Mark E. Walker

February 5, 2025

Education:

B.S (Mathematics, with Honors)	1990	New Mexico State University
M.S. (Mathematics)	1992	University of Illinois
Ph.D. (Mathematics)	1996	University of Illinois

Thesis advisor: Daniel Grayson

Professional Experience:

Visiting Assistant Professor	1996 – 1998	University of Nebraska–Lincoln
Visiting Scholar	Jan. – Mar. 1997	Northwestern University
Visiting Scholar	Sep. – Dec. 1997	Northwestern University
Visiting Scholar	Jan. – April 1999	Rutgers University
Assistant Professor	1998 – Aug. 2002	University of Nebraska–Lincoln
Associate Professor	Aug. 2002 – Aug. 2006	University of Nebraska–Lincoln
Professor	Aug. 2006 – present	University of Nebraska–Lincoln

Willa Cather Professor of Mathematics since 2014

Major Awards:

- Fellow of the American Mathematical Society (since 2020)
- UNL College of Arts and Sciences Outstanding Research and Creativity (ORCA) Award (in 2022)

Research Interests:

Algebraic K-theory, motivic cohomology, algebraic geometry, commutative algebra, non-commutative algebraic geometry

Current Ph.D. students:

Nawaj KC (joint with Jack Jeffries), Ben Katz

Former Ph.D. students:

Andrew Soto Levins (2024), Matthew Bachmann (2023), Micheal DeBellevue (joint with Alexandra Seceleanu) (2022), Erica Hopkins (joint with Alexandra Seceleanu) (2021), Eric Hopkins (2021), Amadeus Martin (2021), Nick Packauskas (joint with L. Avramov) (2019), Josh Pollitz (joint with L. Avramov) (2019), Seth Lindokken (2018), Andrew Windle (2017), Peder Thompson (2016), Michael Brown (2015), Jason Hardin (2014), Xuan Yu (2013), Olgur Celikbas (jointly supervised with Roger Wiegand) (2010), Mu-wan Huang (2009), Xuyen (Suanne) Au (2009)

Recent Funded Grants (past fifteen years):

1. NSF Grant, "Algebraic cycles, motives, and K-theory", July 2006 – June 2010, $164,173.
2. NSF, "FRG: Collaborative Research: Homotopical Methods in Algebraic Geometry" (with Aravind Asok, Eric Friedlander, Christian Haesemeyer and Chuck Weibel), June 2010 – December 2014. The total grant is about $1.5 million and UNL's portion is $175,933. (The grant was originally scheduled to end in 2013 but I got no-cost extensions.)
3. DoE GAANN Grant, August 2012 – August 2015, $666,330. I was the PI on this department-wide grant.
4. Simons Foundation, Collaboration Grant for Mathematicians, "Singularity categories, K-theory and A-infinity-algebras", September 2014 – August 2019, $35,000.
5. NSF, "Stable Cohomology: Foundations and Applications" (with Lars Christensen, Srikanth Iyengar, Sarah Witherspoon), $35,000. This is a conference grant for a workshop in Snowbird, Utah, May 28–June 1, 2018.
6. NSF, "KUMUNUJr/URICA 2012–2023". This refers to a total of 7 individual grants, averaging about $8,000 per year over this time span, to support an annual conference aimed at graduate students and post-docs in commutative algebra.
7. NSF, "KUMUNU 2019–21", August 23, 2019 – present. $38,151. This grant supported three KUMUNU conferences.
8. NSF Grant, "Free resolutions, K-theory, and dg-categories", June 1, 2019– May 31, 2022. $257,571.
9. NSF Grant, "Multiplicities of modules and complexes, and the nc Hodge conjecture" June 1, 2022 – May 31 2025. $282,638.
10. NSF RTG Grant, "Commutative Algebra at Nebraska", 2024-2028. $1,745,901.

Publications:

[1] *How Hamiltonian can a finite group be?* (with Gary J. Sherman and Thomas J. Tucker) **Archiv der Mathematik**, **57** (1991), 1-5.

[2] *Rewriteability in finite groups*; (with Gary J. Sherman and Judy L. Leavitt) **American Mathematical Monthly**, **99** (1992) No. 5, 446-452.

