

John Lesieutre

Penn State University Mathematics Dept.
204 McAllister Building
University Park, PA 16802

E-mail: jdl@psu.edu
Phone: (814) 441-5149
Web: <https://personal.psu.edu/jdl249/>

Employment

- Pennsylvania State University
Associate Professor, July 2023 – present.
- Pennsylvania State University
Assistant Professor, August 2018 – July 2023.
- University of Illinois at Chicago
RTG Research Assistant Professor, August 2015 – August 2018.
- Institute for Advanced Study
Member, September 2014 – June 2015.

Education

- Massachusetts Institute of Technology
Ph.D. in Mathematics, 2014.
- Harvard University
A.B. in Mathematics and minor in Linguistics, 2009.
- State College Area High School

Papers

- “The volume of a divisor and cusp excursions of geodesics in hyperbolic manifolds” (with Simion Filip, Valentino Tosatti), preprint. (arXiv:2312.01012)
- “Tri-Coble surfaces and their automorphisms”, *Journal of Modern Dynamics* 17 (2021), 267–284. (arXiv:2003.01799)
- “Higher arithmetic degrees of dominant rational self-maps” (with Nguyen-Bac Dang, Dragos Ghioca, Fei Hu, and Matthew Satriano), *Annali della Scuola Normale Superiore di Pisa, Classe di Scienze* Vol. XXIII (2022), 463–481.. (arXiv:1906.11188)
- “Notions of numerical Iitaka dimension do not coincide”, *J. Algebraic Geometry* 31 (2022), 113–126. (arXiv:1904.10832)
- “A rational map with infinitely many points of distinct arithmetic degrees” (with M. Satriano), *Ergodic Theory and Dynamical Systems* 40 (2020), no. 11, 3051–3055. (arXiv:1809.00047)
- “Canonical heights on hyper-Kähler varieties and the Kawaguchi–Silverman conjecture” (with M. Satriano), *Int. Math. Res. Not.*, Volume 2021, Issue 10, May 2021, Pages 7677–7714,. (arXiv:1802.07388)
- “A projective variety with discrete, non-finitely generated automorphism group”, *Inventiones Math.* 212 (2018), no. 1, 189–211. (arXiv:1609.06391)

- “Dynamical Mordell–Lang and automorphisms of blow-ups” (with D. Litt), *Algebraic Geometry* 6 (2019), no. 1, 1–25. (arXiv:1604.08216)
- “Log Fano structures and Cox rings of blow-ups of products of projective spaces” (with J. Park), *Proc. Amer. Math. Soc.* 145 (2017), no. 10, 4201–4209. (arXiv:1604.07140)
- “Effective cones of cycles on blow-ups of projective space” (with I. Coskun and J.C. Ottem), *Algebra & Number Theory* 10-9 (2016), 1983–2014. (arXiv:1603.04808)
- “A few questions about curves on surfaces” (with Ciliberto, Knutsen, Lozovanu, Miranda, Mustopa, and Testa), *Rend. Circ. Mat. Palermo* (2016), 1–10. (arXiv:1511.06618)
- “Some constraints on positive entropy automorphisms of smooth threefolds”, *Ann. Sci. École Norm. Sup* 51 (2018), no. 6, 1507–1547. (arXiv:1503.07834)
- “A pathology of asymptotic multiplicity in the relative setting”, *Math. Res. Lett.* 23 (2016), no. 5, 1433–1451. (arXiv:1502.03019)
- “Curves disjoint from a nef divisor” (with J.C. Ottem), *Michigan Math. J.* 65 (2016), 321–332. (arXiv:1410.4467)
- “Derived-equivalent rational threefolds”, *Int. Math. Res. Not.* (2015), 6011–6020. (arXiv:1311.0056)
- “The diminished base locus is not always closed”, *Compositio Math.* 150 (2014), no. 10, 1729–1741. (arXiv:1212.3738)

Awards & Grants

- NSF CAREER award (“CAREER: Birational geometry and algebraic dynamics”; DMS 2142966; \$450,000), 2022–2027.
- Alfred P. Sloan Research Fellowship (\$70,000), 2019–2023.
- NSF Algebra and Number Theory grant (“Birational geometry and algebraic dynamics”; DMS 1700898; \$132,717), 2017–2021.
- AMS–Simons Travel Grant, 2016–2017.
- NSF Graduate Research Fellowship, 2010–2013.

Conference & Workshop Talks

- Birational geometry and dynamics, Les Diablerets, Switzerland, July 2024.
- McKernan 60th Birthday Conference, UCSD, January 2024.
- Higher Dimensional Geometry, Simons Center, October 2023.
- Recent Developments in Algebraic Geometry, Arithmetic and Dynamics, National University of Singapore (online), June 2021.
- Joint Mathematics Meetings, Special session on Arithmetic Dynamics, Denver, January 2020.
- Workshop on Interactions between Brauer Groups, Derived Categories and Birational Geometry, Banff International Research Station, November 2019.
- Simons Symposium on Algebraic, Complex and Arithmetic Dynamics, Schloss Elmau, May 2019.

