Radu Laza

Department of Mathematics
Stony Brook University
Stony Brook, NY 11794

Email: radu.laza@stonybrook.edu
Homepage: math.stonybrook.edu/~rlaza
arXiv: Radu Laza on arXiv
Google Scholar: Profile
ORCID: 0000-0001-9631-1361

Education

Ph.D. in Mathematics, Columbia University, 2006.

Diplom in Mathematics (equivalent to M.S.), University of Kaiserslautern, 2000.

B.S. in Mathematics, University of Bucharest, 2000.

Employment

Professor, Stony Brook University, 2019–present.

Associate Professor, Stony Brook University, 2014–2018.

von Neumann Fellow, Institute for Advanced Study, Princeton, 2014–2015.

Assistant Professor, Stony Brook University, 2009–2014.

Postdoctoral Assistant Professor, University of Michigan, 2006–2009.

Postdoctoral Fellow, Mathematical Sciences Research Institute, January–May 2009.

Academic Visits

Visiting Professor, Lund University, 2026–2028.

Institut de Mathématiques de Jussieu, academic year 2023–2024.

Invited Research Professor, Shanghai Center for Mathematical Sciences, November 2018.

École Normale Supérieure, academic year 2016–2017.

Research Institute for Mathematical Sciences, Kyoto University, June–July 2013.

Institut des Hautes Études Scientifiques, June–August 2010.

Harvard University, May–August 2007 and May–August 2008.

Nagoya University, February 2008.

Honors and Awards

- NSF grant DMS-2502134, Principal Investigator (2025–2027).
- Simons Travel Support for Mathematicians (2025–2030).
- Elected Fellow of the American Mathematical Society (2025).
- NSF grant DMS-2101640, Principal Investigator (2021–2025).
- NSF grant DMS-1802128, Principal Investigator (2018–2021).
- Chaire Junior, Fondation Sciences Mathématiques de Paris (2016–2017).
- Simons Fellow in Mathematics (2016–2017).
- NSF CAREER grant DMS-1254812, Principal Investigator (2013–2019).
- NSF Focused Research Group grant DMS-1361143, Principal Investigator (2014–2018).
- NSF grant DMS-1200875, Principal Investigator (2012–2015).
- Sloan Research Fellowship (2010–2013).
- NSF grant DMS-0968968, Principal Investigator (2009–2012).
- NSF grant DMS-1100007, Principal Investigator (Calabi–Yau workshop, Fields Institute, 2011).
- NSF grants DMS-1066154 and DMS-1360586, Co-Principal Investigator (AGNES conferences at Stony Brook, 2011 and 2014).
- University of Michigan Summer Research Award (2007).
- Ph.D. with distinction, Columbia University (2006).
- Fellowships and scholarships at Columbia University, the University of Kaiserslautern, and the University of Bucharest (1996–2006).
- First Prize, Romanian National Mathematics Olympiad (1993, 1996, and 1997).

Research Interests

Algebraic geometry, with particular emphasis on moduli problems, Hodge theory, degenerations, singularities, and special classes of varieties, including $K3$ surfaces, Calabi–Yau varieties, and hyper-Kähler manifolds. Additional interests include GIT, arithmetic geometry, and automorphic forms.

Publications

1. Hodge theory of degenerations, (III): A vanishing-cycle calculus for non-isolated singularities (with M. Kerr), to appear in *J. Singul.*
2. Isotrivial Lagrangian fibrations of compact hyper-Kähler manifolds (with Y.-J. Kim and O. Martin), *J. Math. Pures Appl. (9)* **205** (2026), Paper No. 103810, 49 pp.
3. Hodge theory of degenerations, (II): Vanishing cohomology and geometric applications (with M. Kerr), in *Current Developments in Hodge Theory*, Simons Symposia, Springer, Cham, 2025, 299–348.