[3] *The primitive topology of a scheme*; **Journal of Algebra**, **201** (1998), 656–685.

[4] *Adams operations for bivariant* K*-theory and a filtration using projective lines*; **K-theory**, **21**, No. 2 (2000), 101–140.

[5] *Weight zero motivic cohomology and the general linear group of a simplicial ring*; **Journal of Pure and Applied Algebra**, **147** (2000), 311–319.

[6] *Weight one motivic cohomology and* K*-theory*; **American Journal of Mathematics**, **123** (2001), 1–35.

[7] *Function spaces and continuous algebraic pairings for varieties* (with Eric Friedlander); **Compositio Mathematica**, **125** (2001), 69–110.

[8] *Geometric models for algebraic K-theory* (with Dan Grayson); **K-theory**, **20**, No. 4 (2000), 311–330.

[9] *Semi-topological K-theory using function complexes* (with Eric Friedlander); **Topology**; **41**, Issue 3 (2002) 591–644.

[10] *Comparing K-theories for complex varieties* (with Eric Friedlander); **American Journal of Mathematics, 123** (2001), 779–810.

[11] *Some remarks concerning mod-n K-theory* (with Eric Friedlander); **Inventiones Mathematicae, 145** (2001), 545–555.

[12] *Semi-topological K-theory of real varieties* (with Eric Friedlander); **Proceedings of the International Colloquium on Algebra, Arithmetic and Geometry, Mumbai 2000, Part I** (2002); pp. 219–326.

[13] *Semi-topological K-homology and Thomason's theorem*; **K-theory**, **26** (2002), 207–286.

[14] *Rational isomorphisms between K-theories and cohomology theories*; (with Eric Friedlander); **Inventiones Mathematicae, 154** (2003) 1–61.

[15] *Thomason's Theorem for varieties over algebraically closed fields*; **Trans. Amer. Math. Soc., 356** (2004) 2569–2648 (electronic).

[16] *Techniques, computations, and conjectures for semi-topological K-theory* (with Eric Friedlander and Christian Haesemeyer); **Math. Ann.**, **330** (2004) 759–807.

[17] *Semi-topological K-theory* (with Eric Friedlander), pp. 877–924 in **Handbook of K-theory** (2005), E. M. Friedlander and D. R. Grayson editors. This is a chapter in a refereed collection on topics pertaining to K-theory and motivic cohomology.

[18] *Homology of linear groups via cycles in $BG \times X$* (with Kevin Knudson); **The Journal of Pure and Applied Algebra, 192** (2004), 187–202.

[19] *Chern classes for twisted K-theory*; **The Journal of Pure and Applied Algebra, 206** (2006), 153-188.

[20] *The morphic Abel-Jacobi map*; **Compositio Mathematica, 143** (2007), 909–944.

[21] *Sir Michael Atiyah's Einstein lecture: "The nature of space"* (with G. W. Johnson); **Notices Amer. Math. Soc.**, **53** (2006), 674–678.

[22] *A new proof of the New Intersection Theorem* (with G. Piepmeyer); **Journal of Algebra**, **322** (2009), 3366–3372.

[23] *The K-theory of toric varieties* (with G. Cortiñas, C. Haesemeyer, and C. Weibel); **Trans. Amer. Math. Soc.**, **361** (2009), 3325–3341.

[24] *Bass' NK groups and cdh-fibrant Hochschild homology* (with G. Cortiñas, C. Haesemeyer, and C. Weibel); **Inventiones Mathematica**, **181** (2010), 421–448.

[25] *The equivariant K-theory of toric varieties* (with Suanne Au and Mu-wan Huang); **The Journal of Pure and Applied Algebra**, **213** (2009), 840–845.

[26] *Hochster's Theta invariant and the Hodge-Riemann bilinear relations* (with Frank Moore, Greg Piepmeyer and Sandra Spiroff); **Advances in Mathematics**, **226** (2011) 1692–1714.

[27] *K-theory of cones of smooth varieties* (with G. Cortiñas, C. Haesemeyer, and C. Weibel), **J. Algebraic Geometry**, **22** (2013) 13–34.

