

Patrick K. McFaddin

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Department of Mathematics
University of South Carolina

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Education

Ph.D., Mathematics

University of Georgia

May 2016

Athens, GA

- Advisor: Daniel Krashen
- Dissertation: K -Cohomology of Generalized Severi-Brauer Varieties

M.A., Mathematics

University of Georgia

August 2011

Athens, GA

- Advisor: Robert Varley

B.A., with Honors in Mathematics

University of Southern California

May 2010

Los Angeles, CA

Employment

University of South Carolina

Visiting Research Assistant Professor

Aug. 2016 - Present

University of Georgia

Graduate Research and Teaching Assistant

June 2010- May 2016

Research Interests

Algebra and algebraic geometry: algebraic K -theory, K -cohomology, algebraic cycles, motives and motivic cohomology, central simple algebras, algebraic groups, homogeneous and toric varieties, derived geometry.

Publications

1. The group of K_1 -zero-cycles on the second generalized Severi-Brauer variety of an algebra of index 4. *J. Algebra* 479 (2017), 192-202.
2. (with V. Alexeev, et al.) Extended Torelli map to the Igusa blowup in genus 6, 7, and 8. *Exp. Math.* 21 (2012), no. 2, 193-203.
3. (with E. J. Rhodes, et al.) Temporal changes in the frequencies and widths of the solar p-mode oscillations. *Proceedings of SOHO 24/GONG 2010*, pp. 134-138, 2011.

4. (with E. J. Rhodes, et al.) Temporal changes in the frequencies of the solar p-mode oscillations during solar cycle 23. Proceedings of the IAU, Vol. 6, Symposium S273, pp. 389-393, 2011.

Submitted articles and preprints

5. (with M. Ballard and A. Duncan) The toric Frobenius morphism and a conjecture of Orlov. arXiv:1709.07128, submitted, 2017.
6. Zero-cycles with coefficients for the second generalized symplectic involution variety of an algebra of index 4, arXiv:1703.03826, submitted, 2017.
7. (with M. Ballard and A. Duncan) On derived categories of arithmetic toric varieties. arXiv:1709.03574, 2017.

Work in Progress

1. Twisted Milnor K -theory.
2. Patching over fields and étale K -theory.
3. The Chen-Gibney-Krashen moduli spaces revisited.
(with P. Gallardo, N. Giansiracusa, and X. Wu).
4. A cocycle-free proof of a theorem of Uematsu on the Brauer group of affine diagonal quadrics.
(with R. Gordon-Sarney, D. Adams, D. Litt, S. Mathur).

Selected Talks

Lectures on noncommutative motives <i>K-theory and related fields, Hausdorff Institute</i>	May-June 2017
Chow groups with coefficients for some twisted homogeneous varieties <i>Algebraic Geometry Seminar, Courant Institute of Mathematical Sciences</i>	March 2017
K_1-zero-cycles for some homogeneous varieties of type A_n and C_n <i>Algebra Seminar, University of Alberta</i>	March 2017
Zero-cycles with coefficients for some twisted homogeneous varieties <i>Georgia Algebraic Geometry Symposium, University of Georgia</i>	March 2017
K_1-zero-cycles on twisted Grassmannians <i>Topological Approaches to Arithmetic and Algebraic Geometry, University of Georgia</i>	Sept. 2016
K_1-zero-cycles on generalized Severi-Brauer varieties <i>AGAGCA Seminar, University of South Carolina</i>	Aug. 2016
Subfields of central simple algebras <i>Math Department Colloquium, California State University Sacramento</i>	Feb. 2016

Teaching and Training

University of South Carolina

Instructor of Record

- Math 142- Calculus I (2 sections) Fall 2017
- Math 747- Algebraic Geometry: Schemes Spring 2017
- Math 242- Elementary Differential Equations (2 sections) Fall 2016

University of Georgia

Instructor of Record

- Math 2260- Calculus II for Science and Engineering Fall 2015
- Math 1113- Pre-Calculus Spring 2015
- Math 2250- Calculus I for Science and Engineering Spring 2014
- Math 1113- Pre-Calculus Fall 2013

Recitation Instructor

- Math 2200- Analytic Geometry and Calculus Spring 2011
Fall 2010

FLIP (Focus on Learning, Innovation and Pedagogy) Participant

Fall 2017

Center for Teaching Excellence, University of South Carolina

Observer of first-time graduate instructors

Spring 2015

University of Georgia, supervised by Lisa Townsley

UGA graduate student teacher training

2010- 2014

Courses with Robert Rumley, Jon Hanke, Matt Mastin, and Lisa Townsley

Professional Activities

Magellan Explorer Project Advisor

Spring 2017- Present

Danielle Wood, University of South Carolina

Comprehensive Exam Committee Member

Spring-Fall 2017

University of South Carolina

- Candace Bethea
- Alicia Lamarche
- Robert Vandermolen

Referee

2017

Pacific Journal of Mathematics

South Carolina 4 Square Club (SC4SC)

