

# TOMMASO DE FERNEX

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Department of Mathematics  
University of Utah  
155 South 1400 East  
Salt Lake City, UT 84112

Phone: +1 (801) 581-7318  
Chair Phone: +1 (801) 581-7870  
defernex@math.utah.edu  
www.math.utah.edu/~defernex

EDUCATION	July 2002	Ph.D. in Mathematics, University of Illinois at Chicago
	February 2001	Dottorato di Ricerca in Matematica, Università di Genova
	February 1996	Laurea in Matematica (summa cum laude), Università di Milano
APPOINTMENTS	2023–present	Department Chair, University of Utah
	2017–2019	Associate Department Chair, University of Utah
	2014–present	Professor, University of Utah
	2009–2014	Associate Professor, University of Utah
	2005–2011	John E. and Marva M. Warnock Presidential Endowed Chair, University of Utah
	2005–2009	Assistant Professor, University of Utah
	2002–2005	T. H. Hildebrandt Research Assistant Professor, University of Michigan
VISITING POSITIONS	2019	Research Professor, MSRI, Birational Geometry and Moduli Spaces
	2011	Visiting Professor, École Normale Supérieure, Paris
	2009	Visiting Scholar, Institut de Mathématiques de Jussieu
	2009	Research Member, MSRI, Jumbo Program in Algebraic Geometry
	2006	Visiting Scholar, Università di Genova
	2005–2006	Member, Institute for Advanced Study
	1999	Visiting Research Assistant, University of Hong Kong
HONORS	class 2019	Fellow of the American Mathematical Society
	2012–2013	Simons Fellow in Mathematics
	2009	Fellowship, Fondation Sciences Mathématiques de Paris
	2005–2011	John E. and Marva M. Warnock Presidential Endowed Chair, University of Utah
	2005	Fellowship, Istituto Nazionale di Alta Matematica
	2002	Rackham Faculty Summer Fellowship, University of Michigan
	2000–2001	University Fellowship, University of Illinois at Chicago
	1996–2000	Doctoral Scholarship, Università di Genova
GRANTS	2020–2023	NSF Grant DMS-2001254, PI, \$276,582
	2019–2021	SB196 Math Teacher Preparation Grant, Office of the Commissioner, Utah System of Higher Education, PI, \$108,000
	2017–2020	NSF Grant DMS-1700769, PI, \$219,999

2015	NSF Grant 1500652, The Boot Camp for the 2015 Algebraic Geometry Summer Research Institute, Co-PI, \$49,900
2015	NSF Grant 1447423, 2015 AMS Summer Research Institute in Algebraic Geometry, Co-PI, \$248,620
2015	NSA Grant H98230-15-1-0225, AMS Summer Research Institute in Algebraic Geometry, PI, \$25,000
2014–2017	NSF Grant DMS-1402907, PI, \$130,999
2013–2018	NSF RTG Grant DMS-1246989, Algebraic Geometry and Topology at the University of Utah, Co-PI & Co-Director, \$2,431,178
2013–2016	NSF FRG Grant DMS-1265285, PI, \$410,568
2009–2014	NSF CAREER Grant DMS-0847059, PI, \$400,001
2005–2008	NSF Grant DMS-0548325, PI, \$86,035
2002–2005	Rackham Research Grant, University of Michigan

PUBLICATIONS

1. T. de Fernex and S.-H. Wang, Families of jets of arc type and higher (co)dimensional Du Val singularities, *C. R. Math. Acad. Sci. Paris*, **362** (2024), 119–139, special issue S1 “Complex algebraic geometry, in memory of Jean-Pierre Demailly”
2. C. Chiu, T. de Fernex, and R. Docampo, On arc fibers of morphisms of schemes, *J. Eur. Math. Soc. (JEMS)* (2024), 43 pages, published online first, DOI 10.4171/JEMS/1500
3. T. de Fernex and C. C. Lau, Motivic integration on Berkovich spaces, to appear in Higher Dimensional Algebraic Geometry, a volume dedicated to Vyacheslav Shokurov on the occasion of his 70th birthday, *Cambridge Univ. Press*, 44 pages, [arXiv:2103.01811](https://arxiv.org/abs/2103.01811)
4. T. de Fernex, Birational rigidity and K-stability of Fano hypersurfaces with ordinary double points, *Rend. Circ. Mat. Palermo* **72** (2023), 1049–1065
5. C. Chiu, T. de Fernex, and R. Docampo, Embedding codimension of the space of arcs, *Forum Math. Pi* **10** (2022), e4 1–37
6. T. de Fernex and C. C. Lau, Extending rationally connected fibrations from ample subvarieties, *Manuscripta Math.* **169** (2022), 19–32
7. T. de Fernex and C. C. Lau, Grothendieck–Lefschetz for ample subvarieties, *Math. Z.* **300** (2022), 3319–3336, The geometry of algebraic varieties: special issue in honour of Olivier Debarre
8. T. de Fernex, Smooth solutions to the complex Plateau problem, *J. Differential Geom.* **118** (2021), 297–312
9. T. de Fernex and R. Docampo, Differentials on the arc space, *Duke Math. J.* **169** (2020), 353–396
10. T. de Fernex and R. Docampo, Nash blow-ups of jet schemes, *Ann. Inst. Fourier* **69** (2019), 2577–2588
11. T. de Fernex, L. Ein and S. Ishii, Jet closures and the local isomorphism problem, *J. Algebra* **501** (2018), 166–181
12. T. de Fernex, The arc space of an algebraic variety, *Algebraic Geometry: Salt Lake City 2015*, Proc. Symp. Pure Math., Vol. **97**, 2018.
13. T. de Fernex and Y.-C. Tu, Towards a link theoretic characterization of smoothness, *Math. Res. Lett.* **24** (2017), 1239–1262
14. T. de Fernex, Birational geometry of singular Fano hypersurfaces, *Ann. Sc. Norm. Super. Pisa, Cl. Sci. (5)* **17** (2017), 911–929
15. T. de Fernex, Colength of a product of ideals, in appendix to: J. Kollár and A.

