

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

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, Supergroup schemes, Tensor triangular geometry.

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
- **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

VISITING POSITIONS

- **Simons Laufer Mathematical Sciences Institute/MSRI**, Berkeley, CA Spring 2024
Program on *Noncommutative Algebraic Geometry*
- **Hausdorff Research Institute for Mathematics**, Bonn, Germany Fall 2022
Spectral Methods in Algebra, Geometry and Topology
- **Mathematical Sciences Research Institute**, (MSRI), Berkeley, CA Spring 2020
Program on *Quantum Symmetry*
Research member (remotely)
- **UC Berkeley**, visiting scholar (supported by Simons fellowship) Autumn 2017
- **Mathematical Sciences Research Institute**, (MSRI), Berkeley, CA Spring 2018
Program on *Representation Theory of Finite Groups and Related Topics*
Research professor
- **Mathematical Sciences Research Institute**, (MSRI), Berkeley, CA Spring 2008
Program on *Representation Theory of Finite Groups and Related Topics*
Postdoctoral Fellow

AWARDS AND FELLOWSHIPS

- PIMS Education prize 2018
- PNW MAA Distinguished Teaching award 2018
- Simons fellowship in mathematics Autumn 2017
- Fellow of the AMS 2017
- NSF CAREER award DMS-0953011 2010 – 2016
- NSF DMS-1501146, 1901854, 0800940, 0629156, 0500946, 2200832 2005 –
- Une bourse du Réseau Formation-Recherche “K-théorie et groupes algébriques
lineaires”, Besançon, France Spring 1997
- Silver Medal at the International Mathematics Olympiad, Moscow July 1992

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) Π -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) 155–189.
- (18) 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
- (19) Vector bundles associated to Lie algebras, (with J. Carlson and E. Friedlander), *J. für die Reine und Ang. Math.* **716** (2016) 147–178
- (20) Stratification and π -cosupport: finite groups, (with D. Benson, S. Iyengar, and H. Krause), *Math Zeitschrift* **287**, no. 3-4, (2017) 947–965.
- (21) Colocalising subcategories of modules over finite groups schemes, (with D. Benson, S. Iyengar, and H. Krause), *Annals of K-theory* **2**, no. 3, (2017), 387–408.
- (22) Stratification for module categories of finite group schemes, (with D. Benson, S. Iyengar, and H. Krause), *JAMS* **31** (1), (2018), 265–302.
- (23) Varieties of elementary subalgebras of maximal dimension for modular Lie algebras, (with J. Stark), *Geometric and topological aspects of the representation theory of finite groups*, 339–375, Springer Proc. Math. Stat., **242**, Springer, Cham, (2018).
- (24) Local duality for representations of finite group schemes, (with D. Benson, S. Iyengar, and H. Krause), *Compos. Math.* **155** (2019), no. 2, 424–453.
- (25) Detecting nilpotence and projectivity over finite unipotent supergroup schemes, (with D. Benson, S. Iyengar, and H. Krause), *Selecta Math.* **27** (2021), no. 2, paper No. 25, 59pp.
- (26) Representations and cohomology of a family of finite supergroup schemes, (with D. Benson), *J. Algebra* **561** (2020), 84–100, special issue dedicated to the memory of Kai Maagard.
- (27) Local duality for the singularity category of a finite dimensional Gorenstein algebra (with D. Benson, S. Iyengar, and H. Krause), *Nagoya Math. Journal*, **244** (2021), 1–24
- (28) Cohomology rings of finite-dimensional pointed Hopf algebras over abelian groups (with N. Andruskiewitsch, I. Angiono, S. Witherspoon), *Res. Math. Sci.* **9** (2022), no. 1, Paper No. 12, 132 pp.

