Curriculum Vitæ

Renzo Cavalieri

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Personal Data

Date of Birth: September 24, 1976; Milano, ITALY.

Education

2000-2005 PhD in Mathematics - University of Utah, Salt Lake City, UT.
Dissertation: "A Topological Quantum Field Theory of Intersection Numbers for Moduli Spaces of Admissible Covers."
Advisor: Professor Aaron Bertram.

2000-2002 MA in Mathematics- University of Utah, Salt Lake City,UT.

1995-2000 LAUREA in Mathematics - Universita' degli Studi di Milano, Milano, ITALY.
Dissertation: "Algebraic Curves defined over the Algebraic Closure of the Rational Numbers."
Advisor: Professor Gian Pietro Pirola.

Positions

2019 - present Colorado State University - Professor

2013-2019 Colorado State University - Associate Professor

2008-2013 Colorado State University - Tenure-Track Assistant Professor

2005-2008 University of Michigan - Assistant Professor

2002-2005 University of Utah - Teaching Fellow

2000-2002 University of Utah - Teaching Assistant

Honors and Awards

2019 SVP (Simons visiting professor) award at Tuebingen University

2017 AIM- Square: with Melody Chan, Martin Ulirsch and Jonathan Wise.

2015 Oberwolfach - Research in Pairs: with Paul Johnson, Hannah Markwig and Dhruv Ranganathan.

2012 Oberwolfach - Research in Pairs: with Aaron Bertram and Hannah Markwig.

2011 Graduate Course Best Teacher Award - CSU.

2010 Graduate Course Best Teacher Award - CSU.

2006 Rackham Fellowship - University of Michigan.

2004 Graduate Research Fellowship - University of Utah.

2003 Outstanding Graduate Student Award - Department of Mathematics, University of Utah.

1997-2000 INPDAP Scolarship. (Italian Organization of State Employees.)

Grants

2021-2024 PI, NSF personal Grant DMS-2100962. *Tropical Methods for the Tautological Intersection Theory of the Moduli Spaces of Curves*

2019-2022 PI, NSF conference grant DMS-1946952. *WAGS - 3 Year support* (co-PI's: Casalaina-Martin, Viray)

2016-2019 PI, NSF conference grant DMS-1636713. *WAGS - 3 Year support* (co-PI's: Casalaina-Martin, Viray)

2016-2021 PI, Simons Collaboration Grant. *Tautological Intersection on Moduli Spaces*

2012-2016 PI, NSF Grant DMS-1159964. *FRG: Gromov-Witten Theory*

2011-2014 PI, NSF personal Grant DMS-1101549. *Intersection on Moduli Spaces*

2011 PI, Simons Collaboration Grant. *Tautological Intersection on Moduli Spaces*

2010-2014 PI, NSF conference grant 0955038. *WAGS - 5 Year support* (co-PI's: Bertram, Casalaina-Martin, Kovacs, Vakil)

2009 PI, NSF conference grant 0951907. *WAGS Fall 2009* (co-PI's: Bertram, Casalaina-Martin, Kovacs, Vakil)

Publications: Book

(2016) With Eric Miles. Riemann Surfaces and Algebraic Curves: a first course in Hurwitz theory. *London Mathematical Society Student Texts, 87.* Cambridge University Press, Cambridge, 2016. xii+183 pp. ISBN: 978-1-316-60352-9; 978-1-107-14924-3

Published Articles

1. (2021) with Bryson Owens and Seamus Somerstep. Boundary expression for Chern classes of the Hodge bundle on spaces of cyclic covers. *Involve*

2. (2021) with Maria Gillespie and Leonid Monin. Projective Embeddings of $\overline{M}_{0,n}$ and Parking Functions. *J. Combin. Theory Ser. A*

3. (2021) with Andreas Gross and Hannah Markwig. Tropical ψ classes. *Geometry and Topology*

4. (2020) with Vance Blankers. Witten's conjecture and recursions for κ classes. Accepted in *E*urop. J. Math.

5. (2020) with Vance Blankers. Wall crossing for Hassett descendant potentials. Accepted in *I*MRN.

6. (2020) with Paul Johnson, Hannah Markwig and Dhruv Ranganathan. Counting curves on Toric Surfaces: Tropical Geometry and the Fock Space. Accepted in *M*ath. Proc. Cambridge Phil. Soc.

7. (2020) with Melody Chan, Martin Ulirsch and Jonathan Wise. A moduli stack of tropical curves. Accepted in *F*orum Math. Sigma.

8. (2018) with Nicola Tarasca. Classes of Weierstrass points on genus 2 curves. Accepted in *Transactions of the AMS*.

9. (2018) with Andrea Brini. Crepant Resolutions and Open Strings II. Accepted in *Épijournal de Géométrie Algébrique*.

