

Linquan Ma

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RESEARCH INTERESTS	Commutative algebra and algebraic geometry: singularities in all characteristics, local cohomology, multiplicities, and the homological conjectures.	
EMPLOYMENT	Assistant Professor, Purdue University	2018–
	Research Assistant Professor, University of Utah	2015–2018
	Golomb Visiting Assistant Professor, Purdue University	2014–2015
EDUCATION	University of Michigan, Ann Arbor, Michigan, USA	2008–2014
	Ph.D., Mathematics Advisor: Melvin Hochster	
	Peking University, Beijing, China	2004–2008
	B.S., Mathematics Advisor: Jiazhong Yang	
GRANTS AND AWARDS	<ul style="list-style-type: none">• Don Tucker Outstanding Postdoc• NSF Grant DMS-1600198: Studies in Commutative Algebra• AMS-Simons Travel Grant	2017–2018 2016–2019 2015–2016
PAPERS AND PREPRINTS	<ul style="list-style-type: none">• Cohomologically full rings (with Hailong Dao and Alessandro De Stefani), in preparation.• Perfectoid multiplier/test ideals in regular rings and bounds on symbolic powers (with Karl Schwede), submitted, arXiv:1705.02300.• Big Cohen-Macaulay algebras and the vanishing conjecture for maps of Tor in mixed characteristic (with Raymond Heitmann), submitted, arXiv:1703.08281.• Lim Cohen-Macaulay sequences of modules (with Bhargav Bhatt and Melvin Hochster), in preparation.• D-module and F-module length of local cohomology modules (with Mordechai Katzman, Ilya Smirnov and Wenliang Zhang), <i>Trans. Amer. Math. Soc.</i>, to appear.• Lech's conjecture in dimension three, submitted, arXiv:1609.00095.• F-singularities under generic linkage (with Janet Page, Rebecca Rebhuhn-Glanz, William Taylor and Wenliang Zhang), submitted, arXiv:1607.03972.• Frobenius actions on local cohomology modules and deformation (with Pham Hung Quy), <i>Nagoya Math. J.</i>, to appear.• Local cohomology of Du Bois singularities and applications to families (with Karl Schwede and Kazuma Shimomoto), <i>Compos. Math.</i>, to appear.• The dualizing complex of F-injective and Du Bois singularities (with Bhargav Bhatt and Karl Schwede), submitted, arXiv:1512.05374.• The vanishing conjecture for maps of Tor and derived splinters, <i>J. Eur. Math. Soc.</i>, to appear.	

- F -injectivity and Buchsbaum singularities, *Math. Ann.* 362 (2015), no. 1-2, 25-42.
- Eulerian graded D -modules (with Wenliang Zhang), *Math. Res. Lett.* 21 (2014), no. 1, 149-167.
- A sufficient condition for F -purity, *J. Pure Appl. Algebra* 218 (2014), 1179-1183.
- The category of F -modules has finite global dimension, *J. Algebra* 402 (2014), 1-20.
- Finiteness properties of local cohomology for F -pure local rings, *Int. Math. Res. Not.* (2014), no. 20, 5489-5509.

EXPOSITORY

- Lech's conjecture, Oberwolfach report.
- The vanishing conjecture for maps of Tor, splinters, and derived splinters, Extended lecture notes for UIC homological conjectures workshop.

EVENTS ORGANIZED

- AMS Special Session on Commutative Algebra, Salt Lake City, Apr 2016.
- JMM Special Session on Commutative Algebra, Seattle, Jan 2016.
- MRC Commutative Algebra Program, Snowbird, Utah, Jun 2015 (assistant).
- Computational workshop on Frobenius singularities and invariants, University of Michigan, May 2012 (local organizer).

CONFERENCE TALKS

- The Homological Conjectures: Resolved! MSRI, Berkeley, Mar 2018.
- The 39th Japan Symposium on Commutative Algebra, RIMS, Kyoto University, Nov 2017.
- KUMUNU 2017, University of Kansas, Oct 2017.
- AMS Special Session on Homological Methods in Commutative Algebra, University of North Texas, Sep 2017.
- AMS Special Session on Commutative Algebra, Indiana University, Bloomington, Apr 2017.
- Young Mathematician Forum, Peking University, Beijing, Dec 2016.
- Asymptotic Phenomena in Local Algebra and Singularity Theory, Oberwolfach Workshop, Dec 2016.
- Homological Conjectures in Commutative Algebra, UIC, Nov 2016.
- Higher Dimensional Algebraic Geometry and Characteristic p , CIRM, Sep 2016.
- Midwest Commutative Algebra Conference, Purdue University, Aug 2015.
- Recent developments in positive characteristic techniques in commutative algebra: Frobenius Operators and Cartier Algebras, Atlanta, Mar 2015.
- AMS Special Session on Commutative Algebra, Albuquerque, Apr 2014.
- AMS Special Session on Homological and Characteristic p Methods in Commutative Algebra, Baltimore, Jan 2014.
- Birational Geometry and Singularities in Positive Characteristic, University of Tokyo, Nov 2013.

