

Department of Mathematics
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Employment

- DePaul University, Department of Mathematics and Statistics, Chicago, IL
 - Assistant Professor of Mathematics, September 2012–Present
- University of Georgia, Department of Mathematics, Athens, GA
 - VIGRE Postdoctoral Research Associate, August 2009–May 2012

Education

- University of Virginia, Charlottesville, VA
 - Ph.D. in Mathematics, May 2009. M.S. in Mathematics, May 2008.
 - Thesis: *Cohomology of Frobenius–Lusztig kernels of quantized enveloping algebras*
 - Subject areas: Algebra, Representation Theory
 - Advisor: Brian J. Parshall
- McDaniel College, Westminster, MD
 - B.A., May 2004. Majors: Mathematics and Physics.
 - Graduated *College Scholar* and *Summa Cum Laude* with Honors in Mathematics and Physics.

Teaching Experience

- Project NExT (New Experiences in Teaching) Fellow, 2010–2011.
Project NExT is a professional development program of the MAA.
- MEFT (Mathematicians Educating Future Teachers) Fellow, University of Georgia, 2010–2011.
The MEFT program provides postdocs and graduate students with experience in teaching mathematics content courses for preservice elementary and middle grades teachers.
- Postdoctoral Instructor, University of Georgia
 - Math 4000: Modern Algebra and Geometry I (Spring 2012)
 - Math 8080: Lie Algebras (Fall 2011, graduate course)
 - Math 5003: Algebra and Problem Solving for Elementary Teachers (Spring 2011)
 - Math 3200: Introduction to Higher Mathematics (Fall 2010)
 - Observed the course Math 5030: Geometry for Middle Grades Teachers (Spring 2010)
 - Math 8900: Algebra Qualifying Exam Study Course (Summer 2010)
 - Math 2260: Calculus II for Scientists and Engineers (Spring 2010)
 - Math 2250: Calculus I for Scientists and Engineers (Fall 2009)
- Graduate Student Instructor, University of Virginia
 - Math 122: Applied Calculus II (Spring 2009)
 - Math 132: Calculus II (Spring 2008)
 - Math 132: Calculus II (Fall 2007)
 - Math 132: Calculus II (Spring 2007)
 - Math 131: Calculus I (Fall 2006)

- Math 122: Applied Calculus II (Spring 2006)
- Math 121: Applied Calculus I (Fall 2005)
- o Graduate Teaching Assistant, University of Virginia
 - Math 213: Ordinary Differential Equations (Spring 2005)
 - Math 231H: Calculus III Honors (Fall 2004)

Research Interests

I am interested in the representation theory and cohomology of algebraic groups, Lie algebras, finite groups of Lie type, quantized enveloping algebras, Hopf algebras, and related algebraic structures.

Publications

Published or accepted

1. *Cohomology rings for quantized enveloping algebras.*
To appear in the Proceedings of the AMS.
2. *First cohomology for finite groups of Lie type: simple modules with small dominant weights.*
To appear in the Transactions of the AMS (joint with the UGA VIGRE Algebra Group).
3. *Second cohomology for finite groups of Lie type.*
J. Algebra **360** (2012), 21–52 (joint with the UGA VIGRE Algebra Group).
4. *Cohomology for infinitesimal unipotent algebraic and quantum groups.*
Transform. Groups. **17** (2012), no. 2, 393–416 (joint with Daniel Nakano and Nham Ngo).
5. *Differentiating the Weyl generic dimension formula with applications to support varieties.*
Adv. Math. **229** (2012), 2656–2668 (joint with Daniel Nakano and Brian Parshall).
6. *On injective modules and support varieties for the small quantum group.*
Int. Math. Res. Not. **2011** (2011), 2263–2294.
7. *Representations and cohomology for higher Frobenius–Lusztig kernels.*
J. Pure Appl. Algebra **215** (2011), 1473–1491.

Conference Talks

- Seattle Summer π -School and Workshop on Cohomology and Support in Representation Theory, August 2012: *Second cohomology for finite groups of Lie type.*
- Southeastern Lie Theory Workshop on Categorification of Quantum Groups and Representation Theory, April 2012: *Support varieties for irreducible modules of small quantum groups*
- AMS Southeastern Section Meeting, Special Session on Representations of Algebraic Groups, March 2012: *Projective modules for Frobenius kernels and finite groups of Lie type*
- AMS Central Section Meeting, Special Session on Quantum Groups and Representation Theory, October 2011: *Some quantum analogues of results from Lie algebra cohomology*
- Southeastern Lie Theory Workshop on Algebraic and Finite Groups, June 2011: *Comparing algebraic and finite group cohomology*
- Joint Mathematics Meetings, Special Session on Lie Algebras, Algebraic Groups, and Related Topics, January 2011: *Cohomology rings for quantized enveloping algebras*

- Southeastern Lie Theory Conference on Homological Methods in Representation Theory, May 2010: *On injective modules and support varieties for the small quantum group*
- AMS Central Section Meeting, Special Session on Cohomology and Representation Theory of Algebraic Groups, April 2010: *Cohomology rings of infinitesimal algebraic and quantum groups*
- Joint Mathematics Meetings, Special Session on Representation Theory of Lie Algebras and Algebraic Groups, January 2009: *Cohomology of finite-dimensional quantized enveloping algebras*
- AMS Central Section Meeting, Special Session on Computation in Modular Representation Theory and Cohomology, October 2008: *Adjoint actions on integral forms in quantum groups*

