

Alessandro De Stefani

Curriculum Vitæ

KTH, Mathematics
Lindstedtsvägen 25
100 44, Stockholm, Sweden
✉ ads@kth.se
🌐 www.people.kth.se/~ads/

Main research areas

- Characteristic $p > 0$ methods and uses of the Frobenius endomorphism. Study of numerical invariants such as F -thresholds, Hilbert-Kunz multiplicities, F -signature and Frobenius Betti numbers in relation with the singularities of a ring.
- Homological methods, such as the index of a Gorenstein ring, local cohomology.
- Use of Macaulay's inverse system, towards an understanding of Hilbert functions and classification of algebras of finite type over a field.

Professional experience

2016-present **Postdoctoral fellow**, *Royal Institute of Technology (KTH)*.

Education

- 2013-2016 **PhD in Mathematics**, *University of Virginia*.
Thesis advisor: Craig Huneke
- 2011-2012 **Master's Degree**, *University of Kansas*.
- 2008-2010 **Laurea Specialistica**, *Università degli Studi di Genova*.
Thesis advisor: Maria Evelina Rossi
- 2005-2008 **Laurea Triennale**, *Università degli Studi di Genova*.
Thesis advisor: Maria Evelina Rossi

List of publications

- *On the existence of F -thresholds and related limits* (with L. Núñez-Betancourt, and F. Pérez). To appear in Transactions of the AMS. [arXiv: 1605.03264]
- *F -thresholds of graded rings* (with L. Núñez-Betancourt). To appear in Nagoya Mathematical Journal. [arXiv: 1507.05459]
- *Frobenius Betti numbers and modules of finite projective dimension*. (with C. Huneke, and L. Núñez-Betancourt). To appear in Journal of Commutative Algebra. [arXiv: 1412.4266]
- *A counterexample to a conjecture of Ding*. J. Algebra 452 (2016), 324-337. [arXiv: 1506.09168]
- *Products of ideals may not be Golod*. J. Pure Appl. Algebra 220 (2016), no. 6, 2289-2306. [arXiv: 1506.09129]
- *A sufficient condition for strong F -regularity*. (with L. Núñez-Betancourt). Proc. Amer. Math. Soc. 144 (2016), no. 1, 21-29. [arXiv: 1411.7078]

- *An algorithm for constructing certain differential operators in positive characteristic.* (with A. F. Boix, and D. Vanzo). *Matematiche (Catania)* 70 (2015), no. 1, 239-271. [arXiv: 1503.01419]
- *Artinian Level Algebras of Low Socle Degree.* *Comm. Algebra* 42 (2014), no. 2, 729-754. [arXiv: 1208.3506]

Submitted articles

- *Globalizing F -invariants* (with T. Polstra, and Y. Yao). [arXiv: 1608.08580]
- *Generalizing Serre's Splitting Theorem and Bass's Cancellation Theorem via free-basic elements* (with T. Polstra, and Y. Yao). [arXiv: 1608.08591]
- *Symbolic powers of ideals* (with H. Dao, and C. Huneke, and E. Grifo, and L. Núñez-Betancourt)
- An appendix to: *On the behavior of singularities at the F -pure threshold*, by E. Canton, D. Hernández, K. Schwede, and E. Witt. (with J. Jeffries, Z. Kadyrsizova, R. Walker, and G. Whelan). [arXiv: 1508.05427]

Research funding and awards

- 2013-2016 **Graduate Research Assistant**, *University of Virginia*.
Fall 2013, Fall 2015
- 2011-2012 **Graduate Research Assistant**, *University of Kansas*.
Summer 2012, Spring 2012, Spring 2011
- 2005-2008 **Italian National Fellowship**, *INDAM (Istituto Nazionale di Alta Matematica)*.

Teaching experience

- Fall 2016 **Mini-course**, *Royal Institute of Technology (KTH)*.
Title: Measuring singularities with Frobenius
- 2013-2016 **Graduate Teaching Assistant**, *University of Virginia*.
Calculus I, Calculus II, Applied Calculus I with Algebra
- 2011-2012 **Graduate Teaching Assistant**, *University of Kansas*.
Kansas Algebra Program (KAP), Applied Calculus I
- 2010 **Tutor**, *Università degli Studi di Genova*.
Mathematics for Statistics majors

Professional services

- 2012-present **Reviewer for zbMATH**, *Zentralblatt Math*.

Professional memberships

- 2011-2016 **American Mathematical Society**, *AMS*.

Upcoming events

- 2017, June **Umeå University**, *Meeting of the Catalan, Spanish, Swedish Math Societies*.
- 2017, March **College of Charleston**, *AMS Sectional Meetings*.

Selected talks

- 2016, Dec 16 **Université de Neuchâtel**, *InterCity Seminar*.
2016, Oct 28 **University of Utah**, *Commutative Algebra Seminar*.
2016, Oct 26 **Purdue University**, *Commutative Algebra Seminar*.
2016, Oct 20 **University of Michigan**, *Commutative Algebra Seminar*.
2016, Oct 18 **University of Kansas**, *Algebra Seminar*.
2016, Jul 20 **Università degli Studi di Genova, Italy**, *Algebra Seminar*.
2016, Apr 24 **University of Nebraska, Lincoln**, *KUMUNUjr 2016*.
2016, Apr 19 **Clemson University**, *Algebraic Geometry and Number Theory Seminar*.
2016, Mar 5 **University of Georgia, Athens**, *AMS Sectional Meeting*.
2016, Jan 8 **Seattle**, *AMS Joint Mathematics Meetings*.
2015, Dec 3 **University of Kansas**, *Algebra Seminar*.
2015, Nov 18 **Georgia State University**, *Algebra Seminar*.
2015, Nov 14 **Rutgers University**, *AMS Sectional Meetings*.
2015, Oct 23 **Università degli Studi di Genova, Italy**, *Incontro di Algebra Commutativa*.
2015, Oct 9 **University of Utah**, *Commutative Algebra Seminar*.
2015, Oct 3 **Loyola University, Chicago**, *AMS Sectional Meetings*.
2015, Sep 30 **University of Virginia**, *Algebra Seminar*.
2015, Jul 3 **Università degli Studi di Genova, Italy**, *Algebra Seminar*.
2015, Apr 16 **University of Michigan**, *Commutative Algebra Seminar*.
2013, Jun 19 **Università degli Studi di Genova, Italy**, *Algebra Seminar*.
2013, Feb 15 **MSRI**, *Representation Theory, Homological Algebra, and Free Resolutions*.
2012, Nov 10 **Cornell University**, *Workshop on Syzygies*.
2012, Sep 22 **University of Missouri, Columbia**, *KUMUNU 2012*.
2012, Apr 21 **University of Nebraska**, *KUMUNUjr 2012*.