- Némethi, Dufree’s conjecture on the signature of smoothings of surface singularities, *Ann. Sci. École Norm. Sup.* **50** (2017), 787–798
16. T. de Fernex, J. Kollár and C. Xu, The dual complex of singularities, in “Higher dimensional algebraic geometry” in honour of Professor Yujiro Kawamata’s 60th birthday, 103–130, *Adv. Stud. Pure Math.* Vol. 74, 2017.
  17. T. de Fernex and R. Docampo, Terminal valuations and the Nash problem, *Invent. Math.* **203** (2016), 303–331
  18. T. de Fernex and M. Mustață, The volume of a set of arcs on a variety, *Rev. Roumaine Math. Pures Appl.* **60** (2015), 375–401, special issue in honor of Lucian Badescu’s 70th birthday
  19. T. de Fernex, R. Docampo, S. Takagi and K. Tucker, Comparing multiplier ideals to test ideals on numerically  $\mathbb{Q}$ -Gorenstein varieties, *Bull. London Math. Soc.* **47** (2015), 359–369
  20. S. Boucksom, T. de Fernex, C. Favre and S. Urbinati, Valuation spaces and multiplier ideals on singular varieties, in “Recent Advances in Algebraic Geometry,” a volume in honor of Rob Lazarsfeld’s 60th birthday, 29–51, *London Math. Soc. Lecture Note Series*, Cambridge University Press, 2015
  21. T. de Fernex, Fano hypersurfaces and their birational geometry, in “Automorphisms in Birational and Affine Geometry,” Levico Terme, Italy, October 2012, 103–120, *Springer Proc. Math. Stat.* Vol. 79, 2014.
  22. T. de Fernex and R. Docampo, Jacobian discrepancies and rational singularities, *J. Eur. Math. Soc. (JEMS)* **16** (2014), 165–199
  23. T. de Fernex, Three-dimensional counter-examples to the Nash problem, *Compositio Math.* **149** (2013), 1519–1534
  24. T. de Fernex, Birationally rigid hypersurfaces, *Invent. Math.* **192** (2013), 533–566
  25. T. de Fernex and D. Fusi, Rationality in families of threefolds, *Rend. Circ. Mat. Palermo* **62** (2013), 127–135
  26. S. Boucksom, T. de Fernex and C. Favre, The volume of an isolated singularity, *Duke Math. J.* **161** (2012), 1455–1520
  27. T. de Fernex and C. Hacon, Rigidity properties of Fano varieties, in Current Developments in Algebraic Geometry, MSRI Publications, Volume 59, 2011
  28. T. de Fernex and C. Hacon, Deformations of canonical pairs and Fano varieties, *J. reine angew. Math.* **651** (2011), 97–126
  29. T. de Fernex, L. Ein and M. Mustață, Log canonical thresholds on varieties with bounded singularities, in Classification of algebraic varieties, 221–257, *EMS Ser. Congr. Rep., Eur. Math. Soc.*, Zürich, 2011
  30. T. de Fernex, L. Ein and M. Mustață, Shokurov’s ACC Conjecture for log canonical thresholds on smooth varieties, *Duke Math. J.* **152** (2010), 93–114
  31. T. de Fernex and L. Ein, A vanishing theorem for log canonical pairs, *Amer. J. Math.* **132** (2010), 1205–1221
  32. T. de Fernex and C. Hacon, Singularities on normal varieties, *Compositio Math.* **145** (2009), 393–414
  33. T. de Fernex and M. Mustață, Limits of log canonical thresholds, *Ann. Sci. Éc. Norm. Super.* **42** (2009), 493–517
  34. M. C. Beltrametti, T. de Fernex and A. Lanteri, Ample subvarieties and rationally connected fibrations, *Math. Ann.* **341** (2008), 897–926
  35. T. de Fernex, L. Ein and S. Ishii, Divisorial valuations via arcs, *Publ. Res. Inst. Math.*

