Eloísa Grifo | CV

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Appointments

○ **University of California – Riverside**   **Riverside, California**
Assistant Professor   *since July 2020*

○ **University of California – Riverside**   **Riverside, California**
Visiting Assistant Researcher   *July 2019 – June 2020*

○ **University of Michigan**   **Ann Arbor, Michigan**
Postdoctoral Assistant Professor   *August 2018 – May 2019*

Long term visits

○ **University of Utah**   **Salt Lake City, Utah**
July 2019 – June 2020

Education

○ **University of Virginia**   **Charlottesville, VA, USA**
PhD, Advisor: Craig Huneke   *August 2013 – May 2018*
Thesis: *Symbolic powers and the Containment Problem*

○ **Instituto Superior Técnico**   **Lisbon, Portugal**
Mestrado em Matemática (MS in Mathematics), Advisor: Maria Vaz Pinto   *2011–2013*

○ **Instituto Superior Técnico**   **Lisbon, Portugal**
Licenciatura em Matemática Aplicada e Computação (BS in Mathematics)   *2008–2011*

Publications

Published or accepted papers

○ *A stable version of Harbourne's Conjecture and the containment problem for space monomial curves*, J. Pure Appl. Algebra, Volume 224, Issue 12, 2020.

○ *Expected resurgences and symbolic powers of ideals*, with Craig Huneke and Vivek Mukundan, J. London Math. Soc. (2) 102 (2020) 453-69.

○ *A Zariski-Nagata Theorem for smooth $\mathbb{Z}$-algebras*, with Alessandro De Stefani and Jack Jeffries, *J. Reine Angew. Math.* 2020 (761), 123-140.

○ *Symbolic powers of ideals defining F-pure and strongly F-regular rings*, with Craig Huneke, *Int. Math. Res. Not. (IMRN)* 2019, no. 10, 2999–3014.

○ *Symbolic powers of ideals*, with Hailong Dao, Alessandro De Stefani, Craig Huneke, and Luis Núñez Betancourt, *Advances in Singularities and Foliations: Geometry, Topology and Applications*, 387–432.

○ *Lower bounds on projective levels of complexes*, with Hannah Altmann, Jonathan Montaño, William Sanders, and Thanh Vu, *Journal of Algebra*, 491C (2017), pp. 343–356.

○ *On the growth of deviations*, with Adam Boocher, Alessio D'Alì, Jonathan Montaño, and Alessio Sammartano, *Proc. Amer. Math. Soc.*, 144 (2016), pp. 5049–5060.

○ *Edge ideals and DG algebra resolutions*, with Adam Boocher, Alessio D'Alì, Jonathan Montaño, and Alessio Sammartano, *Le Matematiche* 70 (2015), no. 1, 215–237.

○ *Local cohomology and Lyubeznik numbers of F-pure rings*, with Alessandro De Stefani and Luis

Núñez-Betancourt, *J. Algebra* 571 (2021), 316–338.

- *Calculations involving symbolic powers*, with Ben Drabkin, Alexandra Seceleanu, and Branden Stone, J. Softw. Algebra Geom. 9 (2019), no. 1, 71–80.

Preprints

- *Lower bounds on betti numbers*, with Adam Boocher, submitted.
- *Symbolic Rees algebras*, with Alexandra Seceleanu, arXiv:2012.01617, submitted.
- *Constructing non-proxy small test modules for the complete intersection property*, with Benjamin Briggs and Josh Pollitz, arXiv:2009.11800, submitted.
- *Demailly's conjecture and the containment problem*, with Sankhaneel Bisui, Huy Tài Hà, and Thái Thành Nguyễn, arXiv:2009.05022, submitted.
- *Expected resurgence of ideals defining Gorenstein rings*, with Craig Huneke and Vivek Mukundan, arXiv:2007.12051, submitted.
- *Chudnovsky's Conjecture and the stable Harbourne–Huneke containment*, with Sankhaneel Bisui, Huy Tài Hà, and Thái Thành Nguyễn, arXiv:2004.11213, submitted.
- *Symbolic power containments in singular rings in positive characteristics*, with Linquan Ma and Karl Schwede, arXiv:1911.06307, submitted.
- *A uniform Chevalley theorem for direct summands of polynomial rings in mixed characteristic*, with Alessandro De Stefani and Jack Jeffries, arXiv:2104.00612, submitted.
- *The software package SpectralSequences*, with Adam Boocher and Nathan Grieve, arXiv:1610.05338, submitted.

Other

- *Números, cirurgias e nós de gravata* (book), co-edited with João Pedro Boavida, Luís Cruz-Filipe, Rui Pedro Carpentier, Pedro S. Gonçalves, David Henriques, Ana Rita Pires, IST Press, December 2012.
- *Da plasticina às equações de* $5°$*grau* in *Números, cirurgias e nós de gravata*, pp. 12-25, IST Press, December 2012.