4. Deformations of singular Fano and Calabi–Yau varieties (with R. Friedman), *J. Differential Geom.* **131** (2025), no. 1, 65–131.
5. Deformations of Calabi–Yau varieties with isolated log canonical singularities (with R. Friedman), *Int. Math. Res. Not. IMRN* (2025), no. 10, Paper No. rnaf112, 36 pp.
6. Higher Du Bois and higher rational singularities (with R. Friedman; appendix by M. Saito), *Duke Math. J.* **173** (2024), no. 10, 1839–1881.
7. Deformations of Calabi–Yau varieties with k-liminal singularities (with R. Friedman), *Forum Math. Sigma* **12** (2024), Paper No. e59, 25 pp.
8. Non-isomorphic smooth compactifications of the moduli space of cubic surfaces (with S. Casalaina-Martin, S. Grushevsky, and K. Hulek), *Nagoya Math. J.* **254** (2024), 315–365.
9. The higher Du Bois and higher rational properties for isolated singularities (with R. Friedman), *J. Algebraic Geom.* **33** (2024), no. 3, 493–520.
10. Deformations of some local Calabi–Yau manifolds (with R. Friedman), *Épijournal Géom. Algébrique*, Special Volume in Honor of Claire Voisin (2024), Article 18, 35 pp.
11. Cohomology of the moduli space of cubic threefolds and its smooth models (with S. Casalaina-Martin, S. Grushevsky, and K. Hulek), *Mem. Amer. Math. Soc.* **282** (2023), no. 1395, v+100 pp.
12. Deformation of rational singularities and Hodge structure (with M. Kerr and M. Saito), *Algebr. Geom.* **9** (2022), no. 4, 476–501.
13. The LLV decomposition of hyper-Kähler cohomology (with M. Green, Y.-J. Kim, and C. Robles), *Math. Ann.* **382** (2022), nos. 3–4, 1517–1590.
14. Automorphisms and periods of cubic fourfolds (with Z. Zheng), *Math. Z.* **300** (2022), no. 2, 1455–1507.
15. Hodge theory of degenerations, (I): Consequences of the decomposition theorem (with M. Kerr; appendix by M. Saito), *Selecta Math. (N.S.)* **27** (2021), no. 4, Paper No. 71.
16. Maximally algebraic potentially irrational cubic fourfolds, *Proc. Amer. Math. Soc.* **149** (2021), no. 8, 3209–3220.
17. GIT versus Baily–Borel compactification for $K3$ surfaces which are double covers of $\mathbb{P}^1 \times \mathbb{P}^1$ (with K. O'Grady), *Adv. Math.* **383** (2021), Paper No. 107680.
18. Complete moduli of cubic threefolds and their intermediate Jacobians (with S. Casalaina-Martin, S. Grushevsky, and K. Hulek), *Proc. Lond. Math. Soc. (3)* **122** (2021), no. 2, 259–316.
19. A conjectural bound on the second Betti number for hyper-Kähler manifolds (with Y.-J. Kim), *Bull. Soc. Math. France* **148** (2020), no. 3, 467–480.
20. The Euler number of hyper-Kähler manifolds of OG10 type (with K. Hulek and G. Saccà), in *Moduli Spaces in Algebraic Geometry and Applications*, *Mat. Contemp.* **47** (2020), 151–170.
21. Birational geometry of the moduli space of quartic $K3$ surfaces (with K. O'Grady), *Compos. Math.* **155** (2019), no. 9, 1655–1710.
22. On the moduli space of pairs consisting of a cubic threefold and a hyperplane (with G. Pearlstein and Z. Zhang), *Adv. Math.* **340** (2018), 684–722.
23. Remarks on degenerations of hyper-Kähler manifolds (with J. Kollár, G. Saccà, and C. Voisin), *Ann. Inst. Fourier (Grenoble)* **68** (2018), no. 7, 2837–2882.

24. GIT versus Baily–Borel compactification for quartic $K3$ surfaces (with K. O'Grady), in *Geometry of Moduli*, Abel Symposia, Springer, 2018, 217–283.

25. A hyper-Kähler compactification of the intermediate Jacobian fibration associated to a cubic fourfold (with G. Saccà and C. Voisin), *Acta Math.* **218** (2017), no. 1, 55–135.

26. Extending the Prym map to toroidal compactifications of the Siegel space (with S. Casalaina-Martin, S. Grushevsky, and K. Hulek), *J. Eur. Math. Soc. (JEMS)* **19** (2017), no. 3, 659–723.

27. The KSBA compactification for the moduli space of degree two $K3$ pairs, *J. Eur. Math. Soc. (JEMS)* **18** (2016), no. 2, 225–279.

28. Classical period domains (with Z. Zhang), in *Recent Advances in Hodge Theory*, London Mathematical Society Lecture Note Series 427, Cambridge University Press, 2016, 3–44.

