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Curriculum Vitae
Peter K. Johnson
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Basic Information

Contact: Peter K. Johnson
            Department of Mathematics
            Michigan State University
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Education

Ph.D. in Mathematics, University of Virginia, May 2022.
    Thesis advisor: Thomas Mark.

M.S. in the Division of Physical Sciences, University of Chicago, December 2014.
    Thesis advisor: John Boller. Thesis title: The Conjugacy Classes of $O(3, q)$.

B.S. in Mathematical Economics, University of Richmond, May 2012.

The General Course Study Abroad Program, London School of Economics and Political Science, 2010-2011 Academic Year.

Research Interests

Low-dimensional topology. More specifically, using tools from symplectic topology and gauge theory such as Floer homology to study 3- and 4-dimensional manifolds. I am also interested in connections between Floer homology and quantum invariants.

Publications

- R. Akhmechet, P. K. Johnson, and V. Krushkal. *Lattice cohomology and q-series invariants of 3-manifolds.* Crelles Journal arXiv:2109.14139

Preprints

- P. K. Johnson. *On the involutive Heegaard Floer homology of negative semi-definite plumbed 3-manifolds with $b_1 = 1$.* arXiv:2108.13548

Awards

- Jefferson Scholars Foundation Research Prize, 2021

- All-University Graduate Teaching Award, UVa 2020-2021

Talks Given

- AMS Spring Southeastern Sectional - Special Session on Contact and Symplectic Topology in Dimensions 3 and 4, March 2023

- ICTP - Learning Workshop on BPS States and 3-Manifolds, March 2023

- AMS Fall Southeastern Sectional - Special Session on Interactions Between 3- and 4-Manifolds, October 2022

- Michigan State University - Geometry and Topology Seminar, October 2022

- University of Richmond - Math and Computer Science Colloquium, February 2022

- University of Michigan - Topology Seminar, January 2022

- University of Virginia - Geometry Seminar, November 2021

- Rutgers University - Topology/Geometry Seminar, September 2021 (virtual)

- University of Maryland - Geometry-Topology Seminar, September 2021

- Michigan State University - Geometry and Topology Seminar, September 2021 (virtual)

- University of Alabama - Algebra-Topology Seminar, March 2021 (virtual)

- University of Virginia - Geometry Seminar, March 2021 (virtual)

- University of Virginia - Graduate Students Seminar, April 2020. (virtual)

- Georgia Tech Topology Conference - Lightning Talk, December 2019.

Teaching

- Instructor for MTH 299 Transitions, section 004, MSU Spring 2023.

- Instructor for MTH 103A College Algebra I, sections 010 and 012, MSU Fall 2022.

- Directed Reading Program mentor, UVA Spring 2021.

- TA for REU, UVA Summer 2020 and Summer 2021.

- TA for Math Circle, UVA Fall 2019 and Fall 2018.

- Teaching Mentor for 2nd year math graduate students, UVA Fall 2020 and Fall 2018.

- Flipped Calculus Workshop participant, UVA Summer 2018.

- Pre-semester Teaching Workshop participant, UVA Summer 2021.

- The following is a list of the courses I taught at the University of Virginia.

  - MATH 1320 Calculus II, Fall 2021 and Fall 2018.
  - MATH 1140 Financial Mathematics, Fall 2020.
  - MATH 1210 A Survey of Calculus I (formerly called Applied Calculus I), Spring 2018, Fall 2017, Spring 2017.
  - TA for two discussion sections of MATH 1310 Calculus I, Fall 2016.

Conferences, Summer Schools, and Workshops Attended

- AMS Spring Southeastern Sectional - Special Session on Contact and Symplectic Topology in Dimensions 3 and 4, March 2023

- ICTP - Learning Workshop on BPS States and 3-Manifolds, March 2023

- AMS Fall Southeastern Sectional - Special Session on Interactions Between 3- and 4-Manifolds, October 2022

- Braids in Low-Dimensional Topology, ICERM, Providence, RI, April 2022.

- Tech Topology Conference, Georgia Institute of Technology, Atlanta, GA, December 2020, December 2019, December 2017.

- Current Progress in Low Dimensions Summer School: Institut des sciences mathématiques Université du Québec à Montréal, August 2019.

- Park City Mathematics Institute Graduate Summer School: Quantum Field Theory and Manifold Invariants, Park City, Utah, June-July 2019.

- Virginia Topology Conference, University of Virginia, Charlottesville, VA, December 2018.

- The topology and geometry of low dimensional manifolds: a celebration of the mathematics of Bob Gompf, University of Texas at Austin, Austin, TX, July 2018.

Other Professional Activities

- Co-organizer of Michigan State University Geometry and Topology Seminar, Fall 2022 and Spring 2023.

- Participant of American Institute of Mathematics 4d Topology Community, Spring 2021 (virtual).