

## Louiza Fouli

New Mexico State University  
Department of Mathematical Sciences  
P.O. Box 30001, Dept 3MB  
Las Cruces, NM 88003-8001

lfouli@nmsu.edu  
Phone: +1-575-646-2201  
Fax: +1-575 646-1064  
<http://web.nmsu.edu/~lfouli>

### EDUCATION

Ph. D. in Mathematics	Purdue University	August 2006
M. Sc. in Mathematics	Purdue University	December 2001
B. Sc. in Mathematics	University of Cyprus	June 1999

### EMPLOYMENT/ POSITIONS HELD

Professor	New Mexico State University	August 2022 –
Digital Faculty Fellow	New Mexico State University	July 2021 – April 2022
Associate Professor	New Mexico State University	August 2015 – August 2022
Assistant Professor	New Mexico State University	August 2009 – August 2015
Research Member	MSRI, Berkeley	Fall 2012
Instructor (Postdoctoral Fellow)	University of Texas, Austin	August 2006 – August 2009
Visiting Scholar (Under AWM Grant)	University of Kansas	Summers 2008, 2009
Graduate Teaching Assistant	Purdue University	Fall 1999 – August 2006

### RESEARCH INTERESTS

Commutative Algebra and interactions with Algebraic Geometry, Homological Algebra and Computational Algebra.

### PUBLICATIONS

1. Louiza Fouli, Jonathan Montaño, Claudia Polini, and Bernd Ulrich, *The core of monomial ideals*, submitted for publication, available at [arXiv:2303.10486](https://arxiv.org/abs/2303.10486) [[math.AC](#)].
2. Ela Celikbas, Emilie Dufresne, Louiza Fouli, Elisa Gorla, Kuei-Nuan Lin, Claudia Polini, and Irena Swanson, *Rees algebras of sparse determinantal ideals*, to appear in *Trans. Amer. Math. Soc.*, available at [arXiv:2101.03222](https://arxiv.org/abs/2101.03222) [[math.AC](#)]
3. Alessandra Costantini, Louiza Fouli, and Jooyoun Hong, *Residual intersections and core of modules*, *J. Algebra* 629 (2023), 227–246.
4. Louiza Fouli, TÀI Huy HÀ, and Susan Morey, *Regular sequences on squares of monomial ideals*, *São Paulo J. Math. Sci.* 17 (2023), no. 1, 122–146.
5. Louiza Fouli, Huy TÀI HÀ, and Susan Morey, *Depth of powers of squarefree monomial ideals*, *Advances in Mathematical Sciences*, 161–171, *Assoc. Women Math. Ser.*, 21, Springer, Cham, 2020.
6. Louiza Fouli, Huy TÀI HÀ, and Susan Morey, *Initially regular sequences and depths of ideals*, *J. Algebra* 559 (2020), 33–57.
7. Louiza Fouli and Bruce Olberding, *Generators of reductions of ideals in a local Noetherian ring with finite residue field*, *Proc. Amer. Math. Soc.* 146 (2018), 5051–5063.