29. Perspectives on the construction and compactification of moduli spaces, in *Compactifying Moduli Spaces*, Advanced Courses in Mathematics, CRM Barcelona, Birkhäuser, 2016, 1–35.

30. On some Hermitian variations of Hodge structure of Calabi–Yau type with real multiplication (with R. Friedman), *Michigan Math. J.* **63** (2014), no. 1, 83–99.

31. Log canonical models and variation of GIT for genus four canonical curves (with S. Casalaina-Martin and D. Jensen), *J. Algebraic Geom.* **23** (2014), 727–764.

32. Semi-algebraic horizontal subvarieties of Calabi–Yau type (with R. Friedman), *Duke Math. J.* **162** (2013), no. 12, 2077–2148.

33. GIT and moduli with a twist, in *Handbook of Moduli*, vol. II, Adv. Lect. Math. 25, International Press, 2013, 259–297.

34. Simultaneous semistable reduction for curves with ADE singularities (with S. Casalaina-Martin), *Trans. Amer. Math. Soc.* **365** (2013), no. 5, 2271–2295.

35. The geometry of the ball quotient model of the moduli space of genus four curves (with S. Casalaina-Martin and D. Jensen), in *Compact Moduli Spaces and Vector Bundles*, Contemp. Math. 564, American Mathematical Society, 2012, 107–136.

36. The moduli space of cubic fourfolds via the period map, *Ann. of Math. (2)* **172** (2010), no. 1, 673–711.

37. The moduli space of cubic threefolds via degenerations of the intermediate Jacobian (with S. Casalaina-Martin), *J. Reine Angew. Math.* **633** (2009), 29–65.

38. The moduli space of cubic fourfolds, *J. Algebraic Geom.* **18** (2009), 511–545.

39. Deformations of singularities and variation of GIT quotients, *Trans. Amer. Math. Soc.* **361** (2009), no. 4, 2109–2161.

40. Counting the hyperplane sections with fixed invariants of a plane quintic (with C. Cadman), *Adv. Geom.* **8** (2008), 531–549.

41. Maximal Cohen–Macaulay modules over the cone of an elliptic curve (with G. Pfister and D. Popescu), *J. Algebra* **253** (2002), no. 2, 209–236.

42. Maximal Cohen–Macaulay modules over $Y_1^3 + \cdots + Y_n^3$ with few generators (with L. O'Carroll and D. Popescu), *Math. Rep. (Bucur.)* **3(53)** (2001), no. 2, 177–185.

Preprints

43. Deformations of fibered Calabi–Yau varieties (with B. Bakker, K. DeVleming, S. Filipazzi, J. Li, R. Svaldi, C. Wang, and J. Zhao), preprint 2026, submitted, arXiv:2604.14024.
44. Period mappings and ampleness of the Hodge bundle (with M. Green, P. Griffiths, and C. Robles), arXiv:1708.09523.
45. Triangulations of the sphere and degenerations of $K3$ surfaces, unpublished preprint, 2008, arXiv:0809.0937.

Books Edited

46. *Calabi–Yau Varieties: Arithmetic, Geometry and Physics: Lecture Notes on Concentrated Graduate Courses* (with M. Schütt and N. Yui), Fields Institute Monographs, Springer, 2015.
47. *Arithmetic and Geometry of K3 Surfaces and Calabi–Yau Threefolds* (with M. Schütt and N. Yui), Fields Institute Communications, vol. 67, Springer, 2013; proceedings of the *Workshop on the Geometry and Arithmetic of Calabi–Yau Varieties*, Fields Institute, Toronto, August 2011.

Invited Talks

Lecture Series

Invited expository lectures, typically two to four lectures during a week.

1. *Higher singularities and deformations of singular Fano and Calabi–Yau varieties*, SIMIS, Shanghai, June 2026.
2. *Hodge theory and moduli*, IBS Center for Complex Geometry, Daejeon, Korea, November 2025.
3. *Deformation theory of singular Calabi–Yau varieties*, IBS Center for Complex Geometry, Daejeon, Korea, February 2024.
4. *Higher rational and higher Du Bois singularities, and applications*, Simons Center for Geometry and Physics, January 2024.
5. *Moduli and periods for hyper-Kähler manifolds*, KAIST, Daejeon, Korea, August 2019.
6. *Birational geometry of the moduli space of $K3$ surfaces*, Shanghai, November 2018.
7. *Period maps and moduli*, School on Degeneration of Calabi–Yau Varieties and Arithmetic, Freiburg, October 2017.
8. *Birational geometry of moduli spaces*, Algebraic Geometry and Complex Geometry, CIRM, Luminy, January 2017.
9. *GIT and moduli*, CIMPA–ICTP–CIMAT School on Moduli of Curves, Guanajuato, Mexico, February 2016.
10. *Lectures on moduli of cubics*, Moduli Spaces of Real and Complex Varieties, Angers, France, June 2014.
11. *Lectures on the construction and compactification of moduli spaces*, KAIST, Korea, March 2014.
12. *Classical period domains*, Graduate Workshop on Hodge Theory in String Theory, Fields Institute, November 2013.

