

## CURRICULUM VITAE

Carla Farsi

### EDUCATION:

|        |                        |      |
|--------|------------------------|------|
| Laurea | University of Florence | 1983 |
| Ph.D.  | University of Maryland | 1989 |

### EXPERIENCE:

|                     |                        |                   |
|---------------------|------------------------|-------------------|
| Teaching Assistant  | University of Maryland | 1985–87 & 1988–89 |
| Research Assistant  | University of Maryland | 1987–1988         |
| Postdoctoral Fellow | University of Toronto  | 1989–91           |
| Assistant Professor | University of Colorado | 1991–97           |
| Associate Professor | University of Colorado | 1997–2011         |
| Professor           | University of Colorado | 2011–present      |

### HONORS AND AWARDS:

- (1) *Scholarship*, CNR (Italian Research Council), 1985–1988.
- (2) *Fellowship*, University of Maryland Graduate School, 1987–88.
- (3) *Summer Support*, Graduate Student, NSF (National Science Foundation), University of Maryland, 1987 and 1989.
- (4) *Junior Faculty Fellowship*, CRCW (Council on Creative Work and Research), University of Colorado, 1992.
- (5) *Travel Grant*, Association for Women in Mathematics, 1994.
- (6) (co-PI, with J. Fox and G. Yu) *CRCW Conference Award*, 1995–1996 Special Year in Algebraic Topology and Index Theory at the University of Colorado/Boulder.
- (7) (co-PI, with J. Fox and G. Yu) *NSF CBMS (Conference Board of the Mathematical Sciences) Award*, Conference on Index Theory, Coarse Geometry and Topology of Manifolds, August 1995, University of Colorado/Boulder.
- (8) (co-PI, with J. Fox and G. Yu) *NSF Award*, Special Year in Index Theory, Coarse Geometry and Topology of Manifolds at the U. of Colorado/Boulder (including Baum Fest, a conference in honor of the 60th birthday of P. Baum), 1995–96.
- (9) AARMS (Atlantic Association for Research in the Mathematical Sciences) Scientific Panel, 2019–2022.
- (10) PI, *NSF Research Planning Grant* “Coarse Geometry, Index Theory, the Novikov Conjecture, Orbifolds and  $\mathbb{Z}_k$ -manifolds,” July 1996–December 1997.
- (11) *Invitation* to write an article for *The Mathematical Intelligencer*, 1996. Declined.
- (12) *Ph.D. Thesis Examiner*, La Trobe University, Australia, 2000.
- (13) (PI, with co-PI’s A. Ramsay and G. Yu) *CRCW Conference Award*, West Coast Operator Algebra Seminar 2002.
- (14) (PI, with co-PI’s A. Ramsay and G. Yu) *NSF 0201068*, West Coast Operator Algebra Seminar 2002.

- (15) *2005 CU Special Year in Art and Mathematics*, CU Sponsors: College of Engineering, College of Music, CU Art Museum, Dean's Fund for Excellence, Department of Art and Art History, Department of Mathematics, Vice Chancellor for Academic Affairs.
- (16) PI, *Colorado Council on the Arts Grant*, 2005 CU Special Year in Art and Mathematics 2004-2005.
- (17) PI, *UROP Team Grant*, Undergraduate Research Opportunities, Math/QRMS 1130: Mathematics in Other Cultures April 2005 Art Show.
- (18) PI, *UROP Team Grant*, Undergraduate Research Opportunities, "Celestial Ecstasy: Between Space," Core New Art Space Gallery, June 2005 Show.
- (19) Invitation to write an article for Cambridge U. based on-line *Plus Magazine*, <http://plus.maths.org/>.
- (20) Cover Image for Cambridge University based internet *Plus Magazine*, Issue 37.
- (21) *UROP Grant Supervisor*, Undergraduate Research Opportunities, Symmetries.
- (22) *NSF Review Panels*, 2006, 2010, 2020.
- (23) (PI, with co-PI's A. Gorokhovsky, J. Packer, M. Pflaum, and M. Walter) *NSF 0852527*, SM: Collaborative Research: GPOTS (Great Plains Operator Theory Symposium) Special Meetings 2009-2010-High Altitude Training for the Next Generation of Operator Theorists and Operator Algebraists, 4/1/09-3/31/11.
- (24) *CU-Boulder Team Member*, New Geometry of Quantum Dynamics, PI Piotr Hajac (IMPAN, Institute of Mathematics Polish Academy of Sciences, Warsaw).
- (25) Recommended for funding at first level review. *Fulbright Fondazione CON IL SUD*, k-graph  $C^*$ -algebras from a dynamics viewpoint, January 1 - June 30, 2017.
- (26) *AMS (American Mathematical Society) travel grant for attending MCA (Mathematical Congress of the Americas) in Montreal, July 2017*.
- (27) *Simons Foundation Collaboration Grants for Mathematicians*, Orbifolds, Singular spaces and their invariants: a  $C^*$ -algebraic approach, September 1, 2017-August 31, 2022, \$42,000.