[28] *A negative answer to a question of Bass* (with G. Cortiñas, C. Haesemeyer, and C. Weibel), **Proceedings of the AMS**, **139** (2011), 1187–1200.

[29] *Hochster's theta pairing and algebraic equivalence* (with Olgur Celikbas), **Math. Ann.**, **353** (2012) 359–372.

[30] *Toric Varieties, monoid schemes and cdh descent* (with G. Cortiñas, C. Haesemeyer, and C. Weibel), **Journal für die reine und angewande Mathematik** (Crelle's journal), **698** (2015) 1–54.

[31] *The vanishing of a higher codimension analog of Hochster's theta invariant* (with Frank Moore, Greg Piepmeyer and Sandra Spiroff), **Math Z. 273** (2013), no. 3-4, 907–920.

[32] *Matrix factorizations over projective schemes* (with Jesse Burke); **Homotopy, Homology, and Applications**, **14** (2012) 37–61.

[33] *Matrix factorizations in higher codimension* (with Jesse Burke), **Trans Amer. Math. Soc.**, **367** (2015) 3323–3370.

[34] *The K-theory of toric varieties in positive characteristic* (with G. Cortiñas, C. Haesemeyer, and C. Weibel). **Journal of Topology**, **7** (2014) 247–286.

[35] *On the vanishing of Hochster's theta invariant*, **Annals of K-Theory**, **2** (2017) 131–174.

[36] *Chern Characters for Twisted Matrix Factorizations and the Vanishing of the Higher Herbrand Difference*, **Selecta Math. (N.S.)**, **22** (2016), no. 3, 1749—1791.

[37] *Cyclic Adams Operations* (with Michael Brown, Claudia Miller, and Peder Thompson), **J. Pure Appl. Algebra**, **221** (2017), no. 7, 1589–1613.

[38] *Adams Operations on Matrix Factorizations* (with Michael Brown, Claudia Miller, and Peder Thompson), **Algebra and Number Theory**, **11** (2017), no. 9, 2165–2192.

[39] *Total Betti numbers of modules of finite projective dimension*, **Annals of Math. (2)**, **186** (2017), no. 2, 641–646.

[40] *The K-theory of toric schemes in mixed characteristic* (with G. Cortiñas, C. Haesemeyer, and C. Weibel), **Singularities, Algebraic Geometry, Commutative Algebra, and Related Topics: Festschrift for Antonio Campillo on the Occasion of his 65th Birthday**, 2018, edited by Gert-Martin Greuel, Luis Narváez and Sebastià Xambó-Descamps, 455–479.

[41] *Examples of finite free complexes of small rank and homology* (with Srikanth B. Iyengar), **Acta Mathematica**, **221** (2018), no. 1, 143–158.

[42] *A Chern-Weil formula for the Chern character of a perfect curved module* (with Michael K. Brown), **Journal of Non-commutative Geometry**, **14** (2020), no. 2, 709–772.

[43] *A proof of a Conjecture of Shklyarov* (with Michael K. Brown), **Journal of Non-commutative Geometry**, **16** (2022), 1479–1523.

[44] *Standard Conjecture D for Matrix Factorizations* (with Michael K. Brown). **Advances in Mathematics**, **366** (2020), 40 pages.

[45] *Adams Operations in Commutative Algebra*, in **Recent Developments in Commutative Algebra**, Springer Lecture Notes in Math., volume 2283, pages 81–116, 2021.

[46] *Maximal Cohen-Macaulay complexes and their uses: A partial survey* (with Srikanth Iyengar, Linquan Ma, and Karl Schwede). **Commutative Algebra**, 475–500, Springer, 2021.

[47] *Multiplicities and Betti numbers in local algebra via lim Ulrich points* (with Srikanth Iyengar and Linquan Ma), **Algebra & Number Theory**, Vol. 16 (2022), No. 5, 1213–1257.

[48] *Lim Ulrich sequences and Boij-Söderberg cones* (with Srikanth Iyengar and Linquan Ma), **Forum of Mathematics, Sigma**, **11**, 1–26.

[49] *Idempotent completions of equivariant matrix factorization categories* (with Michael K. Brown), **Journal of Algebra**, **634** (2023), 554–562.

