

Jesse Wolfson
Curriculum Vitae

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Department of Mathematics
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EMPLOYMENT AND VISITING POSITIONS

2025 Professor, University of California – Irvine, USA

2021 Associate Professor (with tenure), University of California – Irvine, USA

2017 Assistant Professor, University of California – Irvine, USA

2014-2017 L.E. Dickson Instructor, University of Chicago, USA

2013-2014 Visitor, IPMU, Japan

EDUCATION

2014 Ph.D. in Mathematics, Northwestern University
Thesis: “Descent for n-Bundles, Tate Objects in Exact Categories, and the Index Map and Reciprocity Laws”.
Advisor: Ezra Getzler

2009 M.A.St. in Mathematics (Part III), University of Cambridge, with distinction

2008 M.S. in Mathematics, Yale University
B.S. in Mathematics and Literature, Yale University

FELLOWSHIPS AND AWARDS

2025 NSF Grant DMS- 2506184 – Groups in Geometry and Topology: Discrete, Continuous, and Higher, PI, \$300,000

2024 UCI Illuminations Grant - Math and Black Dance, PI, \$2,000

2024 NSF RTG Grant DMS-2342135 – Southern California Geometry and Topology Center, co-PI, \$2,498,586

2023 UCI Office of the Provost Interim Covid Research and Recovery Funds, PI, \$7,600

2023 UCI Illuminations Grant - STEM, Black culture, and Arts, PI, \$3,000

2020 NSF CAREER Grant DMS-1944862 – Braids, Resolvent Degree and Hilbert’s 13th Problem, PI, \$449,956

2019	NSF Grant DMS-1856737 – Arithmetic Topology (Conference Grant), PI, \$27,000
2018	NSF Grant DMS-1811846 - Euler Products and Homological Densities via Factorization Homology, PI, \$152,995
2015	MacArthur Award for Creative and Effective Institutions: Roosevelt Institute Campus Network, MacArthur Foundation, \$750,000.
2014	NSF Mathematical Sciences Post-Doctoral Research Fellow, sponsoring scientist: Alexander Beilinson, University of Chicago.
2008	NSF Graduate Research Fellow, Northwestern University.
2007	Keasbey Scholar, St. John's College, University of Cambridge.

JOURNAL ARTICLES (PEER-REVIEWED)

J24 “On Simplicial Principal Bundles in Descent Categories”, *Homotopical Methods in Geometry and Physics (Getzler 60th Birthday Volume)*, Contemporary Mathematics, AMS, *to appear*.

J23 “Essential dimension via prismatic cohomology”, with Benson Farb and Mark Kisin, *Duke Mathematical Journal*, vol. 173, 2024, no. 15, pp. 3059-3106.

J22 “Generalized Versality, Special Points, and Resolvent Degree for the Sporadic Groups”, with Claudio Gómez-Gonzales and Alex Sutherland, *Journal Algebra*, vol. 647, 2024, pp. 758-793.

J21 “Modular functions and resolvent problems, with an appendix by Nate Harman,” with Benson Farb and Mark Kisin. *Mathematische Annalen*, vol. 386, 2023, pp. 113-150.

J20 “Essential Dimension of Congruence Covers,” with Benson Farb and Mark Kisin. *Compositio Mathematicae*, vol. 157, no. 11, 2021, pp. 2407-2432

J19 “Problems in Arithmetic Topology,” with Claudio Gomez-Gonzales. *Research in the Mathematical Sciences*, vol. 8, 2021, article 23, 14 pp.

J18 “A Generalized Contou-Carrere Symbol and its Reciprocity Laws in Higher Dimensions,” with Oliver Braunling and Michael Groechenig. *Transactions of the AMS*, Ser. B vol. 8, 2021, 679-753.

J17 “Tschirnhaus transformations, after Hilbert.” *L'Enseignement Mathematique*, vol. 66, 2020, no. 3, pp. 489-540.

J16 “Resolvent degree, Hilbert’s 13th problem, and geometry,” with Benson Farb. *L’Enseignement Mathematique*, vol. 65, 2019, no. 3/4, pp. 303-376.