LONG-TERM VISITS/SABBATICAL LEAVES:

Sabbatical Leave: Department of Mathematics, Copenhagen University, Denmark, Spring 1998.

Sabbatical Leave: Department of Mathematics, University of Florence, Italy, Fall 2005.

*MSRI Analysis on Singular Spaces Program Fall 2008*, Research Member, Fall 2008.

Center for Interdisciplinary Mathematical Sciences, Banaras Hindu University, Varanasi, India, September-November 2012.

Department of Mathematics, University of Florence, Italy, November-December 2012 and May-June 2013.

Sabbatical Leave: Department of Mathematics, Harish Chandra Research Institute, Allahabad, India, January-April 2013.

Week-long Visit, University of Oslo, January 2018.

Ten-day visit to the University of Nevada/Reno, March 2018.

Sabbatical visit to the University of La Sapienza, Roma, Spring 2020.

Month-long Visit, University of Oslo, March 2020. (cancelled because of Covid)

Ten-day visit to the University of La Sapienza, Roma, Summer 2022.

#### INVITED TALKS:

- (1) *University of Nebraska*, Lincoln, April 1989.
- (2) *Queen's University*, Kingston, Ontario, February 1991.
- (3) *SUNY (State University of New York)*, Buffalo, NY, April 1991.
- (4) *University of Toronto*, Canada, 1990, 1991.
- (5) *University of New Mexico*, Albuquerque, April 1992.
- (6) *Establishing a Teaching Portfolio. Symposium*, CU/Boulder, March 1995 and 1996.
- (7) *Operator Algebras International Conference*, Shanghai, July 1997.
- (8) *AMS Meetings*, Special Session, Maryland and Corvallis, 1997 (invited).
- (9) *University of Copenhagen*, April 1998.
- (10) *Summer Workshop on Geometry and Topology*, U. of Adelaide, January 2001.
- (11) *Aspects of Symplectic Geometry Workshop*, Blekinge Tekniska Högskola, Sweden, March 2001.
- (12) *Symplectic Analysis and Applications Miniconference*, U. of Colorado/Boulder, October 2001.
- (13) *Technical University of Japan*, Tokyo, August 2002.
- (14) *Operator Algebras Shanghai International Conference (ICM, International Congress of Mathematicians, Satellite)*, August 2002.
- (15) *MathFest 2003*, Session on Mathematics and the Visual Arts, Boulder, Aug. 2003.
- (16) *MAA (Mathematical Association of America) Meeting*, Session on Mathematics and the Visual Arts, Phoenix, January 2004 .
- (17) *University of Florence*, Italy, December 2004.
- (18) *University of La Coruña*, Spain, March 2006.
- (19) *University of Florence*, Italy, March 2006.
- (20) *Centro Ricerca Ennio de Giorgi, University of Pisa*, Serie Colloqui di Matematica, Cultura e Società, Italy, March 2006.
- (21) *AMS Meeting*, Special Session, Oxford OH, March 2007.
- (22) *Midwest Geometry Conference*, U. of Iowa, May 2007.
- (23) *MAV (Mathematical Association of Victoria) Annual Conference*, Australia, December 2007.
- (24) *AMS Meeting*, Special Session, San Diego, January 2008 (invited).
- (25) *AMS Meeting*, Special Session, Vancouver, CA, October 2008 (invited).
- (26) *AMS Meeting*, Special Session, San Francisco University, April 2009 (invited).
- (27) *Invitation to Attend*, Noncommutative Geometric Methods in Global Analysis: Conference in honor of Henri Moscovici, Bonn University, June 29-July 4 2009.
- (28) *International Conference on Mathematics*, Allahabad, India, January 2011.