[50] *The Total Rank Conjecture in Characteristic Two* (with Keller VandeBogert), to appear in **Duke Mathematical Journal**, approximately 18 pages. Preprint available at https://arxiv.org/pdf/2305.09771.pdf.

[51] *Dévissage for periodic cyclic homology of complete intersections* (with Michael K. Brown). **Annals of K-theory**, **Vol. 9, No. 2** (2024), 341–367.

[52] *Non-existence of Ulrich modules over Cohen-Macaulay local rings* (with Srikanth Iyengar, Linquan Ma, and Ziquan Zhuang), approximately 12 pages. Submitted for publication. Preprint available at https://arxiv.org/abs/2403.15566.

[53] *The Hodge structure on the singularity category of a complex hypersurface* (with Michael K. Brown), approximately 31 pages. Submitted for publication. Preprint available at https://arxiv.org/abs/2407.09988.

[54] *On the Hochschild homology of curved algebras* (with an appendix by Benjamin Briggs), approximately 35 pages. Submitted for publication. Preprint available at https://arxiv.org/abs/2408.13334v1.

[55] *Ranks of matrix factorizations and sheaf cohomology* (with Michael Brown), approximately 9 pages. Submitted for publication. Preprint available at https://arxiv.org/abs/2408.13334v1.

Talks:

Talks Presented at Conferences and Workshops:

- "The weight one motivic complex arising from the K-theory of automorphisms"; Workshop on Algebraic K-theory and Arithmetic held at the Fields Institute for Research in Mathematical Sciences, Waterloo, Ontario; March 1994.
- "Motivic complexes and the K-theory of automorphisms"; Algebraic K-theory and Homotopy Theory conference, Oberwolfach, Germany; November 1995.
- "Adams operations on a weight filtration of K-theory"; Special Session on K-theory at the American Mathematical Society Eastern Sectional Meeting, Lawrenceville, New Jersey; October 1996.
- "A filtration of K-theory and rational motivic complexes"; 3rd Annual Great Lakes K-Theory Conference, Evanston, Illinois; April 1997.
- "K-theory and weight one motivic cohomology"; Joint Summer Research Conference on Algebraic K-theory, Seattle, Washington; July 1997.
- "The primitive topology"; Special Session on K-theory and Motives at the American Mathematical Society Central Sectional Meeting, Milwaukee, Wisconsin; October 1997.
- "Interpolating algebraic and topological K-theory"; First Annual MUNUKU conference, University of Kansas, Lawrence, Kansas; September 1999.
- "Semi-topological K-theory"; Algebraic K-theory conference, Oberwolfach, Germany; September 1999.

- "Semi-topological K-theory and K-homology"; Sixth Annual Great Lakes K-Theory Conference, Toronto, Canada; March 2000.
- "Semi-topological and topological K-theory"; Special Session on Algebraic Geometry at the Fifth Joint AMS-SMM Meeting, Morelia, Mexico; May 2001.
- "Interpolating algebraic and topological K-theory"; Northwestern University Algebraic Topology Conference; Plenary Speaker; March 2002.
- "Semi-topological theories and weight filtrations"; Midwest Topology Conference in Urbana, Illinois; Plenary Speaker; April 2003.
- "On semi-topological K-theory and Lawson homology"; Conference on The Arithmetic, Geometry and Topology on Algebraic Cycles in Morelia, Mexico; Plenary Speaker; July 2003
- "The twisted total Chern class map"; Eric Friedlander's 60th Birthday Conference in Evanston, Illinois; Invited Speaker; September 2004.
- "The morphic Abel-Jacobi map"; Algebraic K-theory Conference in Montreal, Canada; October 2004.
- "The morphic Abel-Jacobi map"; Topology Workshop; SUNY-Buffalo; September 2005.
- "The morphic Abel-Jacobi map"; Motives and Periods Conference; Vancouver, Canada; June 2006.
- "The morphic Abel-Jacobi map"; UNL Department of Mathematics Colloquium, August 2006.
- "The K-theory of toric varieties"; Workshop on the Homotopy Theory of Schemes; Fields Institute; March 2007.
- "Equivariant K-theory of toric varieties"; Conference on Algebraic Cycles; Columbus, Ohio; March 2008.
- "On a question of Bass"; AMS Special Session on Algebraic K-theory and Nil groups in Algebra and Topology; Bloomington, Indiana; April 2008.
- "Algebraic K-theory of toric varieties in characteristic p"; Workshop on Algebraic K-theory and Motivic Cohomology; Oberwolfach, Germany; June 2009.
- "Introduction to Lawson Homology, I and II"; International Workshop on Motives; Tokyo, Japan; December 2010.
- "On the singularity category of a complete intersection"; K-theory and Motives Conference in honor of Andrei Suslin's 60-th Birthday; Los Angeles; March 2011.
- "Matrix factorizations in higher codimension"; Commutative Algebra and Its Interactions with Algebraic Geometry, Representation Theory, and Physics; Guanajuato, Mexico; May 2012.
- "Support for complete intersections via higher matrix factorizations"; Cohomology and Support in Representation Theory and Related Topics; Seattle; August 2012.
- "The homotopy theory of matrix factorizations"; Special Session on Homotopy Theory and Commutative Algebra, Joint Mathematics Meeting; San Diego; January 2013.
- "Chern characters for dg modules and curved modules"; Further Connections Between Algebra and Geometry Conference; Fargo, North Dakota; February 2013.
- "On the vanishing of Chern characters for matrix factorizations"; MSRI focus year on Commutative Algebra; March 2013.

