Tommaso de Fernex

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University of Utah
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Salt Lake City, UT 84112

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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	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, to appear in *C. R. Math. Acad. Sci. Paris*, special volume in memory of Jean-Pierre Demailly, 22 pages, arXiv:2306.08291

2. 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

3. C. Chiu, T. de Fernex, and R. Docampo, On arc fibers of morphisms of schemes, to appear in *J. Eur. Math. Soc. (JEMS)*, 38 pages, arXiv:2206.08060

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. Mustaţă, 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 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. Mustaţă, 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. Mustaţă, 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. Mustaţă, 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. Mustaţă, 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. Mustaţă, 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, 62éme 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–present)

Books edited

1. *Algebraic Geometry: Salt Lake City 2015* (T. de Fernex, B. Hassett, M. Mustaţă, 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

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INVITED CONFERENCE TALKS

1. Conference on "Algebraic Geometry and Related Topics, Pipa, Brazil, December 2023 (cancelled due to scheduling conflict)

2. 2023 Fields Medal Symposium, Fields Institute, Toronto, Ontario, October 2023

3. Program "FRG Special Month in Ann Arbor," University of Michigan, May 2023

4. Conference on "Singularities and Algebraic Geometry," The University of Khanh Hoa, Vietnam, February 2023 (cancelled due to personal reasons)

5. MPS Conference on "Higher Dimensional Geometry," Simons Foundation, New York City, October 2022

6. Workshop on "Singularities in Algebraic Geometry," University of the Balearic Islands, Palma de Mallorca, May 2022

7. Conference "Singularities in Positive Characteristic," CIRM, Luminy, July 2021

8. Conference "Complex, Algebraic and Differential Geometry in Sardinia," Villasimius, September 2020 (cancelled due to covid-19)

9. Workshop on "Topological and Analytic Methods in Singularity Theory," CIMAT, Guanajuato, November 2019

10. Conference "The Geometry of Algebraic Varieties," CIRM, Luminy, September 2019

11. Conference "Classical Algebraic Geometry," University of Milano, July 2019

12. Special session on "Advances in Birational Geometry," AMS Sectional Meeting, University of Arkansas, November 2018

13. Workshop on "Mathematics and Physics of F-theory," Harvard University, September 2018

14. Conference "Differential, Algebraic and Topological Methods in Complex Algebraic Geometry," Cetraro, September 2018

15. Conference "Classical algebraic geometry and related topics" in honor of Beltrametti's 70th birthday, University of Genova, July 2018

16. Southern California Algebraic Geometry Seminar, University of Southern California, April 2018

17. Conference "Singularities and Algebraic Geometry," Da Nang (Vietnam), January 2018

18. Conference "Higher dimensional algebraic geometry and characteristic p," CIRM, Luminy, September 2016

19. Conference "Local and global methods in algebraic geometry" in honor of Lawrence Ein's 60th birthday, University of Illinois at Chicago, May 2016

20. AMS Summer Research Institute in Algebraic Geometry, University of Utah, July 2015

21. Oberwolfach Workshop "Algebraic Geometry," Oberworlach, March 2015

22. "Algebraic and Complex Geometry," Satellite Conference of ICM 2014, KAIST (Korea), August 2014

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23. Program "Complex Geometry," Institute of Mathematical Science, Singapore, July–August 2013

24. Conference on "Motivic Invariants and Singularitie," Center for Mathematics at the University of Notre Dame, June 2013

25. "Recent Advances in Algebraic Geometry," a conference in honor of Rob Lazarsfeld's 60th birthday, University of Michigan, May 2013

26. Workshop on "The Commutative Algebra of Singularities in Birational Geometry: Multiplier Ideals, Jets, Valuations, and Positive Characteristic Methods," MSRI, May 2013

27. Conference on "Groups of Automorphisms in Birational and Affine Geometry" CIRM (Levico Terme, Italy), October–November 2012

28. Texas Algebraic Geometry Symposium, University of Texas A&M, April 2012

29. Special session on "Algebraic Geometry: Singularities and Moduli," AMS Meeting, University of Hawaii, March 2012

30. AIM Workshop on "Relating test ideals and multiplier ideals," Palo Alto, August 2011

31. Western Algebraic Geometry Symposium, Stanford University, April 2011

32. Special session on "Singularities in Algebraic Geometry," AMS Meeting, University of Notre Dame, November 2010

33. COW Seminar, Oxford University, October 2010

34. Congrès de Géométrie Algébrique Complexe, Institut Henri Poincaré, Paris, June–July 2010

35. Conference "Giornate di Geometria Algebrica ed Argomenti Correlati," Gargnano (Italy), May 2010

36. Freiburg-Nancy-Strasbourg Joint Meeting, Université de Strasbourg, June 2009

37. "Projective Algebraic Geometry in Milano," Conference in Honor of the 60th birthday of Antonio Lanteri. Università di Milano, June 2009

