Penn State University, Greater Allegheny Campus linkn@psu.edu

4000 University Drive

McKeesport, PA 15132 http://sites.psu.edu/kul20/

Room 201H, Frable Building

Education

Purdue University	Mathematics Ph.D.	August 2010

Professional Appointments

Penn State Greater Allegheny	Associate Professor	July 2020-current
Penn State University	Graduate Faculty	July 2019-current
Penn State Greater Allegheny	Assistant Professor	July 2014-July 2020
Smith College	Visit. Assistant Professor	July 2013-June 2014
University of California, Riverside	Visit. Assistant Professor	September 2010-June 2013

Research Interests Commutative Algebra, Algebraic Geometry, and Combinatorics

Awards

1.	University College Faculty Council Teaching Award	Penn State	2023
2.	Excellent Teaching Award	MAA Allegheny Mountain	2022
3.	Affordable Course Transformation Grant	Penn State	2018
4.	Faculty Teaching Award	Penn State GA	2018
5.	Engineering Technology Enhancement Grant	Penn State	2017

Travel/Collaboration Grants

1.	Summer Research in Mathematics	SLMath	2024
2.	AWM Conference Travel Grant, WICA II	Trento, Italy	2023
3.	AMS JMM PUI Travel Grant	Boston	2023
4.	AWM JMM Travel Grant	Boston	2023
5.	International Congress of Mathematicians Travel Grant	St. Petersburg, Russia	2022*
6.	Collaborate@ICERM	ICERM	2022
7.	AMS JMM PUI Travel Grant	Seattle	2022*
8.	Research in Groups	ICMS, UK	2020*
9.	Summer Collaborators program	IAS	2020*
10.	Summer Research in Mathematics	MSRI	2020*
11.	Banff International Research Station Travel Grant	Banff, Canada	2019
12.	Summer Research for Women in Mathematics	MSRI	2019
13.	AMS-Mathematical Congress of the Americas Travel Grant	Montreal, Canada	2017
14.	BIRS-CMO Workshops Travel Grant	Oaxaca, Mexico	2017
15.	MSRI Workshops Travel Grant	MSRI, Berkeley	2012,13
16.	AMS-MRC Research Travel Grant	U. of Notre Dame	2012
17.	AWM-NSF Mentoring Travel Grant	U. of Notre Dame	2011,12

*: rescheduled or cancelled

Research Publications

1. Rees Algebra of Sparse Determinantal Ideals, with E. Celikbas, E. Dufresne, L. Fouli, E. Gorla, C. Polini, and I. Swanson, Transactions of the American Mathematical Society, https://doi.org/10.1090/tran/9101.

2. Rees Algebras of Unit Interval Determinantal Facet Ideals, with A. Almousa and W. Liske, Journal of Pure and Applied Algebra Vol. 228, No. 05 (2024), 107601. https://doi.org/10.1016/j.jpaa.2023.107601

3. Multi-Rees Algebras of Strongly Stable Ideals, with S. Kara and G. Sosa, Collectanea Mathematica Vol. 75, (2024) 213-246.

4. Regularity and Multiplicity of Toric Rings of Three-dimensional Ferrers Diagrams, with Y.-H. Shen, Journal of Algebraic Combinatorics Vol. 57 (2023) 1073-1101

5. Symbolic Powers and Free Resolutions of Generalized Star Configurations of Hypersurfaces, with Y.-H. Shen, Michigan Mathematical Journal Vol. 73 (2023) 33-66.

6. Blow-up algebras of secant varieties of rational normal scrolls, with Y.-H. Shen, Collectanea Mathematica Vol. 74 (2023) 247-278.

7. Fiber cones of rational normal scrolls are Cohen-Macaulay, with Y.-H. Shen, Journal of Algebraic Combinatorics Vol. 56, (2022) 547-563.

8. Lattices and Hypergraphs Associated to Square-Free Monomial Ideals, with S. Mapes, Communications in Algebra Vol. 50 (2022) 4710-4724.

9. Toric Ideals of Weighted Oriented Graphs, with J. Biermann, S. Kara, and A. O'Keefe, International Journal of Algebra and Computation, Vol. 32, No. 02 (2022) 307-325.