13. *Degenerations of K3 surfaces and Calabi–Yau threefolds*, Workshop on Calabi–Yau Varieties, Fields Institute, August 2013.
14. *Degenerations and compactifications*, Introductory Workshop on Calabi–Yau Varieties, Fields Institute, August 2013.
15. *Classical period domains*, Summer School on Period Domains, Algebraic Cycles, and Arithmetic, Vancouver, July 2013.
16. *Perspectives on moduli*, Advanced Course on Compactifying Moduli Spaces, CRM Barcelona, May 2013.

Conferences and Workshops

17. Cubic Fourfolds, Gushel–Mukai Fourfolds, and Hyperkähler Manifolds, ICERM, Providence, October 2026.
18. Conference on Algebraic and Differential Geometry, Shanghai, June 2026.
19. Spencer Fest, IMSA, Miami, March 2026.
20. Deformations and Birational Geometry of Algebraic Varieties, RIMS, Kyoto, January 2026.
21. Iberoamerican Congress on Singularities, Valparaíso, Chile, December 2025.
22. Cycles on Moduli Spaces, CIRM, Luminy, November 2025.
23. Mathematical Congress of the Americas, Special Session on Birational Geometry and Singularities, Miami, July 2025.
24. Hyperkähler Varieties, Derived Categories, and Moduli Spaces, Columbia University, February 2025.
25. Perspectives on Moduli in Algebraic Geometry, Brin Mathematics Research Center, University of Maryland, January 2025.
26. Moduli of Varieties, University of Utah, November 2024.
27. Boston Algebraic Geometry Day, Harvard University, October 2024.
28. Higher-Dimensional Log Calabi–Yau Pairs, AIM, Pasadena, September–October 2024.
29. Conference in Honor of Kieran O'Grady, Cetraro, September 2024.
30. Higher Dimensional Geometry, Stony Brook, May 2024.
31. Moduli Spaces and Modular Forms, Schiermonnikoog, April 2024.
32. Singularity Theory, Luminy, September 2023.
33. Geometry of Hyperkähler Varieties, Hangzhou, September 2023.
34. Tenth Congress of Romanian Mathematicians, Piteşti, Romania, July 2023.
35. Moduli and Algebraic Cycles, Mittag-Leffler Institute, Stockholm, June 2023.
36. Georgia Algebraic Geometry Symposium, Athens, Georgia, April 2023.
37. Explicit Moduli Problems in Higher Dimensions, Banff, February 2023.
38. Singularities and Algebraic Geometry, Nha Trang, Vietnam, February 2023.