- "A curved perspective on complete intersections"; Special Session on Commutative Algebra and its Environs; Ames, Iowa; April 2013.
- "The theta pairing and the linking form"; Special Session on Contemporary Trends in Algebraic Geometry and K-theory, Mathematical Congress of the Americas; Guanajuato, Mexico; August 2013.
- "On the vanishing of Hochster's theta invariant"; Workshop on Matrix Factorizations in Algebra, Geometry, and Physics; Oberwolfach, Germany; September 2013.
- "On Ext modules over complete intersection rings"; Representation theory and K-theory: a conference in celebration of the 70th birthday of Eric Friedlander; Los Angeles; May 2014.
- "Adams operations for matrix factorizations and a conjecture of Hailong Dao"; K-theory, Cyclic Homology and Motives, a conference in celebration of Weibel's 65th year; Piscataway, New Jersey; August 2015.
- "Invariants of hypersurfaces and complete intersections"; Southwest Local Algebra Meeting, San Marcos, Texas; February 2016.
- "Adams operations for matrix factorizations"; Geometric and Topological Aspects of the Representation Theory of Finite Groups, a conference in celebration of Dave Benson's 60-th Birthday, Vancouver, August 2016.
- "Tackling homological conjectures using algebraic K-theory"; Homological Conjectures in Commutative Algebra, November 2016. This was a three-hour long "workshop" talk aimed at graduate students.
- "Betti number for modules over regular local rings"; Asymptotic Phenomena in Local Algebra and Singularity Theory, Oberwolfach, December 2016.
- "On Complexes of Free Modules", KUMUNU Conference, University of Kansas, October 2017.
- "The total and toral rank conjectures", Structures on Free Resolutions Conference, Texas Tech University, October 2017.
- "On total Betti numbers of modules and complexes", New Trends in Syzygies Conference, Banff, Canada, June 2018.
- "Counter-examples in homological algebra", Morgantown Algebra Days, West Virginia University, April 2019.
- "Adams operations in commutative algebra", Recent Developments in Commutative Algebra Workshop, Trento, Italy. This was a sequence of four 60 minute lectures aimed at graduate students. July 2019.
- "Lower bounds on the homology of dg-modules over exterior algebras", DG Methods in Commutative Algebra and Representation Theory, On-line AMS Special Session (nominally in Fresno), May 2020.
- "How short can a module of finite projective dimension be?", Fellowship of the Ring seminar series, MSRI (on-line), February 2021.
- "On the cone of Betti tables for a singular ring" Special Session on Homological Methods in Commutative Algebra, On-line AMS Special Session (nominally in Omaha), October 2021.
- "On the cone of Betti tables for a singular ring", Conference on Homological Commutative Algebra and Related Topics, Savannah, Georgia, June 2022.
- "Rank Conjectures in Algebra", two hour-long talks as part of the Rank Conjectures in Algebraic Topology and Commutative Algebra Conference, Banff, Canada, September, 2022.