J15 “Derived ℓ -adic zeta functions,” with Jonathan Campbell and Inna Zakharevich, *Advances in Mathematics*, vol. 354 (2019), article 106760, 53 pages.

J14 “Coincidences of homological densities, predicted by arithmetic,” with Benson Farb and Melanie Wood, *Advances in Mathematics*, vol. 352 (2019), pp. 670-716.

J13 “Hochschild coniveau spectral sequence and the Beilinson residue,” with Oliver Braunling, *Pacific Journal of Mathematics*, vol. 300, no. 2, 2019, pp. 257-329.

J12 “On the A-infinity structure of the index map,” with Oliver Braunling and Michael Groechenig. *Annals of K-Theory*, vol. 3 (2018), No. 4, pp. 581-614.

J11 “Etale homological stability and arithmetic statistics,” with Benson Farb. *Quarterly Journal of Mathematics*, vol. 69, no. 3, 2018, pp. 951-974.

J10 “On the normally ordered tensor product and duality for Tate objects,” with Oliver Braunling, Michael Groechenig and Aron Heleodoro. *Theory and Applications of Categories*, vol. 33, 2018, pp. 296-349. Corrigendum, vol. 39, 2023, pp. 186-188.

J9 “The Index Map in Algebraic K-Theory,” with Oliver Braunling and Michael Groechenig. *Selecta Mathematica*, vol. 24, no. 2, 2018, pp. 1039-1091.

J8 “Topology and Arithmetic of Resultants II: the resultant=1 hypersurface,” with Benson Farb (with an appendix by C. Cazanave). *Algebraic Geometry*, vol. 4, no. 3, 2017, pp. 337-352.

J7 “Relative Tate Objects and Boundary Maps in the K-Theory of Coherent Sheaves,” with Oliver Braunling and Michael Groechenig. *Homology, Homotopy and Applications*, vol. 19, no. 1, 2017, pp. 341-369.

J6 “Modular Operads of Embedded Curves,” with Satoshi Kondo and Charles Siegel. *Geometry & Topology*, vol. 21, no. 2, 2017, pp. 903-922.

J5 “Operator Ideals in Tate Objects,” with Oliver Braunling and Michael Groechenig. *Mathematical Research Letters*, vol. 23, no. 6 (2016), pp. 1565-1631.

J4 “Geometric and Analytic Structures on the Higher Adeles,” with Oliver Braunling and Michael Groechenig, *Research in the Mathematical Sciences, Special Collection in Celebration of the Research of Fedor Bogomolov on the Occasion of his 70th Birthday*, vol. 3, no. 1 (2016), article 22.

J3 “Topology and Arithmetic of Resultants, I” with Benson Farb, *New York Journal of Mathematics*, vol. 22 (2016), pp. 801-821. Corrigendum, vol. 25, 2019, pp. 195-197.

J2 “Tate Objects in Exact Categories,” with Oliver Braunling and Michael Groechenig (with an appendix by J. Stovicek and J. Trlifaj), *Moscow Mathematical Journal*, vol. 16, no. 3 (2016), pp. 433-504.

J1 “Descent for n-Bundles,” *Advances in Mathematics*, vol. 288 (2016), pp. 527-575.

JOURNAL ARTICLES

A2 “Fractals in Africanist Music,” with Claudio Gómez-Gonzáles, Sidhanth Raman, and Siddharth Viswanath, *MAA FOCUS*, vol. 4 (2024), no. 4 (Aug/Sept.), pp. 18-22.

A1 “Math and Dance: Notes from an emerging interaction,” with Reggie Wilson, *Notices of the AMS*, vol. 68 (2021), no. 11, pp. 1926-1929.

CONFERENCE PROCEEDINGS

C2 “Resolvent degree, Hilbert’s 13th problem and geometry (joint with Benson Farb).” *Topology of Arrangements and Representation Stability*, Oberwolfach Research Reports, no. 2, 2018, pp. 84--87.

