

# JULIA PEVTSOVA

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## EDUCATION

- Ph.D., **Northwestern University** June 2002  
Mathematics
- B.S., **Saint-Petersburg State University, Russia** June 1997  
Mathematics and Education

## ACADEMIC POSITIONS

- **University of Washington**, Seattle, WA 2016 –  
Professor
- **University of Washington**, Seattle, WA 2011 – 2016  
Associate Professor
- **University of Washington**, Seattle, WA 2008 – 2011  
Assistant Professor
- **Mathematical Sciences Research Institute**, (MSRI), Berkeley, CA Spring 2008  
Program on *Representation Theory of Finite Groups and Related Topics*  
Postdoctoral Fellow
- **University of Washington**, Seattle, WA 2005 – 2008  
Acting Assistant Professor
- **University of Oregon**, Eugene, OR 2003 – 2005  
Postdoctoral Fellow
- **Institute for Advanced Study**, (IAS), Princeton, NJ 2002 – 2003  
Member

## AWARDS AND FELLOWSHIPS

- Simons fellowship in mathematics Fall 2017
- Fellow of the AMS 2017
- NSF CAREER award DMS-0953011 2010 – 2016
- NSF individual grants DMS-0800940, 0629156, 0500946 2005 – 2011; 2015 – 2018
- Une bourse du Reseau Formation-Recherche “K-theorie et groupes algebriques lineaires”, Besançon, France Spring 1997
- Silver Medal at the International Mathematics Olympiad, Moscow July 1992

## RESEARCH INTERESTS

- **Algebra and representation theory**; in particular, geometric aspects of representation theory of algebraic and finite groups, representation theory and cohomology of Lie algebras, Hopf algebras, Quantum groups, Triangular geometry.

## PUBLICATIONS AND PREPRINTS

- (1) Diamond–graphite phase transition in ultradisperse–diamond clusters, with A. E. Aleksenskii, M. V. Baidakova, A. Ya. Vul’, V. Yu. Davydov *Physics of Solid State* **39**, 1007 (1997).
- (2) Infinite dimensional modules for Frobenius kernels, *J. of Pure & Applied Algebra* **173**, no. 1, (2002), pp. 59–83.
- (3) Support cones for infinitesimal group schemes, *Hopf Algebras*, 203–213, Lecture Notes in Pure & Applied Math., **237**, (2004) Dekker, New York.
- (4) Representation–theoretic support spaces for finite group schemes, (with E. Friedlander), *American J. of Math.* **127**, no. 2, (2005), pp. 379–420; Erratum, *American J. of Math.* **128**, no. 4, (2006), pp. 1067–1068.
- (5)  $\Pi$ –supports for modules for finite group schemes over a field, (with E. Friedlander), *Duke Math. J.* **139**, no. 2, (2007), pp. 317–368.
- (6) Generic and maximal Jordan types, (with E. Friedlander and A. Suslin), *Invent. Math.* **168**, no. 3, (2007), 485–522.
- (7) Modules of Constant Jordan Type, (with J. Carlson and E. Friedlander), *J. für die Reine und Ang. Math.* **614** (2008), pp. 191–234.
- (8) Varieties for Modules for Quantum Elementary Abelian Groups, (with S. Witherspoon), *Algebras and Representation theory* **12**, issue 6, (2009) pp. 567–595.
- (9) A note on  $\mathcal{K}_0$  of the exact category of modules of constant Jordan type for  $sl_2$ , preprint.
- (10) Cohomology of finite dimensional pointed Hopf algebras, (with M. Mastnak, P. Schauenburg, and S. Witherspoon), *Proceedings of the LMS*, **100** (2010), part 2, pp. 377–404.
- (11) Generalized support varieties for finite group schemes, (with E. Friedlander), *Doc. Math.* (2010), Extra volume: Andrei A. Suslin sixtieth birthday, 197–222.
- (12) Constructions for infinitesimal group schemes, (with E. Friedlander), *Trans. Amer. Math. Soc.* **363** (2011), no. 11, pp. 6007–6061.
- (13) Realization theorem for modules of constant Jordan type and vector bundles, (with D. J. Benson), *Trans. Amer. Math. Soc.* **364** (2012), pp. 6459–6478.
- (14) Representations of elementary abelian  $p$ -groups and bundles on Grassmannians, (with J. Carlson and E. Friedlander), *Advances in Math.* **229** (2012) pp. 2985–3051
- (15) Representations and Cohomology of finite group schemes, in “Advances in Representation Theory of Algebras”, EMS Series of Congress Reports, (2013), pp 231–262.
- (16) Tensor Ideals and Varieties for Modules of Quantum Elementary Abelian Groups, (with S. Witherspoon), *Proceedings of the AMS* **143** (2015) no. 9, 3727–3741