10. (2017) with Vance Blankers. Intersections of ω classes in $\overline{M}_{g,n}$. *Proc. Gok. Geom. Top., 2017* International Press.

11. (2017) with Hannah Markwig and Dhruv Ranganathan. Tropical compactification and the Gromov–Witten theory of $\mathbb{P}^1$. Selecta Math. (N.S.) 23, no. 2, 1027-1060.

12. (2017) with Andrea Brini and Dusty Ross. Crepant Resolutions and Open Strings. Accepted for publication *Crelle*.

13. (2016) with Paul Johnson, Hannah Markwig and Dhruv Ranganathan. A graphical interface for the Gromov-Witten theory of curves. *Proc. Alg. Geom. AMS Program in Salt Lake City*

14. (2016) Hurwitz theory and the double ramification cycle. *Jpn. J. Math.* 11, no. 2, 305-331.

15. (2016) with Simon Hampe, Hannah Markwig and Dhruv Ranganathan. Moduli spaces of rational weighted stable curves and tropical geometry. *Forum Math. Sigma* 4, e9, 35

16. (2016) with Hannah Markwig and Dhruv Ranganathan. Tropicalizing the Space of Admissible Covers. *Math. Ann.* 364, no. 3-4, 1275-1313.

17. (2014) with Steffen Marcus. A geometric perspective on the piecewise polynomiality of double Hurwitz numbers. *Canad. Math. Bull.* 57, no. 4, 749-764.

18. (2014) with Aaron Bertram and Hannah Markwig. Polynomiality, Wall Crossings and Tropical Geometry of Rational Double Hurwitz Cycles. *J. Combin. Theory Ser. A* 120 (2013), no. 7, 1604-1631.

19. (2013) with Gueorgui Todorov. An example of crepant resolution conjecture in two steps. Preprint: arXiv:0905.1725. *Comm. Anal. Geom.* 21 , no. 3, 527-539.

20. (2012) with Dusty Ross. Open Gromov-Witten Theory and the Crepant Resolution Conjecture. Preprint:arXiv:1102.0717. *Michigan Math. J.* 61, no. 4, 807-837.

21. (2012) with Steffen Marcus and Jonathan Wise. Polynomial Families of Tautological Classes on $M_{g,n}^{rt}$. *Journal of Pure and Applied Algebra* 216 pp. 950-981

22. (2011) with Andrea Brini. Open orbifold Gromov-Witten invariants of $[\mathbb{C}^3/\mathbb{Z}_n]$: localization and mirror symmetry. *Selecta Math.* (N.S.) 17, no. 4, 879-933.

23. (2011) with Hannah Markwig and Paul Johnson. Wall Crossings for Double Hurwitz Numbers. *Adv. Math.* 228 , no. 4, 1894-1937.

24. (2011) with Stephanie Yang. Tautological Pairings on Moduli Spaces of Curves. *Proc. Amer. Math. Soc.* 139 , 51-62.

25. (2010) with Hannah Markwig and Paul Johnson. Tropical Hurwitz Numbers. *Journal Algebraic Combinatorics*, Volume 32, Number 2, Pages 241-265

26. (2009) with Vincent Bouchard. Note on high genus Gromov-Witten Invariants of $[\mathbb{C}^3/\mathbb{Z}_3]$. *Adv. Teor. Math.Phys.*, 13 (2009), no.3., 695-719

27. with Charles Cadman. Gerby Localization, $\mathbb{Z}_3$-Hodge Integrals and the GW Theory of $[\mathbb{C}^3/\mathbb{Z}_3]$. Preprint: arXiv: 0705.2158. *American Journal of Mathematics.* 131 , no. 4, 1009–1046.

28. (2008) with Aaron Bertram and Gueorgui Todorov. Evaluating tautological classes using only Hurwitz numbers. *Transactions of the American Mathematical Society.* 360 , no. 11, 6103–6111.

29. (2007) A TQFT for intersection numbers on moduli spaces of admissible covers. *Algebra and Number Theory Journal*, volume 1, Number 1. Mathematical sciences publishers.

30. (2006) Generating functions for Hurwitz-Hodge integrals. Preprint: mathAG/0608590, *Advances in Mathematics* 218 (2008), no. 5, 1419–1429..

31. (2006) Hodge-type integrals on moduli spaces of admissible covers. *Dave Auckly and Jim Bryan, editors, The interaction of finite type and Gromov-Witten invariants (BIRS 2003)*, volume 8. Geometry and Topology monographs.

32. (2006) with David Ayala. Counting bitangents with stable maps. *Expositiones Mathematicae.*

33. (2005) with David Hartenstine. Math circles, an outreach program at the University of Utah. *Focus, Newsletter of the MAA*, January 2005.

Submitted for Publication

1. (2021) with Bryson Owens and Seamus Somerstep. All the λ_1 on cyclic covers.

