Daniel Litt

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Current position

2019- Assistant Professor, University of Georgia

Previous positions

2018-2019 Member, Institute for Advanced Study
2015-2018 NSF Postdoctoral Fellow, Columbia University

Area of specialization

Arithmetic algebraic geometry, number theory

Education

2015 PhD in Mathematics, Stanford University
Thesis advisor: Ravi Vakil
Thesis title: Non-abelian Lefschetz hyperplane theorems
2010 BA in Mathematics, Harvard University

Grants, honors & awards

2020-2023 NSF Algebra and Number Theory Grant DMS-2001196, "Anabelian methods in arithmetic and algebraic geometry"
2020 Simons Collaboration Grant (declined due to conflict with NSF grant)
2015-2018 NSF Mathematical Sciences Postdoctoral Research Fellowship, Columbia University
2013-2015 Achievement Rewards for College Scientists (ARCS) Fellowship
9-12/2014 Stanford-Princeton Exchange Scholar
2014,2016 US Junior Oberwolfach Fellow
2010-2013 NSF Graduate Research Fellowship

Articles & talks

Preprints

2020 Li, Wanlin; Litt, Daniel; Salter, Nick; Srinivasan, Padmavathi, "Surface bundles and the section conjecture," arXiv:2010.07331

2020 Kedlaya, Kiran; Litt, Daniel; Witaszek, Jakub, "Tamely ramified morphisms of curves and Belyi's theorem in positive characteristic," arXiv:2010.01130

2020 Litt, Daniel; Shmakov, Aleksander "Canonical paths on algebraic varieties," in preparation

2020 Bisogno, Dean; Li, Wanlin; Litt, Daniel; Srinivasan, Padmavathi, "Group-theoretic Johnson classes and a non-hyperelliptic curve with torsion Ceresa class, arXiv preprint arXiv:2004.06146

2019 Betts, Alexander; Litt, Daniel, "Semisimplicity and weight-monodromy for fundamental groups," arXiv preprint arXiv:1912.02167

2019 Javanpeykar, Ariyan; Litt, Daniel, "Integral points on algebraic subvarieties of period domains: from number fields to finitely generated fields," arXiv preprint arXiv:1907.13536

2019 Lawrence, Brian; Litt, Daniel, "Representations of surface groups with universally finite mapping class group orbit" arXiv preprint arXiv:1907.03941.

2019 Litt, Daniel, "Arithmetic Representations of Fundamental Groups II: Finiteness," arXiv preprint arXiv:1809.03524 (pending at Duke Math Journal).

2016 Litt, Daniel, "Arithmetic Restrictions on Geometric Monodromy," arXiv preprint arXiv:1607.05740.

Accepted Articles

2019 Lesieutre, John; Litt, Daniel, "Dynamical Mordell-Lang and Automorphisms of Blow-Ups,"Algebraic Geometry. 2019 Jan 1; 6(1): 1-25.

2019 Litt, Daniel, "Vanishing for Frobenius Twists of Ample Vector Bundles," Tohoku Mathematical Journal 71 (4), 549-557.

2018 Litt, Daniel, "Arithmetic Representations of Fundamental Groups I," Invent. math. 214, 605-639 (2018).

2017 Litt, Daniel, "Non-Abelian Lefschetz Hyperplane Theorems ," J. Algebraic Geom. 27 (2018), no. 4, 593-646.

2016 Litt, Daniel, "Manifolds Containing an Ample $\mathbb{P}^1$-bundle," manuscripta mathematica 152 (3-4), 533-537.

2014 Litt, Daniel, "Zeta Functions of Curves With No Rational Points," Michigan Math. J., Volume 64, Issue 2 (2015), 383-395..

2013 Litt, Daniel, "Symmetric Powers Do Not Stabilize," Proceedings of the American Mathematical Society 142 (12), 4079-4094.

2010 Abel, Zachary; Kominers, Scott; Litt, Daniel, "A Categorical Construction of Ultrafilters," *Rocky Mountain J. Math.* Volume 40, Number 5, 1611-1617.

