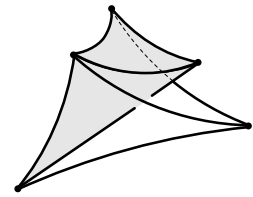




# Nathan M. Dunfield

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## Professional History:

University of Illinois at Urbana-Champaign: Professor of Mathematics, 2018–present.  
University of Illinois at Urbana-Champaign: Associate Professor of Mathematics, 2007–2018.  
Caltech: Associate Professor of Mathematics, 2003–2007.  
Harvard: Benjamin Peirce Assistant Professor of Mathematics, 1999–2003.  
University of Chicago: Ph.D. in Mathematics, 1999.

## Selected Grants, Awards, and Honors:

Fellow of the American Mathematical Society (inducted in 2013).  
Simons Fellowship in Mathematics, Fall 2013 and Spring 2021.  
Alfred P. Sloan Fellow, 2004–2008.  
Sole PI on NSF grant DMS-1811156 \$300,000, 2018–2022.  
Career grant total: \$1.8 million (\$1.5 million from NSF; \$300k from foundations).  
LAS Dean’s Award for Excellence in Undergraduate Teaching, University of Illinois, 2014.  
Faculty Teaching Award from the Associated Students of Caltech, 2006.

## Selected Publications:

 Available on web page listed above, and at [arXiv.org](http://arXiv.org).

Cyclic surgery, degrees of maps of character curves, and volume rigidity for hyperbolic manifolds.  
*Invent. Math.* **136** (1999), 623–657.  
(with Danny Calegari) Laminations and groups of homeomorphisms of the circle.  
*Invent. Math.* **152** (2003) 149–207.  
(with Frank Calegari) Automorphic forms and rational homology 3-spheres.  
*Geom. Topol.* **10** (2006) 295–329.  
(with William Thurston) Finite covers of random 3-manifolds.  
*Invent. Math.* **166** (2006) 457–521.  
(with Dylan Thurston) A random tunnel number one 3-manifold does not fiber over the circle.  
*Geom. Topol.* **10** (2006) 2431–2499.  
(with Anil Hirani) The Least Spanning Area of a Knot and the Optimal Bounding Chain Problem.  
*Proceedings of the 27th ACM Symposium on Computational Geometry*, SoCG 2011, 135–144.  
(with Jeffrey Brock) Injectivity radii of hyperbolic integer homology 3-spheres.  
*Geom. Topol.* **19** (2015), 497–523.  
(with Jeffrey Brock) Norms on the cohomology of hyperbolic 3-manifolds.  
*Invent. Math.* **210** (2017), 531–558.  
(with Marc Culler) Orderability and Dehn filling.  
*Geom. Topol.* **22** (2018), 1405–1457.  
Floer homology, group orderability, and taut foliations of hyperbolic 3-manifolds.  
*Geom. Topol.* **24** (2020), 2075–2125.  
(with Stavros Garoufalidis and J. Hyam Rubinstein) Counting essential surfaces in 3-manifolds.  
*Invent. Math.* (to appear). 61 pages.

**Teaching and Mentoring:** I have taught more than 20 distinct courses ranging from a vector calculus class with 270 students to an advanced graduate class with only 5 students, and won teaching awards at both Illinois and Caltech. I have graduated seven PhD students; their first jobs include named postdocs at Harvard and Columbia. I have mentored numerous undergraduates in research projects and honors theses.