2. (2022) with Damiano Fulghesu. The integral Chow ring of $M_0(\mathbb{P}^r, d)$.

Lecture Notes

1. (2018) Fock spaces and Curve counting (38 pages).
   http://www.math.colostate.edu/ renzo/CF.pdf

2. (2017) Curve counting in Tropical and Algebraic Geometry (69 pages).
   http://www.math.colostate.edu/ renzo/Stockholm.pdf

3. (2016) Compactifications of $M_{0,n}$ (49 pages).
   http://www.math.colostate.edu/ renzo/teaching/Moduli16/Fields.pdf

4. (2014) Hurwitz Theory and the Double Ramification Cycle (30 pages).
   http://www.math.colostate.edu/ renzo/Hanover.pdf

Research Mentorship

Fall 2021- present **MS adviser:** (with Jess Hagman) Erin Dawson.

Spring 2021- present **PhD adviser:** Matthew Williams.

Fall 2020- present **PhD adviser:** (with Chris Peterson) Seth Ireland.

Fall 2020- present **PhD adviser:** (with Mark Shoemaker) Jae Lee Hwang.

Fall 2016- 2021 **PhD adviser:** Adam Afandi.

Fall 2016- 2021 **PhD adviser:** Andrew Fry.

Fall 2014 - 2019 **PhD adviser:** Vance Blankers.

Fall 2014- 2018 **PhD adviser:** Nand Sharma.

Fall 2012 - Spring 2014 **Master adviser:** David Allen.

Fall 2011 - 2017 **PhD adviser:** Douglas Ortego.

Summer 2009 - Spring 2014 **PhD thesis adviser:** Eric Miles.

Summer 2009 - Spring 2013 **PhD thesis adviser:** Dustin Ross.

Winter 2009 - Spring 2011 **PhD thesis co-adviser:** Steffen Marcus (Brown U.).

Committe member Mark Shoemaker (U. of Michigan), Marc Krawitz (PhD, U.of Michigan, 2010) and Eric Schmidt (PhD, CSU), Justin Hughes (PhD, CSU, 2013), Benjamin Cooper (PhD, CSU, 2015), Catalina Camacho (CSU), Zachary Flores (CSU), Tanner Strunk (CSU), Dean Bisogno (CSU), Kyle Salois (CSU), Levi Heath (CSU).

Undergraduate Research Mentorship

Summer 2022 **REU:** Taylor Rogers.

Summer 2019 - 2021 **REU:** Bryson Owens and Seamus Somerstep.

Summer-Fall 2014 **Honors Thesis:** Nate Zbacnik.

Summer 2013 **Honors Thesis:** Justin Wagner.

Summer-Fall 2011 **REU:** David Allen.

Summer 2009 **REU:** Andrew Kiluk.

Summer 2008 **REU:** Andrew Kiluk (with Hannah Markwig).

Summer 2008 **REU:** Alex Larson (with Hannah Markwig).

Summer 2008 **REU:** Brian Mann (with Hannah Markwig).

Summer 2007 **REU:** Pete Troyan.

Organizational Activities

Summer 2022 (with Juliette Bruce, Tyler Kelly and John Voight): $Spec(\overline{\mathbb{Q}})$,
    Field Institute for Mathematics, Toronto.

Spring 2022 (with Jeff Achter et al): $WAGS$,
    Colorado State University, Fort Collins.

Fall 2021 (with Jake Levinson and Maria Gillespie): *Combinatorics and geometry of moduli spaces of curves.*
    CMS Winter Meeting, Vancouver (virtual).

Fall 2019 Organizer (with Sasha Buryak, Emily Clader, Paolo Rossi) of:
    Double Ramification Cycle.
    AIM workshop, San Jose' (CA).

Summer 2018 Organizer (with David Anderson) of:
    Retrospective Worskhop in Combinatorial Algebraic Geometry.
    Fields Institute, Toronto.

Spring 2018 Organizer (with Damiano Fulghesu) of:
    Special Session on Moduli Spaces.
    Regional Meeting of the AMS, Portland.

Fall 2016 Organizer (with Jeff Achter et al.) of conference:

Western Algebraic Geometry Symposium.
Colorado State University, Fort Collins.

Fall 2014 Organizer (with Burt Totaro and Noah Giansiracusa) of:
Special Session in Algebraic Geometry.
Regional Meeting of the AMS, San Francisco.

Summer 2014 Organizer (with Dusty Ross et al.) of workshop:
School in Gromov-Witten Theory.
Pingree Park Campus of CSU.

Fall 2011 Organizer (with Jeff Achter et al.) of conference:
Western Algebraic Geometry Symposium.
Colorado State University, Fort Collins.

Summer 2011 Co-organizer (with Yongbin Ruan et al.) of conference:
Recent Developments in Orbifolds.
Chern Institute, Tianjin, China.