39. Stability and Moduli, Simons Center for Geometry and Physics, Stony Brook, August 2022.
40. Special Session in Algebraic Geometry, AMS–EMS–SMF Joint Meeting, Grenoble, July 2022.
41. Motives and Hodge Theory, Mittag-Leffler Institute, Stockholm, October 2021.
42. Moduli and Hodge Theory, IMSA, Miami, February 2021.
43. Applications of O-Minimality to Hodge Theory, IMSA, Miami, November 2020.
44. Komplexe Analysis, Oberwolfach, August 2020.
45. Algebraic and Complex Geometry, Berkeley, August 2020.
46. Discrete Groups and Moduli, Nagoya, June 2019.
47. Symposium on Hodge Theory, Arithmetic, and Moduli, Vancouver, May 2019.
48. Workshop on Birational Geometry and Related Topics, Shanghai, November 2018.
49. Differential, Algebraic, and Topological Methods in Complex Algebraic Geometry, Cetraro, Italy, September 2018.
50. Arithmetic and Geometry of Cubic Hypersurfaces, Hannover, August 2018.
51. Modern Algebraic Geometry, Beijing, July 2018.
52. Recent Progress in the Arithmetic and Geometry of $K3$ Surfaces, Trento, Italy, July 2018.
53. Automorphic Forms and Algebraic Geometry, St. Petersburg, May 2018.
54. Modern Geometry (Griffiths' 80th), Miami, March 2018.
55. Homological Mirror Symmetry and Hodge Theory, Harvard University, January 2018.
56. Commutative Algebra Meets Algebraic Geometry, Bucharest, June 2017.
57. Curves, Sheaves, and $K3$ Surfaces, Berlin, February 2017.
58. North German Algebraic Geometry Seminar (NoGAGS), Hamburg, January 2017.
59. Workshop on Stability and Moduli Spaces, AIM, January 2017.
60. Hyper-Kähler Manifolds, Hodge Theory, and Chow Groups, Sanya, China, December 2016.
61. Algebraic Geometry Days in Poitiers, Poitiers, November 2016.
62. Cubic Fourfolds, Hyperkähler Manifolds, and Algebraic Cycles, Lyon, October 2016.
63. Derived Categories and Chow Groups of Hyperkähler and Calabi–Yau Varieties, Stony Brook, September 2016.
64. Algebraic Cycles and Moduli, CRM, Montreal, June 2016.
65. Moduli Spaces and Modular Forms, Oberwolfach, April 2016.
66. Deformation and Moduli, Busan, Korea, January 2016.
67. Moduli Spaces in Geometry, Luminy, October 2015.
68. Moduli and Birational Geometry, AMS Summer Institute, Salt Lake City, July 2015.

69. Perspectives on Complex Algebraic Geometry, Columbia University, May 2015.
70. *K*3 and Enriques Surfaces and Related Topics, Nagoya, November 2014.
71. Fundamental Groups and Periods, Institute for Advanced Study, Princeton, October 2014.
72. Algebraic Geometry Summer Days, Bucharest, Romania, June 2014.
73. Workshop on *K*3 Surfaces and Their Moduli, Schiermonnikoog, Netherlands, May 2014.
74. Development of Moduli Theory, Kyoto, June 2013.
75. Recent Advances in Hodge Theory: Period Domains, Algebraic Cycles, and Arithmetic, Vancouver, June 2013.
76. Deformation and Moduli in Complex Geometry, KIAS, March 2013.
77. New Trends in Arithmetic and Geometry of Algebraic Surfaces, Luminy, March 2013.
78. Log Minimal Model Program for Moduli Spaces, Palo Alto, California, December 2012.
79. Algebraic Geometry, Modular Forms, and Applications to Physics, Edinburgh, November 2012.
80. Algebraic and Complex Geometry, Hannover, September 2012.
81. Komplexe Analysis, Oberwolfach, September 2012.
82. Arithmetic, Motives, and Moduli Spaces, Paris, January 2012.
83. Workshop on Moduli and Birational Geometry, POSTECH, Korea, July 2011.
84. Compact Moduli and Vector Bundles, Athens, Georgia, October 2010.
85. Workshop on Elliptic Fibrations and *K*3 Surfaces, Berlin, July 2010.
86. Conference on Complex Algebraic Geometry, Paris, June 2010.
87. North German Algebraic Geometry Seminar (NoGAGS), Hannover, June 2010.
88. Algebraic Geometry Northeastern Series (AGNES), Amherst, Massachusetts, April 2010.
89. Higher Dimensional Algebraic Geometry, Taipei, March 2010.
90. Conference on Algebraic Geometry and Arithmetic, Essen, February 2010.
91. Workshop on Moduli and Birational Geometry, KIAS, Seoul, December 2009.
92. First Joint Meeting of the AMS and the Korean Mathematical Society, Seoul, December 2009.
93. Workshop on Complex Geometry, KIAS, Seoul, September 2009.
94. Moduli and Discrete Groups, RIMS, Kyoto, June 2009.
95. Arithmetic and Algebraic Geometry Related to Moduli Spaces, Tokyo, January 2009.
96. Workshop on Aspects of Moduli, Pisa, June 2008.
97. Midwestern Algebraic Geometry Workshop, Columbus, Ohio, March 2007.