Awards and Fellowships

Research and travel grants

- NSF standard grant DMS-2001445, *Symbolic powers and p-derivations*, 2020–2023.
- AMS–Simons Travel Grant 2018–2020.
- American Mathematical Society Joint Math Meetings 2018 Graduate Student Travel Grant.
- American Mathematical Society Sectional Meeting Graduate Student Travel Grant – SLC 2016.
- Research grant by *Fundação para a Ciência e Tecnologia*, October 2012 - April 2013, under the supervision of Maria Cristina Câmara.

Fellowships

- William and Carolyn Polk Jefferson Fellowship, 2013–2018, by the Jefferson Scholars Foundation.
- *Novos Talentos em Matemática*, awarded by Fundação Calouste Gulbenkian, 2008/2009 and 2009/2010.

Awards

- Honorable Mention in the International Mathematical Olympiads, 2008.
- Member of the portuguese team in the Ibero-american Mathematical Olympiads, 2007.
- Bronze (2003) and Gold (2008) medals in *Olimpíadas Portuguesas de Matemática*
- Gold (2004, 2006), Silver (2007) and Bronze (2005) medals in *Olimpíada Paulista de Matemática*
- Bronze Medal in *Olimpíada de Mayo* 2003 (international mathematical olympiad)
- Winner of the 2007 edition of *Campeonato Nacional da Língua Portuguesa*, Category B (portuguese

language competition).

Teaching

University of California, Riverside...

- o Commutative Algebra (Math 225): Winter 2021
- o Calculus for the Life Sciences II (Math 7B): Fall 2020

University of Michigan...

- o Introduction to Modern Algebra (Math 412): Winter 2019
- o Calculus I (Math 115): Fall 2018

University of Virginia...

- o Calculus II (instructor): Fall 2016
- o Applied Calculus II (instructor): Spring 2015, Fall 2015
- o Applied Calculus II (assistant to the coordinator): Spring 2016
- o Calculus III (TA): Fall 2014

Instituto Superior Técnico...

- o Análise Complexa e Equações Diferenciais (TA): Fall 2011, Spring 2012

Invited Talks

Lecture series...

- o *TBA*, BRIDGES, University of Utah, May 2020.
- o *Potencias simbólicas*, *Escuela de Outoño en Álgebra Conmutativa*, CIMAT, Mexico, November 2019.
- o *Symbolic Powers*, in *Topics in commutative algebra*, RTG Mini-course, University of Utah, May 2018.

Seminars and conference talks...

- o *Test modules for the complete intersection property*, Notre Dame AG/CA Seminar (04/27/2021)
- o *Test modules for the complete intersection property*, Virtual AMS Meeting Cincinnati (04/17/2021)
- o *Constructing non-proxy small modules*, Virtual AMS Sectional Meeting at Brown (03/20/2021)
- o *Symbolic Powers*, Mulheres Matemáticas: uma tarde de encontro
- o *Constructing (non-)proxy small modules*, Virtual AMS Sectional Meeting at Penn State (10/04/2020)
- o *Symbolic powers, stable containments, and degree bounds*, Fellowship of the ring (online seminar 05/20)
- o **A survey on Harbourne's Conjecture*, BrianFest, UNL (05/2020)
- o **Towards a new characterization of complete intersections*, AMS Sectional Meeting Purdue (04/2020)
- o *Symbolic Powers*, Tulane Colloquium (02/13/2020)
- o *Symbolic powers and the (stable) containment problem*, Tulane Algebra Seminar (02/12/2020)
- o *Symbolic Powers*, UNL Colloquium (01/13/2020)
- o *A stable version of Harbourne's Conjecture*, UIC Commutative Algebra seminar (01/11/2019).
- o *Symbolic powers / Two versions of Harbourne's Conjecture*, UNL CA seminar (09/2019).
- o *Symbolic powers and the (stable) containment problem*, University of Wisconsin Alg and AG Seminar
- o *A Fedder-like criterion over Gorenstein rings*, Morgantown Algebra Days (04/2019)
- o *Symbolic powers*, UC Riverside Colloquium (02/21/2019)
- o *A Fedder-like criterion over Gorenstein rings*, MFO Workshop on Singularities and Homological Aspects of Commutative Algebra (10/02/2019)

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*Talks marked with * were canceled or postponed due to the coronavirus crisis.