Spring 2011 Organizer (with Yano Casalaina-Martin) of FRAGMENT seminar.

Fall 2010 Organizer of FRAGMENT seminar.

Spring 2010 Organizer (with Yano Casalaina-Martin) of FRAGMENT seminar.

Fall 2009 Organizer (with Yano Casalaina-Martin) of FRAGMENT seminar.

Spring 2008 Organizer (with Hannah Markwig) of workshop:
Affine manifolds and Mirror Symmetry.
http://www.math.lsa.umich.edu/ crenzo/mg/gross.html

Spring 2008 Organizer (with Aaron Bertram and Jim Bryan):
Recent Progress on the Moduli Space of Curves.
http://www.birs.ca (08w5086)

Summer 2007 Mini-cycle of 3-lectures at U. of Costa Rica (San Jose').
"Introduction to Moduli Spaces"

Spring 2007 Organizer of workshop:
$\mathcal{D}$- *bundles and Integrable Hierarchies.*
http://www.math.lsa.umich.edu/ crenzo/workshop/bn.html

Spring 2006 Organizer (with Sam Payne) of workshop:
Moduli Space of Curves and Gromov-Witten Theory.
http://www.math.lsa.umich.edu/conferences/moduli/index.html

Spring 2006 Organizer of Topics in Algebraic Geometry Seminar.

2001-2003 Organizer of GSAC Colloquium.

Misc. Research Activity

Summer 2022. MSRI graduate school *Tropical Curve Counting and Logarithmic Geometry.*
with Hannah Markwig and Dhruv Ranganathan.

Summer 2022. Graduate school in tropical geometry at Univerisidad de Valladolid *Tropical Curve Counting* .
with Diane Maclagan and Felipe Rincon.

Fall 2021. Oberwolfach Seminar. *Tropical Curve Counting and Logarithmic Geometry.* with Hannah Markwig and Dhruv Ranganathan.

Summer 2020. Atom Summer Graduate School in Tropical Geometry. *Introduction to Tropical Curve Counting.*

Summer 2019. Mini-course. *Introduction to Tropical Geometry and Curve Counting.* Universidad de Costa Rica, San Jose', CR.

Summer 2018. Mini-course. ICM Satellite Conference in Tropical Geometry and Moduli Spaces. Cabo Frio, RJ, Brazil.
Mini-course:*Tropical Methods in Curve Counting and Fock Spaces*

Summer 2017. Master Class, University of Stockholm
Mini-course:*Tropical Methods in Curve Counting*

Summer 2016. Grad Student Summer School, Program in Combinatorial Alg. Geometry, Fields Institute, Toronto
Mini-course:*Moduli Spaces of Rational Pointed Curves.*

Fall 2014. Modern Trends in Gromov-Witten Theory. Hannover, Germany
Mini-course:*Hurwitz Theory and the Double Ramification Cycle*

Winter 2014. U. Costa Rica. San Jose'. Costa Rica
Mini-course:*Intersection Theory on Moduli Spaces or Weighted Stable Curves.*

Summer 2012. U. Costa Rica. San Jose'. Costa Rica
Mini-course:*Geometry and Combinatorics of Hurwitz Numbers.*

Summer 2012. Beijing International Center for Mathematical Research, Beijing, China.
Mini-course:*Hurwitz Theory and Orbifold Gromov-Witten Theory.*

Spring 2011 U.Michoacan, Morelia, Mexico.
Mini-course:*Hurwitz Numbers.*

Spring 2010 U.Utah, Salt Lake City (UT)
Mini-course:*The Moduli space of Curves*

Spring 2010 IMPA, Rio de Janeiro (Brazil)
Mini-course:*Hurwitz Theory and Applications*

Spring 2009 Research member in MSRI special program in Algebraic Geometry.

Fall 2008 From Top. Strings to Integrable Hierarchies, SISSA, Trieste (Italy)
Mini-course:*Orbifold Gromov-Witten Theory*

Outreach Activities

Winter 2014 Two Introductory Lectures on Moduli Spaces, Union Matematica de America Latina y el Caribe, Turrialba, Cost Rica.

Spring 2010 Mini-course on the Fundamental Group at Universidad de Costa Rica.

Fall 2009 Speaker at SACNAS annual meeting, Dallas (TX)

Fall 2009 Speaker at Math Day, CSU.

Invited Talks

1. Spring 2003 Algebraic Geometry Seminar, Universita' degli Studi di Pavia, Pavia, ITALY.
   Frobenius Algebras, Topological Quantum Field Theories, Hurwitz Numbers.
   A possible approach to Gromov-Witten Theory.

2. Spring 2005 Algebraic Geometry Seminar, University of Michigan, Ann Arbor, (MI).

    Topological Quantum Field Theories, Admissible Covers, and a Deformation of the Class Algebra of the Symmetric group.