38. IAS/Park City Mathematics Institute (PCMI) Summer Session, "Analytic and Algebraic Geometry: Common Problems–Different Methods," Park City, Utah, July 2008

39. American Mathematical Society/Sociedade Brasileira de Matematica, First Joint Meeting, IMPA, Rio de Janeiro, Brazil, June 2008

40. "Algebraic Geometry and Commutative Algebra," A conference to celebrate Robin Hartshorne's 70th birthday, University of Illinois at Chicago, April 2008

41. Special session on "Birational algebraic geometry," Spring Central Section Meeting, Indiana University, April 2008

42. Workshop "Seminario di Natale," Università di Milano, December 2007

43. Workshop on "Higher Dimensional Algebraic Geometry," National Taiwan University, Taiwan, March 2007

44. Western Algebraic Geometry Symposium, University of Utah, November 2006

45. Special Session on "Birational geometry," AMS Central Sectional Meeting, University of Cincinnati, October 2006

46. Eighth Meeting on Commutative Algebra and Algebraic Geometry, IMPA, Rio de Janeiro, Brazil, July 2006

47. Genova-Nice Meeting, Università di Genova, May 2006

48. BIRS Workshop, "Recent trends in higher dimensional geometry," Banff, Canada, April 2006

49. JAMI Conference/Workshop 2006 on "Recent Developments in Higher Dimensional Algebraic Geometry," Johns Hopkins University, March 2006

50. Conference on "Singularity theory and commutative ring theory," Hamana-ko, Japan, September 2005

51. AGaFe 2005, Conference on "Geometry of algebraic varieties," Università di Ferrara, June 2005

52. "Projective varieties with unexpected properties," Conference for the 150th anniversary of the birth of Giuseppe Veronese, Università di Siena, June 2004

53. The UM/OSU Algebraic Geometry Workshop, Ohio State University, March 2004

54. Arithmetic and Algebraic Geometry Conference, University of Tokyo, January 2004

55. "Minimal Model Activity," Special Year in Algebraic Geometry and Topology, Australian National University, Canberra, August 2003

56. Conference in Algebraic Geometry in memory of Paolo Francia, Università di Genova, September 2001

57. AGaFe 2001, School on "Birational and projective geometry of algebraic varieties," University of Ferrara, September 2001

58. Convegno di Geometria Algebrica ed Argomenti Correlati, Gargnano (Italy), May 2000

59. Pragmatic 1998, School on "Linear systems and vanishing theorems," Università di Catania, June 1998

COLLOQUIA & SEMINAR TALKS	
2022	Universitá 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 (*colloquium*), Università di Milano, Northwestern University, University of Utah
2017	University of Oklahoma (*colloquium*), 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 (*colloquium*), University of Notre Dame (*colloquium*), University of Illinois at Chicago, University of British Columbia, University of British Columbia (*colloquium*)
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, CINVESTAV (*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. Mustaţă, 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. Gibeny)

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		
2022	Independent Project supervisor, University of Utah
2020	ACCESS mentor, University of Utah
2019	Math Circle (high school students), University of Uta
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	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)

2023	Seungsu Lee, Jose Yanez
2022	Junpeng Jiao, You-Cheng Chou, Elizabeth Lundin
2021	Jihao Liu, Yen-An Chen
2020	Dapeng Mu, Ziwen Zhu

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, Keyvan Yaghmahi, Yuan Wang, Thomas Goller, Honglu Fan
2016	Drew Johnson, Alan Watson
2015	Jack Jeffries, Cristian Martinez
2014	Dylan Zvick, Cesar Lozano (*University of Illinois at Chicago*) Veronika Ertl
2012	Davide Fusi, 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)

2023	Antonia Kekkou, Brendan Murphy, Zach Mere, 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, Javier Carvajal-Rojas
2015	Andrew Bydlon, Chuanhao Wei, Chung Ching Lau
2014	Alan Watson, Honglu Fan, Keyvan Yaghmayi, Feng Qu
2013	Drew Johnson, Yuan Wang
2011	Veronika Ertl, Kenneth Jeffries, Cristian Martinez, Yuchen Zhang
2010	Xiaodong Jiang, Davide Fusi, 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
	editor	Journal de l'École polytechnique (2013–present)
	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'Academie 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
Jounral 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
Zentralblatt MATH