Daniel Krashen **Curriculum Vitæ** July 29, 2014

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Education	University of Texas at Austin	Mathematics	Ph.D. 2001
	Oberlin College	Mathematics	B.A. 1994

PhD Thesis Birational Isomorphisms between Severi-Brauer Varieties

Appointments	Associate Professor	University of Georgia	2012-present
	Assistant Professor	University of Georgia	2008-2012
	Visiting Scholar	University of Pennsylvania	2007-2008
	Member	Institute for Advanced Study, Princeton	Fall 2006
	Member	Institute for Advanced Study, Princeton	2004-2005
	Gibbs Assistant Professor	Yale University	2003-2007
	Visiting Scholar	University of Michigan, Ann Arbor	2002-2003
	VIGRE Assistant Professor	University of California, Los Angeles	2001-2003
	Graduate Instructor	University of Texas at Austin	1997-2001

Grants and Awards

Awards	2012	University of Georgia Creative research medal

External Funding	2014–2019	RTG: Algebra, Algebraic Geometry, and Number Theory, NSF DMS-1344994
	2012–2017	National Science Foundation CAREER Grant DMS-1151252, "The arithmetic of fields and the complexity of algebraic structures"
	2011–2012	The 10th Brauer Group Meeting, NSF DMS-1214939,
	2010–2013	National Science Foundation Grant DMS-1007462, "The structure of invariants in arithmetic and geometry"
	2009–2010	National Security Agency Young Investigator's Grant
	2008–2009	National Security Agency Young Investigator's Grant, H98230-08-1-0109
	2006–2007	National Security Agency Young Investigator's Grant, H98230-06-1-0032

Internal Funding	2009	University of Georgia Foreign travel grant

Research

Refereed Publications

1. *Period and index, symbol lengths, and generic splittings in Galois cohomology*, to appear in the Bulletin of the London Mathematical Society. Preprint available at http://arxiv.org/abs/1305.5217

2. *Diophantine and cohomological dimensions*, with Eliyahu Matzri, to appear in the Proceedings of the American Mathematical Society. Preprint available at http://arxiv.org/abs/1305.5295

3. *Local-global principles for Galois cohomology*, with David Harbater and Julia Hartmann, to appear in Commentarii Mathematici Helvetici. Preprint available at http://arxiv.org/abs/1208.6359.

4. *Weierstrass preparation and algebraic invariants*, with David Harbater and Julia Hartmann, in Mathematische Annalen, 356 (2013), no. 4, 14051424. Preprint version at http://arxiv.org/abs/1109.6362.

5. *Relative Brauer groups of genus* 1 *curves*, with Mirela Ciperiani, Israel Journal of Mathematics (2013), 129.

6. *Distinguishing algebras by their finite splitting fields*, with Kelly McKinnie, Manuscripta Mathematica 134 (2011), no.1-2, 171-182.

7. Appendix to: *Period and index in the Brauer group of an arithmetic surface*, by Max Lieblich, Journal für die reine und angewandte Mathematik (Crelle's Journal), 659 (2011) 1-41.

8. *Patching subfields of division algebras*, with David Harbater and Julia Hartmann. Transactions of the American Mathematical Society, Vol. 363, no. 6 (2011), Pages 3335-3349.

9. *Corestrictions of algebras and splitting fields.* Transactions of the American Mathematical Society, Vol. 362, no. 9, Sep. 2010, Pages 47814792.

10. *Field patching, factorization and local-global principles.* In the book "Quadratic forms, linear algebraic groups, and cohomology," Developments in Mathematics, Vol. 18, pp. 57–82, Springer, 2010.

11. *Zero cycles on homogeneous varieties.* Advances in Mathematics, 223 (2010), 2022–2048.

12. *Applications of patching to quadratic forms and central simple algebras*, with D. Harbater and J. Hartmann. Inventiones Mathematica, 178 (2009), no. 2, 231–263.

13. *Pointed trees of projective spaces*, with L. Chen and A. Gibney. Journal of Algebraic Geometry, 18 (2009), no. 3, 477–509.

14. *Index reduction for Brauer classes via stable sheaves*, with M. Lieblich, appendix by Bhargav Bhatt. Int Math Res Notices (2008) Vol. 2008, article ID: rnn010.

15. *Birational isomorphisms between generalized Severi-Brauer varieties.* Journal of Pure and Applied algebra, 212 (2008), no. 4, 689–703.

16. *Motives of unitary and orthogonal homogeneous varieties.* Journal of Algebra, 318 (2007), no. 1, 135–139.

17. *Severi-Brauer varieties and symmetric powers*, with D.J. Saltman. In *Algebraic Transformation Groups and Algebraic Varieties*, volume 132 of Encyclopaedia Math. Sci., pages 59-70. Springer, Berlin (2004).

18. *Severi-Brauer varieties of semidirect product algebras.* Documenta Mathematica, 8:527-546 (2003).

Preprints in submission

1. *Local-global principles for torsors over arithmetic curves*, with David Harbater and Julia Hartmann, http://front.math.ucdavis.edu/1108.3323.

Conferences Organized

2013 *The Georgia Algebraic Geometry Symposium*,
with Valery Alexeev and Angela Gibney,

2012 *Algebraic Groups and Patching* (co-organizer and presented a series of 4 lectures),
with Karim Becher, David Harbater and Julia Hartmann,
Oberwolfach Mathematical Research Institute, Oberwolfach, Germany

2012 *The 10th Brauer Group Meeting at Pingree Park*,
with Eric Brussel and Kelly McKinnie,
Pingree Park, Colorado

2012 *The Georgia Algebraic Geometry Symposium and Summer School Program*,
with Valery Alexeev, Angela Gibney and Elham Izadi
University of Georgia.

