

# 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, central simple algebras, algebraic groups, homogenous varieties, derived methods.

## Publications

1. The group of  $K_1$ -zero-cycles on the second generalized Severi-Brauer variety of an algebra of index 4, arXiv:1606.05762v2, 2016, to appear in Journal of Algebra.
2. (with V. Alexeev, et al.) Extended Torelli map to the Igusa blowup in genus 6, 7, and 8. Experimental Mathematics, Vol. 21(2), pp. 193-203, 2012.

## Work in Progress

1. Some remarks on the group of  $K_1$ -zero-cycles for generalized Severi-Brauer varieties.
2. Patching over fields and étale  $K$ -theory.
3.  $K_1$ -zero-cycles for generalized symplectic involution varieties.
4. The Chen-Gibney-Krashen moduli spaces revisited.  
(with P. Gallardo, N. Giansiracusa, and X. Wu).
5. 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

<b><math>K_1</math>-zero-cycles on twisted Grassmannians</b> <i>Topological Approaches to Arithmetic and Algebraic Geometry, University of Georgia</i>	Sept. 2016
<b><math>K_1</math>-zero-cycles on generalized Severi-Brauer varieties</b> <i>AGAGCA Seminar, University of South Carolina</i>	Aug. 2016
<b>Subfields of Central Simple Algebras</b> <i>Math Department Colloquium, California State University Sacramento</i>	Feb. 2016
<b>Chow Groups with Coefficients and Generalized Severi-Brauer Varieties</b> <i>Algebra and Number Theory Seminar, Emory University</i>	Feb. 2016
<b><math>K</math>-Cohomology of Generalized Severi-Brauer Varieties</b> <i>Algebra Seminar, University of Georgia</i>	Sept. 2015
<b>Twisted Homogenous Varieties, Derived Equivalences, and dg-Stacks</b> <i>Algebra Seminar, University of Georgia</i>	Jan. 2015

## Conferences and Workshops Attended

<b>Topological Approaches to Arithmetic and Algebraic Geometry</b> <i>University of Georgia</i>	Sept. 2016
<b>Arithmetic Algebraic Geometry</b> <i>Courant Institute of Mathematical Sciences</i>	Aug. 2016
<b>Georgia Algebraic Geometry Symposium</b> <i>Emory University</i>	Oct. 2015

<b>Local-Global Principles and Their Obstructions</b> <i>University of Pennsylvania</i>	Oct. 2015
<b>Grad Student Bootcamp for the Alg. Geom. Research Institute</b> <i>University of Utah</i>	July 2015
<b>The 12th Brauer Group Conference</b> <i>Pingree Park, CO</i>	June 2015
<b>Arizona Winter School: Arithmetic and Higher-Dimensional Varieties</b> <i>University of Arizona</i>	March 2015
<b>Georgia Algebraic Geometry Symposium</b> <i>University of Georgia</i>	Oct. 2014
<b>Representation Theory and <math>K</math>-Theory</b> <i>University of Southern California</i>	May 2014
<b>Southeastern Lie Theory Workshop</b> <i>University of Georgia</i>	May 2014
<b>Georgia Algebraic Geometry Symposium</b> <i>University of Georgia</i>	Oct. 2013
<b>Torsors, Nonassociative Algebras, and Cohomological Invariants</b> <i>Fields Institute</i>	June 2013
<b>Homotopical Methods in Algebraic Geometry</b> <i>University of Southern California</i>	May 2013
<b>Workshop on Torsors, Motives, and Cohomological Invariants</b> <i>Fields Institute</i>	May 2013
<b>Oberwolfach Seminar on Algebraic Groups and Patching</b> <i>Mathematisches Forschungsinstitut Oberwolfach</i>	Oct. 2012
<b>Georgia Algebraic Geometry Symposium</b> <i>University of Georgia</i>	May 2012
<b>VIGRE Summer School Program in Algebraic Geometry</b> <i>University of Georgia</i>	May 2012
<b>Arizona Winter School: Ramification and Geometry</b> <i>University of Arizona</i>	March 2012
<b>Algebraic Geometry Northeastern Series Workshop</b> <i>Stony Brook University</i>	Oct. 2011
<b>A Celebration of Algebraic Geometry</b> <i>Harvard University</i>	Aug. 2011
<b><math>K</math>-Theory and Motives</b> <i>University of California, Los Angeles</i>	March 2011
<b>Compact Moduli and Vector Bundles</b> <i>University of Georgia</i>	May 2010

## Service and Outreach

<b>UGA Graduate Student Bootcamp</b> <i>Job Market Panelist/Speaker on "How to give a good math talk"</i>	June 2016
<b>University of Georgia Math Camp</b> <i>Graduate Instructor</i>	June 2016 July 2014
<b>Project REFOCUS</b> <i>21st Century Skills Program Volunteer</i>	Spring 2016 Fall 2015
<b>University of Georgia High School Math Tournament</b> <i>Volunteer</i>	Nov. 2014 Nov. 2013
<b>A Place Called Home Non-Profit Youth Center</b> <i>Volunteer Tutor, K-12, all subjects</i>	Spring 2008

## Teaching

<b>University of South Carolina</b> <i>Instructor of Record</i>	
· Math 747- Algebraic Geometry: Schemes	Spring 2017
· Math 242- Elementary Differential Equations	Fall 2016
<b>University of Georgia</b> <i>Instructor of Record</i>	
· 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
<i>Recitation Instructor</i>	
· Math 2200- Analytic Geometry and Calculus	Spring 2011 Fall 2010

## Awards

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

## Skills

### Technology

Self-instructed coding in Python, HTML, website building, Mathematica, Sage, Git, L<sup>A</sup>T<sub>E</sub>X, experience with Windows, Mac, Linux (via Ubuntu) operating systems.

### Language

- French, limited working proficiency
- Spanish, elementary proficiency

## References

### Matthew Ballard

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University of South Carolina  
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### Vladimir Chernousov

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Statistical Sciences  
University of Alberta  
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### Pete Clark

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### Alex Duncan

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### David Harbater

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University of Pennsylvania  
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### Daniel Krashen

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### Daniel Nakano

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### Lisa Townsley (Teaching)

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Email: townsley@math.uga.edu  
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### Robert Varley

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