*Sci.* **44** (2008), 425–448, special issue dedicated to Professor H. Hironaka

36. T. de Fernex, A. Küronya and R. Lazarsfeld, Higher cohomology of divisors on a projective variety, *Math. Ann.* **337** (2007), 443–455
37. T. de Fernex, E. Lupercio, T. Nevins and B. Uribe, Stringy Chern classes of singular varieties, *Adv. Math.* **208** (2007), 597–621
38. T. de Fernex, E. Lupercio, T. Nevins and B. Uribe, A localization principle for orbifold theories, in “Recent Developments in Algebraic Topology,” A. Adem et al. eds., Proceedings for the Conference in honor of the 70th birthday of S. Gitler, 113–133, *Contemp. Math.* **407**, Amer. Math. Soc., Providence, RI, 2006
39. T. de Fernex, Length, multiplicity, and multiplier ideals, *Trans. Amer. Math. Soc.* **358** (2006), 3717–3731
40. T. de Fernex and A. Lanteri, Bad loci of free linear systems, *Adv. Geom.* **6** (2006), 93–107
41. T. de Fernex, Negative curves on very general blow-ups of  $\mathbb{P}^2$ , *Projective Varieties with Unexpected Properties*, a Volume in Memory of Giuseppe Veronese, 199–207, de Gruyter, Berlin, 2005
42. T. de Fernex, L. Ein and M. Mustață, Multiplicities and log canonical threshold, *J. Algebraic Geom.* **13** (2004), 603–615
43. T. de Fernex, On planar Cremona maps of prime order, *Nagoya Math. J.* **174** (2004), 1–28
44. T. de Fernex, L. Ein and M. Mustață, Bounds on log canonical thresholds with application to birational rigidity, *Math. Res. Lett.* **10** (2003), 219–236
45. T. de Fernex and L. Ein, Resolution of indeterminacy of pairs, *Algebraic Geometry*, a Volume in Memory of Paolo Francia, 165–177, de Gruyter, Berlin, 2002
46. T. de Fernex, Ample vector bundles and intrinsic quadric fibrations over irrational curves, *Matematiche (Catania)*, **55** (2000), 205–222
47. T. de Fernex and A. Lanteri, Ample vector bundles and del Pezzo manifolds. *Kodai Math. J.* **22** (1999), 85–100
48. T. de Fernex, Ample vector bundles with sections vanishing along conic fibrations over curves, *Collect. Math.* **49** (1998), 67–79

FEATURED  
RESEARCH

1. B. Totaro, The ACC conjecture for log canonical thresholds [after de Fernex, Ein, Mustata, Kollár], *Séminaire Bourbaki*, Juin 2010, 62<sup>ème</sup> année, 2009–2010, no. 1025
2. J. Kollár, The rigidity theorem of Fano-Segre-Iskovskikh-Manin-Pukhlikov-Corti-Cheltsov-de Fernex-Ein-Mustata-Zhuang, in *Birational Geometry of Hypersurfaces*, Gargnano del Garda, Italy, 2018, Lecture Notes of the Unione Matematica Italiana, Vol 26, Springer, 2019
3. M. Lejeune-Jalabert, The algebraic answer to the Nash problem for normal surfaces according to de Fernex and Docampo, in *Arc Schemes and Singularities*, World Scientific Publishing, 2019
4. M. Mauri, The dual complex of singularities after de Fernex, Kollár and Xu, in *Arc Schemes and Singularities*, World Scientific Publishing, 2019

EDITORIAL

*Journal board*

Editor of the Journal de l'École polytechnique (2013–2024)

*Books edited*

1. *Algebraic Geometry: Salt Lake City 2015* (T. de Fernex, B. Hassett, M. Mustață, M. Olsson, M. Popa, and R. Thomas, eds.), Proc. Symp. Pure Math., Vols. **97.1** and **97.2**, 2018
2. *Local and global methods in algebraic geometry*, proceedings for the conference in honor of Lawrence Ein's 60th birthday, Chicago, 2016 (N. Budur, T. de Fernex, R. Docampo, and K. Tucker, eds.), Contemp. Math., Vol. **712**, 2018
3. *Surveys on Recent Developments in Algebraic Geometry* (I. Coskun, T. de Fernex, and A. Gibney, eds.), Proc. Symp. Pure Math., Vol. **95**, 2017

