America (MAA)-NJ and GSUMC (Garden State Undergraduate Mathematics Conference) spring meeting at Monmouth University, Monmouth, New Jersey on March 29, 2009. I was a long-distance participant.

Attended the First Annual Symposium on STEM Education, August 31, 2009.

Invited by BIBA (Boulder Independent Business Alliance) to be a panelist discussing creation of complementary currencies and their economic effects, July 2009.

Invited by CoPIRG Energy Service Corps to give presentation and be panelist at Boulder Public Library on the Mathematics of Energy Efficiency, January 2011.

Opinion piece for the Daily Camera: Eat and Shut Up, the controversy over GMO food, 9/22/11.

Did an interview with reporter Rachel Leder Hersch for the CU Independent on the BFA (Boulder Faculty Assembly) resolution dealing with “hate speech,” diversity and associated subjects, 2011.

Served on the Board of the Environmental Mathematics section of the Math. Association of America, 2011.

Member of the Mosquito Abatement Board, for the Boulder County Department of Public Health. Contribute knowledge of mathematical models, and other service, 2006,2007,2008, 2009, 2010, 2011.

I was the Chair of the PUEC for the promotion of Dr. Markus Pflaum to Full Professor of Mathematics, 2011-2012.

I was on the PUEC for the tenure case of Janos Englander, 2011.

I was on the PUEC for the promotion and tenure case of Nat Thiem, 2011.

Served as the Boulder Faculty Representative from the Mathematics Department, 2008-2009-2010-2011i-2012.

I was elected to serve on the Boulder Faculty Assembly Faculty Affairs Committee, 2010-2011-2012.

I was invited to be, and was accepted as, an affiliated faculty member of the Peace and Conflict Studies and 3CG Center.

I was chosen to be a delegate Boulder County \*\*\*\*\* Party Convention, and also to be a delegate to the State Assembly/Convention, 2012.

I gave a public talk: May 28, 2014: Some Mathematics of Global Warming: From Arrhenius' Law to Weatherquakes.

Member of the Mosquito Abatement Board, for the Boulder County Department of Public Health. Contribute knowledge of mathematical models, and other service, 2006,2007,2008, 2009, 2010, 2011, 2012. 2013,2014.

I serve on the PUEC for promotion to full professor of Jeanne Clelland, 2013-2014.

I serve on the PUEC for promotion to full professor of Alexander Gorokovsky, 2014-2015.

I served as the Department of Matheamtics representative to the Boulder Faculty Assembly, 2014.

I was/am Chair of the Boulder Faculty Assembly Faculty Affairs committee, 2014.

I served on the PhD Analysis Prelim Committee, Summer, 2014.

I was on the book selection committee for Calculus III.

I was a member of the Program Area Study Group concentrating on undergraduate programs in Environmental Science/Climate Science, which helped write the 2015 Curriculum Guide for the Mathematical Association of America. Member of the Mosquito Abatement Board, for the Boulder County Department of Public Health. Contribute knowledge of mathematical models, and other service, 2006,2007,2008, 2009, 2010, 2011, 2012. 2013,2014, 2015.

I am a member of the Environmental Mathematics SIG of the Math. Association of America, 2017, 2018.

I am a member of the Mosquito Abatement Board, citizen advisor, for the Boulder County Dept. of Health/Boulder County Commissioners. (2017, 2018)

I served as the Mathematics Department representative to the Boulder Faculty Assembly (2018)

I serve on the Faculty Affairs Committee of the Boulder Faculty Assembly (2018)

I serve on the Administrative Services and Technology Committee of the Boulder Faculty Assembly (2018).

I did a class visit for Farid Aliniaefard, April 23, 2018.

I did an interview on mathematics with a 9th grader as a form of outreach. (2018)

## COURSES TAUGHT:

1973 Fall	Math 110 Math 445		
1974 Spring	Math 313 Linear Algebra Math 232 Diff. Eqs. & Linear Alg.	1974 Fall	Math 637 Harmonic Anal. Math 110 Algebra–Trig.
1975 Spring	ODE Eng. A.Math 236 Math 638 Harmonic Anal.	1975 Fall	ODE Eng. A.Math 236 Math 130 Calculus
1976 Spring	Math 230 A.Math 236	1976 Fall	A.Math 135 (large section) Math 635
1976 Summer	Math 121		
1977 Spring	Math 636 A.Math 136	1977 Fall	Math 635 Functional Anal. Math 950 Independent Study A.Math 236 Diff. Eqs. & Linear Algebra
Fall 1977– Spring 1978	On leave with Sloan Fellowship	1978 Fall	A.Math 236 Math 635 Math 950
1979 Spring	A.Math 135 (large lecture) Math 636 Math 950 Independent Study	1979 Fall	A.Math 236 Math 110 (large lecture) Math 950 Independent Study
1980 Spring	(Leave: Leuven, Belgium) Graduate Course on Harmonic Analysis	1980 Fall	Math 432 Math 101 Independent Study
1981 Spring	Math 443/543 Diff. Eqs. A.Math 236 Thesis 999 Independent Study	1981 Fall	Math 635 Functional Anal. Math 110 Algebra-Trig. Thesis 999
1982 Spring	Math 135 Calculus (2 sec.) Thesis 999	1982 Fall	Differential Eqs. (Univ. of Trondheim Norway)
1983 Spring	Math 638 Harmonic Anal. Math 108 Bus. Calculus (large lecture)	1983 Fall	Math 635 Functional Anal. Math 110 (large lecture) Thesis 999
1984 Spring	Math 108 Bus. Calculus Math 636 Functional Anal. Thesis 999	1984 Fall	Fellow, Math Sci. Res. Inst. Berkeley, CA (Sabbatical leave)
1985 Spring	Math 101 Math 465 Numerical Anal.	1985 Fall	Math 465 Numerical Anal. Math 637 Harmonic Anal.