C1 “Coincidences of homological densities, predicted by arithmetic (joint with Benson Farb and Melanie Matchett Wood)”. *Topologie*, Oberwolfach Research Reports, vol. 16, no. 3, 2016, pp. 2041-2043.

PREPRINTS

P3 “Correctness, Artificial Intelligence, and the Epistemic Value of Proof,” with Jim Weatherall. PhilSci-archive:25741. Submitted for publication.

P2 “Lie’s Third Theorem for L_{∞} -algebras,” with Chris Rogers. arXiv:2409.08957. Submitted for publication.

P1 “A higher Kac-Moody extension for two-dimensional gauge groups”, with Jens Kaad and Ryszard Nest. arXiv:2110.01649. Submitted for publication.

WORKSHOPS/SUMMER SCHOOLS ORGANIZED

2025 “Humans, Math and Machines”, co-organized with Jim Weatherall. UC Irvine, Mar. 7-8.

2019 “Arithmetic Topology”, co-organized with Alejandro Adem, Craig Westerland and Melanie Wood. PIMS, June 10-14.

“Braids, Resolvent Degree and Hilbert’s 13th Problem,” co-organized with Benson Farb, Eriko Hironaka, Mark Kisin and Zinovy Reichstein. IPAM, Feb. 19-21.

2018 NSF RTG/PIMS Summer School on Geometry and Topology – “The Roots of Topology - The roots of topology: miracles of algebraic geometry, braids, and Hilbert’s (still open) 13th problem” co-organized with Benson Farb. 70+ participants, June 11-14, University of Chicago.

LECTURE SERIES

2019 Special Seminar on Hilbert’s 13th Problem (with Benson Farb), Institute for Advanced Study, Dec. 5-6.

2018 Jornadas de geometria algebraica en Oaxaca – “Resolvent degree, Hilbert’s 13th problem and geometry”, Oaxaca, Mexico, Sept. 17-19.

PUBLIC TALKS

2025 Dance and Mathematics, with Reggie Wilson, UC Irvine, May 22.

2024 Modern Geometry, St. John’s College, Nov. 8.
Fractals and African Music, with Sidhanth Raman and Reggie Wilson, UC Irvine, May 21.

2020 Fist & Heel Town Hall, Panel on Whiteness (Zoom). Aug. 21.

2015 Choreography & Fractal Symmetry: a conversation with choreographer Reggie Wilson & mathematics faculty member Jesse Wolfson, Gray Center Labs, University of Chicago, May 12.

SELECTED RESEARCH TALKS

2025

2024 socAlgTop – “Higher Lie Theory” – May 11, UCLA

2023 VaNTAGe – “Perspectives on Hilbert’s 13th Problem” – Nov. 7
Mid-Atlantic Topology Conference (@UPenn) – “Essential Dimension via Prismatic Cohomology” – April 15-16, 2023

2022 ICERM Workshop on Braids in Symplectic and Algebraic Geometry – “Surface braids and Galois Cohomology” – March 23-25
Homotopical Methods in Geometry and Physics (Conference in Honor of Ezra Getzler’s 60th Birthday) – “Lie’s Third Theorem for L-infinity Algebras” – March 21-23

