Cheng Meng

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INTERESTS

Commutative algebra and its interactions with combinatorics, homological algebra and algebraic geometry.

EXPERIENCE

Graduate Assistant   Purdue University   August 2016-December 2023

EDUCATION

Purdue University, West Lafayette, IN
  Ph.D. in Mathematics, December 2023
    Thesis: *Inequalities related to Lech's conjecture and other problems in local and graded algebra*
    Advisor: Prof. Giulio Caviglia and Prof. Linquan Ma

Tsinghua University, Beijing, China
  B.Sc. in Mathematics, July 2016
    Thesis: *An investigation into properties of triangulated categories and derived categories*
    Advisor: Prof. Jie Xiao

PUBLICATIONS

5. *h-function, Hilbert-Kunz density function and Frobenius-Poincaré function*(with Alapan Mukhopadhyay),arXiv:2310.10270.
4. *Strongly Lech-independent ideals and Lech's conjecture*, arXiv:2112.09849, submitted.
3. *Local cohomology tables of sequentially almost Cohen-Macaulay modules*, arXiv:2111.07536, submitted.
2. *Restrictions on Hilbert coefficients give the depth of a prime ideal inside the polynomial ring*(Preprint), available on my webpage
1. *G-graded irreducibility and the index of reducibility*, Communications in Algebra, DOI: 10.1080/00927872.2019.1662914

FELLOWSHIPS, HONORS, AND GRANTS

Postdoctoral Fellow	SLMath(formerly MSRI)	Spring 2024
Abhyankar Award*, $2300	Purdue University	2022-2023.
Ross-Lynn grant, $31,684	Purdue University	2021-2022.
S. T. Yau Medal Silver Medal**	S. T. Yau College Student Mathematics Contests	2015.

* Abhyankar Award is awarded for outstanding thesis work in the area of Commutative Algebra.

**S.T.Yau College Student Mathematics Contest is open to undergraduates without a college degree from universities of mainland China, Hong Kong and Taiwan. S. T. Yau Medal is the name for overall medal and silver medal winners rank 2nd-4th in the contest.

INVITED TALKS

Seminar Talks

Commutative Algebra Seminar	University of Utah	November 10,2023
CA Student Seminar	Purdue University	October 27,2023
Commutative Algebra Seminar	Purdue University	October 25,2023
Commutative Algebra Seminar	University of Nebraska-Lincoln	October 11,2023
Algebra Seminar	University of Missouri	October 9,2023
Algebra Seminar	Auburn University	April 11,2023
Commutative Algebra Seminars	IIT Bombay(virtual)	March 10, 2023
AG and CA Seminar	University of Notre Dame	October 25, 2022
Commutative Algebra Seminar	University of Michigan(virtual)	September 15, 2022
Commutative Algebra Seminar	University of Illinois Chicago(virtual)	April 20, 2022
CA Student Seminar	Purdue University(virtual)	March 11, 2022
CA and AG Seminar	University of Minnesota(virtual)	March 3, 2022
CA Student Seminar	Purdue University(virtual)	February 4, 2022
Commutative Algebra Seminar	Purdue University	December 1, 2021
Commutative Algebra Seminar	Purdue University	April 7, 2021
CA Student Seminar	Purdue University	September 9, 2019
CA Student Seminar	Purdue University	April 24, 2018

Conference Talks

Joint Mathematics Meetings	San Francisco	January 6, 2024
Algebra Days at Arizona State	Arizona State University	November 3-5, 2023
AMS Spring Central Virtual Sectional Meeting	virtual	March 26-27, 2022
AMS Spring Eastern Virtual Sectional Meeting	virtual	March 19-20, 2022

POSTER PRESENTATION

1. Kumunu 2023, Columbia MO, Sep 2023.

2. BrianFest, Lincoln NE, Aug 2023.

3. Commutative Algebra and its Interaction with Algebraic Geometry, South Bend IN, June 2023.

4. Morgantown Algebra Days, Morgantown VW, April 2023.

5. Southwest Local Algebra Meeting, El Paso TX, February 2019.

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

OTHER CONFERENCES ATTENDED

1. Syzygies and Regularity, Workshop For Graduate Students, Postdocs, and Young Researchers, Chicago IN, April 2023.

2. NSF Workshop on matrix factorizations and related topics, South Bend IN, November 2022.

TEACHING

I have been the recitation instructor of:

1. MA 261, Fall 2023. Multivariate Calculus. Planes, lines, and curves in three dimensions. Differential calculus of several variables; multiple integrals. Introduction to vector calculus.

2. MA 165, 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

1. Tutorial instructor of ICTP summer school "Graduate Course on Tight Closure of Ideals and its Applications", Summer 2022. `Homepage of the summer school`

2. Organizer of Commutative Algebra Student Seminar at Purdue, Spring 2022.`Webpage of the seminar`

REFERENCES

- Prof. Giulio Caviglia, Purdue University, email: gcavigli@purdue.edu

- Prof. Linquan Ma, Purdue University, email: ma326@purdue.edu

- Prof. Claudia Polini, University of Notre Dame, email: cpolini@nd.edu

- Prof. Kevin Tucker, University of Illinois Chicago, email: kftucker@uic.edu

- Prof. Bernd Ulrich, Purdue University, email: bulrich@purdue.edu

- Prof. Dominic Naughton, Purdue University, email: dnaughto@purdue.edu(Teaching)