CURRICULUM VITAE
ADELA VRACIU
JANUARY 2011

PROFESSIONAL PREPARATION

Graduate Institution: University of Michigan
   Major: Mathematics
   Degree: Ph. D., 2000   Thesis advisor: Melvin Hochster

Undergraduate Institution: University of Bucharest (Romania)
   Major: Mathematics
   Degree: B.S., 1995   Thesis advisor: Dorin Popescu

POSITIONS

- 2010– present Associate Professor, University of South Carolina
- 2003– 2010 Assistant Professor, University of South Carolina
- 2000 –2003 Visiting Assistant Professor, University of Kansas
- 1995–2000 Graduate student instructor/research assistant, University of Michigan

HONORS AND AWARDS

Research & Productive Scholarship, University of South Carolina, 2006–2007.

Horace Rackham Predoctoral Fellowship, University of Michigan, 1999–2000.

Nominated for the Susan Lipschutz Award for Women Graduate Students, University of Michigan, 1999,

University of Michigan Fellowship, 1995–1997.

PUBLICATIONS

17. *Brakcet powers in a diagonal hypersurface ring* (w. A. Kustin and H. Rahmati), submitted.

16. *A formula for the *-core of an ideal* (with L. Fouli and J. Vassilev), Proceedings Amer. Math. Soc., to appear.

15. *Some homological properties of almost Gorenstein rings* (with J. Striuli), submitted.

14. *Drops in joint Hilbert-Kunz multiplicities and projective equivalence of ideals*, Journal of Algebra **323** (2010), 2226–2242.

13. *When is tight closure determined by the test ideal?* (with J. Vassilev), J. of Commutative Algebra, **1** no. 3 (2009), 591–602.

12. *A new version of $\mathfrak{a}$-tight closure* — Nagoya Math. J., **192** (2008), 1–25.

11. *A length characterization of *-spread* (with N. Epstein) — Osaka J. Math, **45** (2008), 445–456.

10. *Socle degrees of Frobenius powers* (with A. Kustin) — Illinois J. Math., **51** (2007), 185–208.

9. *Rings which are almost Gorenstein* (with C. Huneke) — Pacific J. Math., **225** (2006), no. 1, 85–102.

8. *Chains and families of tightly closed ideals* — Bull. London Math. Soc., **38** (2006), 201–208.

7. *Vanishing of Ext and Tor over some Cohen-Macaulay local rings* (with C. Huneke and L. M. Sega) — Illinois J. Math., **48** (2004), 295–317.

6. *Tightly closed ideals of small type* — Proceedings Amer. Math. Soc., **132** (2003), 341–346.

5. *Special tight closure* (with C. Huneke) — Nagoya Mathematical Journal, **170** (2003), 175–183.

4. *Tight closure and linkage classes in Gorenstein rings* — Mathematische Zeitschrift, **244**(2003), 873–885.

3. *Strong test ideals* — Journal of Pure and Applied Algebra, **167** (2002), 361–373.

2. *∗–Independence and special tight closure* — Journal of Algebra, **249** (2002), 544–565.

1. *Local Cohomology of Frobenius Images over graded affine algebras* — Journal of Algebra, **228** (2000), 347–356.

Conference Presentations

November 2010: *Resolutions of Frobenius powers in diagonal surface rings*, A. M. S. Sectional Meeting, Notre Dame, IN

September 2010: *The resolution of Frobenius powers over a diagonal surface ring*, Commutative Algbra in the Southeast Conference, Atlanta, GA

April 2010: *Joint Hilbert-Kunz multipicities*, A. M. S. sectional meeting, Albuquerque, NM

March 2010: *Homological properties of almost Gorenstein rings*, A. M. S. sectional meeting, Lexington, KY

October 2009: *A formula for the tight closure core*, A. M. S. sectional meeting, Florida Atlantic University, FL

August 2008: *Drops in joint Hilbert-Kunz multiplicities*, Conference on Commutative Algebra and its Interactions in honor of Mel Hochster, Ann Arbor, MI

October 2007: *When is tight closure determined by the test ideal?* A. M. S. sectional meeting, Rutgers University, NJ

April 2006: *Chains of tightly closed ideals*, A.M.S. sectional meeting, Florida International University, FL

October 2005: *Homological properties of rings of countable Cohen-Macaulay type*, A.M.S. sectional meeting, Bard College, NY

April 2004: *Rings which are almost Gorenstein*, A.M.S, sectional meeting, Lawrenceville, NJ

August 2003: *Almost Gorenstein rings*, 2003 Summer Research Conference on Commutative Algebra: Presentations by Young Researchers, Snowbird, UT

May 2002: *Tightly closed ideals of small type*, A.M.S. Sectional Meeting, Montreal, Canada

March 2002: *Special tight closure and big ideals*, A.M.S. Sectional Meeting, Ann Arbor, MI

January 2002: *Tight closure and linkage classes in Gorenstein rings*, A.M.S. National Meeting, Commutative Algebra Session and A.W.M. Workshop, San Diego, CA

August 2001: *Tight closure and linkage*, International Conference on Commutative Algebra and related topics, Yokohama, Japan.