- (29) *Workshop on “Recent developments on Orbifolds”*, Chern Institute, China, July 2011. Declined.
  - (30) Harish Chandra Institute: *Colloquium and Seminar*, Allahabad, India, Spring 2013.
  - (31) University of Florence: *Colloquium*, Florence, Italy, Spring 2013.
  - (32) Groupoidfest and AMS Special Session, St. Louis, Missouri, Fall 2013.
  - (33) Invited Talk. Satellite Conference in Geometric Analysis, Seoul, South Korea, August 2014.
  - (34) Invited Talk. Workshop on  $C^*$ -algebras: Geometry and Actions, Münster, July 13–17, 2015.
  - (35) AMS Special Session and GroupoidFest, Memphis, TN, October 2015.
  - (36) Invited 30 min talk. GPOTS 2016, University of Illinois at Urbana-Champaign, May 23-27, 2016.
  - (37) Invited Talk. Topics from Operator Theory and Applications, Memphis, April 2017.
  - (38) Invited Talk. Special Session Stringy Geometry, Mathematical Congress of Americas, Montreal, Canada July 2017.
  - (39) Invited Talk. Special Session Noncommutative Geometry and Quantization, Mathematical Congress of Americas, Montreal, Canada July 2017.
  - (40) Colloquim, University of Montana, November 2017.
  - (41) Invited Talk, New Geometry of Quantum Dynamics, January 15–19, 2018 , Warsaw, Poland.
  - (42) Invited. Lorentz Center, Workshop on Cuntz–Pimsner algebras, The Netherlands, June 25–29, 2018.
  - (43) Invited. BIRS (Banff Institute Research Station) Women in Operator Algebras, November 4–9. 2018.
  - (44) Invited. AMS Sectional Conference in Honolulu, Hawaii: Special Session on Coarse Geometry, Index Theory, and Operator Algebras, March 22-24, 2019.
  - (45) Invited. Higher rank graphs: geometry, symmetry, dynamics ICMS, The Bayes Centre, Edinburgh, UK, 15–17 July 2019.
  - (46) Contributed. IWOTA 2019, Lisbon, Portugal, July 2019.
- item Invited. The Frontier of Quantum Dynamics, Dec 9–13, 2019, Warsaw, Poland.
- (47) Invited. GPOTS 2020, Washington University, St. Louis, June 2020 (postponed because of Covid-19).
  - (48) Invited. NCGFest, Dartmouth College, August 10–14, 2020 & 2021 (both cancelled because of Covid-19).
  - (49) NCG Seminar, Remote, June 2020, Washington University, St. Louis.
  - (50) Rhodes College Undergraduates Seminar, Remote, November 2020, Rhodes College, Memphis, TN.
  - (51) Operator Algebras, Operator algebras, dynamics and groups, ICM satellite conference, 01-04 July, 2021, Copenhagen, Denmark.
  - (52) Invited. BIRS (Banff Institute Research Station) Women in Operator Algebras.

Fall 2021.

- (53) Invited. GPOTS 2022, Washington University, St. Louis, May 2022.
- (54) Invited. CBMS Guoliang Yu 2022, University, of Puerto Rico, August 2022.
- (55) Invited. Guoliang Yu's 60th Birthday Conference 2023, Washington University, St. Louis, June 2023.
- (56) Invited. Nigel Higson's 60th Birthday Conference 2023, Tokyo University, June 2023.

