

Cheng Meng

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Research Interests

Commutative Algebra and Algebraic Geometry.

Education

Ph.D. Candidate Mathematics, Purdue University, 2016-present. Advisor: Giulio Caviglia and Linquan Ma

B.S. Mathematics, Tsinghua University, 2012-2016.

Awards and Grants

Abhyankar Award for outstanding thesis work in the area of Commutative Algebra, \$2300 for 2022-2023.

Ross-Lynn grant, \$31,684 for 2021-2022.

S. T. YAU College Student Mathematics Contests, S. T. YAU Medal (individual overall) Silver Medal (ranked 2nd-4th), 2015.*

Publications and Preprints

1. *G-graded irreducibility and the index of reducibility*, Communications in Algebra, DOI: 10.1080/00927872.2019.1662914
2. *Restrictions on Hilbert coefficients give the depth of a prime ideal inside the polynomial ring* (preprint), [available on my webpage](#)
3. *Decomposition of local cohomology tables in dimension 3*, [arXiv:2111.07536](#)
4. *Strongly Lech-independent ideals and Lech's conjecture*, [arXiv:2112.09849](#)

Conference talks

Strongly Lech-independent ideals and Lech's conjecture, AMS Spring Central Virtual Sectional Meeting (virtual), March 26-27, 2022.

Strongly Lech-independent ideals and Lech's conjecture, AMS Spring Eastern Virtual Sectional Meeting (virtual), March 19-20, 2022.

*S.T.Yau College Student Mathematics Contest is open to undergraduates without a college degree from universities of mainland China, Hong Kong and Taiwan.

Seminar Talks

Commutative Algebra Seminar at University of Michigan, Multiplicities in flat local extensions. Sep 15, 2022.

Commutative Algebra Seminar at UIC, Strongly Lech-independent ideals and Lech's conjecture. April 20, 2022.

Commutative Algebra Student Seminar, The Hilbert-Kunz multiplicity. Mar 11, 2022.

UMN Commutative Algebra and Algebraic Geometry Seminar, Strongly Lech-independent ideals and Lech's conjecture. March 3, 2022.

Commutative Algebra Student Seminar, The Buchsbaum-Eisenbud-Horrocks conjecture. Feb 4, 2022.

Commutative Algebra Seminar, Strongly Lech-independent ideals and Lech's conjecture. December 1, 2021.

Commutative Algebra Seminar, Boij-Söderberg theory and the decomposition of local cohomology tables of modules. April 7, 2021.

Commutative Algebra Student Seminar, Infinite free resolutions. September 9, 2019.

Commutative Algebra Seminar, Monomial resolutions. April 24, 2018.

Poster Presentations

Southwest Local Algebra Meeting, El Paso TX, Feb 2019.

Commutative Algebra and its Interaction with Algebraic Geometry, South Bend IN, Jun 2019.

Teaching

I have been the recitation instructor of MA 165 in Fall 2019. Analytic Geometry And Calculus I. Limits; rules of differentiation and computation of derivatives; graph of functions; maxima and minima of functions; optimization problems; integrals and the Fundamental Theorem of Calculus.

Other activities

Tutorial instructor of ICTP summer school "Graduate Course on Tight Closure of Ideals and its Applications". [Homepage of the summer school](#)

Organizer of Commutative Algebra Student Seminar at Purdue, Spring 2022.