April 2001: *Big ideals*, Algebra Conference, University of Missouri–Columbia, MO.

September 2000: *Topics in tight closure* Algebra Conference (KUMUNU), University of Kansas, KS.

April 2000: *Strong test ideals* Commutative Algebra Conference, University of Nebraska–Lincoln.

January 2000: *Tight Closure in Cubical Cone Rings*, A.M.S. National Meeting, Washington D.C.

September 1999: *Boundedness of Local Cohomology*, A.M.S. Sectional Meeting., Salt Lake City, UT

Invited seminar and colloquim talks

December 2009: *Joint Hilbert-Kunz multiplicities*, Commutative Algebra Seminar at CUNY, New York.

February 2009: *The canonical module of almost Gorenstein rings*, GSU-USC Commutative Algebra Seminar.

November 2008: *Level ideals and projective equivalence*, Commutative Algebra Seminar at University of Michigan.

September 2008: *Level ideals and projective equivalence*, GSU-USC Commutative Algebra Seminar at Georgia State University.

April 2008: *Drops in joint Hilbert-Kunz multiplicities*, GSU-USC Commutative Algebra Seminar at Georgia State University.

September 2007: *When is tight closure determined by the test ideal?* GSU-USC Commutative Algebra Seminar at Georgia State University.

May 2007: *A new version of a-tight closure*, Algebra Seminar, University of California, Riverside.

March 2007: *Monotype closure operations*, GSU-USC Commutative Algebra Seminar at Georgia State University.

January 2007: *A new version of a-tight closure*, Algebra Seminar, University of Michigan.

October 2006: *Joint Hilbert-Kunz multiplicities and a new version of a-tight closure*, GSU-USC Commutative Algebra Seminar at Georgia State University.

April 2006: *The Frobenius homomorphism*, Colloquim, Georgia State University.

February 2003: *Tight closure and its applications*, Colloquim, Western Illinois University.

March 2002: *Tight closure and linkage*, Algebra Seminar, Purdue University.

November 2001: *Tight closure and linkage*, Algebra Seminar, University of Missouri - Columbia.

March 2000: $*$*–Independence and Special Tight Closure*, Algebra Seminar, Michigan State University.

November 1999: *Tight Closure in Cubical Cone Rings*, Algebra Seminar, Purdue University.

Seminar talks at USC

September 2010: Resolutions of Frobenius powers in a diagonal surface ring (2 lectures, Commutative Algebra seminar).

February 2010: Homological properties of almost Gorenstein rings (2 lectures; Commutative Algebra seminar)

October 2009: Rees valuations (3 lectures; Commutative Algebra seminar)

February 2009: Totally reflexive modules over almost Gorenstein rings (1 lecture; Commutative Algebra seminar)

January 2009: Graded Betti numbers and the multiplicity conjecture (2 lectures; Commutative Algebra seminar)

December 2007: Introduction to Gröbner bases (2 lectures; Algebra and Logic seminar)

March 2006: Tightly closed ideals (3 lectures; Commutative Algebra Seminar)

September 2005: Resolutions over rings of countable Cohen-Macaulay type (2 lectures; Commutative Algebra seminar)

Conferences attended

Frobenius splitting in algebraic geometry, commutative algebra, and representation theory, May 17–22, 2010, Ann Arbor, MI.

Commutative Algebra in the Southeast regional conference, March 20–21, 2010, Atlanta, GA.

Commutative Algbera in the Southeast national meeting, January 2010, Orlando, FL.

Women's Leadership Institute, April 2009, and April 2010, University of South Carolina.

Commutative algebra and its connections to geometry, in honor of Wolmer Vasconcelos, August 3–14, 2009, Olinda, Brazil.

Workshop in Commutative Algebra, September 9–13, 2002, MSRI, Berkely, CA.

Commutative Algebra: Local and Birational Theory, December 2–6, 2002, MSRI, Berkely, CA.

AWM workshop for women graduate students and recent PhD's, January 2001, San Diego, CA.