Colloquia

98. University of Pennsylvania, October 2018.
99. Washington University in St. Louis, February 2018.
100. University of Bayreuth, December 2017.
101. Duke University, December 2017.
102. University of Mainz, November 2017.
103. Rutgers University–Newark, December 2014.
104. Kyoto University, June 2013.
105. University of North Carolina, February 2009.
106. Stony Brook University, February 2009.
107. University of Wisconsin, January 2009.
108. University of California, Davis, January 2009.
109. Boston College, January 2009.
110. University of California, Irvine, January 2009.
111. Michigan State University, December 2008.
112. Ohio State University, December 2008.
113. Rice University, November 2008.

Seminars

Over 50 talks in specialized research seminars in algebraic geometry and related fields, including:

> Princeton University; Lund University; ETH Zürich; Fudan University; Kyoto University; University of Arizona; University of Massachusetts Amherst; Northwestern University; Duke University; University of Michigan; Tsinghua University; IBS, Korea; University of Pisa; University of Zürich; University of Nice; University of Dijon; Yale University; Texas A&M University; Stanford University; University of Mainz; Université Paris VI; Boston College; Nagoya University; Penn State University; KIAS, Seoul; University of Bonn; Sapienza University of Rome; University of Pennsylvania; MSRI; University of Illinois Urbana–Champaign; Columbia University; University of Wisconsin; Ohio State University; MIT; University of Texas; University of Georgia; University of Illinois Chicago; Harvard University; Rice University; Johns Hopkins University; Stony Brook University; and Humboldt University of Berlin.

Service

Conferences and Programs Organized

- Lead organizer of the *Hodge Theory* program, SLMath, Fall 2029.
- Co-organizer of *Recent Outcomes in Birational and Complex Algebraic Geometry*, a conference honoring Robert Lazarsfeld, Stony Brook University and the Simons Center for Geometry and Physics, October 28–30, 2026.

- Co-organizer of the *Stony Brook Lectures in Algebraic Geometry*, an ongoing lecture series at the Simons Center for Geometry and Physics.
- Co-organizer of the *Algebraic Geometry Northeastern Series (AGNES)*, a biannual series of meetings, partially supported by NSF grants, including DMS-1066154 (Co-PI).
- Co-organizer of the AIM workshop *Higher Du Bois and Higher Rational Singularities and Applications*, Pasadena, October 2024.
- Co-organizer of the school and workshop *Moduli, K-Trivial Varieties, and Related Topics*, Daejeon, Korea, February 2024.
- Co-organizer of a Special Session in Algebraic Geometry at the AMS–EMS–SMF Joint Meeting, Grenoble, July 2022.
- Co-organizer of the workshop *Discrete Groups and Moduli*, Nagoya, June 2019.
- Co-organizer of the workshop *Hodge Theory, Moduli, and Representation Theory*, the final conference of NSF FRG project DMS-1361143, Stony Brook, August 2017.
- Co-organizer of the spring school *Positivity in Arithmetic and Geometry*, Orsay, France, May–June 2017.
- Co-organizer of the workshop *Hyper-Kähler Manifolds, Hodge Theory, and Chow Groups*, Sanya, China, December 2016.
- Co-organizer of the workshop *Calabi–Yau Varieties: Arithmetic, Geometry, and Physics*, Herstmonceux Castle, East Sussex, UK, June 2016.
- Co-organizer of the workshop *Algebraic Cycles and Moduli*, CRM, Montreal, June 2016.
- Co-organizer of the thematic program *Complex, p-Adic, and Logarithmic Hodge Theory and Their Applications*, Simons Center for Geometry and Physics, March–April 2016.
- Co-organizer of the thematic program *Moduli Spaces and Singularities in Algebraic and Riemannian Geometry*, Simons Center for Geometry and Physics, August–November 2015.
- Co-organizer of the workshop *Collapsing Calabi–Yau Manifolds*, Simons Center for Geometry and Physics, August 31–September 4, 2015.
- Co-organizer of the workshop *Perspectives on Complex Algebraic Geometry*, Columbia University, May 22–25, 2015; supported by NSF.
- Co-organizer of the workshop *New Techniques in Birational Geometry*, Stony Brook, April 6–10, 2015; supported by NSF.
- Organizer of the FRG Workshop, Stony Brook, January 5–8, 2015.
- Co-organizer of the workshop *K3 and Enriques Surfaces and Related Topics*, Nagoya, November 2014.
- Co-organizer of the Stony Brook Mini-Schools in Geometry, including *Stability Day* (December 2013) and *Invariants of Singularities in Zero and Positive Characteristics* (December 2015).
- Co-organizer of the thematic program *Calabi–Yau Varieties: Arithmetic, Geometry, and Physics*, Fields Institute, Toronto, July–December 2013; supported by the Fields Institute and NSF.
- Co-organizer of the *Workshop on the Geometry and Arithmetic of Calabi–Yau Varieties*, Fields Institute, Toronto, August 2011; partially supported by NSF grant DMS-1100007 (PI).
- Co-organizer of the Stony Brook Department Colloquium (2014–2017), the Stony Brook Algebraic Geometry Seminar, the Stony Brook Graduate Student Algebraic Geometry Seminar, and the University of Michigan Postdoctoral Algebraic Geometry Seminar.