- *Symbolic powers*, Oklahoma State University Colloquium (02/04/2019)
- *A Fedder-like criterion over Gorenstein rings and symbolic powers*, Frobenius Actions in Commutative Algebra: Recent Developments, Barcelona, Spain (01/2019)
- *A stable version of Harbourne's Conjecture*, CMS Winter Meeting, Vancouver, Canada (12/09/2019)
- *Symbolic powers and free resolutions*, AMS Sectional Meeting Ann Arbor (10/21/2018)
- *Symbolic powers of ideals defining F-pure rings*, AMS Sectional Meeting Ann Arbor (10/20/2018)
- *A stable version of Harbourne's Conjecture*, MFO Mini-workshop on Asymptotic Invariants of Homogeneous Ideals (10/03/2018)
- *Symbolic powers and the containment problem*, Univ. of Nottingham Algebra Seminar (07/05/2018)
- *Homological algebra vs symbolic powers*, Kumunujr (4/30/2018)
- *Applying homological algebra to a problem on symbolic powers*, AMS Sectional Boston (4/22/2018)
- *Symbolic powers and the Containment Problem*, AMS Sectional Meeting Portland (4/15/2018)
- *The Zariski-Nagata Theorem in mixed characteristic*, AMS Sectional Meeting Columbus (3/18/2018)
- *Symbolic Powers: the Containment Problem and Harbourne's Conjecture*, Joint Math Meetings 2018
- *Symbolic powers and differential operators*, George Mason University CAG Seminar (12/08/2017)
- *Symbolic powers and the Containment Problem*, University of Kansas Algebra Seminar (11/30/2017)
- *Symbolic powers and the Containment Problem*, University of South Carolina AG Seminar (11/13/2017)
- *Symbolic powers and differential operators*, New Mexico State University (10/23/2017)
- *A stable version of Harbourne's Conjecture*, AMS Sectional Meeting Orlando (9/23/2017)
- *A stable version of Harbourne's Conjecture*, AMS Sectional Meeting Denton (9/9/2017)
- *Symbolic powers of ideals defining F-pure rings*, AMS Sectional Meeting New York (5/6/2017)
- *Symbolic powers of ideals defining F-pure rings*, University of Utah CA Seminar (4/21/2017)
- *Symbolic powers in characteristic p*, University of Nebraska CA Seminar (3/29–30/2017)
- *Symbolic powers of ideals defining F-pure rings*, AMS Sectional Meeting Charleston (3/12/2017)
- *Symbolic powers of ideals defining F-pure rings*, Clemson University ADM Seminar (3/9/2017)
- *Symbolic powers of ideals defining F-pure rings*, University of Michigan CA Seminar (1/12/2017)
- *Symbolic powers of prime ideals*, AMS Sectional Meeting SLC (4/10/2016)

Talks aimed at undergraduate students

- **Potências Simbólicas*, EneMath, Instituto Superior Técnico (postponed to some future date)
- *Symbolic powers and a story of algebra vs geometry*, Undergraduate Math Symposium, UIC (02/11/2019)
- *Slicing a square pizza*, University of Michigan Math Club (March 2019)
- *Slicing a square pizza*, UVa Math Club (2018)
- *Slicing a square pizza*, Math & CS Seminar, Adelphi University (11/10/2017)

Conferences

Conferences and seminars organized

- Commutative and Homological Algebra Market Presentations, a weekly virtual seminar series in commutative algebra, co-organized with Sean Sather-Wagstaff. Starting Fall 2020.
- Zoom special session on *commutative algebra*, co-organized with Sean Sather-Wagstaff. This session was originally planned for the 2020 AMS Sectional Meeting in Charlottesville, which was canceled due to the CORONAVIRUS crisis. We ran it as a zoom session instead.
- Special session on *developments in commutative algebra*, AMS Sectional Meeting in Auburn, 2019, co-organized with Patricia Klein.
- Commutative Algebra Seminar at the University of Michigan, co-organized with Mel Hochster.
- *Forum for Interdisciplinary Dialogue 2015 – Ethics and Development*, co-organized with the Jefferson Scholars Foundation.
- *Seminário Diagonal*, co-organizer, Math students seminar, Instituto Superior Técnico, 2010–2013.

- BIRS workshop *Women in Commutative Algebra*, October 2019
- Mathematisches Forschungsinstitut Oberwolfach Workshop on Singularities and homological aspects of commutative algebra, February 2019.
- Mathematisches Forschungsinstitut Oberwolfach Mini-workshop on Asymptotic Invariants of Homogeneous Ideals, October 2018.
- MSRI Hot Topics Workshop on the homological conjectures – resolved!, March 2018.
- Macaulay 2 Workshop, Berkeley, CA, July 2017.
- CMO-BIRS Workshop 17w5027 on Symbolic Powers, Oaxaca, Mexico, May 2017.
- MSRI Summer School in Commutative Algebra, Okinawa, Japan, May 2017.
- Macaulay 2 Workshop, Salt Lake City, Utah, May 2016.
- Mathematics Research Communities 2015 – Commutative Algebra. Salt Lake City, Utah.
- Pragmatic – Local cohomology and syzygies of affine algebras. June 23–July 11, 2014, Catania, Italy.

Software

Macaulay2 packages...

SpectralSequences
developed with David Berlekamp, Adam Boocher, Nathan Grieve, Gregory G. Smith, and Thanh Vu

SymbolicPowers
with contributions from Ben Drabkin, Alexandra Seceleanu, and Branden Stone

Service and outreach

Service...

AWM Student Chapter at UVa
Chapter president and founding member *2016–2017*

- Reviewer for Mathematical Reviews

- Referee for various mathematics journals

Math Outreach...

Wolverine Pathways
Math enrichment activities with middle school and highschool students *Fall 2018*

UVa Math Ambassadors
Classroom activities with 5th and 6th grade students *2014–2018*