10. Symbolic powers of generalized star configurations of hypersurfaces, with Y.-H. Shen, Journal of Algebra, Vol. 593, (2022) 193-216.

11. Algebraic Invariants of Weighted Oriented Graphs, with J. Biermann, S. Kara, and A. O'Keefe, Journal of Algebraic Combinatorics Vol. 55, (2022) 461-491.

12. Projective Dimension of Hypergraphs, with S. Mapes, Women in commutative algebra, 369-398, Assoc. Women Math. Ser., 29, Springer, Cham, 2021.

13. On the Conjecture of Vasconcelos for Artinian Almost Complete Intersection Monomial Ideals, with Y.-H. Shen, Nagoya Mathematical Journal, Vol. 243, (2021) 263-277.

14. Generalized Newton Complementary Duals of Monomial Ideals, with K. Ansaldi and Y.-H. Shen, Journal of Algebra and Its Applications, Vol. 20, No. 2 (2021).

15. Multi-Rees Algebras and Toric Dynamical Systems, with D. Cox and G. Sosa, Proceedings of the American Mathematical Society, Vol. 147, No. 11 (2019) 4605-4616.

16. Edge Ideals of Oriented Graphs, with T. Hà, S. Morey, E. Reyes, and R. Villarreal, International Journal of Algebra and Computation Vol. 29, No. 3 (2019) 535-559 .

17. Koszul Blow-up Algebras Associated to Three-dimensional Ferrers Diagrams, with Y.-H. Shen, Journal of Algebra, Vol. 514 (2018) 219-253.

18. Hypergraphs with High Projective Dimension and 1-dimensional Hypergraphs, with P. Mantero, International Journal of Algebra and Computation, Vol. 27, No. 6 (2017) 591-617.

19. Cohen-Macaulayness of Rees Algebra of Modules, Communications in Algebra, Vol. 44 (2016) 3673-3682.

20. Projective Dimension of String and Cycle Hypergraphs, with P. Mantero, Communications in Algebra, Vol. 44 (2016) 1671-1694.

21. Normal 0-1 Polytopes, with T. Hà, SIAM Journal on Discrete Mathematics, Vol. 1 No. 1 (2015) 210-223.

22. Rees Algebras of Square-Free Monomial Ideals, with L. Fouli, Journal of Commutative Algebra, Vol. 7, No. 1 (2015), 25-54.

23. Cohen-Macaulayness of Rees Algebras of Diagonal Ideals, Journal of Commutative Algebra, Vol. 6, No. 4 (2014), 3561-586.

24. Rees Algebras of Diagonal Ideals, Journal of Commutative Algebra, Vol. 5, No. 3 (2013), 329-475.

25. Rees Algebras of Truncations of Complete Intersections, with C. Polini, Journal of Algebra, Vol. 410 (2014) 36-52.

26. Hypergraphs and Regularity of Square-Free Monomial Ideals, with J. McCullough, International Journal of Algebra and Computation, Vol. 23, No. 7 (2013) 1573-1590.