1986 Spring	Math 112 Spirit & Uses of Math. Math 638 Harmonic Analysis	1986 Fall	Math 691 Analysis Seminar Math 465 Numerical Analysis
1987 Spring	Math 443 Diff. Eqs. A.Math 235 (large lecture)	1987 Fall	A.Math 237 Honors Calculus A.S. 108 Freshman Colloq.
1988 Spring	A.Math 235 (large lecture) Math 3150 Honors Linear Algebra	1988 Fall	Math 2370 Honors Calculus Math 6230 Differential Geo. (grad)
1989 Spring	Math 6240 Diff. Geo. (course reduction)	1989 Fall	Math 2300 (large lecture) (course reduction)
1990 Spring	Math 2300 (large lecture) Math 3000	1990 Fall	A.Math 2370 Honors Calculus Math 8370 Non-Com. Harmonic Anal.
1991 Spring	Math 1300 Math 8380 Non-Com. Harmonic Anal.	1991 Fall	Math 1300, Sec. 2 Math 8330 Functional Analysis
1992 Spring	Math 2380/QRMS 2380 Math for the Environment Math 8340 Functional Analysis	1992 Fall	Math 2380/QRMS 2380
1993 Spring	Sabbatical	1993 Fall	Math 2380/QRMS 2380
1994 Spring	4310 Intro to Analysis Math 2380/QRMS 2380	1994 Fall	Math 6380 Harmonic Analysis/Wavelets Math/QRMS 2380 Math for the Environment
1995 Spring	Math 2380/QRMS 2380 Math for the Environment	1995 Fall	Math 4450 Complex Variables Math 2380/QRMS 2380
1996 Spring	Math 4130 Ord. Diff. Eqns. Math 2380/QRMS 2380	1996 Fall	QRMS/Math 2380 (Chair)
1997 Spring	Math/QRMS 2380 (Chair)	1997 Fall	QRMS/Math 2380 (Chair)
1998 Spring	Math/QRMS 2380 (Chair)	1998 Fall	Math/QRMS 2380 (Chair)
1999 Spring	Math/QRMS 2380 (Chair)	1999 Fall	Math/QRMS 2380 (Chair)
2000 Spring	Math/QRMS 2380 (Chair)	2000 Fall	Sabbatical
2001 Spring	Sabbatical	2001 Fall	Math/QRMS 2380
2002 Spring	Math/QRMS 2380 Math 8304 Topics in Analysis	2002 Fall	Math/QRMS 2380 Math 8304 Topics in Analysis (new topics)
2003 Spring	Math/QRMS 2380 Math 8304 Topics in Analysis	2003 Fall	Math/QRMS 2380 Math 6210 Intro to Topology

2004 Spring	Math/QRMS 2380	2004 Fall	Math/QRMS 2380 Math 4430 Ordinary Differential Equations
2005 Spring	Math/QRMS 2380	2005 Fall	Math/ghQRMS 2380 Math 8330 Functional Analysis
2006 Spring	Math/QRMS 2380 Calc 1300(+TSAR)	2006 Fall	Course Banking (book writing)
2007 Spring	Math 2380 Math 4510 (Probability)	2007 Fall	Math 2380 sec. 1 Math 2380 Sec. 2
2008 Spring	Sabbatical at MSRI	2008 Fall	Math 2380 Sec. 2 Math 8330 Functional Analysis
2009 Spring	Math 2380 Sec. 1 Math 3130 Linear Alg.	2009 Fall	Course Banking (book writing)
2010 Spring	Math 4450 (Complex Variables) Math 8340 Functional Analysis II	2010 Fall	Math 2380
2011 Spring	Math 4510 (Probability) Math 8330 Functional Analysis I	2011 Fall	Math 4510 Math 2380
2012 Spring	Math 2380 Math 3001	2012 Fall	Math 8330 Math 2380 (and 1 indep. study)
2013 Spring	1 indep. study course banking	2013 Fall	Math 2380 Independent Study 2014 Spring
2 indep. study	2014 Fall Math 2001 Calc III Tsar + 1 section	1 indep study	sabbatical
2015 Spring	1 indep. study Functional Analysis II Math 2380	2015 Fall	Math 3001 Math 2400 (Calc III) 2 Independent Study Students
2016 Spring	Math 3130 (Linear Algebra) Math 2380 Math for the Env	2016 Fall	Math8330 (Functional Analysis I)
2017 Spring	Math 3130 (Linear Algebra) Math 4330/5330 Fourier Analysis	2017 Fall	Math for the Environment, Math 2380
2018 Spring	Math 2400 Course Co-ordinator Taught one section	2018 Fall	Math 2400 Course Co-ordinator Taught two sections
2019 Spring	Thesis advisor/undergrad research	2019 Fall	