- Postdoctoral Training School on Stochastic Dynamics and Hodge Theory, University of Alberta, March 2019.
- Complex Algebraic Geometry, UC San Diego, January 2019.
- Rencontre Del Duca: Groups of birational transformations, Rennes, November 2018. Three lectures on arithmetic degrees.
- Workshop in complex and arithmetic dynamics, Northwestern University, May 2018.
- Birational classification, derived categories, and moduli spaces, Oberwolfach, September 2017.
- Mini workshop on complex geometry, University of Notre Dame, April 2017.
- Local negativity and positivity, Leibniz Universität Hannover, March 2017.
- Summer school on higher dimensional algebraic geometry, University of Utah, July 2016. Four lectures on “Dynamics on higher-dimensional varieties”.
- New methods in birational geometry, CIMI, Toulouse, June 2016.
- Tokyo–Princeton algebraic geometry conference, Princeton, May 2016.
- Boston College–Northeastern algebraic geometry conference, April 2016.
- Higher codimension cycles on algebraic varieties, University of Illinois at Chicago, March 2016.
- Summer research institute on algebraic geometry, University of Utah, July 2015 (contributed talk).
- New techniques in birational geometry, Stony Brook University, April 2015.
- Chow groups, motives, and derived categories, Institute for Advanced Study, March 2015.
- Recent advances in linear series and Newton–Okounkov bodies, Università degli Studi di Padova, February 2015.
- Mini-workshop: Negative curves on algebraic surfaces, Oberwolfach, February 2014.
- AMS sectional meeting, special session on the geometry of algebraic varieties, Temple University, October 2013.
- Workshop on Okounkov bodies and Nagata-type conjectures, IM PAN, Warsaw, September 2013.
- Géométrie Algébrique en Liberté, KTH, Stockholm, June 2013.
- Workshop on the minimal model program in characteristic p , AIM, Palo Alto, May 2013.

Seminar & Colloquium Talks

- Michigan State University Colloquium, September 2024.
- Michigan State University Algebraic Geometry Seminar, September 2024.
- Birational Geometry Seminar (UCLA, online), February 2024.
- UIC Algebraic Geometry Seminar, April 2022.
- Georgia Algebraic Geometry Seminar, February 2022.
- Versailles Algebraic Geometry Seminar, June 2021.
- Zoom Algebraic Geometry Seminar, March 2021.

- Arithmetic Dynamics International Online Seminar, October 2020.
- Penn State Algebra and Number Theory Seminar, October 2020.
- University of Michigan Colloquium, September 2020.
- NU/UIC/UofC Algebra & Geometry Seminar, July 2020.
- Iskovskikh Seminar (online), May 2020.
- Cornell Algebraic Geometry Seminar, September 2019.
- Penn State Dynamics Working Seminar, March 2019.
- Johns Hopkins Algebraic Geometry Seminar, November 2018.
- Rice Algebraic Geometry and Number Theory Seminar, October 2018.
- Penn State Algebra and Number Theory Seminar, September 2018.
- Wisconsin Algebraic Geometry Seminar, May 2018.
- Purdue Algebraic Geometry Seminar, November 2017.
- Princeton Algebraic Geometry Seminar, September 2017.
- Stanford Algebraic Geometry Seminar, May 2017.
- UIUC Algebraic Geometry Seminar, March 2017.
- Penn State Geometry and Physics Seminar, January 2017.
- Northwestern Algebraic Geometry Seminar, January 2017.
- Tufts Colloquium, December 2016.
- Michigan Algebraic Geometry Seminar, November 2016.
- UCLA Algebra Seminar, October 2016.
- UCLA Colloquium, October 2016.
- UIC Algebraic Geometry Seminar, September 2016.
- IUPUI Dynamics Seminar, April 2016.
- Utah Algebraic Geometry Seminar, February 2016.
- University of Chicago Algebraic Geometry Seminar, February 2016.
- UIC Algebraic Geometry Seminar, January 2016.
- Northwestern Geometry and Physics Seminar, November 2015.
- Columbia Algebraic Geometry Seminar, October 2015.
- Notre Dame Algebraic Geometry/Commutative Algebra Seminar, September 2015.
- Johns Hopkins Algebraic Geometry Seminar, April 2015.
- Michigan Complex Analysis, Dynamics and Geometry Seminar, March 2015.
- UIC Algebraic Geometry Seminar, March 2015.
- Missouri Geometry/Topology Seminar, November 2014.
- Princeton/IAS Algebraic Geometry Seminar, October 2014.
- Stanford Algebraic Geometry Seminar, May 2014.