Submitted

27. Regularities and multiplicities of Veronese type algebras, with Y.-H. Shen, 2023.

28. On Cohen–Macaulay modules over the Weyl algebra, with J.-C. Hsiao, 2023.

Articles in progress

29. Normality of Weighted Oriented Graphs, with J. Biermann, S. Kara, and A. O'Keefe.

30. Rees Algebras of Almost Complete Intersection Determinantal Facet Ideals, with A. Almousa and W. Liske.

31. Multi-Rees Algebras of Lexsegment Ideals, with A. Costantini, and G. Sosa.

Other Publications

1. Summer Research in Mathematics at MSRI, with A. O'Keefe, AMS notice December 2021, 1915-1917.

2. Matrices, Interactive Videos, and Pressbooks, https://psu.pb.unizin.org/psumath220lin/, 2018

3. Differential Equations, Interactive Videos, and Pressbooks, https://psu.pb.unizin.org/differentialequations/, 2022

4. Multivariable Calculus, Interactive Videos, and Pressbooks, https://psu.pb.unizin.org/psumath230lin/, 2023

Recent Invited Conference and Seminar Talks

1.	WICA II workshop Group Leader	Trento, Italy	Oct. 2023
2.	Algebra Seminar	New Mexico State	Apr. 2023
3.	Number Theory Seminar	NTNU Taiwan	Mar. 2023
4.	Department of Mathematical Colloquium	NTHU Taiwan	Mar. 2023
5.	Department of Mathematical Colloquium	NCKU Taiwan	Mar. 2023
6.	Combinatorial Number Theory Seminar	UC Riverside	Feb. 2023
7.	JMM, AWM WICA workshop	Boston	Jan. 2023

8.	Algebra, Combinatories, and Geometry Seminar	University of Pittsburgh	Nov. 2022
9.	Algebraic Geometry Seminar	Cornell University	Oct. 2022
10.	Department of Mathematical Colloquium	Colgate University	Oct. 2022
11.	Algebra Seminar	Syracuse University	Oct. 2022
12.	AWM Research Symposium	University of Minnesota	Jun. 2022
13.	Inspiring Talks by Mathematicians	Virtual	Apr. 2022
14.	AMS-Special Section	Purdue University	Mar. 2022
15.	AMS-Special Section	Tufts University	Mar. 2022
16.	Joint Mathematics Meeting Special Session	Seattle	Jan. 2022*
17.	MAA Allegheny Mountain Colloquium Talk	Virtual	Sept. 2021
18.	AMS-Special Section	University of Cincinnati	Apr. 2021
19.	Department of Mathematical Colloquium	West Virginia University	Oct. 2020
20.	AMS-Special Section	University of Texas at El Paso	Sept. 2020
21.	AMS-Special Section	Purdue University	Apr. 2020 *
22.	Department of Mathematical Colloquium	University of Nebraska	Mar. 2020
23.	Algebra Seminar	Iowa State University	Mar. 2020
24.	Department of Mathematical Colloquium	University of Vermont	Feb. 2020
25.	Joint Mathematics Meeting Special Session	Denver	Jan. 2020
26.	Department of Mathematical Colloquium	University of South Alabama	Nov. 2019
27.	MSRI-NCTS Graduate Summer School	NCTS, Taipei	July. 2019
28.	AWM Research Symposium	Rice University	Apr. 2019
29.	Graduate Workshop in Commutative Algebra for Women and Mathematicians of Other Minority Genders	University of Minnesota	Apr. 2019
30.	Algebra Seminar	McMaster University	Mar. 2019
31.	Department of Mathematical Colloquium	Colgate University	Feb. 2019
32.	Department of Mathematical Colloquium	SUNY New Paltz	Jan. 2019
33.	Commutative Algebra and Representation Theory	Tulane University	Nov. 2018
34.	Route 81 Conference	Syracuse University	Sept. 2018
35.	Department of Mathematical Colloquium	UC, Riverside	Apr. 2018
36.	Department of Mathematical Colloquium	Dalhousie University	Mar. 2018
37.	Algebra, Combinatorics, and Geometry Seminar	University of Pittsburgh	Feb. 2018
38.	Combinatorial Algebra meets Algebraic Combinatorics	McMaster University	Jan. 2018
39.	Route 81 Conference	Cornell University	Oct. 2017
40.	Mathematical Congress of the Americas	Montreal, Canada	Jul. 2017
41.	Commutative Algebra Seminar	Purdue University	Mar. 2017
42.	Commutative Algebra and Algebraic Geometry Seminar	University of Notre Dame	2012, 2016
43.	Route 81 Conference	Syracuse University	Sept. 2016