3. Spring 2005 Algebraic Geometry Seminar, Johns Hopkins University, Baltimore, (MD).

    Topological Quantum Field Theories, Admissible Covers, and a Deformation of the Class Algebra of the Symmetric group.

4. Summer 2005 Algebraic Geometry Seminar, Universita' degli Studi di Milano, Milano, ITALY.

    Counting Bitangents with Stable Maps.

5. Summer 2005 Algebraic Geometry Seminar, Universita' degli Studi di Pavia, Pavia, ITALY.

    A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

6. Fall 2005 Progress in Algebraic Geometry Motivated by Physics, BIRS, Banff, (AB), Canada.

    A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

7. Fall 2005 AMS Special Session on Algebraic Geometry and Physics, University of Oregon, Eugene, (OR).

    A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

8. Spring 2006 Algebraic Geometry Seminar, Michigan State University, East Lansing, (MI).

    A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

9. Spring 2006 Algebraic Geometry Seminar, Ohio State University, Columbus, (OH).

    A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

10. Spring 2006 Seminar on Moduli Spaces and Representation Theory , Princeton University, Princeton, (NJ).

    A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

11. Spring 2006 Algebraic Geometry Seminar, University of Texas, Austin, (TX).

   A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

12. Spring 2006 Algebraic Geometry Seminar, University of Utah, Salt Lake City, (UT).

   The Crepant Resolution Conjecture: Examples, Computations and Work in Progress.

13. Spring 2006 Algebraic Geometry Seminar, Northwestern University, Evanston, (IL).

   A Topological Quantum Field Theory for Intersection Numbers on Moduli Spaces of Admissible Covers.

14. Spring 2006 Workshop: New Topological Constructions in String Theory, MSRI, Berkeley, (CA).

   Evaluating $\lambda_g\lambda_{g-1}$ on the Hyperelliptic Locus Knowing only 1/2. (and Localization...)

15. Fall 2006 Algebraic Geometry Seminar, University of Illinois at Urbana Champaigne, (IL).

   Evaluating tautological classes using only Hurwitz numbers.

16. Fall 2006 Algebraic Geometry Seminar, Columbia University, (NY).

   Evaluating tautological classes using only Hurwitz numbers.

17. Spring 2006 Algebraic Geometry Seminar, University of Utah (UT).

   $\mathcal{GW}([\mathbb{C}^3/\mathbb{Z}_3])$.

18. Spring 2007 Geometry Seminar, Northwest University, (IL).

   $\mathcal{GW}([\mathbb{C}^3/\mathbb{Z}_3])$.

19. Spring 2007 Geometry and Rep'n Theory Seminar, UC Berkeley (CA)

   $\mathcal{GW}([\mathbb{C}^3/\mathbb{Z}_3])$.

20. Fall 2007 Algebraic Geometry Seminar, UBC, Vancouver (Canada)

   Gerby localization and $\mathcal{GW}([\mathbb{C}^3/\mathbb{Z}_3])$.