- (17) Elementary subalgebras of modular Lie algebras, (with J. Carlson and E. Friedlander), *J. Algebra* **442** (2015).
- (18) Vector bundles associated to Lie algebras, (with J. Carlson and E. Friedlander), *J. für die Reine und Ang. Math.* **716** (2016)
- (19) Modular representations of high essential dimension, (with Z. Reichstein), an appendix to “A numerical invariant for linear representations of finite groups” by N. Karpenko and Z. Reichstein, *Commentarii Math. Helvetici.* **90**, issue 3, (2015), 668–701
- (20) Varieties of elementary subalgebras of maximal dimension for modular Lie algebras, (with J. Stark), preprint 2015.
- (21) Stratification and  $\pi$ -cosupport: finite groups, (with D. Benson, S. Iyengar, and H. Krause), to appear in *Math Zeitschrift*.
- (22) Stratification for module categories of finite group schemes, (with D. Benson, S. Iyengar, and H. Krause), preprint 2015.
- (23) Colocalising subcategories of modules over finite groups schemes, (with D. Benson, S. Iyengar, and H. Krause), to appear in the *Annals of K-theory*.
- (24) Local duality for representations of finite group schemes, (with D. Benson, S. Iyengar, and H. Krause), preprint 2016.

#### CONFERENCE PROCEEDINGS

- (1) Generic Jordan type of modular representations, in “Cohomology of Finite Groups: Interactions and Applications”, pp. 2375–2434, *Oberwolfach Reports*, **2**, issue 3, (2005).
- (2) Invariants in modular representation theory, “Cohomology of Finite Groups: Interactions and Applications”, pp. 1885–1952, *Oberwolfach Reports* **7**, issue 3, (2010).
- (3) Cohomology and Support varieties, in “Nichols Algebras and Weyl Groupoids”, *Oberwolfach Reports* **9**, issue 4 (2012).
- (4) Localizing subcategories for finite group schemes, in “Cohomology of Finite Groups: Interactions and Applications”, *Oberwolfach Reports*, (2015).
- (5) Specialization finite group schemes with applications to (co)-stratification and local duality, in “Representation Theory of Quivers and Finite Dimensional Algebras”, *Oberwolfach Reports* (2017)

#### INVITED LECTURES (conferences/workshops)

- Oberwolfach Workshop: “Representation theory of Quivers and finite dimensional algebras”, February 20-24, 2017
- “Workshop and International Conference on Representations of Algebras” (ICRA 2016), series of three lectures at the workshop, University of Syracuse, US, August 10-19, 2016
- AMS National meeting, special session on “Representations of Algebraic groups”, Seattle, January 2016
- Workshop on Representations, Support, and Cohomology, in honour of Rolf Farnsteiner’s 60th birthday, Bielefeld, Germany, December 4-5, 2015
- “Groups, Representations, and Cohomology”, summer school and conference in honour of Dave Benson’s 60th birthday, Isle of Skye, Scotland, June 19-26, 2015