Expository work and outreach

2020 Haran, Brady; Litt, Daniel, Numberphile video on Poncelet's Porism: Link
2020 Knudson, Kevin; Lamb, Evelyn; Litt, Daniel, episode of the "My Favorite Theorem" podcast on Dirichlet's theorem on primes in arithmetic progressions
2020 Alper, Jarod; Litt, Daniel; Vogt, Isabel, "A Guide to Organizing a Virtual Conference," AMS Notices
2019 Haran, Brady; Litt, Daniel, Numberphile video on the Dehn invariant: Link

Invited Talks

2020 Colloquium, UC Berkeley
2020 *The arithmetic of polynomials*, Talk Math With Your Friends Seminar
2020 *The tropical section conjecture*, Leiden Algebra, Geometry, and Number Theory Seminar
2020 Colloquium, West Chester University
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, UCSD algebraic geometry seminar
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, Western Algebraic Geometry Symposium (delayed due to COVID)
2020 *Independence of* ℓ *for higher Ceresa cycles*, Columbia University (delayed due to COVID)
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, UChicago number theory seminar (delayed due to COVID)
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, University of Wisconsin number theory seminar
2020 *Impossible numbers and unknowable truths*, public lecture, Furman University
2020 *Arithmetic of algebraic varieties*, Furman Univeristy, Colloquium
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, BC-MIT number theory seminar
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, Stanford
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, OSU
2020 *The section conjecture at the boundary of* $\mathcal{M}_g$, Caltech
2019 *The section conjecture at the boundary of* $\mathcal{M}_g$, Algebraic Geometry and Arithmetic Geometry Conference 2019, USTC, Hefei
2019 *Finiteness and discreteness results for representations of arithmetic fundamental groups I and II*, Wild Ramification and Irregular Singularities, IMPAN, Warsaw
2019 *Arithmetic and Representation Theory of Fundamental Groups*, Arithmetic Topology, PIMS, UBC
2019 *Arithmetic and Monodromy Representations*, Symposium on Hodge Theory, Arithmetic and Moduli, PIMS, UBC
2019 *Arithmetic and Representation Theory of Fundamental Groups*, Simons Symposium on p-adic Hodge Theory, Schloss Elmau
2019 Three-lecture minicourse on *Arithmetic and the Representation Theory of Fundamental Groups,* workshop on "Galois Representations, Integral Points, Unlikely Intersections" at Universität Mainz
2019 *Arithmetic Dynamics and Monodromy Representations*, UGA AGANT Seminar
2019 *Arithmetic Dynamics and Monodromy Representations*, Courant Algebraic Geometry Seminar
2019 *Arithmetic and Representation Theory of Fundamental Groups*, Rutgers Number Theory Seminar
2019 *Arithmetic and Representation Theory of Fundamental Groups*, IPAM Conference on "Braids,

Resolvent Degree, and Hilbert's 13th Problem"

2019 *Monodromy Representations and Arithmetic*, Johns Hopkins Number Theory Seminar

2018 *Monodromy Representations and Arithmetic*, University of Maryland Number Theory Seminar

2018 *The Tate Curve*, Preparatory Lecture for Peter Scholze's Chow Lectures at MPI Leipzig

2018 *Monodromy Representations and Arithmetic*, Rice Algebraic Geometry Seminar

2018 *Monodromy Representations and Arithmetic*, Penn State Algebraic Geometry Seminar

2018 *Monodromy Representations and Arithmetic*, Yale Algebraic Geometry Seminar

2018 *Monodromy Representations and Arithmetic*, Joint NYU-Columbia-CUNY Number Theory Seminar

2018 *Monodromy Representations and Arithmetic*, Princeton University Algebraic Geometry Seminar

2018 *Monodromy Representations and Arithmetic*, Institute for Advanced Study

2018 *Finiteness for Monodromy Representations*, Joint International Meetings of the Chinese Mathematical Society and the American Mathematical Society, Fudan University

2018 *Canonical Paths on Algebraic Varieties*, Northeastern University Algebraic Geometry Seminar

2018 *Canonical Paths on Algebraic Varieties*, University of Michigan Algebraic Geometry seminar

2018 *Arithmetic Representations of Fundamental Groups*, University of Minnesota Colloquium

2018 *Arithmetic Representations of Fundamental Groups*, USC Colloquium

2018 *Arithmetic Representations of Fundamental Groups*, University of California, Irvine Colloquium

2017 *Arithmetic Representations of Fundamental Groups*, University of Georgia Colloquium

2017 *Arithmetic Representations of Fundamental Groups*, University of Arizona Algebraic Geometry Seminar

2017 *Arithmetic Representations of Fundamental Groups*, OSU Algebraic Geometry Seminar

2017 *Schlesinger and Painlevé Equations in Positive Characteristic*, Stanford Algebraic Geometry Seminar

2017 *Arithmetic Representations of Fundamental Groups*, UC Davis Algebraic Geometry Seminar

2017 *Arithmetic Representations of Fundamental Groups*, UBC Algebraic Geometry Seminar