21. Fall 2007 Departmental Seminar, UM Flint (MI)

   Counting curves and... $\tan(x/2)$

22. Spring 2008 Colloquium, U. Colorado, Boulder (CO)

   When Moduli spaces play together

23. Spring 2008 Colloquium, U. Western Ontario, London (ON)

    When Moduli spaces play together

24. Spring 2008 Colloquium, U. Oregon, Eugene (OR)

    When Moduli spaces play together

25. Spring 2008 Colloquium, Colorado State University, Fort Collins (CO)

    When Moduli spaces play together

26. Spring 2008 Topology seminar, CINVESTAV, Mexico City

    Moduli Spaces and Hodge Integrals

27. Fall 2008 Geometry Seminar, UT Austin

    Orbifold Gromov-Witten Invariants

28. Spring 2009 Geometry Seminar, Politecnico Milano, Italy

    Tautological Pairings on Moduli Spaces of Curves

29. Spring 2009 Combinatorics Seminar, SFSU, San Francisco

    Wall Crossings for Double Hurwitz Numbers

30. Spring 2009 MSRI Postdoc Seminar, MSRI

    Why should Algebraic Geometers Cut and Paste Graphs

31. Spring 2009 WAGS, UC Berkeley

    Wall Crossings for Double Hurwitz Numbers

32. Spring 2009 AG Seminar, Cal Tech

    Wall Crossings for Double Hurwitz Numbers

33. Spring 2010 AG Seminar, U. Georgia Athens

    Wall Crossings for Double Hurwitz Numbers

34. Spring 2010 AG Seminar, U. California Davis

    Wall Crossings for Double Hurwitz Numbers

35. Spring 2010 SoCAG, San Diego

    Wall Crossings for Double Hurwitz Numbers

36. Summer 2010 Giornate di Geometria Algebrica, Gargnano, Italy

    Orbifold Open GW Invariants

37. Fall 2010 U. of Connecticut,

    Polynomial Families of Tautological Classes

38. Fall 2010 U. Arizona at Tucson,

    Colloquium

39. Fall 2010 Stony Brooks,
    Orbifold Open GW Invariants

40. Fall 2010 Columbia,
    Orbifold Open GW Invariants

41. Spring 2011 Brown University,
    Orbifold Open GW Invariants

42. Spring 2011 Oberwolfach,
    Wall Crossings for Double Hurwitz Numbers

43. Summer 2011 Conference on GW theory, Grenoble, France,
    Orbifold Open GW Invariants

44. Summer 2011 Orbifold Conference, Tianjin, China,
    Orbifold Open GW Invariants

45. Fall 2011 BIRS workshop, Banff Canada,
    Polynomiality phenomena in Hurwitz theory

46. Fall 2011 AMS special session, Salt Lake City, UT,
    Orbifold Open GW Invariants

47. Spring 2012 Geometry Seminar, Boston University, Boston, MA
    Rational Double Hurwitz Cycles.

48. Fall 2012 Hanover University, Geometry and Physics Colloquium.
    Polynomiality in Hurwitz Theory

49. Fall 2012 Imperial College, London. MAGIC seminar.
    The Open CRC in the toric setting

50. Fall 2012 University of Milan. Algebraic Geometry seminar.
    The Open CRC in the toric setting

51. Spring 2013 PEAK Conference, Riezlern, Austria.
    Polynomiality of double Hurwitz Numbers

52. Spring 2013 The Ohio State University. Algebraic Geometry Seminar.
    The Open CRC in the toric setting

53. Spring 2013 Columbia University. GW theory Seminar.
    The Open CRC in the toric setting

54. Spring 2013 LaCiM, Montreal. Algebraic Combinatorics Seminar.
    Polynomiality of double Hurwitz Numbers

55. Spring 2013 University of Utah. Algebraic Geometry Seminar.

   The Open CRC in the toric setting

56. Fall 2013 BAGS. Algebraic Geometry Seminar.

   CRC and Open Strings

57. Fall 2013 University of Washington. Algebraic Geometry Seminar.

   A geometric Perspective on Polynomiality of Double Hurwitz Numbers

58. Spring 2014. BIRS Workshop on Specialization of Linear Series

   A geometric Perspective on Polynomiality of Double Hurwitz Numbers

59. Spring 2014. Workshop in GW Theory, Simons Center for Geometry and Physics

   Orbifold Open GW Invariants

60. Spring 2014. Algebraic Geometry Seminar, Saarbrucken University

   Orbifold Open GW Invariants

61. Spring 2014.Colloquium, Saarbrucken University

   Hurwitz Theory and the Moduli Space of Curves

62. Spring 2014. Workshop on Mirror Symmetry and Algebraic Geometry, Pavia.

   Orbifold Open GW Invariants

63. Fall 2014. Tropical and Algebraic Geometry Seminar, Yale University.

   Orbifold Open GW Invariants

64. Spring 2015. Algebraic Geometry Seminar, University of Georgia.

   Tropicalizing a Hurwitz Theorist

65. Spring 2015. Algebraic Geometry Seminar, University of Utah.

   Tropicalizing a Hurwitz Theorist

66. Spring 2015. ANT, University of Colorado.

   Tropicalizing a Hurwitz Theorist

67. Spring 2015. Algebraic Geometry Seminar, UFF, Niteroi.

   Tropicalizing a Hurwitz Theorist

68. Summer 2015. Algebraic Geometry Workshop, University of Nairobi, Kenya.

   Double Hurwitz numbers and tropical geometry

69. Fall 2015. Conference on Algebraic Geometry and Phsycis, Chern Institute, Tianjin.

   Open Orbifold GW theory

70. Fall 2015. Algebraic Geometry Seminar, Warwick University, UK.

   Tropicalizing a Hurwitz Theorist

71. Fall 2015. Algebraic Geometry Seminar, KTH, Stockholm, Sweden.
    Tropicalizing a Hurwitz Theorist

72. Fall 2015. Geometry and Topology Seminar, Imperial College, London, UK.
    Crepant transformations and Open Invariants

73. Fall 2015. Algebraic Geometry Seminar, Oxford University, UK.
    Crepant transformations and Open Invariants

74. Fall 2015. Colloquium, University of Liverpool, UK.
    Tropicalizing a Hurwitz theorist

75. Fall 2015. GLEN conference, University of Manchester, UK.
    Tropical geometry, a graphical interface for the GW theory of curves

76. Fall 2015. Algebraic Geometry Seminar, University of Edinburgh, UK.
    Crepant transformations and Open Invariants

77. Fall 2015. Algebraic Geometry Seminar, ETH, Zurich, Switzerland.
    Crepant transformations and Open Invariants

78. Fall 2015. Tropical Geometry Seminar, Geneva, Switzerland.
    Tropical geometry, a graphical interface for the GW theory of curves

