

# Paul D. Johnson

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Date of Birth: December 20, 1980  
Citizenship: United States  
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## Research Interests

Algebraic geometry and combinatorics. Enumerative geometry: Gromov-Witten theory, Donaldson-Thomas, Hurwitz theory. Hilbert schemes and partitions. Orbifolds.

## Education

2006–2009 University of Michigan  
Ph.D. in Mathematics  
Advisor: Yongbin Ruan  
2003–2006 University of Wisconsin-Madison  
M.A. in Mathematics  
1999–2003 University of Chicago  
B.A. in Mathematics

## Professional History

2014– Lecturer, University of Sheffield  
2013–2014 Assistant Professor, Colorado State University  
2011–2013 NSF Postdoctoral Fellow, Columbia University  
2009 – 2011 Postdoctoral Research Fellow, Imperial College London  
Summer 2009 NSF Postdoctoral Fellow, Princeton University

## Papers

1. Counting curves on Hirzebruch surfaces: tropical geometry and the Fock space.  
Joint with R. Cavalieri, H. Markwig and D. Ranganathan.  
*Mathematical Proceedings of the Cambridge Philosophical Society* 171 (2021) no. 1, 165-205.  
arXiv:1706.05401.
2. A graphical interface for the Gromov-Witten theory of curves  
Joint with R. Cavalieri, H. Markwig, and D. Ranganathan.

- Algebraic Geometry: Salt Lake City 2015*, Proceedings of Symposia in Pure Mathematics, Part II pp 139–168. arXiv:1604.07250.
3. Lattice points and simultaneous core partitions.  
*Electronic Journal of Combinatorics* 25 (2018) no. 3. arXiv:1502.07934.
  4. Double Hurwitz numbers via the infinite wedge.  
*Trans. Amer. Math. Soc.* 367 (2015), no. 9, 6415–6440. arXiv:1008.3266.
  5. Equivariant GW Theory of Stacky Curves  
*Comm. Math. Phys.* 327 (2014), no. 2, 333–386. arXiv:0903.1068.
  6. The quantum Lefschetz hyperplane principle can fail for positive orbifold hypersurfaces.  
Joint with T. Coates, A. Gholampour, H. Iritani, Y. Jiang and C. Manolache.  
*Mathematical Research Letters* 19 (2012), no 5. 997–1005. arXiv:1202.2754.
  7. Hurwitz numbers, ribbon graphs, and tropicalization.  
Tropical geometry and integrable systems, 55–72, *Contemp. Math.*, 580, Amer. Math. Soc., Providence, RI, 2012. arXiv:1303.1543.
  8. Chamber Structure for double Hurwitz numbers.  
Joint with R. Cavalieri and H. Markwig.  
*Adv. Math.* 228 (2011), no. 4, 1894–1937. arXiv:1003.1805.
  9. Abelian Hurwitz-Hodge integrals.  
Joint with R. Pandharipande and H.-H. Tseng.  
*Michigan Math. J.* 60 (2011), no. 1, 171–198. arXiv:0803.0499.
  10. Tropical Hurwitz Numbers.  
Joint with R. Cavalieri and H. Markwig.  
*J. Algebraic Combin.* 32 (2010), no. 2, 241–265. arXiv:0804.0579.

## Preprints

1. Simultaneous cores with restrictions and a question of Zaleski and Zeilberger  
arXiv:1802.09621
2. Orbifold Hilbert Schemes and a generalization of cores and quotients.  
Work in progress. Draft available on GitHub:

## Teaching Experience

University of Sheffield	Lectured Graph Theory, Complex Analysis and Algebraic Geometry Ran discussion sections for flipped engineering math
Colorado State University	Combinatorics, Graduate Algebraic Topology sequence
Imperial College London	Taught representation theory of finite groups for advanced math majors. Ran math discussion sections for 1st year electrical engineering majors.
University of Michigan	Graduate Student Instructor. Taught Calculus I and II to small classes.
University of Wisconsin	Teaching Assistant. Led discussion sections for Calculus I, Calculus III Business Calculus, and Calculus with Precalculus.

## Honors, Awards, & Fellowships

NSF Postdoctoral Fellowship

Sumner B. Myers Prize (Best Math PhD thesis at University of Michigan)