2017 *Arithmetic Representations of Fundamental Groups*, NYU Algebraic Geometry Seminar

2017 *Schlesinger and Painlevé Equations in Positive Characteristic*, UIC Algebraic Geometry Seminar

2017 *Integral Aspects of Fundamental Groups*, Conference on Étale and Motivic Homotopy Theory, Universität Heidelberg

2017 *Integral Aspects of Fundamental Groups*, BIRS Workshop on Nilpotent Fundamental Groups

2017 *Arithmetic Restrictions on Geometric Monodromy*, Harvard/MIT Algebraic Geometry Seminar

2017 *Arithmetic Restrictions on Geometric Monodromy*, Purdue Algebraic Geometry Seminar

2017 *Arithmetic Restrictions on Geometric Monodromy*, Yale Algebra and Number Theory Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, UIC Algebraic Geometry Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, UChicago Number Theory Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, Northwestern Number Theory Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, Wisconsin Algebraic Geometry Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, AIM Workshop: Rational Curves in Positive Characteristic

2016 *Arithmetic Restrictions on Geometric Monodromy*, Brown University Algebraic Geometry Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, Columbia Algebraic Geometry Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, UPenn Algebraic Geometry Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, Stanford Number Theory Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, Topological Approaches to Algebra and Arithmetic Geometry, University of Georgia

2016 *Arithmetic Restrictions on Geometric Monodromy*, University of Georgia Number Theory Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, Emory University Number Theory Seminar

2016 *Arithmetic Restrictions on Geometric Monodromy*, Oberwolfach Workshop on Arithmetic Geometry

2016 *Automorphisms of Blowups*, AMS Sectional Meeting, University of Utah

2016 *Non-Abelian Lefschetz Hyperplane Theorems*, Conference on Equivariant Algebraic Geometry and Algebraic Stacks, ANU Kioloa Campus, Australia

2016 *Automorphisms of Blowups*, ANU Canberra Algebraic Geometry Seminar

2016 *Automorphisms of Blowups*, Princeton Algebraic Geometry Seminar

2015 *Non-Abelian Lefschetz Hyperplane Theorems*, University of Utah Algebraic Geometry Seminar

2015 *Non-Abelian Lefschetz Hyperplane Theorems*, Yale Algebraic Geometry Seminar

2015 *Hyperbolicity of Moduli Spaces and Arithmetic of Function Fields*, Columbia Number Theory Seminar

2015 *Non-Abelian Lefschetz Hyperplane Theorems*, Stony Brook Algebraic Geometry Seminar

2015 *Non-Abelian Lefschetz Hyperplane Theorems*, Courant Algebraic Geometry Seminar

2015 *Non-Abelian Lefschetz Hyperplane Theorems*, Columbia University Algebraic Geometry Seminar

2015 *Geometric Lefschetz Hyperplane Theorems*, Bay Area Algebraic Number Theory and Arithmetic Geometry Day

2014 *Non-Abelian Lefschetz Hyperplane Theorems*, University of Michigan Algebraic Geometry Seminar

2014 *Non-Abelian Lefschetz Hyperplane Theorems*, Harvard Algebraic Geometry Seminar

2014 *Non-Abelian Lefschetz Hyperplane Theorems*, UIC Algebraic Geometry Seminar

2014 *Non-Abelian Lefschetz Hyperplane Theorems*, AMS Section Meeting, SFSU, Special Session on Algebraic Geometry

2014 *Non-Abelian Lefschetz Hyperplane Theorems*, Oberwolfach *Classical Algebraic Geometry* Workshop, 5 minute talk

2014 *Non-Abelian Lefschetz Hyperplane Theorems*, Berkeley Student Algebraic Geometry Seminar

2013 *Motivic Analytic Number Theory*, Graduate Workshop on Geometry of Hilbert Schemes, Simons Center for Geometry and Physics

2013 *Zeta Functions in Geometry and Topology*, Geometry and Topology: Berkeley and Stanford Icebreaker Conference

2013 *Motivic Analytic Number Theory*, GAeL XXI, KTH Royal Institute of Technology

2013 *Motivic Analytic Number Theory*, Columbia University Algebraic Geometry Seminar

2013 *Motivic Analytic Number Theory*, AMS Sectional Meetings, UC Boulder, Special Session on Algebraic Geometry

2012 *Motivic Analytic Number Theory*, UC Irvine Number Theory Seminar

2012 *Line Bundles on Plane Curves*, UC Berkeley Research Training Group (RTG) Workshop on Tensors and Their Geometry

2012 *The Cotangent Complex*, University of Michigan RTG Workshop on Derived Algebraic Geometry (expository)