- Joint AMS-ESM-SPM meeting, special session “Commutative Artinian Algebras and Their Deformations”, Porto, Portugal, June 10-13, 2015
- Oberwolfach Workshop: “Cohomology of Finite Groups: Interactions and Applications”, May 3-9, 2015
- Workshop: “Brave New Algebra: Opening Perspectives”, Centre de Recerca Matemàtica, Barcelona, April 20-24, 2015
- West Coast Lie Theory workshop, UC Riverside, February 14-15, 2015
- AMS Western Sectional meeting, **plenary address**, San Francisco State University, October 2014.
- Workshop on “Algebraic and Geometric Invariants of Linear Algebraic Groups and Homogeneous Spaces”, Ottawa, May 23-26, 2014
- “Representation Theory and K-theory”, conference in honor of Eric Friedlander’s 70th birthday, Los Angeles, May 19-22, 2014
- Hochschild Cohomology: Structure and Applications, IV. Buenos Aires, Argentina, August 12-16, 2013
- PRIMA2013 conference (Pacific Rim Mathematical Association), session “Representation Theory and Categorification”, Shanghai Jiaotong University Shanghai, China, June 24-28, 2013
- AMS Sectional meeting, session “Representations of Groups and Algebras”, Tuscon, Arizona, October 27-28, 2012
- Oberwolfach Mini-Workshop: “Nichols Algebras and Weyl Groupoids”, October 2012
- “International Conference on Representations of Algebras” (ICRA 2012), Bielefeld, Germany, August 8-17, 2012
- “Commutative Algebra and its interactions with Algebraic Geometry, Representation Theory and Physics”, Pan American Advanced Studies Institute, Guanajuato, Mexico, May 2012
- “Interactions between Commutative Algebra and Representation Theory” (On the occasion of the 60th birthday of Ragnar-Olaf Buchweitz), Syracuse University, April 2012
- AMS Sectional meeting, session “Noncommutative algebra and geometry”, Salt Lake City, Utah, October 22-23, 2011
- “Arithmétique, Algèbre et Applications” (Conférence en l’honneur du 60ième anniversaire de Eva Bayer), EPFL, Lausanne, June 2011
- Workshop “Triangulated categories and applications”; Banff, Canada, June 12-17, 2011
- “K-Theory and Motives” (On the occasion of the 60th birthday of Andrei Suslin), UCLA, March 2011
- Oberwolfach Workshop: “Cohomology of Finite Groups: Interactions and Applications”, July 2010
- UGA VIGRE summer school: “Homological methods in Representation theory”, lecture series, May 2010
- AMS Sectional Meeting, session “Interactions Between Algebraic Geometry and Noncommutative Algebra”, Riverside, CA, November 2009
- “Homotopy theory and applications”, University of Nebraska-Lincoln, April 2009
- AMS Sectional Meeting, session “Combinatorial Representation theory”, Vancouver, BC, October 2008
- MSRI “Evans lecture”, UC Berkeley, April 2008
- MSRI Workshop “Homological methods in Representation Theory”, Berkeley, CA, March 2008
- MSRI Workshop “Connections for Women, Introduction to Spring 2008 Programs”, Berkeley, CA, January 2008
- Pacific Institute for the Mathematical Sciences (PIMS) Algebra Summer School, Edmonton, Canada, July–August 2007
- Conference on “Representations, Cohomology and Support Spaces”, Bielefeld, Germany, April 2007