Service to the Profession

- Referee for numerous journals, including *Ann. of Math.*, *J. Amer. Math. Soc.*, *Invent. Math.*, *J. Eur. Math. Soc.*, *J. Differential Geom.*, *Duke Math. J.*, *Forum Math. Pi*, *Épijournal Géom. Algébrique*, *J. Algebraic Geom.*, *Algebr. Geom.*, *Compos. Math.*, *Adv. Math.*, *Geom. Topol.*, *Algebr. Number Theory*, *Int. Math. Res. Not. IMRN*, *J. Éc. polytech. Math.*, *Doc. Math.*, *J. Algebra*, *Trans. Amer. Math. Soc.*, *Proc. Amer. Math. Soc.*, *Math. Z.*, *Michigan Math. J.*, *J. Pure Appl. Algebra*, and *Nagoya Math. J.*
- Referee for grant proposals submitted to the NSF, NSA, European Research Council (ERC), German Research Foundation (DFG), Dutch Research Council (NWO), National Science Centre of Poland (NCN), U.S.–Israel Binational Science Foundation (BSF), and Simons Foundation.
- Reviewer for *Mathematical Reviews*.
- Member of doctoral thesis committees for: Y. Xiao (Stony Brook, R. Lazarsfeld); S. Ghosh (Stony Brook, J. Starr); A. Abasheva (Columbia, G. Saccà); G. Passeri (Stony Brook, R. Lazarsfeld); Y. Niu (Stony Brook, K. Fukaya); D. Brogan (Stony Brook, C. Schnell); K.-W. Chen (Columbia, R. Friedman); C. Bai (Sorbonne University, C. Voisin); K. Cho (Stony Brook, R. Lazarsfeld); Q. Chen (Stony Brook, C. Schnell); S. Zhang (Stony Brook, M. de Cataldo); M. Villadsen (Stony Brook, C. Schnell); B. Castor (Washington University, M. Kerr); B. Wu (Stony Brook, M. de Cataldo); A. Popa (Stony Brook, A. Zinger); Y. Zhu (Stony Brook, J. Starr); Z. Tian (Stony Brook, J. Starr); M. Shen (Columbia, A. J. de Jong); and G. Urzúa (University of Michigan, I. Dolgachev).

University Service

- Member of the Faculty Hiring Committee, Department of Mathematics, Stony Brook University.
- Chair of the Department Chair Search Committee, Department of Mathematics, Stony Brook University.
- Member of the University Senate, Stony Brook University.
- Member of the Departmental Bylaws Committee, Department of Mathematics, Stony Brook University.
- Additional service includes the Professional Development Seminar, the RTG Committee, the Library Committee, and coordination of undergraduate research.

Mentoring and Advising

- Current Ph.D. students: Dingchang Zhou, Heather Werth, Maximilian Hofmann, and Yipeng Zhou.
- Current postdoctoral researchers: Kuan-Wen Chen (Simons Postdoctoral Fellow) and Chongyao Chen (Stony Brook–Hefei Postdoctoral Fellow).
- Ph.D. advisor for Lisa Marquand (2023; birational automorphisms of hyper-Kähler manifolds), now Assistant Professor at Rutgers University; Yoon-Joo Kim (2022; Lagrangian fibrations on hyper-Kähler manifolds), now Ritt Assistant Professor at Columbia University; Sasha Viktorova (2022; singularities of cubic threefolds), now a postdoctoral fellow at the National Center for Theoretical Sciences in Taipei; Zheng Zhang (2014; geometric and motivic realizations of variations of Hodge structure), now Assistant Professor at ShanghaiTech University; and Patricio Gallardo (2014; moduli of surfaces of general type, especially quintic surfaces), now Associate Professor at the University of California, Riverside.
- Undergraduate honors thesis advisor for Thao Do (2014; subsequently entered the Ph.D. program at MIT) and Kenneth Ascher (2012; subsequently entered the Ph.D. program at Brown University), now Associate Professor and Chancellor's Fellow at the University of California, Irvine.