Reviewed Grant Proposals

2009: National Security Agency

Reviewed Manuscripts

2008: Journal of Commutative Algebra
2007: Journal of Algebra
2006: International Journal of Mathematics and Mathematical Sciences
2003: Journal of Algebra
2000: Journal of Algebra
Reviewer for Mathematical Reviews (51 reviews, 2001-present)

Teaching assignments at USC

Spring 2011: Math 172 - Mathematical modeling for the biological sciences, Math 547/702I-Algebraic Structures II

Fall 2010: Math 141 - Calculus I, Math 546/701I - Algebraic Structures I

Spring 2010: Math 172 - Modeling for the Life Sciences, Math 702 - Algebra II

Fall 2009: Math 141 - Calculus I (45), Math 701 - Algebra I (7)

Spring 2009: Math 122 - Calculus for BA and Soc. Sci.(38), Math 544 - Linear Algebra (42)

Fall 2008: Math 546/701I Honors - Algebraic Structures I (14), Math 746 - Commutative Algebra (8)

Fall 2007: Math 122 - Calculus for BA and Soc. Sci. (62), Math 740 - Algebra II (6)

Summer 2007: Math 546/701I - Algebraic Structures I (9)

Spring 2007: Math 141 - Calculus I (51), Math 546/701I - Algebraic Structures (25)

Fall 2006: Math 141 - Calculus I (52), Math 700 - Linear Algebra (17)

Spring 2006: Math 546/701I - Algebraic Structures I (18) , Math 746 - Commutative Algebra (8), Math 798-Directed reading (1)

Fall 2005: Math 747 - Algebraic Geometry (7)

Spring 2005: Math 546/701I - Algebraic Structures I (24)

Fall 2004: Math 141 - Calculus I (50), Math 700 - Linear Algebra (17)

Spring 2004: Math 701 - Algebra I (4)

Fall 2003: Math 141 - Calculus I

Graduate student research supervision

Master's Thesis Advisor: Ada Park, 2010. Thesis title: *On Gorenstein rings and G-dimension.*

Master's Thesis Advisor: John Olmo (co-advisor with A. Kustin), 2004–2005.

Directed Reading: Chris Portwood, Spring 2006.

Second Reader for Chris Portwood's Master's Thesis: July 2006.

Undergraduate student research supervision

"SSRE": Student Seminar and Research Experience in Commutative algebra ran during the academic year 2003–2004 under joint supervision (myself and A. Kustin). It was run as a research group consisting of 7 undergraduate students, 2 graduate students, and 2 faculty members.

Grant Support

- National Security Agency: *Homological and positive characteristic questions*, PI; this grant has been approved but the funding hasn't been received yet.
- National Security Agency : *Closure Operations in positive characteristic*, PI, Feb. 2009 - Feb. 2011, $40,862.
- National Security Agency: *GSU-USC Commutative Algebra Seminar* (conference grant), PI, Nov. 2008-Nov. 2010, $ 26,020.
- Research and Productive Scholarship Grant sponsored by the USC Research Foundation: *The Frobenius homomorphism*, PI, April 2006–June 2007, $3,000.

USC Committees

- Nominated for the Graduate Council (2009)
- Faculty Senate: 2009–present
- General Education Work Team on Global Issues and Multicultural Awareness: Spring 2007
- SC High School Mathematics Contest Committee: Fall 2006, 2007, 2008, 2009
- Calculus Textbook Committee: 2003–2005
- Pi Mu Epsilon Advisor: 2003–2005
- Mathematical Education Committee: 2004–present
- Faculty Advisory Council: 2005, 2008
- Ad Hoc Committee to update the syllabus for the Algebra Qualifying Exam (chair) – Fall 2005.
- Qualifying Exam Committee: August 2004, August 2005, January 2006, August 2007, January 2008, August 2010, January 2011
- Comprehensive Exam Committee: P. Banerjee (August 2006), J. Webb (August 2008), B. Barwick (August 2009), J. Hankins (August 2010)

- Dissertation Committee: P. Banerjee, April 2010
- Undergraduate Advisor – Upper Division Majors (Math Ed) 2003 –present

Organizing committees

- Special Session co-organizer — A. M. S. Sectional Meeting, Georgia Southern Univesity, March 2011.
- Organizing Committee for the Joint USC - GSU Commutative Algebra Seminar (jointly with F, Enescu, A. Kustin, and Y. Yao). The seminar has been running from the Fall of 2006 to present, with two meetings each semester.
- Special Session co-organizer — A. M. S. Sectional Meeting, Davidson College, NC, March 3-4, 2007.
- Special Session co-organizer — A. M. S. Sectional Meeting, Nashville, TN, October 16-17 2004.

Other service to USC

- Volunteer for the Practice AP Calculus Exam, April 2010.
- Judge for Graduate Student Day, April 2010.
- Taught Math 546 as a reading class to Harry Richman (senior at Spring Valley High School)
- Volunteer for the SC High School Mathematics Contest, December 2006, 2007, 2008.
- Judge for Discovery Day, April 2006.
- Visited and provided feedback on TA taught classes (F04, F06, F08)
- Reference letters written for students: 13