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### Publications, continued

8. Louiza Fouli, Paolo Mantero, and Yu Xie, *Chudnovsky's Conjecture for very general points in  $\mathbb{P}_k^N$* , J. Algebra 498 (2018), 211–227.
9. Louiza Fouli, *Reduction numbers and balanced ideals*, Commutative Algebra and Noncommutative Algebraic Geometry, I, Math. Sci. Res. Inst. Publ., 67 Volume II (2015), 169–180.
10. Louiza Fouli and Susan Morey, *Lower bounds for the depth of powers of edge ideals*, J. Algebraic Combin., 42 (2015), 829–848.
11. Louiza Fouli and Kuei-Nuan Lin, *Rees algebras of square-free monomial ideals*, J. Commut. Alg. 7 (2015), 25–54.
12. Louiza Fouli and Susan Morey, *Minimal reductions and cores of edge ideals*, with J. Algebra 364 (2012), 52–66.
13. Louiza Fouli, Janet Vassilev, and Adela Vraciu, *A formula for the  $*$ -core of an ideal*, Proc. Amer. Math. Soc. 139 (2011), 4235–4245.
14. Louiza Fouli, Craig Huneke, *What is a system of parameters?*, Proc. Amer. Math. Soc. 139 (2011), 2681–2696.
15. Louiza Fouli, Claudia Polini, and Bernd Ulrich, *Annihilators of Graded Components of the Canonical Module and the Core of Standard Graded Algebras*, Trans. Amer. Math. Soc. 362 (2010), 6183–6203.
16. Louiza Fouli and Janet Vassilev, *The  $cl$ -core of an ideal*, Math. Proc. Camb. Phil. Soc. 149 (2010), 247–262.
17. Louiza Fouli, Claudia Polini, and Bernd Ulrich, *The core of ideals in arbitrary characteristic*, Michigan Math. J. 57 (2008), 305–319.
18. Louiza Fouli, *Computing the core of ideals in arbitrary characteristic*, J. Algebra 319 (2008), 2855–2867.
19. Louiza Fouli, *A study on the core of ideals*, Ph. D. thesis under the direction of Professor Bernd Ulrich, 2006.

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### GRANTS

#### Current

NSF EHR/HSI Grant: NMSU-MÁS, Grant, Co P.I., Amount: \$3,000,000	2023–2028
Summer Research in Mathematics grant at Simon Laufer Mathematical Sciences Institute	July 2024
AMS-Simons Travel Grant for Alessandra Costantini Oklahoma State University, Mentor (Grant Manager), Amount: \$5,000	2021–2024
NSA Grant for Southwest Local Algebra Meeting, Co P. I., Amount: \$20,368	2024

#### Past

NSF Grant for Southwest Local Algebra Meetings, Co P.I.	2023, 2020, 2018, 2017, 2015, 2013
NSA Grant for Southwest Local Algebra Meetings, Co P. I.	2022, 2019, 2016, 2014, 2012
Summer Research in Mathematics grant at Mathematical Sciences Research Institute, Berkeley, P.I.	Summer 2020 (canceled)
Summer Collaborators grant at Institute of Advanced Study, Princeton	Summer 2020 (declined)
Research in Groups grant at International Center for Mathematical Sciences, UK	Summer 2020 (declined)
Simons Foundation Collaboration Grant, P. I. , Amount: \$35,000	2012 – 2018
College of Arts and Sciences Travel Grant	Fall 2018, Summer 2013
NSF Grant for Crest Center, Sr Psn, New Mexico State University	2014 – 2019
College of Arts and Sciences Course Release Award	Fall 2012
NSF Grant for Southwest Local Algebra Meeting 2011, P. I.	March 2011
AWM Travel Grant Award	October 2010
AWM Mentor Grant Award	March 2009
AWM Mentor Grant Award	March 2008
AWM Travel Grant Award	January 2006
Women in Science Travel Grant Award, Purdue University	December 2005
Purdue Research Foundation Grant	2004 – 2005
National Science Foundation Grant	Summers 2002, 2003, 2004, 2006, and Fall 2003

### AWARDS AND SCHOLARSHIPS

Graduate Student Award for Outstanding Teaching, Purdue University	2006, 2003
Excellence in Teaching Award in Mathematics, Purdue University	2005, 2002
Outstanding Graduate Instructor, Purdue University	2005 - 2006
Award for the highest academic performance in Mathematics, University of Cyprus	June 1999
Stelios Pichorides Award for the highest academic performance in Mathematics, University of Cyprus	June 1999
Cyprus America Scholarship (Fulbright)	October 1998
Makarios III Foundation Scholarship, Nicosia, Cyprus	1995 – 1999

### STUDENTS SUPERVISED

1. Le Tran, Ph.D. student, expected graduation 2024.
2. Raymond Paulino, Ph.D. 2017, Dissertation “Minimal reductions of Edge Ideals”, currently:  
Assistant Professor at University of Guam Division of Mathematical and Computer Sciences.