79. Spring 2016. Colloquium, Montana State University, Bozeman.
    Open GW Invariants and the CRC

80. Spring 2016. Algebraic Geometry Seminar, Northwestern University, Evanston.
    Tropical Enumerative Geometry

81. Summer 2016. Global mirror symmetry workshop, Chern Institute, Tianjin, China
    GW theory of Hirzebruch surfaces, tropical geometry and the Fock space

82. Summer 2016. KIAS, algebraic geometry seminar, Seoul, South Korea.
    Open GW Invariants and the CRC

83. Summer 2016. SWAG conference, University of Georgia, Athens.
    Hyperelliptic curves, Weierstrass points and graph Formulas

84. Fall 2016. Algebraic Geometry Seminar, University of Pennsylvania, Philadelphia.
    Hyperelliptic curves, Weierstrass points and graph Formulas

85. Fall 2016. Colloquium. University of Washington, Seattle.
    Loci of decorated hyperelliptic curves at the interface of algebraic geometry and combinatorics

86. Fall 2016. Conference on Moduli Spaces, Program in Combinatorial Algebraic Geometry, Fields Institute, Toronto.
    Hyperelliptic curves, Weierstrass points and graph Formulas

87. Spring 2017. Geometry Seminar, NYU.

    Hyperelliptic curves, Weierstrass points and graph Formulas

88. Spring 2017. Geometry Seminar, San Francisco State University.

    Hyperelliptic curves, Weierstrass points and graph Formulas

89. Summer 2017. Geometry and Topology Conference, Gokova, Turkey

    Graph Formulas for Tautological Classes

90. Fall 2017. Colloquium, The Ohio State University.

    Tropical methods in Enumerative Geometry

91. Fall 2017. Algebraic Geometry Seminar, Rice University.

    Graph Formulas for Tautological Classes

92. Fall 2017. Colloquium, University of Arkansas.

    Tropical methods in Enumerative Geometry

93. Fall 2017. Geometry Seminar, University of Arkansas.

    Graph Formulas for Tautological Classes

94. Fall 2017. Workshop: Mirror Symmetry and Related Subjects 2017, Kyoto University.

    Tropical methods in Enumerative Geometry

95. Spring 2018. Conference: Tropical Varieties and Amoebas, KTH, Stockholm, Sweden .

    Witten Conjecture for κ classes.

96. Spring 2018. Texas Algebraic Geometry Seminar, College Station, TX.

    Witten Conjecture for κ classes.

97. Spring 2018. Geometry Seminar, Rutgers University.

    Descendant potentials for Hassett Spaces

98. Spring 2018. Geometry Seminar, MIT, Boston.

    Descendant potentials for Hassett Spaces

99. Fall 2018. Geometry Seminar, UIC, Chicago.

    Descendant potentials for Hassett Spaces

100. Fall 2018. Algebraic Geometry Seminar, U. Utah, Salt Lake City.

    Descendant potentials for Hassett Spaces

101. Spring 2019. Oberwolfach workshop: New Directions in Tropical Geometry

    Towards a theory of tropical ψ classes in genus one.

102. Spring 2019. Algebraic Geometry Seminar, ETH, Zurich.

    Witten conjecture and κ classes.

103. Spring 2019. Geometry Seminar, University of Birmingham.

   Witten conjecture and κ classes.

104. Fall 2019. Colloquium. Virginia Commonwealth University.

   On the elusiveness of hyperelliptic loci

105. Spring 2020. JMM. Denver

   On hyperelliptic loci

106. Summer 2020. ATOM online summer school.

   Introduction to tropical curve counting (2 lectures)

107. Fall 2020. UBC zoom seminar.

   Tropical ψ classes

108. Spring 2021. AMS sectional meeting.

   Tropical ψ classes

109. Spring 2021. ICERM special semester in combinatorial alg. geom.

   Tropical ψ classes

110. Spring 2021. Colloquium. St. Andrews University.

   The moduli space of curves' journey to the tropics

111. Spring 2021. Oberwolfach Workshop: enumerative geometry of surfaces.

   Tropical ψ classes

112. Summer 2021. Queer and Trans mathemathicians conference

   Why should combinatorialists love the moduli spaces of curves.

113. Fall 2021. Intercontinental zoominar on moduli and algebraic geometry.

   The Integral Chow ring of $M_0(\mathbb{P}^r, d)$.

114. Fall 2021. Stanford seminar.

   The Integral Chow ring of $M_0(\mathbb{P}^r, d)$.

115. Fall 2021. Northeastern University, seminar.

   The Integral Chow ring of $M_0(\mathbb{P}^r, d)$.

116. Spring 2022. Recent Advances in the Moduli Spaces of Curves, Leysin.

   Logarithmic and tropical double Hurwitz numbers.