- AMS Sectional Meeting, session “Representations theory and Galois cohomology in Number Theory”, Davidson, North Carolina, March 2007
- AMS Sectional Meeting, session “Representations of Algebraic Groups”, Durham, New Hampshire, April 2006
- AMS Sectional Meeting, session “Representations of Groups and Algebras”, Eugene, Oregon, November 2005
- Oberwolfach Workshop “Cohomology of Finite Groups: Interactions and Applications”, Oberwolfach, Germany, September 2005
- Joint AMS, DMV and OMG meeting, special session on “Representations and Cohomology of Groups and Algebras”, Mainz, Germany, June 2005
- Conference on “Algebraic Groups and Finite Reductive Groups”, EPFL, Lausanne, Switzerland, June 2005
- AMS National Meeting, session “Modular Representation Theory of Algebraic and Finite groups”, Atlanta, January 2005
- Cascade topology seminar, Eugene, Oregon, November 2003
- AMS Sectional Meeting, session “Galois Module Theory and Hopf Algebras”, Courant Institute, New York, April 2003
- International Hopf Algebra conference, DePaul University, Chicago, February 2002
- Colloque des Jeune Chercheres de Theory Nombres, Grenoble, May 1997

## SEMINARS AND COLLOQUIA

- University of Southern California, Algebra seminar, October 2016
- UC Santa Barbara, Colloquium, May 2016
- Columbia University, Mathematical Physics seminar, April 2016
- University of Alberta, Algebra seminar, April 2016
- University of Alberta, Colloquium, March 2016
- University of Utah, Commutative Algebra seminar, February 2016
- Cornell University, Lie Theory seminar, October 2015
- Cornell University, Colloquium, October 2015
- University of Southern California, Special Algebra seminar, September 2015
- Bielefeld University, May 2015 (supported by *Simons Visiting Professorship*)
- University of Melbourne, Representation Theory Seminar, March 2014
- MIT, Noncommutative algebra seminar, March 2014
- Northeastern University, Algebra Seminar, March 2014
- University of Washington, Current topics seminar, January 2014
- University of Nebraska, Lincoln, Algebra Seminar, October 2013
- Université Paris-Nord 13, Topology Seminar, July 2013
- University of Washington, Algebra and Algebraic Geometry seminar, February 2011
- University of California, Santa Barbara, Colloquium, January 2011
- University of Southern California, Algebra seminar, September 2010
- Christian-Albrechts University of Kiel, Colloquium, July 2010
- University of Washington, Current topics seminar, January 2010

- University of Copenhagen, Algebra seminar, May 2008
- UC Santa-Cruz, Colloquium, April 2008
- Postdoctoral Seminar, MSRI, April 2008
- University of Waterloo, Colloquium, February 2008
- University of Western Ontario, Colloquium, February 2008
- Wayne State University, Colloquium, January 2008
- University of Washington, Colloquium, January 2008
- University of Minnesota, Representation Theory Seminar, January 2008
- University of Illinois, Chicago, Colloquium, January 2008
- Vanderbilt University, Colloquium, January 2008
- College of William and Mary, Colloquium, January 2008
- University of Illinois, Urbana–Champaign, Colloquium, January 2008
- University of California, Los Angeles, Colloquium, January 2008
- University of Texas, Austin, Algebra and Number Theory seminar, December 2007
- Texas A&M, Colloquium, December 2007
- University of California, Irvine, Colloquium, December 2007
- University of Wisconsin, Madison, Colloquium, November 2007
- University of Wisconsin, Madison, Representation theory seminar, November 2007
- University of Southern California, Algebra seminar, September 2007
- University of Paderborn, Representation theory seminar, May 2007
- University of South Alabama, Colloquium, March 2007
- University of South Alabama, Algebra seminar, March 2007
- University of Washington, Current Topics Seminar, February 2006
- University of British Columbia, Algebra Seminar, February 2006
- University of Washington, Algebra Seminar, November 2005
- UCLA, Algebra Seminar, November 2005
- Kansas State University, Colloquium, January 2005
- University of Washington, Topology Seminar, November 2004
- Texas A&M, Algebra and combinatorics seminar, October 2004
- Oregon State University, Colloquium, January 2004
- University of Oregon, Algebra seminar, December 2003
- Rutgers University, Lie Groups seminar, April 2003
- Princeton University, Cohomology of Groups seminar, April 2003
- University of Oregon, Colloquium, January 2003
- Institute for Advanced Study, Members seminar, December 2002
- University of Georgia, Athens, Group Cohomology seminar, December 2002
- University of Massachusetts, Amherst, Representation Theory seminar, November 2002
- Rutgers University, Algebra seminar, November 2002
- University of Georgia, Athens, Group Representation & Cohomology, November 2001
- Northwestern University, Algebra seminar, October 2001
- University of Heidelberg, Joint Algebra and Topology seminar, July 2001