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### CONFERENCES ORGANIZED

**AMS Sectional Meeting, Special Session:** ‘Recent Developments in Commutative Algebra’, in San Francisco, California, May 2024, co-organizing with Michael DiPasquale and Arvind Kumar.

**MSRI special semester in Commutative Algebra:** ‘Connections introductory workshop’, Spring 2024, co-organizing with Christine Berkesch, Maria Evelina Rossi, and Alexandra Secleanu.

#### **Southwest Local Algebra Meeting (SLAM):**

University of Oklahoma (February 2024), University of North Texas (March 2023), Baylor University (February 2022), Tulane University (March 2020), University of Texas, El Paso (February 2019), University of Arkansas (February 2018), University of New Mexico (March 2017), Texas State University (February 2016), Oklahoma State University (February 2015), Texas A&M University (March 2014), University of Arizona (March 2013), Texas Tech University (March 2012), New Mexico State University (March 2011), University of Texas, Arlington (March 2010).

**AMS Sectional Meeting, Special Session:** ‘Interactions between Combinatorics and Commutative Algebra’, at University of Texas, El Paso, Texas, September 2022, co-organized with Christopher Eur and Jonathan Montaña.

**AMS Sectional Meeting (virtually), Special Session:** ‘Commutative Ring Theory’, formerly at University of New Mexico, Albuquerque, October 2021, co-organizing with Janet Vasilev.

**AMS Sectional Meeting (virtually), Special Session:** ‘Recent developments in Commutative Algebra’, formerly at El Paso, Texas, September 2020, co-organized with Jonathan Montaña.

**“3rd Congress of PRIMA”, Special Session:** “Commutative Algebra: Homological and Combinatorial Methods”, Oaxaca, Mexico, August 2017.

**AMS Sectional Meeting, Special Session:** ‘Interactions in Commutative Algebra’, University of New Mexico, April 2014 .

**AWM Research Symposium 2013, Special Session:** ‘Commutative Algebra’ March 2013.

**AMS Sectional Meeting, Special Session:** ‘Trends in Commutative Algebra’, University of New Mexico, April 2010.

**AMS Sectional Meeting, Special Session:** ‘Commutative Algebra, Module and Ideal Theory’, Waco, Texas, October 2009.

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### OTHER SYNERGISTIC ACTIVITIES

Referee for various journals		
Reviewer for Mathematical Reviews		2012-Present
Reviewer for Zentralblatt		2007-Present
Co-Lead: Women in Commutative Algebra II workshop	Trento, Italy	October 2023
Associate Editor	Rocky Mountain Journal of Mathematics	2017-2022
Co-organizer: Graduate Women in Mathematics Program	New Mexico State University	2010-2014
Panelist for: Connections for Women: Joint Workshop on Commutative Algebra and Cluster Algebras	MSRI	August 2012
Panelist for Women in Natural Sciences Workshop: 'The Search for a Tenure Track Position'	University of Texas, Austin	June 2009
Panelist for 'Inquiry Based Learning', Joint Mathematics Meeting	Washington, D.C.	January 2009
Organizer: Algebra Seminar	University of Texas, Austin	Fall 2006-Spring 2007
Organizer: Graduate Student Commutative Algebra Seminar	Purdue University	Fall 2003-August 2006
Teaching Assistant Peer Mentor	Purdue University	Fall 2002-August 2006
Leadership Team: Women in Science Program	Purdue University	Fall 2002-August 2006
Orientation of New Teaching Assistants	Purdue University	August 2003
Co-organizer: Graduate Student Seminar	Purdue University	Fall 2000-Spring 2001
Graduate Student Representative	Purdue University	May 2000-May 2001
President of the Hellenic Student Association	Purdue University	April 2005-April 2006