COLLOQUIUM

- Purdue University Special Colloquium, Nov 2016.

SEMINAR TALKS

- UCSD Algebraic Geometry Seminar, Apr 2017.
- Princeton Algebraic Geometry Seminar, Apr 2017.
- University of Kansas Algebra Seminar, Oct 2016.
- UIC Algebraic Geometry Seminar and Commutative Algebra Seminar, Oct 2016, Oct 2013.
- University of Virginia Algebra Seminar, May 2016.
- University of Michigan Commutative Algebra Seminar, Nov 2015, Nov 2014, Feb 2014, Oct 2013, Oct 2012, Jan 2012, Dec 2011.

- University of Utah Commutative Algebra Seminar and Algebraic Geometry Seminar, Nov 2015, Nov 2015, Oct 2014.
- Purdue University Commutative Algebra Seminar and Algebraic Geometry Seminar, Oct 2015, Apr 2015, Jan 2015, Dec 2014, Nov 2014, Oct 2014.
- University of Arkansas Algebra Seminar, Oct 2015.
- UIUC Commutative Ring Theory Seminar, Feb 2015.
- University of Notre Dame Algebraic Geometry/Commutative Algebra Seminar, Dec 2014.
- University of Nebraska Commutative Algebra Seminar, Jan 2014.
- MSRI Commutative Algebra Seminar, Berkeley, May 2013.
- Penn State University Algebra and Number Theory Seminar, Feb 2013.

CONFERENCE
& WORKSHOP

- Local Cohomology in Commutative Algebra and Algebraic Geometry, University of Minnesota, Aug 2017.
- Stillman's Conjecture and other Progress on Free Resolutions: a workshop in honor of the sixtieth birthdays of Dave Bayer and Mike Stillman, University of California at Berkeley, Jul 2017.
- The First Algebraic Geometry conference of China, Academy of Mathematics and Systems Science, Beijing, Jul 2017.
- P-adic Hodge Theory and Automorphic Forms, Peking University, Jun 2017.
- Commutative Algebra and Related Topics, MSRI Summer School, Okinawa Institute of Science and Technology, May 2017 (teaching assistant).
- Arizona Winter School 2017: Perfectoid Spaces, University of Arizona, Mar 2017.
- Higher Dimensional Algebraic Geometry, University of Utah, Jul 2016.
- Commutative Algebra and Its Interactions with Algebraic Geometry: Tight Closure, Linkage, and Syzygies (in honor of Craig Huneke's Birthday), University of Michigan, Jul 2016.
- Midwest Commutative Algebra and Algebraic Geometry Conference (in honor of Juan Migliore), University of Notre Dame, May 2016.
- Local and Global Methods in Algebraic Geometry (in honor of Lawrence Ein's Birthday), UIC, May 2016.
- Workshop on unramified cohomology, derived categories, and rationality, University of Utah, Feb 2016.
- AMS Summer Institute in Algebraic Geometry, University of Utah, Jul 2015.
- Local Cohomology Workshop, UIC, Feb 2015.
- KUMUNU 2014, University of Missouri, Sep 2014.
- Special Month on Birational Geometry and Singularities in zero and positive characteristic, University of Michigan, May-Jun 2014.
- Positive Characteristic Algebraic Geometry Workshop, UIC, Mar 2014.
- Conference on Motivic invariants and singularities, University of Notre Dame, Jun 2013.
- The Commutative Algebra of Singularities in Birational Geometry, MSRI, May 2013.
- Joint Workshop: Cluster Algebras and Commutative Algebra, MSRI, Aug-Sep 2012.
- 3rd Bluegrass Algebra Conference, University of Kentucky, Jun 2012.
- Commutative Algebra and Algebraic Geometry Conference, UIUC, Nov 2011.
- Midwest Commutative Algebra and Geometry Conference, Purdue University, May 2011.
- Frobenius Splitting Conference, University of Michigan, May 2010.
- Midwest Algebra, Geometry and their Interactions Conference, University of Notre Dame, Apr 2010.

TEACHING
EXPERIENCE

Teaching at Utah:

- Math 2210 Calculus 3 (Fall 2017, Spring 2016).
- Math 2200 Introduction to Discrete Mathematics (Spring 2017, Fall 2016).
- Math 2250 Differential Equations and Linear Algebra (Fall 2015).

Teaching at Purdue:

- Math 265 Linear Algebra (Spring 2015, Fall 2014).

Teaching at Michigan:

- TA for MMSS course on Fibonacci numbers (Summer 2014).
- TA for Math 215 Calculus 3 (Spring 2014, Fall 2013, Fall 2012, Spring 2012).
- Math 116 Calculus 2 (Spring 2011).
- Math 115 Calculus 1 (Spring 2010, Fall 2009).
- Math 105 Data, Functions and Graphs (Spring 2009, Fall 2008).