- Postdoctoral mentor for: Olivier Martin, now Assistant Professor at IMPA; François Greer, now Assistant Professor at Michigan State University; Adrian Brunyate (NSF Postdoctoral Fellow), now at the University of Georgia; Giulia Saccà, now Associate Professor at Columbia University; and Dave Jensen, now Professor at the University of Kentucky.

Teaching

I have taught undergraduate and graduate courses at Columbia University (2002–2006), the University of Michigan (2006–2009), and Stony Brook University (since 2009). My teaching spans all levels of the curriculum, from coordinating calculus and teaching intermediate undergraduate courses to core graduate courses and advanced topics classes. I also typically supervise one or two individual reading courses each year, some of which lead to undergraduate honors theses.

- MAT 614 – Topics in Algebraic Geometry (Intermediate): *Complex Algebraic Surfaces* (Fall 2026)
- MAT 312 / AMS 351 – Applied Algebra (Fall 2026)
- MAT 552 – Introduction to Lie Groups and Lie Algebras (Spring 2026)
- MAT 663 – Topics in Algebraic Geometry (Advanced): *Introduction to Higher-Dimensional Algebraic Geometry* (Fall 2025)
- MAT 312 / AMS 351 – Applied Algebra (Fall 2025)
- MAT 691 – Advanced Topics in Algebraic Geometry: *Singularities in Complex Algebraic Geometry* (Spring 2025)
- MAT 544 – Commutative Algebra (Fall 2024)
- MAT 126 – Calculus B (coordinator; Fall 2024)
- MAT 589 – Introduction to Algebraic Geometry (Spring 2023)
- MAT 211 – Introduction to Linear Algebra (Fall 2022)
- MAT 312 / AMS 351 – Applied Algebra (Fall 2022)
- MAT 534 – Algebra I (Fall 2021)
- MAT 131 – Calculus I (Fall 2021)
- MAT 402 – Introduction to Algebraic Geometry (undergraduate; Spring 2021)
- MAT 685 – Hodge Theory and Geometry (Spring 2021)
- MAT 312 / AMS 351 – Applied Algebra (Spring 2020)
- MAT 535 – Algebra II (Spring 2020)
- MAT 589 – Introduction to Algebraic Geometry (Spring 2019)
- MAT 126 – Calculus B (Spring 2019)
- MAT 614 – Topics in Algebraic Geometry: Introduction to the Minimal Model Program (Fall 2018)
- MAT 615 – Topics in Algebraic Geometry: Complex Surfaces (Spring 2018)
- MAT 312 / AMS 351 – Applied Algebra (Fall 2017)

- MAT 534 – Algebra I (Fall 2017)
- MAT 360 – Geometric Structures (Spring 2016)
- MAT 614 – Topics in Algebraic Geometry: *Perspectives on Moduli* (Fall 2015)
- MAT 122 – Overview of Calculus, with Applications (Fall 2015)
- MAT 402 – Topics in Number Theory (Spring 2014)
- MAT 402 – Topics in Algebra (Spring 2013)
- MAT 552 – Introduction to Lie Groups and Lie Algebras (Spring 2013)
- MAT 536 – Algebra III: Commutative Algebra (Fall 2012)
- MAT 122 – Overview of Calculus, with Applications (Fall 2012)
- MAT 626 – Topics in Algebraic Geometry: Deformation Theory (Fall 2011)
- MAT 401 – Undergraduate Algebraic Geometry (Fall 2011)
- MAT 534 – Algebra I (Fall 2010)
- MAT 313 – Abstract Algebra (Fall 2010, Fall 2009)
- MAT 131 – Calculus I (Spring 2010)
- MAT 125 – Calculus A (Spring 2010)
- Linear Algebra (Fall 2008, Winter 2008)
- Probability (Fall 2008, Fall 2007)
- Complex Analysis (Winter 2007)
- Calculus II (Fall 2006, Summer 2004, Spring 2004, Summer 2003)
- College Algebra (Fall 2003)