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## EMPLOYMENT

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**Simons Laufer Mathematical Sciences Institute** 2024  
*Postdoctoral Fellow*

**University of Arkansas** 2020-2023  
*Visiting Assistant Professor*

## EDUCATION

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**Ph.D. Mathematics** 2015-2020  
*University of Kansas*  
Advisor: Hailong Dao  
Thesis: Homological Properties of Structures in Commutative Algebra and Algebraic Combinatorics

**M.A. Mathematics** 2013-2015  
*Wake Forest University*  
Advisor: Frank Moore  
Thesis: Noncommutative Complete Isolated Singularities

**B.S. Mathematics (magna cum laude)** 2009-2013  
*Berry College*

## PUBLISHED AND ACCEPTED WORKS

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- [1] J. Lyle, J. Montaña, K. Sather-Wagstaff, Exterior powers and Tor-persistence, *Journal of Pure and Applied Algebra* (2022), <https://www.sciencedirect.com/science/article/pii/S0022404921002310>
- [2] B. Holmes, J. Lyle, Rank selection and depth conditions for balanced simplicial complexes, *Electronic Journal of Combinatorics* (2021), <https://www.combinatorics.org/ojs/index.php/eljc/article/view/v28i2p28>.
- [3] J. Lyle, J. Montaña, Extremal growth of Betti numbers and trivial vanishing of (co)homology, *Transactions of the American Mathematical Society*, Volume 373 (2020), pp. 7937-7958. <https://www.ams.org/journals/tran/0000-000-00/S0002-9947-2020-08189-6/>
- [4] T. Kobayashi, J. Lyle, R. Takahashi, On the number of indecomposable Cohen–Macaulay modules which are not locally free on the punctured spectrum, *Journal of Pure and Applied Algebra*, Volume 224 (2020) no. 7. <https://www.sciencedirect.com/science/article/pii/S0022404920300086>
- [5] H. Dao, J. Doolittle, K. Duna, B. Goeckner, B. Holmes, J. Lyle, Higher nerves of simplicial complexes, *Algebraic Combinatorics*, Volume 2 (2019) no. 5, pp. 803-813. [https://alco.centre-mersenne.org/item/ALCO\\_2019\\_\\_2\\_5\\_803\\_0](https://alco.centre-mersenne.org/item/ALCO_2019__2_5_803_0)
- [6] H. Dao, M. Eghbali, J. Lyle, Hom and Ext, revisited, *Journal of Algebra*, Volume 571 (2019), pp. 75-93. <https://doi.org/10.1016/j.jalgebra.2018.12.006>.

- [7] H. Dao, J. Doolittle, J. Lyle, Minimal Cohen-Macaulay simplicial complexes, *SIAM J. Discrete Math.* (2020), 34(3), 1602-1608. (7 pages) <https://epubs.siam.org/doi/abs/10.1137/19M1275164>

## SUBMITTED WORKS

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- [1] J. Lyle, Generalized Trace Submodules and Centers of Endomorphism Rings, preprint (2023),
- [2] K. Kimura, J. Lyle, Y. Otake, R. Takahashi, On the vanishing of Ext modules over a local unique factorization domain with an isolated singularity, preprint (2023), <https://arxiv.org/abs/2310.16599>.
- [3] J. Lyle, Endomorphism algebras over commutative rings and torsion in self tensor products, preprint (2023), <https://arxiv.org/abs/2310.14134>.
- [4] E. Celikbas, O. Celikbas, J. Lyle, R. Takahashi, Y. Yao, On a generalization of Ulrich modules and its applications, preprint (2023), <https://arxiv.org/abs/2308.06606>.

## TEACHING

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### University of Arkansas

- Math 3083 (Linear Algebra), Spring 2023
- Math 2043 (Survey of Calculus), Fall 2021, Spring 2022, Fall 2022
- Math 2564 (Calculus II), Fall 2020, Spring 2021

### University of Kansas

- Math 126 (Calculus II), Recitation Instructor, Spring 2019
- Math 104 (Precalculus), Instructor, Fall 2016, Fall 2018
- Math 115 (Applied Calculus), Instructor, Fall 2017, Spring 2018
- Math 127 (Calculus III), Recitation Instructor, Spring 2017

### Wake Forest

- Math 121 (Linear Algebra), Teaching Assistant, Spring 2015
- Math 117 (Discrete Mathematics), Teaching Assistant, Fall 2014
- Math 113 (Multivariable Calculus), Teaching Assistant, Spring 2014
- Math 111 (Calculus I), Teaching Assistant, Fall 2013

## AWARDS

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### Paul F. Conrad Scholarship