POST-DOCTORAL FELLOW SUPERVISION:

(with J. Packer) *Therese Basa Landry*: Fall. 2021-FALL 2022. Operator Algebras.  
(Informal Supervision)

- (1) (with J. Packer) *Elizabeth Gillaspy*: Aug. 2014-May 2016. Operator Algebras.
- (2) (with M. Pflaum) *Jordan Watts*: Aug. 2014-May 2016. Orbifolds and Singular Spaces.
- (3) (with J. Packer) *Leonard Huang*: Aug. 2016-May 2018. Operator Algebras.

C. FARSI'S INVITEES AS SEMESTER-LONG ULAM VISITORS AT CU:

- (1) Mike Field: Fall 2005. Art and Mathematics, Differential Equations.
- (2) A. Kumjian: Spring 2017. Operator Algebras.
- (3) P. Hajac: Spring 2019. Operator Algebras and Mathematical Physics.

PUBLICATIONS\*:

- [1]. *Equivariant Spin Bordism in Low Dimensions*, Top. Appl. **43 n. 2** (1992), 167–180.
- [2]. *K-Theoretical Index Theorems for Orbifolds*, Quart. J. Math., **43 n. 170** (1992), 183–200.
- [3]. *A Note on K-theoretical Index Theorems for Orbifolds*, Proc. Royal Math. Soc. Ser A, **437 n. 1900** (1992), 429–431.
- [4]. *K-Theoretical Index Theorems for Good Orbifolds*, Proc. Amer. Math. Soc., **115 n. 3** (1992), 769–773.
- [5]. (with N. Watling), *Fixed Point Subalgebras of the Rotation Algebra*, C.R. Acad. Sci. Canada **XIII** (1991), 75–80.
- [6]. (with N. Watling), *Corrigendum: Fixed Point Subalgebras of the Rotation Algebra*, C.R. Acad. Sci. Canada **13 n. 5**, 234.
- [7]. (with N. Watling), *Quartic Algebras*, Canad. Jour. of Math., **44 n. 6** (1992), 1167–1191.
- [8]. (with N. Watling), *Trivial Fixed Point Subalgebras of the Rotation Algebra*, Math. Scand., **72 n. 2** (1993), 298–302.
- [9]. (with N. Watling), *Elliptic Algebras*, J. Functional Analysis **118 n.1** (1993), 1–21.
- [10]. (with N. Watling), *Symmetrized Non-Commutative Tori*, Math. Ann. **296 n. 4** (1993), 739–741.
- [11]. *Topological Orbifolds*, Proc. Amer. Math. Soc. **119 n. 3** (1993), 761–764.
- [12]. (with N. Watling), *Cubic Algebras*, J. Operator Theory **30 n. 2** (1993), 243–266.
- [13]. (with N. Watling), *C\*-Algebras of Dynamical Systems of Quasi Rotations on the Non-Commutative Torus*, Math. Scand. **75 n.1** (1994), 101–110.
- [14]. (with N. Watling), *Abstract Characterization of Fixed Point Subalgebras of the Rotation Algebra*, Canad. J. Math. **46 n. 6** (1994), 1211–1236.
- [15]. (with N. Watling), *Fixed Point Subalgebras of Rational Higher-Dimensional Non-Commutative Tori*, Proc. Amer. Math Soc **195 n. 1** (1997), 209–217.
- [16]. *Soft Non-Commutative Toral C\*-Algebras*, Jour. Funct. Anal. **151 n. 1** (1997), 35–49.
- [17]. *Orbifold Spectral Theory*, Rocky Mountain J. Math., **31 n. 1** (2001), 215–235.
- [18]. (with N. Watling), *C\*-algebras of Dynamical Systems of Quasi Rotations on Tori.*, Rocky Mountain J. Math. **31 n. 3** (2001), 939–954.
- [19]. *Soft C\*-algebras*, Proc. Edinburgh Math. Soc. (2) **45 n.1** (2002), 59-65.
- [20]. (with Neil Watling) *Discretized C\*-Algebras*, Bolletino U. M. I. (Unione Matematica Italiana), **(8) 9-B** (2006), 697-709.
- [21]. *A Non-Commutative n-Nomial Formula*, Rocky Mountain J. of Mathematics **37 n. 5** (2007), 1527-1540.
- [22]. *An Orbifold Relative Index Theorem.*, J. Geom Phys. **57 n. 8** (2007), 1653-1668.
- [23]. *Orbifold Eta Invariants*, Indiana Univ. Math. J. **56 n. 2** (2007), 501-521.
- [24]. *Orbifold Index Cobordism Invariance*, Topology Appl. **156 n. 10** (2009), 1770–1775.
- [25]. *Dirac Operators on Non-Compact Orbifolds*, J. Geom. and Phys. **59 n. 2** (2009), 197–206.
- [26]. (with Christopher Seaton), *Nonvanishing Vector Fields on Orbifolds*, Trans. Amer. Math. Soc. **362 n. 1** (2010), 509-535.
- [27]. (with Christopher Seaton), *Generalized Twisted Sectors of Orbifolds*, Pacific J. Math. **246 n. 1** (2010), 49–74.
- [28]. (with Christopher Seaton), *Algebraic Structures Associated to Orbifold Wreath Products*, J. K-Theory **5** (2010), 1-16.
- [29]. (with Christopher Seaton), *Generalized Orbifold Euler Characteristics for General Orbifolds and Wreath Products*, Alg. & Geom. Topology **11** (2011), 523–551.