*: rescheduled or cancelled due to covid-19

Graduate Students, Co-Advisor

1.	Katie Ansaldi	University of Notre Dame	2014-2016
2.	Ayah Almousa	Cornell University	2019-2021

Undergraduate Research

1.	Caitlin Grabowski	The hunter and the hunted (research award)	2022
2.	Tursunpulat Orolov	Analysis of the use of matrices in image processing (STEM research award)	2021
3.	Joshua Ritter	Orbit Modeling With Mathematica	2020
4.	Xiaoyang Guo and Tylor Patterson	Exploration on 3D Tensor Operations and Applications (research award)	2019
5.	Werner Hager and Zihiu Xie	Analysis of PageRank	2019
6.	Alex Van Hulten	NASA and Origami Mathematics	2019
7.	Alex Van Hulten	Modeling Rockets with Calculus	2018
8.	Bowei Lin	Modeling 3D Trophy with Mathematica (creative award)	2018
9.	Jackson Buchko	Calculus and Cooling Towers (substantial award)	2018
10.	Bowei Lin	Create Animation with Mathematica	2018
11.	Fernando Leira Cortel	Solving ODEs with Neural Networks (research award)	2018
12.	David Lengel	Survival of the Spotted Owls	2017
13.	Jeffery Hawke	Using Matrices for Data Encryption	2017
14.	Sam Cabot	Golden Gate Bridge	2017
15.	Shenglong Zhang	Mathematica and 3D prints	2017
16.	Ashley Brandon	Kepler's Laws of Planetary Motion	2016

Professional Activities

1.	Chair	AMS Archives Committee	2024-2025
2.	President	AAUW Pittsburgh	2023-
3.	Committee	MAA Council on Sections	2023-
4.	Coordinator	MAA Allegheny Mountain Section Next	2023-
5.	Committee	AWM Education and Outreach Portfolio	2023-
6.	Editor	2022 AWM Research Symposium Proceeding	2023-
7.	Chair	AWM Mentor Network Committee	2023-
8.	Organizer	MAA Sectional Conference Career Panel	2022-2023
9.	Chair	MAA Sectional Teaching Award Committee	2022-2023
10.	Committee	AWM Travel Grant Selection Committee	2022-2026
11.	Associate Editor	Journal of Algebra Combinatorics Discrete Structures and Applications	2022-
12.	Committee	AMS Archives Committee	2022-2025
13.	Committee	MAA Allegheny Mountain Section Nomination Committee	2022-2024
14.	Co-organizer	Celebration of Women in Mathematics With Penn State, Penn State University Park	2021-2022

15. Committee	Celebration of Women in Mathematics, MSRI	2021-2023
16. Co-organizer	Fall Western Sectional Meeting of AMS, special section: Hyperplane arrangements in connection with commutative algebra (with F. Galetto)	2021
17. Vice Chair	MAA Allegheny Mountain Section	2021-2023
18. Committee	AWM Mentor Network Committee	2021-2024
19. Co-organizer	Fall Eastern Sectional Meeting of AMS, special section: Commutative Algebra and Connections to Algebraic Geometry and Combinatorics (with A. Almousa)	2020
20. Committee	MAA Allegheny Mountain Section Mentor Award Committee	2019-2020
21. Co-organizer	Spring Central Sectional Meeting of AMS, special section: Current Trends in Combinatorial Commutative Algebra (with A. O'Keefe)	2020
22. T.A.	MSRI, Summer Graduate School, Toric Varieties, Taipei, Taiwan	2019
23. T.A.	Center for Mathematics, Notre Dame, Undergraduate Workshop	2019
24. Co-organizer	Spring Central Sectional Meeting of AMS, special section: Commutative and Combinatorial Algebra (with J. Biermann)	2018
25. Moderator	MAA Spring Sectional Meeting at Duquesne University	2017
26. Co-facilitator	Pennsylvania Mathematics Initiative workshop for K-6 teachers at Penn State Greater Allegheny (with B. Lindsey)	2016-2017
27. Co-organizer	Southeastern Spring Sectional Meeting of the AMS, special section: Combinatorial and Computational Algebra (with T. Hà and A. O'Keefe)	2016
28. Co-organizer	Western Fall Sectional Meeting of the AMS, special section: Commutative Algebra and its Interaction with Algebraic Geometry and Combinatorics (with P. Mantero)	2013
29. Co-organizer	JMM at San Diego, AMS special section: Commutative Algebra and Algebraic Geometry (with T. Hà)	2013
30. Co-organizer	Topic of Commutative Algebra Seminar, University of California, Riverside (with J. McCullough)	2010-2013