2019

University of Kansas

Awarded annually to one or two mathematics graduate students for academic merit

### Chancellor's Fellowship

2015-2020

University of Kansas

### Department Summer Research Scholarship

2015-2019

University of Kansas

### Outstanding Graduate Student Award

2014

Wake Forest

### Barton Mathematics Award

2013

Berry College

## INVITED TALKS

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- AMS Spring Southeastern Sectional Meeting** March 2023  
*Cincinnati, OH*  
“Symbolic Powers of Squarefree Monomial Ideals, Revisited”
- AMS Spring Southeastern Sectional Meeting** March 2023  
*Atlanta, GA*  
“Stable Theory for Complexes and the Auslander-Reiten Conjecture”
- West Virginia University Algebra Seminar** November 2022  
*Virtual Session*  
“Stable Theory for Complexes and the Auslander-Reiten Conjecture”
- Auburn University Algebra Seminar** November 2022  
*Auburn, AL*  
“Stable Theory for Complexes and the Auslander-Reiten Conjecture”
- Oklahoma State University Combinatorics and Commutative Algebra Seminar** April 2022  
*Virtual Session*  
“Symbolic Powers of Squarefree Monomial Ideals, Revisited”
- University of Michigan Commutative Algebra Seminar** April 2022  
*Virtual Session*  
“Generalizations of Ulrich Modules and Rigidity Theorems”
- Clemson University Algebra and Discrete Math Seminar** November 2021  
*Virtual Session*  
“Recent progress on the Auslander-Reiten and Huneke-Weigand Conjectures”
- Iowa State University Commutative Algebra Seminar** April 2021  
*Virtual Session*  
“Constructions in Combinatorial Commutative Algebra, Old and New”
- AMS Special Session on Commutative Algebra** April 2021  
*Virtual Session*  
“Rank Selection and Depth Conditions for Squarefree Monomial Ideals”
- Wake Forest University Colloquium** March 2021  
*Virtual Session*  
“Constructions in Combinatorial Commutative Algebra, Old and New”
- AMS Special Session on Homological Methods in Algebra** October 2020  
*Virtual Session*  
“Tor-persistence and related conjectures”
- AMS Special Session on Commutative Algebra** April 2020  
*Virtual Session*  
“Maximal Cohen-Macaulay modules that are not locally free on the punctured spectrum”
- University of Nebraska, Lincoln Commutative Algebra Seminar** March 2020  
*Lincoln, NE*  
“Extremal growth of Betti numbers and rigidity of (co)homology”
- University of Nebraska, Lincoln Commutative Algebra Seminar** March 2020  
*Lincoln, NE*  
“Maximal Cohen-Macaulay modules that are not locally free on the punctured spectrum”
- Purdue Commutative Algebra Seminar** October 2019  
*West Lafayette, IN*  
“Generalizations of Ulrich Modules and Rigidity Theorems”
- AMS Special Session on Homological and Characteristic  $p > 0$  Methods in Commutative Algebra** September 2019  
*Madison, WI*  
“Generalizations of Ulrich Modules and Rigidity Theorems”
- KUMUNU Jr.** March 2019  
*University of Nebraska, Lincoln NE*  
“Cohen-Macaulay Rings of Finite  $CM_+$ -Representation Type”
- AMS Special Session on Commutative and Combinatorial Algebra** March 2019  
*Auburn University, Auburn AL*

“Cohen-Macaulay Rings of Finite  $CM_+$ -Representation Type”

**AMS Special Session on Commutative Algebra**

November 2018

*University of Arkansas, Fayetteville AR*

“ $c$ -Ulrich Modules”

**AMS Special Session on Multiplicities and Volumes: An Interplay Among Algebra, Combinatorics, and Geometry**

October 2018

*Ann Arbor, MI*

“ $c$ -Ulrich Modules”

**KUMUNU Jr.**

April 2018

*University of Nebraska, Lincoln NE*

“Hom and Ext, Revisited”

## **SERVICE**

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- Co-organizer of the commutative algebra seminar at the University of Arkansas, 2020-2023.
- Co-creator and Co-organizer of CARES, 2020-2022: CARES is a regional seminar series uniting Arkansas, Kansas, Missouri, Nebraska, and Oklahoma State, and which focuses on expository talks given by graduate students. I served, along with Alessandra Costantini and Kyle Maddox, as a global advisor and organizer to the local organizers, who are senior graduate students at their respective institutions.
- Referee for Rocky Mountain J. Math, 2020-2023. Referee for European Journal of Combinatorics, 2020-2021. Referee for Communications in Algebra, 2021-2022. Referee for AMS Graduate Series in Math, 2022. Referee for Journal of the Mathematical Society of Japan, 2023. Referee for Bulletin of the London Mathematical Society, 2023.