2012 *Introduction to the Landscape of Generalized Euler Characteristics*, UC Berkeley Commutative

Algebra and Algebraic Geometry Seminar

2012 *Introduction to the Landscape of Generalized Euler Characteristics*, Stanford Algebraic Geometry Seminar

Professional Service, Teaching & Seminars

Professional Service, Conferences, and Products

2020 Co-organized the online iteration of the Western Algebraic Geometry Symposium (joint with Jarod Alper and Isabel Vogt), with over 1000 registered attendees

2020 Organized AGONIZE conference

2020 Founding member, moderator, for AGS discord server (part of Ravi Vakil's AGITTOC lecture series on algebraic geometry), with over 1000 members

2020- Climate committee member

2018 REU Mentor, Columbia University: *Supersingular hypersurfaces*, joint with Alex Perry

2017 Arizona Winter School on perfectoid spaces, study group leader

2017- PhD Dissertation Committee Member (3 students)

2016- Oral Exams Committee Member (5 students)

2016-2017 Graduate Student Admissions Committee

2017 REU mentor, Columbia University: *Representation Theory in Graph Theory*, joint with David Hansen

2016- Undergraduate research mentor (2 students)

2016- Columbia Undergraduate Mathematics Society Speaker

2016 REU mentor, Columbia University: *Properties of Random Varieties*, joint with Daniel Halpern-Leistner

2013-2015 US Organizer, GAeL XXII & XXIII

2013- Referee for Annals, Duke, Selecta, Cambridge Journal of Mathematics, Memoirs, Proceedings, Algebra and Number Theory, de Gruyter, Cambridge University Press, International Mathematics Research Notices, Journal of Pure and Applied Algebra, etc.

2012-2014 Stanford Math Circle: *The Music of the Spheres*, *The Fundamental Theorem of Algebra*, *Tiling Problems*

2012-2013 Stanford Undergraduate Research in Mathematics Mentor: *Zeroes of Linear Recurrences*, *Class Numbers of Imaginary Quadratic Number Fields*

2011-2013 Stanford SUMO Speaker Series: *The Music of the Spheres*, *Zeroes of Integer Linear Recurrences*, *Morse Theory, Stratifications, and Euler Characteristic*, *Tiling Problems*

2011-2013 Stanford SPLASH: *The Music of the Spheres*, *How Do We Know What We Know?*

2013 Stanford Undergraduate Mathematics Organization (SUMO) Math Tournament

2010 Boston Math Circle: *Ramsey Theory*,

2009 MIT SPLASH: *Ramsey Theory*

Seminars Organized

2020 Zannier on Zoom seminar (ZaZoom) at UGA

2020 Bring in our problem seminar, y'all (BIOPSY) at UGA

2020	Classic Reading in Arithmetic and Algebraic Geometry (CRAAG) at UGA
2019-	UGA AG and NT seminars (co-organizer)
2019	Applications of the Geometric Langlands Program, joint with Kiran Kedlaya
2018-2019	Mathematical Conversations, joint with Sara Venkatesh, Jeroen Zuiddam, and Helmut Hofer
2019	Bring Your Own Problem Seminar, joint with Guy Moshkovitz
2016-2018	Columbia Algebraic Geometry Seminar (joint with Michael Thaddeus (2016-2017), joint with Johan de Jong and Alex Perry (2017-2018))
2015	The Tate Conjecture (co-organized with Johan de Jong, Yiwei She, and Aanand Deopurkar);
2014	Applications of the Langlands Philosophy (Princeton, co-organized with Lucia Mocz);
2012-2013	Classics Reading in Algebraic Geometry;
2011-2013	Student/Special Algebraic Geometry Seminar;
2011-2012	Hodge Theory Learning Seminar;
2010-2011	Secret Cassels-Fröhlich Seminar

PhD students

2020-	Santanta Afton (GA Tech, advised jointly with Jennifer Hom)
2019-	Aleksander Shmakov

Postdocs supervised

2020-	Borys Kadets

Teaching

2020	Étale cohomology, UGA, Fall Semester
2020	Calculus III, UGA, Fall Semeseter
2019	Calculus I, UGA, Fall Semester
2017	Topics in Algebraic Geometry: Deformation Theory, Columbia, Fall Semester
2016	Calculus III, Columbia, Fall Semester
2014	Math 51 (Linear Algebra and Multivariable Calculus) TA, Stanford, Winter Quarter
2013	Math 210C (Compact Lie Groups) Course Assistant, Stanford
2007	Course Assistant, Math 25, Harvard University

Last updated: October 18, 2020