2011 *Ramification in Algebra and Geometry at Emory*,
with Asher Auel, Eric Brussel, Skip Garibaldi and R. Parimala,
Emory University.

2011 *Deformation theory, patching, quadratic forms, and the Bruaer group*,
with Max Lieblich,
American Institute of Mathematics.

2010 *Local-global principles for étale cohomology*,
with David Harbater and Julia Hartmann,
Banff International Research Station, Research in Teams program.

2010 *The Brauer group in Israel*,
with Skip Garibaldi, Louis Rowen, David Saltman, Jack Sonn and Uziel Vishne
Kibbutz Ketura, Israel.

2008 *Conference on the Brauer group at Pingree Park*,
with Skip Garibaldi and Kelly McKinnie,
Pingree Park, Colorado.

Research Presentations

2014 *Algebraic structures and the arithmetic of fields*
Invited address at the Sectional Meeting of the AMS, Knoxville, TN

2013 *Derived categories of torsors for Abelian varieties*
Winter Meeting of the Canadian Mathematical Society

2013 *Field patching and local-global principles*
Thematic Program on Torsors, Nonassociative Algebras and Cohomolocial Invariants, the Fields Institute

2013 *The Clifford algebra of a morphism*
RIMS workshop, Kyoto, Japan

2013 *Bounding the symbol length in Galois cohomology*
Conference on Brauer groups, the Technion University, Haifa, Israel

2013 *Splitting dimension and symbol length in Galois cohomology*
AMS MAA Joint Meeting, Special session on the Brauer group on algebra and geometry, San Diego

2010 *Field patching and local-global principles for Galois cohomology*
Motives and the Homotopy Theory of Schemes, Oberwolfach MFO, Germany

2009 *Field patching and local-global principles for Galois cohomology*
Quadratic Forms and Linear Algebraic Groups Oberwolfach MFO, Germany

2009 *Patching topologies and local-global principles*,
Linear Algebraic Groups and Related Structures, Banff International Research Station

2009 *Patching subfields of division algebras*
Special session on Brauer groups, Quadratic Forms, Algebraic Groups, and Lie Algebras, AMS Southeastern Section Meeting Raleigh, NC,

2008 *Local global principles for field patching and applications to quadratic forms and division algebras*
Quadratic forms, linear algebraic groups and cohomology, Hyderabad, India.

2008 *Field patching, quadratic forms and division algebras*
Algebraic Groups session of the 2nd Canada-France Math Congress

2007 *Corestriction and splitting fields of algebras*,
Linear Algebraic Groups and Cohomology, Emory University.

2006 *Index reduction for genux* 1 *curves*,
Algebraic Groups, Quadratic Forms and Related Topics, Banff International Research Station.

2006 *Relative Brauer groups and index reduction for genus* 1 *curves*,
Quadratic Forms and Linear Algebraic Groups, Mathematisches Forschungsinstitut Oberwolfach.

2005 *Zero cycles on homogeneous varieties*,
Applications of torsors to Galois cohomology and Lie theory,
Banff International Research Station.

2005 *Zero cycles on homogeneous varieties*,
AMS Summer Institute o n Algebraic Geometry, Seattle.

2004 *Cycles on homogeneous varieties and subfields of divison algebras*,
Conference on Brauer Groups, Pingree Park, Colorado.

2002 *Moduli of subfields of central simple algebras*,
Conference on Brauer Groups, Pingree Park, Colorado.

2002 *Birational isomorphisms between generalized Severi-Brauer varieties*,
Joint Mathematics Meetings, special session on forms, algebras and algebraic groups.

2001 *Birational isomorphisms between generalized Severi-Brauer varieties*,
Conference on K-Theory and Linear Algebraic Groups, Duisburg, Germany.

1999 *Rational morphisms between Severi-Brauer varieties*,
Summer Conference on Brauer Groups, University of Montana, 1999.

Workshops attended

2013 Brauer groups and obstruction problems: moduli spaces and arithmetic,
American Institute of Mathematics

2009 Rational curves and $\mathbb{A}^1$-homotopy theory,
American Institute of Mathematics

Students and Teaching

Former Ph.D. students

- Stacy Musgrave,
  Structure and Representation of Alternative Clifford Algebras of Quadratic Forms,
  (graduated 2013, postdoc at Arizona State University)

Current Ph.D. students

- Kate Thompson (joint with Jonathan Hanke),
  (expected graduation 2014)
- Maren Turbow
- Patrick McFaddin

Graduate Teaching, UGA

2015	Spring	MATH8030, Topic in Algebra: Central Simple Algebras
2014	Fall	MATH8330, Topic in Algebraic Geometry: Algebraic Stacks
2013	Fall	MATH8315, Algebraic Geometry: Cohomology
2013	Summer	Reading course on Etale Cohomology (McFadden, Varghese)
2011	Summer	Reading course on Algebraic Geometry (McFadden)
2011	Spring	Quadratic Forms
2010	Fall	MATH8000, Graduate Algebra
2010	Summer	MATH8900, Spectral Sequences
2009	Spring	MATH8310, Algebraic Geometry: Schemes

Undergraduate Teaching, UGA

2014	Sping	MATH2260, Calculus II
2014	Spring	MATH4690/6690, Graph Theory
2013	Fall	MATH2250, Calculus I
2012	Fall	MATH4670/6670, Combinatorics
2012	Fall	MATH2250, Calculus I
2011	Spring	MATH2250, Calculus I
2010	Spring	MATH4690/6690, Graph Theory
2009	Fall	MATH2200, Calculus (2 sections)
2008	Fall	MATH3000, Linear Algebra