- Penn State Algebra and Number Theory Seminar, April 2014.
- UCSD Algebraic Geometry Seminar, December 2013.
- UIC Algebraic Geometry Seminar, November 2013.
- Rice Algebraic Geometry Seminar, October 2013.
- Stony Brook Algebraic Geometry Seminar, September 2013.
- Michigan Algebraic Geometry Seminar, March 2013.
- Princeton Algebraic Geometry Seminar, February 2013.
- Harvard/MIT Algebraic Geometry Seminar, November 2012.

Teaching and Supervision

Awards and training:

- Math, Stat, & CS Teaching Award, Fall 2016.
Departmental teaching award.
- UIC Teaching Scholar, Spring 2016.
Selected for semester-long mentorship on effective teaching, with emphasis on active learning.
- Charles and Holly Housman Award for Excellence in Teaching, MIT, 2013.
For “skill and dedication in undergraduate teaching”.
- MIT graduate student teaching certificate, 2013.
6-week training in university teaching.
- Harvard University Certificate of Distinction in Teaching, 2009.

Advising:

- Advising Sebastian Calvo, PhD 2024. Now assistant teaching professor at Towson University..
- Advising Qitong Jiang, PhD expected 2025.
- Advising Sofya Bykova, PhD expected 2026.
- Co-advising Andy Biy-Kuang Day (with Sergei Tabachnikov), PhD expected 2026.
- Advising Louis Diaz, PhD expected 2027.
- Advising Zheng Xu, PhD expected 2027.
- Algebraic Geometry reading group, 2022-2025.
Supervise a reading group with students in algebraic geometry every semester. Currently seven students attending weekly. Topics have including moduli of curves, positivity of vector bundles, birational geometry, the Cremona group, etc..
- Reading courses, 2020-2024.
Supervised many formal (Math 596) and informal reading courses with individual graduate students..
- Undergraduate research, 2020-2022.
Supervised four undergraduate research projects involving ten students, several of whom have gone to to graduate school in mathematical fields..

PSU:

- Instructor, Math 436 (Linear algebra), Fall 2024.
- Instructor, Advanced Topics 2 (Topics in advanced mathematics; taught at State College Area High School), Fall 2022–Spring 2023.
- Instructor, Math 468 (Mathematical Coding Theory), Fall 2023.
- Instructor, Math 548 (Algebraic geometry II), Fall 2022.
- Instructor, Advanced Topics 2 (Topics in advanced mathematics; taught at State College Area High School), Fall 2021–Spring 2022.
- Instructor, Math 436 (Linear algebra), Spring 2022.
- Instructor, Math 467 (Primality and factorization), Fall 2021.
- Instructor, Math 436 (Linear algebra), Spring 2021.
- Instructor, Math 548 (Algebraic geometry II), Fall 2020.
- Instructor, Math 467 (Primality and factorization), Fall 2020.
- Instructor, Math 401 (Introduction to analysis), Spring 2020.
- Instructor, Math 547 (Algebraic geometry), Fall 2019.
- Instructor, Math 436 (Linear algebra), Spring 2019.
- Instructor, Math 436 (Linear algebra), Fall 2018.

UIC:

- Instructor, Math 121 (Precalculus), Fall 2017.
- Instructor, Math 210 (Calculus III), Spring 2017.
- Instructor, Math 181 (Calculus II), Fall 2016.
- Instructor, Math 553 (Algebraic geometry II), Spring 2016.
- Instructor, Math 310 (Applied linear algebra), Fall 2015.

MIT:

- Instructor, 18.089 (Review of calculus), Summer 2014.
- Instructor, 18.089 (Review of calculus), Summer 2013.
- Teaching assistant, 18.06 (Linear algebra), Spring 2013.
- Teaching assistant, 18.03 (Differential equations), Spring 2012.
- Teaching assistant, 18.02 (Multivariable calculus), Spring 2011.

Harvard:

- Course assistant, Math 25b (Real analysis), Spring 2009.
- Course assistant, Math 113 (Complex analysis), Spring 2008.

Professional

- Thesis committee member, July 2022.
Alexandra Kuznetsova, École Polytechnique Centre de Mathématiques Laurent Schwartz and Higher School of Economics.

- Organizer, Special Session on the Geometry and Arithmetic of Algebraic Varieties, PSU (online), October 2020.
AMS sectional meeting.
- Organizer, Workshop on Higher Codimension Cycles in Algebraic Geometry, UIC, March 2016.
NSF RTG-funded workshop for graduate students and postdocs.
- Organizer, Workshop on SYZ mirror symmetry, Big Bear, CA, May 2013.
NSF RTG-funded workshop.