INVITED  
CONFERENCE TALKS

1. Conference on "40 Years of Higher Dimensional Geometry," Princeton, June 2026 (expected)
2. Workshop on "Singularities," Oberwolfach, September 2025 (expected)
3. "Mid-Atlantic Geometry and Singularities Conference," University of La Laguna in Tenerife, Canary Islands, May 2025 (expected)
4. Conference on "Foliations, birational geometry and applications," CIRM (Luminy), February 2025 (expected)
5. Conference on "Algebraic Geometry and Related Topics," Pipa, Brazil, December 2023 (cancelled due to scheduling conflict)
6. 2023 Fields Medal Symposium, Fields Institute, Toronto, Ontario, October 2023
7. Program "FRG Special Month in Ann Arbor," University of Michigan, May 2023
8. Conference on "Singularities and Algebraic Geometry," The University of Khanh Hoa, Vietnam, February 2023 (cancelled due to personal reasons)
9. MPS Conference on "Higher Dimensional Geometry," Simons Foundation, New York City, October 2022
10. Workshop on "Singularities in Algebraic Geometry," University of the Balearic Islands, Palma de Mallorca, May 2022
11. Conference "Singularities in Positive Characteristic," CIRM, Luminy, July 2021
12. Conference "Complex, Algebraic and Differential Geometry in Sardinia," Villasimius, September 2020 (cancelled due to covid-19)
13. Workshop on "Topological and Analytic Methods in Singularity Theory," CIMAT, Guanajuato, November 2019
14. Conference "The Geometry of Algebraic Varieties," CIRM, Luminy, September 2019
15. Conference "Classical Algebraic Geometry," University of Milano, July 2019
16. Special session on "Advances in Birational Geometry," AMS Sectional Meeting, University of Arkansas, November 2018
17. Workshop on "Mathematics and Physics of F-theory," Harvard University, September 2018
18. Conference "Differential, Algebraic and Topological Methods in Complex Algebraic Geometry," Cetraro, September 2018
19. Conference "Classical algebraic geometry and related topics" in honor of Beltrametti's 70th birthday, University of Genova, July 2018
20. Southern California Algebraic Geometry Seminar, University of Southern California, April 2018
21. Conference "Singularities and Algebraic Geometry," Da Nang (Vietnam), January 2018

22. Conference “Higher dimensional algebraic geometry and characteristic  $p$ ,” CIRM, Luminy, September 2016
23. Conference “Local and global methods in algebraic geometry” in honor of Lawrence Ein’s 60th birthday, University of Illinois at Chicago, May 2016
24. AMS Summer Research Institute in Algebraic Geometry, University of Utah, July 2015
25. Oberwolfach Workshop “Algebraic Geometry,” Oberwolfach, March 2015
26. “Algebraic and Complex Geometry,” Satellite Conference of ICM 2014, KAIST (Korea), August 2014
27. Program “Complex Geometry,” Institute of Mathematical Science, Singapore, July–August 2013
28. Conference on “Motivic Invariants and Singularities,” Center for Mathematics at the University of Notre Dame, June 2013
29. “Recent Advances in Algebraic Geometry,” a conference in honor of Rob Lazarsfeld’s 60th birthday, University of Michigan, May 2013
30. Workshop on “The Commutative Algebra of Singularities in Birational Geometry: Multiplier Ideals, Jets, Valuations, and Positive Characteristic Methods,” MSRI, May 2013
31. Conference on “Groups of Automorphisms in Birational and Affine Geometry” CIRM (Levico Terme, Italy), October–November 2012
32. Texas Algebraic Geometry Symposium, University of Texas A&M, April 2012
33. Special session on “Algebraic Geometry: Singularities and Moduli,” AMS Meeting, University of Hawaii, March 2012
34. AIM Workshop on “Relating test ideals and multiplier ideals,” Palo Alto, August 2011
35. Western Algebraic Geometry Symposium, Stanford University, April 2011
36. Special session on “Singularities in Algebraic Geometry,” AMS Meeting, University of Notre Dame, November 2010
37. COW Seminar, Oxford University, October 2010
38. Congrès de Géométrie Algébrique Complexe, Institut Henri Poincaré, Paris, June–July 2010
39. Conference “Giornate di Geometria Algebrica ed Argomenti Correlati,” Gargnano (Italy), May 2010
40. Freiburg-Nancy-Strasbourg Joint Meeting, Université de Strasbourg, June 2009
41. “Projective Algebraic Geometry in Milano,” Conference in Honor of the 60th birthday of Antonio Lanteri. Università di Milano, June 2009
42. IAS/Park City Mathematics Institute (PCMI) Summer Session, “Analytic and Algebraic Geometry: Common Problems–Different Methods,” Park City, Utah, July 2008
43. American Mathematical Society/Sociedade Brasileira de Matematica, First Joint Meeting, IMPA, Rio de Janeiro, Brazil, June 2008
44. “Algebraic Geometry and Commutative Algebra,” A conference to celebrate Robin Hartshorne’s 70th birthday, University of Illinois at Chicago, April 2008
45. Special session on “Birational algebraic geometry,” Spring Central Section Meeting, Indiana University, April 2008
46. Workshop “Seminario di Natale,” Università di Milano, December 2007
47. Workshop on “Higher Dimensional Algebraic Geometry,” National Taiwan University, Taiwan, March 2007

48. Western Algebraic Geometry Symposium, University of Utah, November 2006
49. Special Session on “Birational geometry,” AMS Central Sectional Meeting, University of Cincinnati, October 2006
50. Eighth Meeting on Commutative Algebra and Algebraic Geometry, IMPA, Rio de Janeiro, Brazil, July 2006
51. Genova-Nice Meeting, Università di Genova, May 2006
52. BIRS Workshop, “Recent trends in higher dimensional geometry,” Banff, Canada, April 2006
53. JAMI Conference/Workshop 2006 on “Recent Developments in Higher Dimensional Algebraic Geometry,” Johns Hopkins University, March 2006
54. Conference on “Singularity theory and commutative ring theory,” Hamana-ko, Japan, September 2005
55. AGaFe 2005, Conference on “Geometry of algebraic varieties,” Università di Ferrara, June 2005
56. “Projective varieties with unexpected properties,” Conference for the 150th anniversary of the birth of Giuseppe Veronese, Università di Siena, June 2004
57. The UM/OSU Algebraic Geometry Workshop, Ohio State University, March 2004
58. Arithmetic and Algebraic Geometry Conference, University of Tokyo, January 2004
59. “Minimal Model Activity,” Special Year in Algebraic Geometry and Topology, Australian National University, Canberra, August 2003
60. Conference in Algebraic Geometry in memory of Paolo Francia, Università di Genova, September 2001
61. AGaFe 2001, School on “Birational and projective geometry of algebraic varieties,” University of Ferrara, September 2001
62. Convegno di Geometria Algebrica ed Argomenti Correlati, Gargnano (Italy), May 2000
63. Pragmatic 1998, School on “Linear systems and vanishing theorems,” Università di Catania, June 1998