Fall 2017

Club Advisor

USC Graduate Student Seminar

Sept. 2017

Job Market Panelist

UGA conference on algebraic and analytic aspects of quadratic forms <i>Co-organizer with D. Krashen, P. Clark, and K. Thompson</i>	July 2017
University of South Carolina High School Math Competition <i>Volunteer Judge and Proctor</i>	Feb. 2017
UGA Graduate Student Bootcamp <i>Job Market Panelist/Speaker on "How to give a good math talk"</i>	June 2016
University of Georgia Math Camp <i>Graduate Instructor</i>	June 2016 July 2014
Project REFOCUS <i>21st Century Skills Program Volunteer</i>	Spring 2016 Fall 2015
University of Georgia High School Math Tournament <i>Volunteer</i>	Nov. 2014 Nov. 2013
A Place Called Home Non-Profit Youth Center <i>Volunteer Tutor, K-12, all subjects</i>	Spring 2008
Member of the American Mathematical Society	

Awards

Great Lakes National Scholarship <i>Great Lakes Educational Loan Services</i>	Aug. 2015
Outstanding Teaching Assistant <i>University of Georgia</i>	March 2015
VIGRE Graduate Fellowship	Aug. 2011 - July 2012

Skills

Technology

Self-instructed coding in Python, HTML, website building, Mathematica, Sage, Git, L^AT_EX, MyMathLab, WebAssign, WebWork, BlackBoard, experience with Windows, Mac, Linux (via Ubuntu) operating systems.

Language

- French, limited working proficiency
- Spanish, elementary proficiency

Conferences and Workshops Attended

Stacks Project Workshop <i>University of Michigan</i>	July-Aug. 2017
CAAATQuaFs (Conference on Quadratic Forms) <i>University of Georgia</i>	July 2017
K-theory and Related Fields Trimester Program <i>Hausdorff Research Institute for Mathematics</i>	May-June 2017
Georgia Algebraic Geometry Symposium <i>University of Georgia</i>	March 2017
Lectures in Arithmetic Geometry at Rice <i>Rice University</i>	Feb. 2017
Topological Approaches to Arithmetic and Algebraic Geometry <i>University of Georgia</i>	Sept. 2016
Arithmetic Algebraic Geometry <i>Courant Institute of Mathematical Sciences</i>	Aug. 2016
Georgia Algebraic Geometry Symposium <i>Emory University</i>	Oct. 2015
Local-Global Principles and Their Obstructions <i>University of Pennsylvania</i>	Oct. 2015
Grad Student Bootcamp for the Alg. Geom. Research Institute <i>University of Utah</i>	July 2015
The 12th Brauer Group Conference <i>Pingree Park, CO</i>	June 2015
Arizona Winter School: Arithmetic and Higher-Dimensional Varieties <i>University of Arizona</i>	March 2015
Georgia Algebraic Geometry Symposium <i>University of Georgia</i>	Oct. 2014
Representation Theory and K-Theory <i>University of Southern California</i>	May 2014
Southeastern Lie Theory Workshop <i>University of Georgia</i>	May 2014
Georgia Algebraic Geometry Symposium <i>University of Georgia</i>	Oct. 2013
Torsors, Nonassociative Algebras, and Cohomological Invariants <i>Fields Institute</i>	June 2013
Homotopical Methods in Algebraic Geometry <i>University of Southern California</i>	May 2013
Workshop on Torsors, Motives, and Cohomological Invariants <i>Fields Institute</i>	May 2013
Oberwolfach Seminar on Algebraic Groups and Patching <i>Mathematisches Forschungsinstitut Oberwolfach</i>	Oct. 2012

Georgia Algebraic Geometry Symposium <i>University of Georgia</i>	May 2012
VIGRE Summer School Program in Algebraic Geometry <i>University of Georgia</i>	May 2012
Arizona Winter School: Ramification and Geometry <i>University of Arizona</i>	March 2012
Algebraic Geometry Northeastern Series Workshop <i>Stony Brook University</i>	Oct. 2011
A Celebration of Algebraic Geometry <i>Harvard University</i>	Aug. 2011
K-Theory and Motives <i>University of California, Los Angeles</i>	March 2011
Compact Moduli and Vector Bundles <i>University of Georgia</i>	May 2010

References

Matthew Ballard

Department of Mathematics
University of South Carolina

Vladimir Chernousov

Department of Mathematical and
Statistical Sciences
University of Alberta

Alexander Duncan

Department of Mathematics
University of South Carolina

Daniel Krashen

Department of Mathematics
University of Georgia

Andrew Kustin (Teaching)

Department of Mathematics
University of South Carolina

Lisa Townsley (Teaching)

Department of Mathematics
University of Georgia