2021	Algebraic Groups and Algebraic Geometry (Conference in honor of Zinovy Reichstein's 60th Birthday) – Essential Dimension via Prismatic Cohomology – June 29 Spring Western AMS Sectional Special Session on Connections between homotopical algebra and geometry – Lie theory for L_{∞} -algebras – May 1-2
	UNAM Seminario nacional de geometría algebraica EN LÍNEA – The Geometry of Hilbert's 13th Problem – April 14
2020	UNR Colloquium – Braids, Polynomials and Hilbert's 13th Problem – Sept. 24
2019	IPAM – Braids, Polynomials and Hilbert's 13th Problem, Feb. 19-21 After Abel, Feb. 19 Resolvent Degree and Classical Solutions, Feb. 19 Resolvent Degree and the Search for Lower Bounds, Feb. 21
	Tufts Colloquium – Braids, Polynomials and Hilbert's 13 th Problem, Feb. 1
2018	USC Colloquium – Braids, Polynomials and Hilbert's 13th Problem, Sept. 26. Stanford Topology Seminar – The Theory of Resolvent Degree, after Hamilton, Klein, Sylvester, Hilbert and Brauer, May 22. University of Chicago Colloquium – Braids, Polynomials and Hilbert's 13th Problem, Apr. 11. Harvard Number Theory Seminar – The Theory of Resolvent Degree, after Hamilton, Klein, Hilbert and Brauer, Mar. 7. Harvard Informal Geometry and Dynamics Seminar – The Geometry of Hilbert's 13th Problem, Mar. 7. Kempner Colloquium – Algebraic Topology and Hilbert's 13th Problem(s), Boulder, CO, Jan. 30. Oberwolfach Workshop “Topology of Arrangements and Representation Stability” – The theory of resolvent degree, after Hamilton, Sylvester, Hilbert, Segre and Brauer, Oberwolfach, Germany, Jan. 14-20.
2017	No Boundaries – Groups in Algebra, Geometry and Topology – The theory of resolvent degree, after Hamilton, Sylvester, Hilbert, Segre and Brauer – Chicago, USA, Oct. 26-29.

Manifolds and Groups – Coincidences of homological densities, predicted by arithmetic – Regensburg, Germany, Sept. 25-29.

2016 Oberwolfach Topology Meeting 2016, “Coincidences of homological densities, predicted by arithmetic,” Oberwolfach, Germany, July 21.

27th Nordic Congress of Mathematicians, Geometry and Topology Session, “Counting Problems and Homological Stability,” Stockholm, Sweden, Mar. 17.

IBS-CGP Conference on Homotopical Methods in Quantum Field Theory, “Higher Determinants and Double Loop Groups,” Pohang, Korea, Jan. 13.

2015 AMS Summer Institute in Algebraic Geometry, “Topology and Arithmetic of Resultants,” Salt Lake City, UT, July 27.

Yale Geometry, Symmetry and Physics Seminar, “The Index Map and Reciprocity Laws for Contou-Carrere Symbols,” New Haven, CT, Feb. 2.

2014 MIT Topology Seminar, “The Index Map and Reciprocity Laws,” Cambridge, MA, Nov. 17.

University of Tokyo Topology Seminar, “The Index Map and Reciprocity Laws for Contou-Carrere Symbols,” Tokyo, Japan, July 22.

ADVISING

Postdoctoral Advising

2025-present Reginald Anderson (Chancellor’s Postdoctoral Fellow, PhD KSU 2023)
Trent Lucas (RTG VAP, PhD Brown 2025)

2022-2024 Josh Lieber (PhD CalTech 2021)

2020-2021 Claudio Gomez-Gonzales (PhD UChicago 2020, UC Presidential Postdoctoral Fellow, now assistant professor at Carlton College)

2018-2019 Megan Maguire (PhD UW-Madison 2018)

Graduate Advising

Alex Sutherland (PhD 2022, Ross Assistant Professorship at OSU)
Hannah Knight (PhD 2023, NSF Postdoctoral Fellowship at UCLA)
Anubhav Nanavaty (PhD 2025, H.C. Wang Assistant Professorship at Cornell)
Sidhanth Raman (PhD 2025, NSF Postdoctoral Fellowship and L.E. Dickson Instructorship at UChicago)

Nawal Baydoun (candidacy 2025, expected PhD 2027)
Adam Marks (candidacy 2023, expected PhD 2025)
Cody Morrin (candidacy 2024, expected PhD 2026)

Suhasiny Naik (candidacy 2025, expected PhD 2027)
Sireesh Vinnakota (expected PhD 2027)
Aurora Vogel (expected PhD 2028)
Yuxiang Yao (candidacy 2024, expected PhD 2026)

Undergraduate Advising

2023-2024 Supervised Marissa Corr on quantitative study of UC Irvine math major outcomes
Supervised Anand Srinivasan on computational aspects of LSV complexes