Math Mentoring Activities

1. Interviewee	Essays for the Association for Women in Math contest	2022-2023
2. Judge	AMS Undergraduate Research Poster, Joint Mathematics Meeting	2023
3. Judge	AWM Graduate Research Poster, Joint Mathematics Meeting	2019,2023
4. Judge	Undergraduate Research Poster, Mathematical Congress of the Americas	2017,2023
5. Judge	Essays for the Association for Women in Math contest	2017-2022
6. Judge	Undergraduate Research Poster, Mathematical Congress of the Americas	2017,2023
7. Coach	Putnam Team for University of California, Riverside	2011, 2012

| 8. | Judge | Undergraduate Research and Poster Symposium, Purdue | 2009 |
| 9. | Mentor | Association for Women in Mathematics | 2011- |

Co-curricular Mathematics Activities

1.	Judge	SCUDEM VII 2022 - Modeling with Differential Equations	2022
2.	Presenter	Math Club, California University Pennsylvania	2021
3.	Co-organizer	Challenge Day at Penn State Greater Allegheny	2019
4.	Co-organizer	Engineer Day, Chemistry Day at Penn State Greater Allegheny	2018, 2019
5.	Co-organizer	STEM Day at Penn State Greater Allegheny	2017, 2018
6.	Co-organizer	Pi Day at Penn State Greater Allegheny	2017, 2018
7.	Faculty	Math Happy Hours at Penn State Greater Allegheny	2015
8.	Speaker	Math Club at University of California, Riverside	2012
9.	Coach	Putnam Team for University of California, Riverside	2011, 2012

Outreach

1.	Judge	KidWind Challenge	2023
2.	Panelist	SheSTEM career	2023
3.	Speaker	Math and coding, Steeler City Code	2023
4.	Speaker	STEM career, Upper St. Clair High School	2023
5.	Speaker	Girls Empowered by Math	2021
6.	Speaker	Origami and NASA for Streams elementary school students	2018
7.	Speaker	Career Day for Fort Couch Middle School students	2018-2023
8.	Co-organizer	Summer STEM Program for Middle School Girls at Penn State Greater Allegheny	2017-2018
9.	Co-organizer	STEM Day for Middle School at Penn State Greater Allegheny	2017-2018
10.	Co-organizer	Pi Day for Middle School at Penn State Greater Allegheny	2017-2018
11.	Faculty	3D Prints for Visually Impaired Students at Penn State Greater Allegheny	2017-2018
12.	Co-organizer	Pennsylvania Mathematics Initiative workshop for K-6 teachers at Penn State Greater Allegheny	2016-2017
13.	Faculty	Francis McClure ACE Visit for Elementary School Students Studying Chinese at Penn State Greater Allegheny	2015-2019

Curriculum/Instructional Development.

1.	Presenter	What Works for Remote Teaching, Schreyer Institute for Teaching Excellence	2020
2.	Speaker	Active Learning Strategies for Remote Teaching, MAA Section Next	2020
3.	Speaker	Flipped-Classroom, MAA Section Next	2019
4.	Speaker	Pressbook, Penn State Teaching, Learning, Techniques	2019
5.	Speaker	Digital fluency, Penn State Greater Allegheny	2019, 2020
6.	Consultant	Penn State Senate Committee on Curricular Affairs, Math Division	2018-
7.	Member	Math Academic Support Curriculum Development	2018-

8.	Mentor	Flipped-Classroom, Plickers(clickers), Live Student Work Sharing Using iPad	2017-
9.	Developer	Initiate Flipped-Classroom, Plickers(clickers), Live Student Work Sharing Using iPad, and Video Recording in the Classroom	2015-
10.	Developer	Initiate Learning Assistants in the Math Classroom	2015-
11.	Developer	Initiate Peer Mentor Between Calculus I and III students	2015-