### INVITED TALKS

TATERS seminar	Boise State University	March 2024
Virtual Commutative Algebra Seminars	IIT Bombay	October 2022
Algebra and Geometry Seminar	University of New Mexico	October 2022
AMS Special Session	virtual (formerly at Denver)	May 2022
AMS Special Session	virtual (formerly at Rhode Island)	March 2021
AMS Special Session	Joint Mathematics Meeting (virtual)	January 2021
AMS Special Session	virtual (formerly at Penn State University)	October 2020
Conference on Commutative Algebra and its Interaction with Algebraic Geometry	University of Notre Dame	June 2019
AWM Research Symposium	Rice University	April 2019
AMS Special Session	Auburn University	March 2019
AMS Special Session	Portland State University	April 2018
AMS Special Session	University of North Texas	September 2017
Commutative Algebra Seminar	Purdue University	October 2016
AMS-AWM Special Session	Joint Mathematics Meeting, Seattle	January 2016
AMS Special Session	Georgetown University	March 2015
Colloquium Talk	University of Arkansas	September 2014
Algebra Seminar	University of Arkansas	September 2014
AMS Special Session	University of New Mexico	April 2014
AMS Special Session	University of California, Riverside	November 2013
CMS Scientific Session	Halifax, Canada	June 2013
Colloquium Talk	University of Texas, El Paso	February 2013

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### INVITED TALKS, CONTINUED

Workshop on Representation Theory, Homological Algebra, and Free Resolutions Poster Session Presenter for Connections for Women: Joint Workshop on Commutative Algebra and Cluster Algebras AMS Special Session Algebra Seminar AMS Special Session AMS Special Session Colloquium Talk AMS Special Session Discrete Mathematics Seminar Commutative Algebra Seminar AMS Special Session TTU Algebra Seminar Colloquium Talk AMS Special Session Algebra Seminar Colloquium Talk Colloquium Talk Colloquium Talk Colloquium Talk Commutative Algebra Seminar AMS Contributed Papers Session TTU Algebra Seminar Colloquium Talk GSU-USC Commutative Algebra Seminar Algebra Mini-Workshop Colloquium Talk Algebra Seminar Algebra Seminar Commutative Algebra Seminar Colloquium Talk Algebra Seminar Colloquium Talk AMS Special Session AMS Special Session AWM Poster Session AMS Special Session Week of Algebra	Mathematical Sciences Research Institute Mathematical Sciences Research Institute University of Kansas University of Genoa, Italy University of Utah University of Nebraska University of California, Riverside Georgia Southern University Texas State University Purdue University University of Kentucky Texas Tech University New Mexico State University Florida Atlantic University University of Nebraska Fairfield University Texas Tech University New Mexico State University University of Texas Purdue University Joint Mathematics Meeting, Washington DC Texas Tech University Baylor University University of South Carolina University of Kansas Tulane University Texas A&M University University of Texas, Arlington Purdue University University of Cyprus University of Texas, Austin Cleveland State University University of Notre Dame Florida International University San Antonio, Texas University of Nebraska Universidade Federal de Pernambuco, Brazil	February 2013 August 2012 March 2012 December 2011 October 2011 October 2011 April 2011 March 2011 January 2011 April 2010 March 2010 February 2010 November 2009 October 2009 September 2009 February 2009 February 2009 January 2009 January 2009 January 2009 January 2009 November 2008 November 2008 November 2008 July 2008 February 2008 November 2007 November 2007 October 2006 September 2006 April 2006 March 2006 April 2006 April 2006 January 2006 October 2005 July 2004
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### CONFERENCES ATTENDED