- [30]. (with Christopher Seaton), *Functional equations for orbifold wreath products*, Jour. Math. Phys. 120 (2017), 37–51.
- [31]. (with Hans-Christian Herbig and Christopher Seaton), *On orbifold criteria for symplectic toric quotients*. SIGMA Symmetry Integrability Geom. Methods Appl. 9 (2013), 33 pages.
- [32]. (with Emily Proctor and Christopher Seaton),  $\Gamma$ -extensions of the spectrum of an orbifold, Trans. Amer. Math. Soc. 366 (2014), no. 7, 3881–3905.
- [33]. (with Markus Pflaum and Christopher Seaton), *Stratifications of inertia spaces of compact Lie group actions*. J. Singul. 13 (2015), Volume in Honor of D. Trotman, 107–140.
- [34]. (with Elizabeth Gillaspy, Sooran Kang, and Judith Packer), *Separable representations, KMS states, and wavelets for higher-rank graphs*, J. Math. Anal. Appl. 434 (2016), 241–270.
- [35]. (with Elizabeth Gillaspy), *Twists over étale groupoids and twisted vector bundles*, Proc. Amer. Math. Soc. 144 (2016), no. 9, 3767–3779.
- [36]. (with Elizabeth Gillaspy, Sooran Kang, and Judith Packer), *Wavelets and graph  $C^*$ -algebras*, Excursions in harmonic analysis. Vol. 5, 3586, Appl. Numer. Harmon. Anal., Birkhauser/Springer, Cham, 2017.
- [37]. (with Elizabeth Gillaspy, Antoine Julien, Sooran Kang, and Judith Packer), *Wavelets and spectral triples for fractal representations of Cuntz algebras*, Problems and recent methods in operator theory, 103–133, Contemp. Math., 687, Amer. Math. Soc., Providence, RI, 2017.
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- [38]. (with Markus Pflaum and Christopher Seaton), *Differentiable stratified groupoids and a de Rham theorem for inertia spaces*, arXiv:1511.00371, under revision..
- [39]. (with Emily Proctor and Christopher Seaton), *Approximating orbifold spectra using collapsing connected sums*, arXiv:arXiv:1611.07676, J. Geom. Anal. 31 (2021), no. 10, 9433?9468..
- [40]. (with Piotr M. Hajac, Tomasz Maszczyk, and Bartosz Zielinski ), *Rank-two Milnor idempotents for the multipullback quantum complex projective plane*, arXiv:1803.08779, submitted.
- [41]. (with Elizabeth Gillaspy, Palle E. T. Jorgensen, Sooran Kang, and Judith Packer) Representations of higher-rank graph  $C^*$ -algebras associated to  $\Lambda$ -semibranching function systems, J. Math. Anal. Appl. 468 (2018), no. 2, 766–798.
- [42]. (with Elizabeth Gillaspy, Antoine Julien, Sooran Kang, and Judith Packer) Spectral triples and wavelets for higher-rank graphs, J. Math. Anal. Appl. 482 (2020), 39 pp.
- [43]. (with Elizabeth Gillaspy, Palle E. T. Jorgensen, Sooran Kang, and Judith Packer) Monic representations of finite higher-rank graphs, arXiv:1804.03455, Ergodic Theory Dynam. Systems 40 (2020), no. 5, 1238–1267.
- [44]. (with Elizabeth Gillaspy, Antoine Julien, Sooran Kang, and Judith Packer) Spectral triples for higher-rank graph  $C^*$ -algebras, Math. Scand. 126 (2020), no. 2, 321–338.
- [45]. (with Elizabeth Gillaspy, Palle E. T. Jorgensen, Sooran Kang, and Judith Packer) Purely atomic representations of higher-rank graph  $C^*$ -algebras, Integr. Equ. Oper. Theory (2018) 90:67 <https://doi.org/10.1007/s00020-018-2493-z>.
- [46]. (with Elizabeth Gillaspy, Nadia Larsen, and Judith Packer) Generalized gauge actions on  $k$ -graph  $C$ -algebras: KMS states and Hausdorff structure, arXiv:1807.08665, Indiana Journal of Mathematics, Univ. Math. J. 70 (2021), no. 2, 669?709..
- [47]. (with Alex Kumjian, David Pask, and Aidan Sims) Ample groupoids: equivalence, homology, and Matui’s HK conjecture, Münster J. of Math. 12 (2019), 411–451.
- [48]. (with Laura Scull and Jordan Watts) Classifying spaces and Bredon (co)homology for transitive groupoids, Proc. Amer. Math. Soc. 148 (2020), no. 6, 2717–2737.
- [49]. (with Leonard Huang, Alex Kumjian, and Judith Packer) Cocycles on certain groupoids associated to  $N^k$ -actions, Ergod. Th. & Dynam. Sys., 42 (2022), 3325–3356.