COLLOQUIA &  
SEMINAR TALKS

- |      |  |
|------|--|
| 2022 | Università di Roma Due–Tor Vergata, Caltech, University of Utah  |
| 2021 | Zoom Algebraic Geometry (ZAG) seminar  |
| 2020 | Stony Brook University, Princeton University, Institut de Mathématique de Jussieu, Johns Hopkins University, Princeton University  |
| 2019 | University of Utah, Boise State University, Università di Ferrara  |
| 2018 | Courant Institute, University of Vienna ( <i>colloquium</i> ), Università di Milano, Northwestern University, University of Utah   |
| 2017 | University of Oklahoma ( <i>colloquium</i> ), University of Illinois at Chicago, Johns Hopkins University  |
| 2016 | University of Michigan   |
| 2014 | University of Leuven, Yale University, SUNY–Stony Brook  |
| 2013 | University of Utah   |
| 2012 | Ohio State University ( <i>colloquium</i> ), University of Notre Dame ( <i>colloquium</i> ), University of Illinois at Chicago, University of British Columbia, University of British Columbia ( <i>colloquium</i> ) |
| 2011 | Università di Milano, École Normale Supérieure, IMPA–Rio de Janeiro  |

- 2010 Institut de Mathématique de Toulouse, Institut Fourier, Università di Roma Tre, University of Illinois at Chicago, University of Cambridge, University of Warwick, Institut de Mathématique de Jussieu, University of Utah, Università di Milano, University of Chicago, Stanford University
- 2009 Princeton University, University of British Columbia, University of Michigan, Université de Nice Sophia-Antipolis, Imperial College, Università di Pavia, Notre Dame (*colloquium*), MSRI
- 2008 University of Utah, Universidade Federal de Pernambuco–Recife, IMPA–Rio de Janeiro, University of Arizona (*colloquium*), University of Utah, University of Illinois at Chicago, University of Utah.
- 2007 University of Utah, Notre Dame University, University of Illinois at Chicago, University of Utah, University of Chicago, Purdue University.
- 2006 Università di Roma Due–Tor Vergata, Università di Roma Tre, Università di Milano, Università di Genova, Università di Ferrara, University of Michigan
- 2005 Queen’s University, Harvard University, Columbia University, Institute for Advanced Study (*member seminar*), Princeton University, CIMAT–Guanajuato, CINEVESTAV (*colloquium*), Università di Milano, SUNY–Stony Brook, Ohio State University (*colloquium*), Texas A&M University (*colloquium*), University of Utah, University of Utah (*colloquium*), University of California–Santa Barbara (*colloquium*), Johns Hopkins University, University of Pittsburgh (*colloquium*), University of Kansas (*colloquium*), University of Illinois at Urbana-Champaign (*colloquium*), University of Notre Dame (*colloquium*)
- 2004 University of Illinois at Urbana-Champaign, University of Michigan, Northwestern University, University of Wisconsin–Madison, University of Tokyo, Kyoto University
- 2003 Johns Hopkins University, Università di Genova, University of Michigan
- 2002 University of Michigan, Università di Genova, Johns Hopkins University, University of Michigan
- 1999 Hong Kong University
- 1998 Università di Milano, Università di Pavia

LECTURE SERIES &  
MINI-COURSES

1. Lectures on “Rationality of complex algebraic varieties” (12 hours), Ph.D. course, Department of Mathematics, University of Rome II–Tor Vergata, May–June 2021.
2. Lectures on “Arc spaces and singularities in the minimal model program” (4 lectures), Conference “Young researchers in Singularity Theory,” Artin Approximation and Singularity Theory 2015, CIRM, Luminy, February 2015
3. Lectures on “Motivic integration” (3 lectures), Graduate and Postdoc Summer School on “Motivic Invariants and Singularities,” Mini-course on “Motivic integration,” Center for Mathematics at the University of Notre Dame, May 2013
4. Lectures on “The log canonical threshold” (2 lectures), School on “Birational Automorphisms of Varieties of General Type,” Freiburg, July 2011
5. Lectures on “The ACC conjecture for log canonical thresholds” (8 lectures), School on the Minimal Model Program and Shokurov’s ACC Conjecture, Università di Trento, July 2010
6. Lectures on “Shokurov’s ACC conjecture for log canonical thresholds” (6 lectures), Institut de Mathématique de Jussieu, June 2009
7. Lectures on “Deformation rigidity of Fano varieties” (3 lectures), Rencontre de Géométrie Algébrique et Géométrie Complexe, CIRM, Luminy, January 2009