2021-2023 Supervised undergraduate research on fractals, Hausdorff dimension and
Africanist music, Siddharth Viswanath

2020-2021 Supervised translation of paper of Ostrowski, Erik Christian Hansen

2018-2019 Directed reading in topology, Jazieel Lopez de la Luz

University of Chicago

Graduate Advising

Member of thesis committee:

Victoria Akin, 2017, Thesis - “Uniqueness of the Point-Pushing Subgroup”
Nir Gadish, 2019, Thesis - Representation stability for families of linear subspace
arrangements

2015-2016 Advisor, University of Chicago Careers in STEM

SERVICE

Campus Service

2023-2024 Academic Planning Group
Ad Hoc Dean Review Committee
Hellman Fellowship Selection Committee

2022-2023 Provost’s Leadership Academy
Divisional Senate Assembly Member

2021-2022 Divisional Senate Assembly Member

School Service

2023-2024 Faculty Development Committee
Director of External Relations Search Committee
School of Physical Sciences Climate Council

2022-2023 Dean’s Advisory Committee – Mathematics
School of Physical Sciences Steering Committee

2021-2022 School of Physical Sciences Steering Committee

Department Service

2023-present Vice Chair for Inclusive Excellence

2022-2023 Department Chair Search Committee
Colloquium/Distinguished Visitor Committee
UC Presidential Postdoctoral Fellows Hiring Committee
Ad Hoc Promotion Committee

2021-2022 Complex Analysis Qualifying Exam Committee
VAP Hiring Committee

2020-2021 Inclusive Excellence Committee
UC/HBCU Initiative Committee
Black Thriving Initiative Hiring Committee (Chair)
UC Presidential Postdoctoral Fellows Hiring Committee

2019-2020 Colloquium Committee
PPF Hiring Committee
Outreach Committee
VAP Hiring Committee
Graduate Seminar (speaker)
Geometry and Topology Seminar – co-organizer

2018-2019 Geometry and Topology Seminar – co-organizer
Distinguished Visitor Committee
Algebra Qualifying Exam Committee

2017-2018 Geometry and Topology Seminar – co-organizer
Colloquium Committee
Algebra Qualifying Exam Committee

Professional Service

Referee for *Advances in Mathematics*; *Algebraic & Geometric Topology*; *Annales Scientifiques de l'École Normale Supérieure*; *Commentarii Mathematici Helvetici*; *Compositio Mathematicae*; *Duke Journal of Mathematics*; *L'Enseignement Mathématique*; *Épjournal de Géométrie Algébrique*; *Experimental Mathematics*; *Geometry & Topology*; *Homotopy, Homology and Applications*; *International Mathematics Research Notices*; *Inventiones Mathematicae*; *Journal für die reine und angewandt Mathematik* (Crelle's journal); *Journal of Algebraic Geometry*; *Journal of the Mathematical Society of Japan*; *Mathematische Annalen*; *Mathematical Research Letters*; *Mathematische Zeitschrift*; *New York Journal of Mathematics*; *Notices of the AMS*; *Proceedings of the AMS*; *Research in the Mathematical Sciences*; *Selecta Mathematica*; *Theory and Applications of Categories*; *Transactions of the AMS*.

2020-2023 Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), UCI Chapter – Faculty Mentor

PROFESSIONAL MEMBERSHIPS

American Mathematical Society
Association for Women in Mathematics
National Association of Mathematicians

OTHER EXPERIENCE

Fist and Heel Performance Group
2020-present Member, Board of Directors

2016-present Member, Advisory Council

2012-present Fractal Symmetry/Math Consultant
Consulted for creation of original concert dance pieces: *Moses(es)* (2013), *Citizen* (2016), *POWER* (2020)
Assisted choreographer Reggie Wilson and his dancers to understand and work with the formal structures they encounter as they engage with African and Africanist performance cultures.

Roosevelt Institute Campus Network
2015-2018 Member, Alumni Committee

2006 Executive Director

2005 Guest Editor, *Review of Policy Research*, Vol. 22, Issue 6

2004 Co-Founder