Teaching Experience

1.	Mathematica and Space Motion Model	Penn State, GA	2020Spring
2.	NASA and Origami Mathematics	Penn State, GA	2019Spring
3.	Diff. Equations	Penn State, GA	5 times
4.	Mathematica and 3D Prints	Penn State, GA	2017Spring
5.	Learning Assistants in Mathematics	Penn State, GA	8 times
6.	Calculus III	Penn State, GA	7 times
7.	Matrices	Penn State, GA	7 times
8.	Calculus I	Penn State, GA	3 times
9.	Calculus II	Penn State, GA	19 times
10.	Calculus III	Smith College	2014Spring
11.	Intro. Discrete Mathematics	Smith College	2014Spring
12.	Calculus I	Smith College	2013Fall
13.	Topics in Number Theory	Smith College	2013Fall
14.	Modern Algebra	UC, Riverside	2013Spring
15.	Senior Reading Course	UC, Riverside	2012Fall
16.	First-Year Calculus II	UC, Riverside	4 times
17.	Honor First-Year Calculus II,III	UC, Riverside	2 times
18.	Intro. Theory of Numbers	UC, Riverside	2012Spring
19.	Geometry	UC, Riverside	2011Fall
20.	First-Year Calculus I	UC, Riverside	2 times
21.	First-Year Calculus III	UC, Riverside	3 times
22.	Ordinary Diff. Equations	UC, Riverside	2 times
23.	Intro. College Math	UC, Riverside	2 times

Campus/University Service

1.	Committee	Graduate Council on Fellowships and Awards	2023-2024
2.	Committee	Schreyer Honor College Admission	2022-2024
3.	Committee	Teaching International	2023-2024
4.	Observer	Peer review teaching, Penn State New Kensington	2022
5.	Judge	Erickson Discovery Grants Judging	2022
6.	Chair	Academic Affair	2021-2022
7.	Committee	Faculty Senate Council	2019-2022

8.	Committee	Student Fee	2020-2022
9.	Chair	Faculty Affair	2019-2021
10.	Committee	Green Team Penn State Greater Allegheny	2019-2021
11.	Committee	First Generation Penn State Greater Allegheny	2018-2019
12.	Committee	Curriculum Committee	2017-
13.	Search Committee	Math Instructor	2018
14.	Committee	International Students Recruitment	2017
15.	Search Committee	Engineer Instructor	2017
16.	Committee	Women in STEM	2016-2017
17.	Committee	International Students Fee	2016
18.	Committee	Faculty Affair	2015-2017

Professional Development Workshops Attended

1.	Inclusive Active Learning in Undergraduate Mathematics	JMM	2023
2.	Equitable Teaching Practices Penn State Schreyer teaching institution	virtual	2022
3.	Closing the Calculus Equity Gap Webinar Learning Lab	virtual	2021
4.	Park City Mathematics Institute Undergraduate Faculty Program	virtual	2021
5.	MAA Virtual Programming Transforming Learning and Teaching: Precalculus, Calculus, and Linear Algebra	virtual	2021
6.	MAA Virtual Programming Enhance Your Differential Equations Course with Modeling	virtual	2021
7.	MAA Section Next Combatting cheating in the college classroom	virtual	2021
8.	Accessibility	Penn State	2018
9.	Pressbooks, Hypothesis and H5P Orientation	Penn State	2018
10.	MAA Section Next Student Engagement and Effective Ways to Grade	Grove City College	2017
11.	Western Region Faculty Development Event Experiential Digital Global Engagement	Penn State Beaver	2017
12.	MAA Section Next Introduce to MAA's publications	Duquesne University	2017
13.	Math Faculty Meeting Penn State math division faculty annual meeting	Penn State UP	2015-2019
14.	Pennsylvania Mathematics Initiative Learn to facilitate the professional development program for teachers	Penn State UP	2015

15. Western Region Faculty Development Event Teaching and Learning with Technology Penn State University	Penn State Beaver	2014
16. Faculty Learning Communities Monthly meeting discussing flipped classroom	Smith College	2013-2014
17. Preparing Future Faculty Weekly meeting on topics of the faculty role in the university	Purdue University	2009

Memberships

American Mathematical Society, Association for Women in Mathematics, Mathematical Association of America, and American Association of University Women.