Patrick K. McFaddin

LeConte College 300E
Department of Mathematics
University of South Carolina

pkmcfaddin@gmail.com
mcfaddin.github.io

Education

Ph.D., Mathematics May 2016
University of Georgia Athens, GA

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

M.A., Mathematics August 2011
University of Georgia Athens, GA

- · Advisor: Robert Varley

B.A., with Honors in Mathematics May 2010
University of Southern California Los Angeles, CA

Employment

University of South Carolina Aug. 2016 - Present
Visiting Research Assistant Professor

University of Georgia June 2010- May 2016
Graduate Research and Teaching Assistant

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. Zero-cycles with coefficients for the second generalized symplectic involution variety of an algebra of index 4, arXiv:1703.03826, submitted, 2017.

2. 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.

3. (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.

4. (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.

5. (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.

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. 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

Chow groups with coefficients for some twisted homogeneous varieties   March 2017
Algebraic Geometry Seminar, Courant Institute of Mathematical Sciences

K_1-zero-cycles for some homogeneous varieties of type A_n and C_n   March 2017
Algebra Seminar, University of Alberta

Zero-cycles with coefficients for some twisted homogeneous varieties   March 2017
Georgia Algebraic Geometry Symposium, University of Georgia

K_1-zero-cycles on twisted Grassmannians   Sept. 2016
Topological Approaches to Arithmetic and Algebraic Geometry, University of Georgia

K_1-zero-cycles on generalized Severi-Brauer varieties   Aug. 2016
AGAGCA Seminar, University of South Carolina

Subfields of central simple algebras   Feb. 2016
Math Department Colloqium, California State University Sacramento

Chow groups with coefficients and generalized Severi-Brauer varieties   Feb. 2016
Algebra and Number Theory Seminar, Emory University

Twisted homogenous varieties, derived equivalences, and dg-stacks   Jan. 2015
Algebra Seminar, University of Georgia

Conferences and Workshops Attended

Georgia Algebraic Geometry Symposium   March. 2017
University of Georgia

Lectures in Arithmetic Geometry at Rice   Feb. 2017
Rice University

Topological Approaches to Arithmetic and Algebraic Geometry   Sept. 2016
University of Georgia

Arithmetic Algebraic Geometry   Aug. 2016
Courant Institute of Mathematical Sciences

Georgia Algebraic Geometry Symposium   Oct. 2015
Emory University

Local-Global Principles and Their Obstructions   Oct. 2015
University of Pennsylvania

Grad Student Bootcamp for the Alg. Geom. Research Institute   July 2015
University of Utah

The 12th Brauer Group Conference   June 2015
Pingree Park, CO

Arizona Winter School: Arithmetic and Higher-Dimensional Varieties   March 2015
University of Arizona

Georgia Algebraic Geometry Symposium   Oct. 2014
University of Georgia

Representation Theory and K-Theory   May 2014
University of Southern California

Southeastern Lie Theory Workshop   May 2014
University of Georgia

Georgia Algebraic Geometry Symposium   Oct. 2013
University of Georgia

Torsors, Nonassociative Algebras, and Cohomological Invariants   June 2013
Fields Institute

Homotopical Methods in Algebraic Geometry   May 2013
University of Southern California

Workshop on Torsors, Motives, and Cohomological Invariants   May 2013
Fields Institute

Oberwolfach Seminar on Algebraic Groups and Patching   Oct. 2012
Mathematisches Forschungsinstitut Oberwolfach

Georgia Algebraic Geometry Symposium   May 2012
University of Georgia

VIGRE Summer School Program in Algebraic Geometry   May 2012
University of Georgia

Arizona Winter School: Ramification and Geometry   March 2012
University of Arizona

Algebraic Geometry Northeastern Series Workshop   Oct. 2011
Stony Brook University

A Celebration of Algebraic Geometry   Aug. 2011
Harvard University

K-Theory and Motives   March 2011
University of California, Los Angeles

Compact Moduli and Vector Bundles   May 2010
University of Georgia

Service and Outreach

University of South Carolina High School Math Competition   Feb. 2017
Volunteer Judge and Proctor

UGA Graduate Student Bootcamp   June 2016
Job Market Panelist/Speaker on "How to give a good math talk"

University of Georgia Math Camp   June 2016
Graduate Instructor   July 2014

Project REFOCUS   Spring 2016
21st Century Skills Program Volunteer   Fall 2015

University of Georgia High School Math Tournament   Nov. 2014
Volunteer   Nov. 2013

A Place Called Home Non-Profit Youth Center   Spring 2008
Volunteer Tutor, K-12, all subjects

Teaching

University of South Carolina
Instructor of Record

   · Math 747- Algebraic Geometry: Schemes   Spring 2017

   · Math 242- Elementary Differential Equations   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

Awards

Great Lakes National Scholarship   Aug. 2015
Great Lakes Educational Loan Services

Outstanding Teaching Assistant   March 2015
University of Georgia

VIGRE Fellowship   Aug. 2011 - July 2012

Skills

Technology

Self-instructed coding in Python, HTML, website building, Mathematica, Sage, Git, LaTeX, experience with Windows, Mac, Linux (via Ubuntu) operating systems.

Language

· French, limited working proficiency
· Spanish, elementary proficiency

References

Matthew Ballard
Department of Mathematics
University of South Carolina
Email: ballard@math.sc.edu
Phone: (803) 777-7529

Vladimir Chernousov
Department of Mathematical and
    Statistical Sciences
University of Alberta
Email: chernous@math.alberta.ca
Phone: (780) 492-0168

Pete Clark
Department of Mathematics
University of Georgia
Email: plclark@gmail.com
Phone: (706) 542-2594

Alex Duncan
Department of Mathematics
University of South Carolina
Email: duncan@math.sc.edu
Phone: (803) 777-9487

David Harbater
Department of Mathematics
University of Pennsylvania
Email: harbater@math.upenn.edu
Phone: (215) 898-9594

Daniel Krashen
Department of Mathematics
University of Georgia
Email: dkrashen@uga.edu
Phone: (706) 542-2555

Daniel Nakano
Department of Mathematics
University of Georgia
Email: nakano@math.uga.edu
Phone: (706) 542-2576

Lisa Townsley (Teaching)
Department of Mathematics
University of Georgia
Email: townsley@math.uga.edu
Phone: (706) 542-2580

Robert Varley
Department of Mathematics
University of Georgia
Email: rvarley@math.uga.edu
Phone: (706) 542-2550