- [50]. (with Chris Seaton) Orbifold Euler characteristics of non-orbifold groupoids, *J. Lond. Math. Soc.* (2) 106 (2022), no. 3, 2342–2378..
  - [51]. (with Emily Proctor and Chris Seaton) The spectra of digraphs with Morita equivalent C-algebras, *Linear Algebra Appl.* 655 (2022), 28–64.
  - [52]. (with Daniel Goncalves and Elizabeth Gillaspy) Irreducibility and monicity for representations of  $k$ -graph  $C^*$ -algebras, submitted..
  - [53]. (with Roberto Conti) Isometries of Kellendonk-Savinien spectral triples and Connes metrics, *Internat. J. Math.* 33 (2022), no. 13, Paper No. 2250084, 26 pp..
  - [54]. (with T.B. Landry, N. Larsen, and J. Packer) Spectral Triples for Noncommutative Solenoids and a Wiener’s lemma, submitted.
  - [55]. (with F. Latrémolière and J. Packer) Convergence of inductive sequences of spectral triples for the spectral propinquity, submitted.
  - [56]. (with L. Scull and J. Watts) Bicategories of Action Groupoids, submitted.
  - [57]. (with J. Bassi, R. Conti, F. Latrémolière) Spectral Gromov-Hausdorff limits and isometries, in preparation.
- (\*) All publications either submitted or appeared are in peer refereed publications.

#### REVIEWED FOR:

Mathematical Reviews, approx. 3-4 papers a year 1991–2013; total of 73 reviews in 2013. Current reviewer.