Seminar and Colloquium Talks

- Algebra Seminar, University of Georgia, January 2012
Support varieties for restricted Lie algebras (or, an application of Calculus to Abstract Algebra)
- Algebra Seminar (2 talks), Christian-Albrechts Universität zu Kiel (Kiel, Germany), June 2011
Some quantum analogues of results from Lie algebra cohomology, and Comparing low degree cohomology for algebraic groups and finite groups of Lie type
- BIREP Seminar, Universität Bielefeld (Bielefeld, Germany), June 2011
Comparing low degree cohomology for algebraic groups and finite groups of Lie type
- Undergraduate Math Club, University of Georgia, January 2011
Calculus, group theory, and the infinitude of primes
- Algebra Seminar, University of Georgia, August 2010
Cohomology rings for quantized enveloping algebras
- VIGRE Graduate Seminar, University of Georgia, November 2009
Cohomology and support varieties
- Algebra Seminar, University of South Alabama, October 2009
Support varieties for small quantum groups
- Colloquium, Department of Mathematics, University of South Alabama, October 2009
Cohomology and support varieties
- Algebra Seminar (2 talks), University of Georgia, August 2009
Cohomology of Frobenius-Lusztig kernels of quantized enveloping algebras
- Graduate Seminar, University of Virginia, September 2008
Fun with Hopf algebras
- Undergraduate Seminar, McDaniel College, September 2008
Calculus and other things I didn't learn until graduate school
- Algebra Seminar, University of New South Wales (New South Wales, Australia), August 2008
Cohomology of infinitesimal algebraic groups and quantized enveloping algebras
- Algebra Seminar, University of Virginia, September 2007
The Steinberg module and Steinberg's tensor product theorem
- Algebra Seminar, University of Virginia, November 2006
Dynkin diagram automorphisms and realizations of twisted affine Lie algebras
- Algebra Seminar, University of Virginia, November 2005
Division algebra theorems of Frobenius and Wedderburn

Conferences and Workshops Attended

- Seattle Summer π -School and Workshop on Cohomology and Support in Representation Theory, July–August 2012
- AIM Workshop on Cohomology Bounds and Growth Rates, June 2012
- Southeastern Lie Theory Workshop on Categorification of Quantum Groups, April 2012
- AMS Spring Southeastern Section Meeting, March 2012
- AMS/MAA Joint Mathematics Meetings, January 2012
- AMS Fall Central Section Meeting, October 2011
- Conference on Nonassociative Algebra in Action, University of Virginia, September 2011
- MAA MathFest, August 2011
- Southeastern Lie Theory Workshop on Algebraic and Finite Groups, June 2011
- NSF/CBMS Conference on Deformation Theory of Algebras and Modules, May 2011
- MAA MD-DC-VA Spring Section Meeting, April 2011
- AMS/MAA Joint Mathematics Meetings, January 2011
- MAA MathFest, August 2010
- Southeastern Lie Theory Conference Homological Methods in Representation Theory, May 2010
- VIGRE Summer School on Lie and Representation Theory, University of Georgia, May 2010
- AMS Spring Central Section Meeting, April 2010
- AMS/MAA Joint Mathematics Meetings, January 2010
- Southeastern Lie Theory Workshop on Combinatorial Lie Theory and Applications, October 2009
- AMS/MAA Joint Mathematics Meetings, January 2009
- AMS Fall Central Section Meeting, October 2008
- MSRI Workshop on Homological Methods in Representation Theory, April 2008
- AIM Workshop on Cohomology and Representation Theory for Finite Groups of Lie Type, 2007

Grants, Honors, and Awards

- Project NExT Fellow, 2010–2011.
- AMS Graduate Student Travel Grant, January 2009
- Husky Travel Fellowship, University of Virginia, Fall 2008
- Mathematics Department Research Fellowship, University of Virginia, Fall 2008
- NSF Grant OISE–0813052, East Asia and Pacific Summer Institutes, Summer 2008
- Edwin E. Floyd Fellowship, University of Virginia, Fall 2004

Undergraduate awards

- Phi Beta Kappa, inducted Spring 2004
- Dr. Clyde A. Spicer Award (outstanding senior in Mathematics), McDaniel College, Spring 2004
- Harry C. Jones Physics Scholarship, McDaniel College, 2003

- David Brian Cross Award for Achievement in Mathematics, McDaniel College, 2002
- H. Samuel Case and Susan Snodgrass Case Award for Excellence in Scholarly Research, McDaniel College, 2002
- Barry M. Goldwater Memorial Scholarship, 2002
- Kappa Mu Epsilon, National Mathematics Honor Society, inducted Spring 2002
- Lowell R. Duren Mathematics Award, McDaniel College, 2001
- Sigma Pi Sigma, National Physics Honor Society, inducted Fall 2001

Professional Service

Professional organizations

- Member of the American Mathematical Society (AMS), 2004–Present
- Member of the Mathematical Association of America (MAA), 2009–Present
- Member of the TeX User’s Group (TUG), 2009–Present

Seminar and conference organization

- VIGRE Graduate Student Seminar organizer, University of Georgia, Fall 2011–Spring 2012
- Coordinator for Project NExT panel sessions at MathFest 2011
- Algebra Seminar organizer, University of Georgia, Fall 2009–Spring 2011

Additional service

- Secondary Ph.D. advisor for University of Georgia Mathematics student Nham V. Ngo
- Referee: Algebras and Representation Theory, Journal of Algebra, Journal of Pure and Applied Algebra, American Mathematical Monthly, Journal of the Australian Mathematical Society
- Judge, MAA Undergraduate Student Talk Sessions, MathFest 2011
- Faculty proctor for the University of Georgia High School Mathematics Tournament, 2009, 2010
- University of Virginia Student Library Advisory Committee, member, 2005–2009

References

- Brian J. Parshall, Gordon T. Whyburn Professor of Mathematics (Thesis Advisor)
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- Daniel K. Nakano, Distinguished Research Professor of Mathematics (Postdoctoral Mentor)
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