## CONFERENCES, SUMMER SCHOOLS, AND SPECIAL SESSIONS ORGANIZED

- Connections for Women workshop at MSRI (with K. Erdmann), February 1-2, 2018
- MSRI semester on Representation Theory, (with R. Guralnick, A. Kleshchev, G. Malle, G. Navarro, R. Rouquier, and Pham Tiep), Spring 2018
- Collaborative Research Group “Geometric and cohomological methods in Algebra” (with V. Chernousov, N. Karpenko, A. Pianzola, Z. Reichstein), 2016-2019
- “Geometric and topological aspects of the representation theory of finite groups”, a summer school and conference in honor of Dave Benson’s 60th birthday, (with J. Carlson and S. Iyengar), University of British Columbia, Vancouver, Canada, July 27 - August 5, 2016
- Special session “Categorical and Geometric methods in Representation theory” at the AMS National meeting, (with A. Licata), Seattle, January 2016
- Workshop on “Nichols Algebras and Their Interactions with Lie Theory, Hopf Algebras, and Tensor Categories”, (with N. Andruskiewitsch, P. Etingof, I. Heckenberger, S Witherspoon, and J. Zhang), Banff International Research Station, Banff, Canada, September 6-11, 2015
- Special session “Categorical methods in Representation theory” at the AMS Western Sectional meeting, (with E. Friedlander and S. Iyengar), San Francisco State University, October 2014
- Summer school and workshop “Cohomology and Support in Representation Theory and related topics”, supported by the NSF, NSA, PIMS, and Department of Mathematics at the University of Washington, (with C. Bendel, H. Krause, and D. Nakano), Seattle, July 27 - August 5, 2012
- Special session “Algebraic and categorical methods in Representation theory” at the AMS National meeting, (with J. Brundan and E. Friedlander), San Francisco, January 2010
- Special session “Representations and cohomology” at the AMS National meeting, (with J. Carlson and D. Nakano), New Orleans, January 2007
- Conference “Algebraic cycles, K-theory and Modular representation theory”, supported by grants from the NSA, NSF and the Clay Institute, (with C. Bendel, C. Heasemeyer, and R. Joshua), Evanston, September 2004

## OUTREACH ACTIVITIES

- Presenter at the “Math Day”, annual outreach activity for Washington State high school students; University of Washington, March 2007, 2009, 2010
- Lecturer at the Summer Institute for Mathematics at the University of Washington, annual math summer program for advanced high school students: two week long lecture series July 2007, 2009, 2011, 2013, 2014; invited lectures July 2006, 2008, 2010
- Associate director of the Summer Institute for Mathematics at the University of Washington, 2011–present
- Coordinator of the “Math Challenge” program at Montlake Elementary School for grades 3–5, Seattle, WA, supported by the NSF, 2005–2016
- Coordinator of the “Math Challenge” program at Washington Middle School for grades 6–7, Seattle, WA, supported by the NSF, 2009–2010
- Putnam prep sessions (with I. Dumitriu), 2008–present (Autumn)
- Organizer of the “UW Math Hour” program, a series of popular math lectures for middle school students in Seattle, Spring 2010–present
- Organizer of the “UW Math Hour Olympiad”, an annual oral Olympiad culminating the series of Math Hour lectures every Spring, 2010–present
- Coordinator of the “UW Math Circle”, a weekly Math circle for 7th, 8th, and 9th graders in Seattle, 2010–present.