Paul Sobaje

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EDUCATION

Ph.D. Mathematics	University of Southern California	August 2011
	Thesis Advisor: Eric Friedlander	
B.A. Mathematics	University of California, Los Angeles	December 1998

ACADEMIC POSITIONS

Postdoctoral Associate	University of Georgia	2015-present
Assistant Professor (NTT)	University of Southern California	2014-2015
Research Fellow	University of Melbourne	2011-2014

NON-ACADEMIC POSITIONS

Programmer/Analyst	STATS LLC/Fox Sports	2000-2005

RESEARCH INTERESTS

Algebra and Representation Theory: Representations of finite groups, algebraic groups, Lie algebras, quantum groups, and affine group schemes. Study of nilpotent and unipotent varieties of algebraic groups in positive characteristic. Use of support varieties and other cohomological invariants in representation theory.

PUBLICATIONS AND PREPRINTS

[1] Module invariants and blocks of finite group schemes, *Bull. London Math. Soc.* 45(1) (2013), pp. 213-224

[2] Support varieties for Frobenius kernels, *J. Pure and Appl. Algebra* 216 (2012), pp. 2657-2664.

[3] On exponentiation and infinitesimal one-parameter subgroups of reductive groups, *J. of Algebra* 385 (2013), pp. 14-26.

[4] Exponentiation of commuting nilpotent varieties, *J. Pure and Appl. Algebra* 219 (2015), no. 6, pp. 2206-2217.

[5] Springer isomorphisms in characteristic p, *Transformation Groups* 20 (2015), no. 4, pp. 1141-1153.

[6] On liftings of projective indecomposable $G_{(1)}$-modules, *J. of Algebra*, 475 (2017), pp. 61-79. (Sandy Green memorial issue)

[7] (with William Hardesty and Daniel Nakano) On the existence of mock injective modules for algebraic groups, to appear in *Bull. London Math. Soc.*

[8] (with Martina Lanini and Arun Ram) A Fock space model for decomposition numbers for quantum groups at roots of unity, to appear in *Kyoto J. of Mathematics*.

[9] On (p,r)-filtrations and tilting modules, to appear in *Proc. Amer. Math. Soc.*

[10] Varieties of G_r-summands in rational G-modules, submitted. arxiv.org/abs/1605.06330.

[11] Unipotent elements and generalized exponential maps, submitted. arxiv.org/abs/1708.04153.

[12] (with Christopher Bendel, Daniel Nakano, and Cornelius Pillen) On tensoring restricted simple G-modules with the Steinberg representation, in preparation.

TEACHING EXPERIENCE

Precalculus	Fall 2014, Fall 2017
Calculus I	Spring 2013, Spring 2015
Calculus II	Fall 2015, Spring 2017
Applied Linear Algebra	Spring 2016, Fall 2016
Math For Elementary Teachers	Fall 2017
Topology	Fall 2014
Algebraic Groups	Fall 2016

MENTORING

Nico Courts	Undergraduate research, USC	Spring 2015
	(currently Ph.D. student at University of Washington)	
William Hardesty	Secondary Doctoral Thesis Advisor, UGA	2015-16
	(currently postdoc at Louisiana State University)	
Postdoctoral Member	Vertical Research Group, UGA	2016-17

ORGANIZATION

UGA Algebra Seminar Organizer	2015-present
AMS JMM Special Session Organizer	January 2017
AMS Southeastern Sectional Special Session Organizer	March 2016

SELECTED TALKS

Special Session Speaker, AMS Southeastern Sectional Meeting, Orlando, September 2017.

Special Session Speaker, JMM, Atlanta, January 2017.

University of Georgia, Algebra Seminar, September 2016.

Workshop on Geometric and Topological Aspects of the Representation Theory of Finite Groups, PIMS, British Columbia, Canada, August 2016.

University of South Alabama, Pure Mathematics Seminar, March 2016.

University of South Alabama, Colloquium, March 2016.

Special Session Speaker, JMM, Seattle, January 2016.

Contributed talk, SE Lie Theory Workshop, Raleigh, October 2015.

University of Georgia, AGANT Oberseminar, August 2015.

University of Georgia, Algebra Seminar, August 2015.
University of Oklahoma, Special Colloquium, February 2015.
Special Session Speaker, AMS Western Sectional Meeting, San Francisco, October 2014.
Special Session Speaker, Second Pacific Rim Mathematical Association (PRIMA) Congress, Shanghai, June 2013.
University of Sydney, Algebra seminar, September 2012.
University of Melbourne, Algebra, Geometry, and Topology seminar, May 2012.
Combinatorics, representations, and structure of Lie type, University of Melbourne, 15-16 February 2012.
Group-valued moment maps with applications to mathematics and physics, Institute for Geometry and its Applications, Adelaide, Australia, September 2011.
California State University Long Beach, Colloquium, November 2010.
Texas A&M University, Algebra and Combinatorics Seminar, October 2010.

AWARDS

Humboldt Research Fellowship, 2013 (declined to take one-year position at USC).
USC Mathematics Department Teaching Award, 2010.
USC Mathematics Department Merit Fellow, Semester II, 2009.

OTHER PROFESSIONAL ACTIVITIES

Referee: Proceedings of the London Math. Society, Journal of Algebra, J. Pure and Applied Algebra, Algebras and Representation Theory.
Trainer for new graduate assistants, University of Southern California, August 2008, 2009.