#### GRADUATE STUDENT SUPERVISION:

- (1) *Alison Marble* (Master’s). Master’s Thesis, “ $C^*$ -algebras of Penrose Tilings.”
- (2) *Christopher Seaton* (Ph.D.): Sept. 2000-May 2004. Ph. D. Thesis, “The Gauss–Bonnet and Poincaré–Hopf Theorems For Orbifolds with Boundary.”
- (3) *Erich McAlister* (Ph.D.): Sept. 2001– May 2005. Graduation date: May 2005. Ph. D. Thesis, “Non-Commutative CW-Complexes Arising from Crystallographic Groups and their  $K$ -theory.”
- (4) *Aaron Pence* (Master’s): Aug. 2004–December 2005. Master’s Project on Crystallographic Groups.
- (5) *Ivyl Boyce, IV* (Master’s): Feb. 2006–August 2006. Master’s Project on Non-Commutative Hyperbolic Geometry.
- (6) *Jim Johanson* (Master’s): Feb. 2006–August 2006. Master’s Project on Combinatorics of Stockhausen Music.
- (7) *Masaya Sato* (Master’s): 2010–May 2011. Master’s Thesis: The  $h$ -Cobordism Theorem.
- (8) *Carlos Pinilla*, Comprehensive Ph. D. Exam Fall 2015-Spring 2016.
- (9) *Nicole Sanderson*, Ph. D. student, shared with Applied Math and CS; Graduated December 2018. Thesis: “Topological Data Analyses of Time Series Using Witness Complexes.”



## RECENT SERVICE

### NATIONAL AND INTERNATIONAL:

- (1) (with A. Gorokhovsky, M. Pflaum, J. Packer, and M. Walter) GPOTS, “*Great Plains Operator Theory Symposium*,” An International Conference, University of Colorado/Boulder, June 2–6, 2009.
- (2) (with A. Gorokhovsky, M. Pflaum, J. Packer, and M. Walter) GPOTS, “*Great Plains Operator Theory Special Year*.” Mathematical activities at CU/Boulder throughout the AY 2009-2010: Series of Lectures, a Miniconference, and Workshops. With the participation of faculty and graduate students. Additionally, our graduate students were able to attend several national and international conferences with funding through the *Great Plains Operator Theory Special Year*.
- (3) AARMS Scientific Review Panel, 2019–2022

### TO THE UNIVERSITY AND THE DEPARTMENT:

- (1) Associate Chair, *Graduate Studies*, Department of Mathematics, June 2010–May 2012.
- (2) *ASC, College of Arts & Sciences Council*, Math Department Representative Fall 2010 (substituting for Keith Kearnes).
- (3) Elected Member, *Executive Committee*, Department of Mathematics, July 2011–June 2012.
- (4) Member, *January 2012 Topology/Differential Geometry Prelim Committee*, Department of Mathematics.
- (5) Committee Member, *Graduate*, Department of Mathematics, Fall 2013–present.
- (6) Committee Member, *Math, Arts, and Humanities*, Department of Mathematics, Fall 2013.
- (7) Calculus 3 Czar (Coordinator), Department of Mathematics, Fall 2013 and 2014.
- (8) Member, *January 2014 and August 2016 and 2017 Topology/Differential Geometry Prelim Committee*, Department of Mathematics.
- (9) Elected Member, *Executive Committee*, Department of Mathematics, July 2014–June 2016.
- (10) Chair, *PUEC Committee*, Department of Mathematics, 2014-2015.
- (11) Associate Chair, *Graduate Studies*, Department of Mathematics, Spring 2015.
- (12) Chair, *Topology Hiring Committee*, Department of Mathematics, 2015-2016.
- (13) Member, *PUEC Committee*, Department of Mathematics, Fall 2016.
- (14) Member, *Functional Analysis Hiring Committee*, Department of Mathematics, 2016-2017.
- (15) Member, *Graduate Committee*, Department of Mathematics, Fall 2016-Spring 2018.