8. Lectures on “Relative motivic integration, MacPherson’s transformation, and stringy Chern classes” (5 lectures), VIGRE Mini-Course on “Jet schemes and motivic integration,” University of Utah, May 2005

ORGANIZATIONAL  
ACTIVITIES

1. RTG Mini-Conference on “Complex dynamics and related topics,” University of Utah, April 2023 (with J. Chaika)
2. RTG Mini-Conference on “Riemann surfaces and their moduli spaces,” University of Utah, February 2020 (with J. Chaika and P. Patel)
3. FRG Summer School and Workshop on “Higher dimensional algebraic geometry,” University of Utah, July 2016 (with M. Mustata and K. Schwede)
4. Conference “Local and global methods in algebraic geometry” in honor of Lawrence Ein’s 60th birthday, University of Illinois at Chicago, May 2016 (with N. Budur, R. Docampo, and K. Tucker)
5. RTG Undergraduate Summer Course on “Birational Geometry of Complex Surfaces,” University of Utah, May 2016 (with C. Hacon)
6. FRG Mini-Workshop on “Unramified cohomology, derived categories, and rationality,” University of Utah, February 2016 (with C. Hacon)
7. AMS Summer Research Institute in Algebraic Geometry, University of Utah, July 2015 (with B. Hassett, M. Mustață, M. Olsson, M. Popa, and R. Thomas)
8. Graduate Student Boot Camp in Algebraic Geometry, University of Utah, July 2015 (with I. Coskun, A. Gibney, and M. Lieblich)
9. FRG Mini-Workshop on “Foliations with effective anti-canonical bundle,” University of Utah, December 2014
10. FRG Mini-Workshop on “Cremona groups,” University of Utah, November 2013
11. Western Algebraic Geometry Symposium (WAGS), University of Utah, October 2012 (with C. Hacon)
12. AIM Program on “ACC and termination of flips,” Palo Alto, 2012 (with C. Hacon)
13. AMS Sectional Meeting, Special Session in Algebraic Geometry, University of Utah, October 2011 (with C. Hacon)
14. MRC 2010 Program on “Birational geometry and moduli spaces,” Snowbird, June 2010 (with D. Abramovich, I. Coskun, and A. Gibney)
15. VIGRE Mini-Course on “Moduli spaces and birational geometry,” University of Utah, June 2010 (with A. Bertram)
16. Baby Algebraic Geometry Seminar (group reading course for graduate students), University of Utah, Fall 2007, Fall 2009, Spring 2012, Spring 2015
17. Western Algebraic Geometry Seminar (WAGS), University of Utah, November 2006 (with A. Bertram and C. Hacon)
18. Special Topics in Algebraic Geometry Seminar, University of Michigan, Fall 2003, Winter 2004 and Fall 2004 (with T. Nevins and B. Uribe)

OUTREACH  
ACTIVITIES

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|------|--|
| 2022 | Independent Project supervisor, University of Utah         |
| 2020 | ACCESS mentor, University of Utah                          |
| 2019 | Math Circle (high school students), University of Utah     |
| 2016 | REU Independent Project supervisor, University of Utah     |
| 2014 | Talk at the High School Summer Program, University of Utah |

2012 REU Independent Project supervisor, University of Utah  
 2011 Science Day at the University of Utah, workshop addressed to high school students  
 Undergraduate Colloquia, University of Utah  
 2009 Math Circle (high school students), University of Utah  
 Undergraduate Colloquia, University of Utah  
 2007 Early Research Direction talk, University of Utah

SUPERVISING &  
 MENTORING

ACCESS Hattie Beverly Butts (2020)  
 REU students Daniel Ryou (2021)  
 Scott Neville (2016)  
 Isabelle Scott (2012)  
 Michael Shrieve (2012)  
 honor thesis Isabelle Scott (2013)  
 MS Math Teach Elizabeth Lundin (2020–2021)  
 PhD students Will Legg (2024–present)  
 Jonathon Fleck (2023–present)  
 Zack Mere (2023–present)  
 Shih-Hsin Wang (2022–present)  
 Ziwen Zhu (2016–2020)  
 Chung Ching Lau (2012–2017)  
 Keyvan Yaghmayi (2011–2017)  
 Davide Fusi (2007–2012)  
 postdocs Devlin Mallory (2021–present)  
 Harold Blum (2018–2020, NSF postdoc)  
 Yu-Chao Tu (2014–2017, FRG postdoc)  
 Yi Zhu (2012–2015)  
 Kevin Tucker (2010–2011, NSF postdoc)  
 Roi Docampo (2009–2012)  
 visiting scholars Gebhard Martin (09/19–05/20)  
 Mirko Mauri (04/18–05/18)  
 Arnaud Eteve (02/18–05/18)  
 Joonyeong Won (03/14–04/14)  
 Olivier Benoist (09/12–11/12)