- (29) Stratification and duality for unipotent finite supergroup schemes, (with D. Benson, S. Iyengar, and H. Krause), *Equivariant topology and derived algebra*, 241-275, London Math. Soc. Lecture Note Ser., 474, Cambridge Univ. Press, Cambridge, (2022)
- (30) Rank varieties and π -points for elementary supergroup schemes, (with D. Benson, S. Iyengar, and H. Krause). *Trans. Amer. Math. Soc. Ser. B* 8 (2022), 971–998
- (31) Hypersurface support for noncommutative complete intersections (with C. Negron), *Nagoya Math J.*, **247** (2022) 731-750
- (32) Support for integrable Hopf algebras via noncommutative hypersurfaces (with C. Negron), *Int. Math. Res. Not. IMRN*, 2023(3):1882–1958
- (33) Hypersurface support and prime ideal spectra for stable categories (with C. Negron), *Ann. K-theory*, **8**, no.1, (2023) 25–79
- (34) Support theory for the small quantum group and the Springer resolution (with C. Negron), preprint 2022
- (35) Fibrewise stratification of group representations (with D. Benson, S. Iyengar, and H. Krause), preprint 2022
- (34') The half-quantum flag variety and representation theory of a small quantum group (with C. Negron), preprint 2022
- (36) Local dualisable objects in local algebra (with D. Benson, S. Iyengar, and H. Krause), preprint 2023
- (37) Lattices over finite group schemes and stratification (with T. Barthel, D. Benson, S. Iyengar, and H. Krause), preprint 2023

BOOKS

- *Geometric and topological aspects of the representation theory of finite groups*, ed. Jon Carlson, Srikanth Iyengar, Julia Pevtsova, **Springer Proc. Math. Stat.**, **242**, Springer, Cham, 2018.
- S. Klee, K. Malkin, J. Pevtsova, *Math Out Loud: a Oral Olympiad Handbook*. MSRI Mathematical Circles Library Volume: **27**; 2021; 243 pp;

SERVICE TO THE MATHEMATICAL AND LOCAL COMMUNITY

PROGRAMS

- Independent advisory board for the EPSRC programme grant U. of Leeds Algebra group, 2022 –
- Semester on “Tensor Triangular Geometry” (with P. Balmer, T. Barthel, J. Greenlees, H. Krause), Hausdorff Institute for Mathematics, Bonn, September-December 2022
- ICM 2022 in Saint-Petersburg (CANCELLED) - member of the LOC
- 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

CONFERENCES, SUMMER SCHOOLS, AND SPECIAL SESSIONS

- MFO workshop “Tensor triangular geometry and interactions”, Oberwolfach, (with P. Balmer, T. Barthel, J. Greenlees), September 2023
- Special session “Methods in Non-semisimple Representation Categories”, AMS Sectional meeting in California State University, Fresno, (with E. Friedlander and P. Sobaje), May 8-9 2023
- Workshop “Spectra, Triangles and higher structures”, Hausdorff Institute for Mathematics, Bonn (with P. Balmer, T. Barthel, P. Goerss, M. Linckelmann), December 2022
- Summer school “Spectral methods in Algebra, Geometry and Topology”, Hausdorff Institute for Mathematics, Bonn (with P. Balmer, T. Barthel, J. Greenlees, H. Krause), December 2022
- WM² (World Meeting for Women in Mathematics), ICM 2022 satellite, Saint-Petersburg, Russia, (with M.-F. Roy and C. Araujo) July 2022
- Special session “Methods in Non-semisimple Representation Categories”, AMS Sectional meeting in California State University, Fresno, (with E. Friedlander and P. Sobaje) [cancelled] May 2-3 2020
- Special session “Lie Theory in the Representations of Groups and Related Structures”, in memory of Kay Maggard, AMS Sectional Meeting at the University of Hawaii at Manoa (with C. Drupieski), March 22-24, 2019
- Workshop on “Geometric and topological methods in algebra” (with Z. Reichstein), Seattle, November 11-12, 2018
- Special session “Homological aspects of Commutative Algebra and Representation Theory” at the AMS Sectional Meeting at SFSU (with S. Iyengar), October 27-28, 2018
- Connections for Women workshop at MSRI (with K. Erdmann), February 1-2, 2018
- “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

EDITORIAL BOARDS

- MSRI MCL (Math Circle Library) Advisory Board
- Journal of Pure and Applied Algebra
- Documenta Mathematica
- Sao Paulo Journal of Mathematical Sciences.

SERVICE TO THE PROFESSION

- AMS Committee on prizes 2022 – 2025
- AMS Fellows committee 2019 – 2022
- AMS Centennial fellowship committee 2016 – 2018
- UBC/PIMS Mathematical Sciences Young Faculty Award committee, 2017-2019
- NSF panels, NSA reviews
- ICRA 2022 (in Argentina) support for junior US based researchers, co-PI on an NSF grant with R. Shiffler (applying for NSF support, collecting applications and selecting recipients)

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, 2011–2021
- 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, J. Ostroff, R. Liu, G. Liu, C. Vinzant, F. Shokrieh, D. Shi), 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.