- (16) Member, *PUEC Committee*, Reappointment, Department of Mathematics, Fall 2017.
- (17) Elected Member, *Executive Committee*, Department of Mathematics, Fall 2018 and Spring 2019.
- (18) Member, *Meyer's Committee*, Department of Mathematics, Fall 2017-present. item Elected Representative, *ASC*, Department of Mathematics, Fall 2018. item Chair, *PUEC Committee*, Reappointment and Promotion to Senior Instructor, Department of Mathematics, Fall 2018. item Member, *PUEC Committee*, Department of Mathematics, Spring 2019-Fall 2019. item Chair, *PUEC Committee*, Reappointment to Instructor, Department of Mathematics, Fall 2020. item Member, *PUEC Committee*, Department of Mathematics, Spring 2021-Spring 2022. item Chair *PUEC Committee*, Department of Mathematics, Spring 2021-Spring 2022.
- (19) Elected Member, *Executive Committee*, Department of Mathematics, Fall 2021.

## TEACHING

### UNDERGRADUATE STUDENT SUPERVISION:

*Kristopher Collins* (Independent Study): Fall 2004, Spring 2005.

*Holly Mills* (UROP, Undergraduate Research Opportunity) Independent Study: Summer 2006.

University of Colorado at Boulder, Summer 2015 Undergraduate Research Mathematics Program: *N. Downey* (Poincaré conjecture) and *L. Simon* (twisted  $K$ -theory for finite groups and groupoids)

### COURSE DEVELOPMENT:

*Math/QRMS 1130*: Mathematics from the Visual Arts.

**COURSES TAUGHT RECENTLY:**

|                    |             |                                   |
|--------------------|-------------|-----------------------------------|
| Spring 2010        | M 3140-002  | Abstract Algebra I                |
| Spring 2010        | M 6240-001  | Intro to Differential Geometry II |
| Fall 2010          | M 8900-906  | Independent Study                 |
| Fall 2010          | M 6210-001  | Introduction to Topology I        |
| Fall 2010          | M 5905-001  | Math Teacher Training             |
| Fall 2010          | M 6050-906  | Master's Thesis                   |
| Spring 2011        | M 4001-001  | Analysis II                       |
| Fall 2011          | M 3001-002  | Analysis I                        |
| Fall 2011          | M 3001-003  | Analysis I                        |
| Fall 2013          | M 2400-006  | Calculus 3                        |
| Spring 2014        | M 3130-003  | Linear Algebra                    |
| Fall 2014          | M 2400-006  | Calculus 3                        |
| Fall 2014          | M6280-001   | Adv. Algebraic Topology           |
| Fall 2015          | M 3130-004  | Linear Algebra                    |
| Fall 2015          | M4200-001   | Intro to Topology                 |
| Spring 2016        | M6220-001   | Intro to Topology 2               |
| Fall 2016          | M 3130      | Linear Algebra                    |
| Fall 2016          | M 3001      | Analysis 1                        |
| Fall 2016          | M 8909      | Thesis Hours                      |
| Spring 2017        | M 6220      | Intro to Topology 2               |
| Spring 2017        | M 6220      | Intro to Topology 2               |
| Fall 2017          | M 3001      | Analysis 1                        |
| Fall 2017          | M6210       | Intro to Topologys                |
| Spring 2018        | M 3001      | Analysis 1                        |
| Fall 2018          | M6210       | Intro to Topology I               |
| Spring & Fall 2018 | M 8909      | Thesis Hours                      |
| Fall 2019          | M 2400      | Calculus 3(Sections 011 and 013)  |
| Fall 2020          | M 3430      | Ordinary Differential Equations   |
| Fall 2020          | M 4001      | Analysis II                       |
| Fall 2021          | M 6210      | Intro to Topology I               |
| Fall 2021          | M 3001      | Analysis I                        |
| Spring 2022        | M 4330/5330 | Fourier Analysis                  |
| Fall 2022          | M 6210      | Intro to Topology I               |
| Fall 2022          | M 3001      | Analysis I                        |
| Spring 2023        | M 3430      | ODE                               |

**Note:** Courses with numbers above 5000 are graduate.