TEACHING

*Instructor, University of Utah*  
 2022–2023 Introduction to Algebraic Geometry II (Math 6140)  
 REU Introduction to Algebraic and Tropical Curves (Math 4800)  
 Foundations of Analysis II (Math 3220)  
 2021–2022 Introduction to Modern Algebra II (Math 5320)  
 Introduction to Modern Algebra I (Math 5310)  
 Foundations of Analysis II (Math 3220)  
 2020–2021 Introduction to Algebraic Geometry II (Math 6140)  
 Foundations of Analysis I (Math 3210)  
 2019–2020 Topics in Algebraic Geometry (Math 7800)  
 2017–2018 Introduction to Modern Algebra I (Math 5310)  
 2016–2017 Foundations of Analysis II (Math 3220)  
 Topics in Algebraic Geometry (Math 7800)

Foundations of Analysis I (Math 3220)  
 2015–2016 Foundations of Analysis II (Math 3220)  
 2014–2015 REU Introduction to Tropical Geometry (Math 4800)  
 Introduction to Modern Algebra I (Math 5310)  
 Foundations of Analysis II (Math 3220)  
 2013–2014 Topics in Algebraic Geometry (Math 7800)  
 Linear Algebra (Math 2270)  
 Introduction to Modern Algebra I (Math 5310)  
 2011–2012 Topics in Algebraic Geometry (Math 7800)  
 REU Introduction to Tropical Geometry (Math 4800)  
 Foundations of Analysis I (Math 3210)  
 2010–2011 Calculus III (Math 2210)  
 2009–2010 Foundations of Analysis I (Math 3210)  
 Topics in Algebraic Geometry (Math 7800)  
 2008–2009 Foundations of Analysis I (Math 3210)  
 Introduction to Algebraic Geometry I (Math 6130)  
 2007–2008 Foundations of Analysis I (Math 3210)  
 Introduction to Modern Algebra I (Math 5310)  
 2006–2007 Introduction to Algebraic Geometry II (Math 6140)  
 Topics in Algebraic Geometry (Math 7800)

*Instructor, University of Michigan*

2004–2005 Introduction to Topology (Math 490)  
 Introduction to Topology (Math 590)  
 2003–2004 Linear Algebra (Math 217)  
 2002–2003 Introduction to Modern Algebra (Math 412)  
 Calculus I (Math 115)

*Teaching Assistant, University of Illinois at Chicago*

2001–2002 Calculus I (Math 180)  
 2000–2001 Calculus II (Math 181)

*Teaching Assistant, Università dell'Insubria*

1997–1998 Geometria IV  
 Geometria III  
 1996–1997 Geometria II

ACADEMIC SERVICE

*University of Utah*

2023–2024 Department Chair  
 Member of the University Advisory Board  
 Member of the College of Science Executive Committee  
 Member of the College of Science Council  
 2022–2023 Chair of the Retention, Promotion, and Tenure (RPT) Committee  
 Chair of the Ad Hoc Climate Survey Committee  
 Member of the Executive Committee  
 Member of the Equity Diversity and Inclusion Committee

Member of the Teaching Instructorship Committee  
 Member of the Endorsed Scholarship Endorsement Committee  
 2021–2022 Chair of the Review and Promotions Committee for Career-Line Faculty and for Instructional Staff  
 Member of the Executive Committee  
 Member of the Selection Committee for the Trevor James McMinn Professorship in Mathematics  
 Member of the Ad Hoc Climate Survey Committee  
 Member of the Instructorship Committee  
 Member of the Endorsed Scholarship Endorsement Committee  
 Member of the Ad Hoc Retention, Promotion, and Tenure (RPT) Committee  
 Center for Science and Mathematics Education Faculty Associate  
 2019–2020 Chair of the Mathematics Education Committee  
 Member of the College of Science Retention, Promotion, and Tenure (RPT) Committee  
 Member of the Career-Line Ad Hoc Hiring Committee  
 Member of the University Advisory Council on Teacher Education  
 Center for Science and Mathematics Education Faculty Associate  
 2018–2019 Associate Department Chair  
 Chair of the Mathematics Education Committee  
 Chair of the Mathematics Department subcommittee for the Math and Science Education faculty cluster search  
 College of Science Tenure-Line Academic Senate faculty representative  
 Member of the University Advisory Council on Teacher Education  
 Member of the Executive Committee for the Math and Science Education faculty cluster search, 2018–2019  
 Coordinator of Foundation of Analysis (Math 3210–3220)  
 2017–2018 Associate Department Chair  
 Chair of the Mathematics Education Committee  
 College of Science Tenure-Line Academic Senate faculty representative  
 Member of the selection committee for the Trevor James McMinn Professorship in Mathematics  
 Coordinator of Foundations of Analysis (Math 3210–3220)  
 2016–2017 Chair of the Hiring Committee  
 College of Science Tenure-Line Academic Senate faculty representative  
 Graduate Research Fellowship committee member  
 Coordinator of Foundations of Analysis (Math 3210–3220)  
 2015–2016 Member of the Executive Committee  
 Coordinator of Foundations of Analysis (Math 3210–3220)  
 2014–2015 Member of the Executive Committee  
 Coordinator of Linear Algebra (Math 2270) and Differential Equations (Math 2280)  
 2013–2014 Member of the Instructorship Committee  
 2011–2012 Member of the Instructorship Committee  
 2010–2011 Member of the Instructorship Committee  
 2009–2010 Co-chair of the Graduate Recruitment Committee  
 Colloquium Chair  
 2008–2009 Member of the Instructorship Committee  
 2007–2008 Colloquium Chair

