

Sean Howe

Curriculum Vitae

Education

- 2012-present **PhD (expected June 2017)**, *University of Chicago*, advised by Matt Emerton.
- 2010-2012 **Master in Mathematics**, *Joint degree from Université Paris-Sud 11 and Leiden University through the ALGANT master program*, advised by Bas Edixhoven.
- 2005-2010 **BS in Mathematics**, *University of Arizona*, minor in Creative Writing.

Selected distinctions, fellowships, etc.

- 2016 University of Chicago Harper Dissertation Fellowship
- 2012 University of Chicago Amick Memorial Fellowship
- 2010 NSF Graduate Research Fellowship
- 2010 ALGANT Erasmus Mundus Scholarship
- 2010 University of Arizona College of Science Excellence in Undergraduate Research Award
- 2010 University of Arizona Candice Leigh Brown Prize in Creative Writing
- 2008 Goldwater Scholarship

Papers and Preprints

1. *Completed cohomology and overconvergent modular forms.*
Sean Howe.
In preparation.
2. *Overconvergent automorphic forms and the p -adic Jacquet-Langlands correspondence.*
Sean Howe.
In preparation.
3. *Transcendence of the Hodge-Tate filtration.*
Sean Howe.
<https://arxiv.org/pdf/1610.05242>
4. *Motivic random variables and representation stability II: Hypersurface sections.*
Sean Howe.
<https://arxiv.org/pdf/1610.05720>
5. *Motivic random variables and representation stability I: Configuration spaces.*
Sean Howe.
<https://arxiv.org/pdf/1610.05723>

6. *Presentations of quaternionic S -unit groups.*

T. Chinburg, H. Friedlander, S. Howe, M. Kusters, B. Singh, M. Stover, P. Ziegler, and Y. Zhang. Experimental Mathematics, Volume 24, Issue 2, 2015. <https://arxiv.org/pdf/1404.6091>

7. *Higher genus counterexamples to relative Manin-Mumford.*

Sean Howe.

Master's thesis. 2012. Available: <http://www.algant.eu/documents/theses/howe.pdf>

8. *Asymptotics of conductors of elliptic curves over \mathbb{Q} .*

Sean Howe.

In revision. <https://arxiv.org/pdf/1201.4566>

9. *The Log-Convex Density Conjecture and vertical surface area in warped products.*

Sean Howe.

Advances in Geometry, 15.4:455–468, 2015. <https://arxiv.org/pdf/1107.4402>

10. *Isoperimetric problems in sectors with density.*

Alexander Díaz, Nate Harman, Sean Howe and David Thompson.

Advances in Geometry, 14.4:589–619, 2012. <https://arxiv.org/pdf/1012.0450>

11. *Steiner and Schwarz symmetrization in warped products and fiber bundles with density.*

Frank Morgan, Sean Howe, and Nate Harman.

Révista Matemática Iberoamericana, 27(3):909–918, 2011. <https://arxiv.org/pdf/0911.1938>

12. *Isoperimetric inequalities for wave fronts and a generalization of Menzin's conjecture for bicycle monodromy on surfaces of constant curvature.*

Sean Howe, Matt Pancia and Valentin Zakharevich.

Advances in Geometry, 11:273–292, 2011. <https://arxiv.org/pdf/0902.0104>

Seminars

5 Dec. 2016 Stanford University Number Theory Seminar.

18 Nov. 2016 Columbia University Automorphic Forms and Arithmetic Seminar.

31 Oct. 2016 “Overconvergent modular forms and the p -adic Jacquet-Langlands correspondence.” Northwestern University Number Theory Seminar.

14 Oct. 2016 “Representation stability and hypersurface sections.” University of Wisconsin-Madison Geometry and Topology Seminar.

27 Sep. 2016 “Overconvergent modular forms and the p -adic Jacquet-Langlands correspondence.” University of Chicago Number Theory Seminar.

7 May 2012 “Higher genus counter-examples to the ‘naive’ relative Manin-Mumford conjecture.” University of Leiden Algebra and Number Theory Seminar.

Conference talks

24 June 2016 “The p -adic Jacquet-Langlands correspondence and a question of Serre.” Calgary, Alberta: 14th Meeting of the Canadian Number Theory Association.

18 Oct. 2015 “Overconvergent forms on Hodge-type Shimura varieties.” Chicago, Illinois: 2015 Midwest Number Theory Conference for Graduate Students and Recent PhD's.

- 28 July 2015 “p-adic modular forms and the Hodge-Tate period map.” Salt Lake City, Utah: AMS Summer Institute in Algebraic Geometry 2015.
- 15 Mar. 2015 “Point counting, stability, and the complement of the discriminant locus.” Fayetteville, Arkansas: Arkansas Spring Lecture Series 2015.
- 13 Sep. 2014 “The one line on a cubic surface.” Chicago, IL: Chicago Grad NT Meeting 2014.
- 11 Jan. 2013 “Presentations of S-unit groups of quaternions algebras ramified at infinity and applications to the congruence subgroup problem.” San Diego, CA: Joint Mathematics Meetings 2013.
- 14 Oct. 2012 “Higher genus counterexamples to relative Manin-Mumford.” Urbana-Champaign, IL: Midwest Number Theory Conference 2012.
- 4 Aug. 2012 “A geometric construction of higher dimension counter-examples to relative Manin-Mumford.” Madison, WI: MathFest 2012.
- 15 June 2012 “Contre-exemples à la conjecture Manin-Mumford relative sur les Jacobiennes de courbes de genre ≥ 1 .” Lyon, France: Colloque Jeune Chercheurs en Théorie de Nombres 2012.
- 4 Jan. 2012 “Vertical surface area in warped products.” Boston, MA: Joint Mathematics Meetings, 2012.

General audience talks

- 4 Aug. 2012 “Moody Monty Hall.” Madison, WI: MathFest 2012 – Special session “Great Talks for a General Audience: Coached Presentations by Graduate Students.”
- 29 Apr. 2010 “The Isoperimetric Problem: How Carthage Was Built Inside the Hide of an Ox.” Tucson, AZ: 2010 Galileo Circle Reception.

Teaching

University of Chicago:

- Fall 2016 Instructor for Math 15200, Calculus 2.
- Spring 2016 Instructor for Math 13300-44, Calculus 3. *Nominated by students for Physical Sciences Teaching Prize.*
- Fall 2015 Instructor for Math 15300-38, Calculus 3.
- Spring 2014 TA for Math 274, Differentiable Manifolds and Integration with Kevin Corlette
- Winter 2014 TA for Math 203, Analysis in \mathbb{R}^n -1 with Luis Silvestre
- Fall 2013 TA for Math 267, Introduction to the Representation Theory of Finite Groups with Benson Farb
- 2013-2016 Mentored 17 undergraduates over a total of 4 summers through the REU program.
- 2012-2016 Mentored five different undergraduates individually over a total of eleven quarters through the Directed Reading Program.

Other mathematical/service activities

- 2014-2016 Organized yearly workshops on improv skills for effective communication and teaching for the University of Chicago Math Department.
- Summer 2014 Organized a workshop on improv skills for science communication for the University of Chicago Physical Sciences Division.
- 2013-2014 Co-organized AWM panels on math careers for University of Chicago undergraduates.

2012-2014 Alumni contact for AMS Math in Moscow program.

█ Languages

English, native speaker.

French, professional working proficiency (ILR scale).

█ Personal

United States permanent resident, Canadian citizen.

Born in Edmonton, Alberta, Canada on February 10, 1987.