- "Dutta multiplicities of short complexes"; AMS Special Session on Commutative Algebra; Salt Lake City, Utah; October 2022.
- "On the (non-)existence of Ulrich modules", COMA Colloquium, SLMath (formerly MSRI), February 2024.
- "Tackling the rank conjectures in algebra and topology"; the Rank Conjectures Across Algebra and Topology Masterclass; University of Copenhagen; June 2024. This was a series of four talks.

Seminar Talks at Other Institutions:

- "A filtration of K-Theory using projective lines"; Algebra Seminar, Northwestern University; January 1997.
- "K-theory and the primitive topology"; Algebra Seminar, Northwestern University; October 1997.
- "A weight filtration of algebraic K-theory"; Topology Seminar, University of Chicago; October 1997.
- "Is there an Atiyah-Hirzebruch Spectral Sequence?"; Motivic Cohomology Seminar, University of Illinois; November, 1997.
- No official title; Motivic Cohomology Seminar, University of Illinois; July, 1998.
- "On the total Chern class map"; Algebra Seminar, Rutgers University; February 1999.
- "Semi-topological K-theory of real varieties"; Algebra Seminar, Northwestern University; October 2000.
- "Semi-topological K-theory"; Algebra Seminar, Wayne State University in Detroit, Michigan; November 2000.
- "Hochster's θ invariant and the Hodge Index Theorem", Algebra Seminar, University of Southern California, October 2008.
- "What is the K-theory of a monoid?", Topology Seminar, MIT, December 2010.
- "Invariants of matrix factorizations", Algebra Seminar, Rutgers University, March 2012.
- "Deformations of the Yoneda Algebra", Homotopy Algebras Seminar, UIC, March 2015.
- "Adams operations for matrix factorizations", Algebra Seminar, Syracuse University, October 2016.
- "The total rank conjecture", Algebra Seminar, University of Utah, May 2017.
- "The total rank and toral rank conjectures", Algebra Seminar, University of Illinois-Chicago, September 2017.
- "Conjecture D for matrix factorizations", Algebra and Algebraic Geometry Seminar, University of Wisconsin, September 2018.
- "The total rank conjecture in characteristic two", Algebra Seminar, Auburn University, December 2022.

Colloquia:

- "The morphic Abel-Jacobi map"; UNL; August 2006.
- "The K-theory of toric varieties", University of California at Los Angeles, October 2008.
- "The total and toral rank conjectures", Colloquium, University of Southern California, November 2017.
- "The total and toral rank conjectures", Colloquium, University of Nebraska, March 2018.
- "The total and toral rank conjectures", Colloquium, University of Utah, November 2018.
- "The total and toral rank conjectures", Colloquium, Auburn University, December 2021.
- "Does $x^2 + y^2 + z^2$ factor?", UNL; March 2023.
- "The total and toral Rank Conjectures", Colloquium, University of California, Santa Cruz, May 2024.

Teaching and Mentoring:

Teaching and Advising Honors:

- College of Arts and Sciences Distinguished Teaching Award; Spring 2003.
- UNL Parents Association/Student Affairs
  Certificate of Recognition for Contributions to Students award, in 2000, 2004, 2016, and 2023.
- Roger Wiegand Faculty Award; 2004. This award is presented by the graduate students of the department to one faculty member each year. (The year 2004 was the first year the award was given.)

Mentoring:

1. Teaching Mentor for Charles Tomlinson, Fall 2013–Spring 2017.
2. Teaching Mentor for John Myers, Spring 2014–Spring 2017.
3. Teaching Mentor for Neil Steinburg, 2017–2018.
4. Teaching co-Mentor for Yvonne Lai, 2016–present. (Harbourne is the other mentor.)
5. Teaching Mentor for Alexandra Seceleanu, 2016–2020.
6. Teaching Mentor for Alessandro De Stefani, 2017–2019.
7. Teaching Mentor for Nicole Buczkowski, 2020–2022.