2006–2007 Colloquium Chair

*Member of thesis defense committees (University of Utah, unless stated otherwise)*

2024 Hanlin Cai, Peter McDonald, Lingyao Xie  
2023 Seungsu Lee, Jose Yanez  
2022 Junpeng Jiao, You-Cheng Chou, Elizabeth Lundin  
2021 Jihao Liu, Yen-An Chen  
2020 Dapeng Mu, Ziwen Zhu (chair)  
2019 Franco Rota, Huachen Chen, Joaquín Moraga, Stefano Filipazzi  
2018 Javier Carvajal-Rojas, Chuanhao Wei  
2017 Alexander Stathis (*University of Illinois at Chicago*), Chung Ching Lau (chair),  
Keyvan Yaghmahi (chair), Yuan Wang, Thomas Goller, Honglu Fan  
2016 Drew Johnson, Alan Watson  
2015 Jack Jeffries, Cristian Martinez  
2014 Dylan Zwick, Cesar Lozano (*University of Illinois at Chicago*) Veronika Ertl  
2012 Davide Fusi (chair), Stefano Urbinati  
2004 Nguyễn Quang Minh (*University of Michigan*)  
2003 Nero Budur (*University of Illinois at Chicago*)

*Member of oral exam committees (University of Utah)*

2024 Shih-Hsin Wang (chair), Daniel Apsley, Jonathon Fleck (chair)  
2023 Antonia Kekkou, Brendan Murphy, Zach Mere (chair), Minhua Cheng  
2022 Matthew Bertucci  
2021 Lingyao Xie, Suojun Tan, Hanlin Cai, Suo Jun Tan, Junpeng Jiao  
2019 Seungsu Lee, Jose Yanez, Matteo Altavilla  
2017 Yen-An Chen, Dapeng Mu  
2016 Joaquin Moraga, Ziwen Zhu (chair), Javier Carvajal-Rojas  
2015 Andrew Bydlon, Chuanhao Wei, Chung Ching Lau (chair)  
2014 Alan Watson, Honglu Fan, Keyvan Yaghmayi (chair), Feng Qu  
2013 Drew Johnson, Yuan Wang  
2011 Veronika Ertl, Kenneth Jeffries, Cristian Martinez, Yuchen Zhang  
2010 Xiaodong Jiang, Davide Fusi (chair), Stefano Urbinati, Qu Feng  
2009 Dylan Zwick  
2008 Erika Meucci

OTHER SERVICE      grant reviewer      European Research Council  
Fellowship Programme INdAM-Cofund  
National Research and Development Agency – FONDECYT  
National Science Foundation  
National Security Agency  
Research Foundation – Flanders, FWO  
Swiss National Science Foundation  
U.S. Civilian Research & Development Foundation

editorial	Journal de l'École polytechnique (editor, 2013–2024)
referee	Acta Mathematica
	Advances in Geometry
	Advances in Mathematics
	Advanced Studies in Pure Mathematics
	Algebra and Number Theory
	Algebraic Geometry
	American Journal of Mathematics
	Annales de l'Institut Fourier
	Annales scientifiques de l'École normale supérieure
	Annals of Mathematics
	Bulletin de la Société Mathématique de France
	Canadian Mathematical Bulletin
	Central European Journal of Mathematics
	Commentarii Mathematici Helvetici
	Communications in Algebra
	Compositio Mathematica
	Comptes Rendus de l'Académie des Sciences
	Documenta Mathematica
	Duke Mathematical Journal
	European Journal of Mathematics
	Forum of Mathematics Sigma
	Geometriae Dedicata
	Indiana University Mathematical Journal
	International Journal of Mathematics
	International Mathematics Research Notices
	Inventiones Mathematicae
	Journal de l'École polytechnique
	Journal für die reine und angewandte Mathematik
	Journal of Algebra
	Journal of Algebraic Geometry
	Journal of Differential Geometry
	Journal of Pure and Applied Algebra
	Journal of the American Mathematical Society
	Journal of the European Mathematical Society
	Journal of the Institute of Mathematics of Jussieu
	Journal of the London Mathematical Society
	Manuscripta Mathematica
	Mathematische Annalen
	Mathematical Proceedings of the Cambridge Philosophical Society
	Mathematical Research Letters
	Mathematische Zeitschrift
	Michigan Mathematical Journal
	Proceedings of the American Mathematical Society
	Proceedings of the London Mathematical Society
	Publications Mathématiques de l'IHÉS
	Revista Matemática Iberoamericana
	Science China Mathematics
	Selecta Mathematica
	Tohoku Mathematical Journal
	Transactions of the American Mathematical Society
	various conference proceedings
reviewer	Mathematical Reviews

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