Introductory Workshop: Commutative Algebra	SLMath	January 2024
Connections Workshop: Commutative Algebra	SLMath	January 2024
Women in Commutative Algebra II	CIRM, Trento, Italy	October 2023
Southwest Local Algebra Meeting	University of North Texas	March 2023
AMS Special Session	University of Texas, El Paso	September 2022
AMS Special Session	virtual (formerly at Denver)	May 2022
Southwest Local Algebra Meeting	Baylor University	February 2022
AMS Special Session	virtual (formerly at Albuquerque)	October 2021
AMS Special Session	virtual (formerly at Rhode Island)	March 2021
AMS Special Session	Joint Mathematics Meeting (virtual)	January 2021
AMS Sectional Meeting	virtual (formerly at Penn State)	October 2020
AMS Sectional Meeting	virtual (formerly at El Paso)	September 2020
Southwest Local Algebra Meeting 2020	Tulane University	March 2020
Women in Commutative Algebra	Banff International Research Station	October 2019
Conference on Commutative Algebra and its Interaction with Algebraic Geometry	University of Notre Dame	June 2019
AWM Research Symposium	Rice University	April 2019
AMS Sectional Meeting	Auburn University	March 2019
Southwest Local Algebra Meeting 2019	University of Texas at El Paso	February 2019
AMS Sectional Meeting	Portland State University	April 2018
AMS Sectional Meeting	University of North Texas	September 2017
Commutative Algebra and its Interactions with Algebraic Geometry (in honor of Craig Huneke's birthday)	Ann Arbor, Michigan	July 2016
AMS-AWM Special Session	Joint Mathematics Meeting, Seattle	January 2016
Frobenius Operators and Cartier Algebras	Georgia State	March 2015
AMS Sectional Meeting	Georgetown University	March 2015
Southwest Local Algebra Meeting 2015	Oklahoma State University	February 2015
AMS Sectional Meeting	University of New Mexico	April 2014
Southwest Local Algebra Meeting 2014	Texas A&M University	March 2014
AMS Sectional Meeting	University of California, Riverside	November 2013
Commutative Algebra and its Interactions with Algebraic Geometry	Luminy, France	July 2013
CMS Summer Meeting	Halifax, Canada	June 2013
The Commutative Algebra of Singularities in Birational Geometry: Multiplier Ideals, Jets, Valuations, and Positive Characteristic Methods	MSRI	May 2013
AWM Research Symposium	Santa Clara	March 2013
Southwest Local Algebra Meeting 2013	University of Arizona	March 2013
Representation Theory, Homological Algebra, Free Resolutions	MSRI	February 2013
Combinatorial Commutative Algebra and Applications, Joint Introductory Workshop:	MSRI	December 2012
Cluster Algebras and Commutative Algebra	MSRI	August 2012
Connections for Women: Joint Workshop on Commutative Algebra and Cluster Algebras	MSRI	August 2012
AMS Sectional Meeting	University of Kansas	March 2012
Southwest Local Algebra Meeting 2012	Texas Tech University	March 2012
AMS Sectional Meeting	University of Utah	October 2011

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### Conferences attended, continued