Other Educational Activities:

1. Co-directed (Eloísa Grifo is the lead director) Senior Honors Thesis project of Kolton O'Neal, Spring 2024–2025.
2. Directed Senior Honors Thesis project of Ryan Gunderson, Fall 2012 – Spring 2013.
3. Directed two-year-long undergraduate research project of Gerard Gjonej as part UNL's UCARE program, from Fall 2000 through Spring 2002.
4. *Project NExT* Fellow. Project NExT is an organization for recent Ph.D. recipients in mathematics which facilitates the communication of teaching innovations and ideas.

Recent Service Activities:

Departmental Service:

1. Member of the Department's DEI committee, 2022–present.
2. Co-organizer of the Departments MATH 125 celebration, spring 2023.
3. Academic Program Review Coordinator; 2021–2022.
4. Chair of the Algebra Search Committee; August 2019–January 2020.
5. Chair of the ad-hoc Hiring Directions Committee; Fall 2018–Spring 2019.
6. Member of the Scientific Advising Committee/Awards Nominations Committee; 2014–present.
7. Member of Executive Committee; August 2016–August 2018.
8. Chair of Teaching Advisory Committee; Fall 2016–August 2018.
9. Chair of Tenure Track Hiring Committee, Fall 2015–Spring 2016.
10. Served on Algebra Hiring Committee, Fall 2014–Spring 2015.
11. Chair of the GAANN Steering Committee, January 2012–2016.
12. Member of Graduate Advisory Committee; 2001–2004, 2005–2008, and 2012–2015.
13. Graduate Recruiting Chair; Fall 2001–Spring 2004, Fall 2005–Spring 2008 and Fall 2012–Spring 2015.
14. Member of Teaching Advisory Committee; Fall 2008–2016.

College Service:

- Served on Space Committee, Fall 2019.
- Served on College Promotion and Tenure Committee, Fall 2013–Spring 2016.

University Service:

- Served on UNL Graduate Council, Fall 2007– Spring 2011.
- Reviewer for Dean's Award for Excellence in Graduate Education, 2009.
- Served on UNL Research Council, Fall 2006–Spring 2009. Served as Chair of this committee, Fall 2008–Spring 2009.
- Panelist for the review of the EPSCOR applications, November 2008.
- Reviewer for 2008 Outstanding Graduate Research Assistant. (Work done in 2007.)

Conference Organization:

1. Co-organizer of an American Mathematical Society, Central Section, Special Session on *K-theory and Motivic Cohomology*, at DePaul University, Chicago, Illinois; September, 1998.

2. Co-organizer of an American Mathematical Society, Central Section, Special Session on *K-theory and Algebraic Cycles*, at University of Nebraska–Lincoln; October, 2005.

3. Co-organizer (with Avramov and Iyengar) conference *Homotopy Theory and Its Applications* at University of Nebraska–Lincoln; April 2009. This was companion conference to the 2009 Rowlee Lecture delivered by Michael Hopkins, which I also organized.

4. Co-organizer of *Homotopical methods in Algebraic Geometry* (with Aravind Asok, Eric Friedlander, Christian Haesemeyer, and Chuck Weibel); USC; May 2013.

5. Co-organized *Stable Cohomology: Foundations and Applications* (with Lars Christensen, Srikanth Iyengar, and Sarah Witherspoon); Snowbird, Utah; June 2018.

6. Co-organized *KUMUNU 2019* (with Tom Marley); Lincoln, NE; September 2019.

7. Co-organized *KUMUNU 2021* (with Tom Marley); Lincoln, NE; May 2022. (It was held in 2022 due to a Covid-related postponement.)

8. Co-organized *KUMUNU 2022* (with Tom Marley); Lincoln, NE; October 2022.

9. Co-organized *Celebrating MATH 125* (with Jim Lewis, Brian Harbourne, Dabid Pitts); Lincoln, NE; April 2023.

10. Co-organized *What, where, and for what purpose is the mathematics in mathematics teacher education* (aka *JimFest*) (with Yvonne Lai, Allan Donsig, Judy Walker, Beth Lewis), Lincoln, NE; May-June 2024.

11. Co-organized *Betti numbers in commutative algebra and equivariant homotopy theory* (with Markus Hausmann, Claudia Miller, Marc Stephan); Bielefeld, Germany; September 2024.