AMS Sectional Meeting	University of Nebraska	October 2011
MAGIC'11	Purdue University	May 2011
AMS Sectional Meeting	Georgia Southern University	March 2011
Southwest Local Algebra Meeting 2011	New Mexico State University	March 2011
Commutative Algebra and its Interactions with Algebraic Geometry	Luminy, France	November 2010
Local Rings and Local Study of Algebraic Varieties	ICTP, Trieste, Italy	May 2010
MAGIC'10	University of Notre Dame	April 2010
AMS Sectional Meeting	University of New Mexico	April 2010
AMS Sectional Meeting	University of Kentucky	March 2010
Southwest Local Algebra Meeting 2010	University of Texas, Arlington	March 2010
AMS Sectional Meeting	Florida Atlantic University	October 2009
AMS Sectional Meeting	Baylor University	October 2009
Kumunu 2009	University of Nebraska	September 2009
PASI 2009, in honor of Wolmer Vasconcelos	Olinda, Brazil	August 2009
GSU-USC Commutative Algebra Seminar	University of South Carolina	April 2009
Joint Mathematics Meeting	Washington, DC	January 2009
GSU-USC Commutative Algebra Seminar	University of South Carolina	November 2008
Conference in honor of Melvin Hochster	University of Michigan	July 2008
Conference in honor of Luchezar Avramov	University of Nebraska	May 2008
Conference in honor of Robin Hartshorne	University of Illinois at Chicago	April 2008
AMS Section Meeting	Bloomington, Indiana	April 2008
Advances in Algebra and Geometry	MSRI, Berkeley	April 2007
AIM, Integral Closure, Multiplier Ideals and Cores	Palo Alto	December 2006
AMS Section Meeting	University of Notre Dame	April 2006
AMS Section Meeting	Florida International University	April 2006
Joint Mathematics Meeting	San Antonio, Texas	January 2006
AMS Section Meeting	University of Nebraska	October 2005
MAGIC'05	University of Notre Dame	October 2005
Conference in honor of Phil Griffith	University of Illinois	September 2005
Wiegandfest	University of Nebraska	May 2005
30th Arkansas Spring Lecture Series	University of Arkansas	April 2005
Week of Algebra	Pernambuco, Brazil	July 2004
XVIII Escola de Algebra	IMECC-UNICAMP, Brazil	July 2004
School of Algebra	ICTP, Trieste, Italy	June 2004
Lipman-fest	Purdue University	May 2004
Bluegrass Algebra Conference	University of Kentucky	April 2003
Introductory Workshop on Commutative Algebra	MSRI, Berkeley	September 2002
Current Trends in Commutative Algebra	Levico, Italy	June 2002
1st Joint AMS and UMI Meeting	Pisa, Italy	June 2002
AMS Central Section Meeting	University of Michigan	March 2002



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### TEACHING EXPERIENCE

#### At New Mexico State University

##### Graduate courses

Advanced Linear Algebra	Fall 2023, 2019
Homological Algebra	Fall 2014, Spring 2023, 2021
Graduate Algebra I	Spring 2023, Fall 2018, 2013
Graduate Algebra II	Spring 2014
Elementary Number Theory	Fall 2022, 2020, Spring 2018
Topics Course: Algebra II	Spring 2019
Topics in Algebra–Graph Theory	Spring 2017, Spring 2010
Special Topics: Cohen–Macaulay Rings	Fall 2011

##### Undergraduate courses

Introduction to Higher Mathematics (IBL Method)	Spring 2022, 2019
Matrix Theory and Applied Linear Algebra	Fall 2021
Introduction to Modern Algebra	Fall 2022, 2019, 2016, 2011, Spring 2012
Calculus and Analytic Geometry, II	Fall 2020, 2018, Spring 2021, 2020, 2019, 2013, 2012
Calculus and Analytic Geometry, I	Fall 2016, 2009, Spring 2018, 2017
Introduction to Ordinary Differential Equations	Fall 2014, 2010, Spring 2015
Introduction to Linear Algebra	Spring 2014
Introduction to Analysis	Fall 2013
Calculus for Biological and Management Sciences	Spring 2011

#### At University of Texas, Austin

Introduction to Algebraic Structures	Spring 2009
Introduction to Number Theory (IBL Method)	Spring 2009
Differential Calculus	Fall 2008, 2007
Introduction to Real Analysis (IBL Method)	Spring 2008, Fall 2007
Introduction to Real Analysis	Spring 2007
Integral Calculus	Spring 2007, Fall 2006
Discrete Mathematics	Fall 2006

#### At Purdue University

Abstract Algebra (Graduate Course), T.A.	Fall 2005
Introduction to Analysis II, Lecturer	Spring 2004
Introduction to Analysis I, Lecturer	Spring 2002, Fall 2002
Algebra and Trigonometry I, Lecturer	Fall 2001, 2000
Plane Analytic Geometry and Calculus II, T.A.	Spring 2001
Linear Algebra and Differential Equations, T.A.	Spring 2000, Summer 2000
Honors Calculus I, T.A.	Fall 1999

### MEMBERSHIPS

American Mathematical Society, since 2000  
Association for Women in Mathematics, since 2000