117. Spring 2022. Cluster Geometry Seminar, Moscow (virtual).

   Logarithmic and tropical double Hurwitz numbers.

118. Spring 2022. Goulden and Jackson Fest, Waterloo (virtual).

   Logarithmic and tropical double Hurwitz numbers.

Teaching

Fall 2000: Math 1210, Calculus I (Teaching Assistant for Professor Hugo Rossi)

Spring 2001: Math 1090, Business Algebra

Fall 2001 - Spring 2003: Organizer of the Mathcircle Program

    Original Lectures Written for MC:
        Mathematical Induction
        Asteroids: what's the shape of your Universe?
        Flatland: how fat is your Universe?
        Algebra and Number Theory contests and solutions
        What is Mathematics all about?
        Algebraic Curves and Pascal's Theorem

Fall 2003 Math1220, Calculus II

Spring 2004 Graduate Reading Course
Kontsevich's Formula for Rational Plane Curves.

Fall 2005 Math115, Calculus I

Fall 2006 Math433, Introduction to Differential Geometry.

Winter 2007 Math490, Introduction to Topology.

Fall 2007 Math590, Introduction to Topology.

Fall 2007 Math 731, Topics in Algebraic Geometry. (Intro to Gromov-Witten Theory).

Fall 2008 Math 281, Introduction to Mathematical Thinking.

Fall 2008 Math 472, Introduction to Topology.

Fall 2009 Math 161, Calculus II.

Fall 2009 Math 570, Topology.

Spring 2010 Math 571, Topology.

Fall 2010 Math 472, Introduction to Topology.

Fall 2010 Math 676, Topics in Algebraic Geometry: Moduli Spaces.

Spring 2011 Math 670, Differential Geometry.

Fall 2011 Math 366, Algebra.

Fall 2011 Math 676, Topics in Algebraic Geometry: Orbifolds.

Spring 2012 Math 366, Algebra.

Fall 2012 Math 472, Topology.

Fall 2012 Math 672, Algebraic Geometry.

Spring 2013 Math 673, Algebraic Geometry II.

Fall 2013 Math 366, Algebra.

Fall 2013 Math 474, Differential Geometry.

Spring 2014 Math 469, Linear Algebra.

Springl 2014 Math 476, Undergraduate Topics in Geometry.

Fall 2014 Math 472,Topology.

Fall 2014 Math 672, Toric Geometry.

Spring 2015 Math 673, Toric Geometry II.

Spring 2015 Math 476, Hurwitz Theory.

Spring 2016 Math 469, Linear Algebra.

Fall 2016 Math 676, Moduli Spaces of Rational Pointed Curves.

Spring 2017 Math 366, Algebra.

Spring 2017 Math 469, Linear Algebra.

Fall 2017 Math 369, Linear Algebra.

Fall 2017 Math 619, Complex Variables (Riemann Surfaces).

Spring 2018 Math 235, Introduction to Mathematical Reasoning.

Fall 2018 Math 672, Projective Geometry.

Spring 2019 Math 672, Projective Geometry II.

Fall 2019 Math 261, Calculus III.

Spring 2020 Math 235, Introduction to Mathematical Reasoning.

Fall 2020 Math 472, Introduction to Topology.

Spring 2021 Math 235, Introduction to Mathematical Reasoning.

Fall 2021 Math 619, Complex Variables.

Spring 2022 Math 366, Algebra.

Service

1. Member of the Editorial board of *Advances in Geomety* (de Gruyter), 2017- present.

2. Member of Editorial board of *La Matematica* (AWM) 2020 - present.

3. Refereed articles for *Compositio, Duke Math. Journal, Geometry and Topology, Advances in Mathematics, American Journal of Mathematics, Bullettin of the CMS, IMRN, Michigan Journal of Mathematics, Proceedings of the AMS, Transactions of the AMS, Journal of Geometry and Physics, Geometriae Dedicata, Selecta Mathematica, Communications in Mathematical Physics,Journal of the European Mathematical Society, Proceedings of the London Mathematical Society, Acta Math., Journal of the London Math Society,* . . .

4. Peer reviewed grant proposals for NSA, NSF (2012-15), Swiss NSF (2017, 2018, 2021) .

5. CSU, served on Evaluation Committee (2021 - present)

6. CSU, served on ad Hoc Committee for Curricular Evaluation of Graduate Program (2020 - present).

7. CSU, served as graduate students ombud (2020-present).

8. WAGS, served as graduate students ombud (2019-present).

9. CSU, coordinator for MATH 261 (Calculus III), (2018 - 2021).

10. CSU, served in Hiring committee (2011, 2012, 2014).

11. CSU, served in Executive committee (2012).

12. CSU, served in Graduate Committee (2013-2017).

13. CSU, served as Chair of PT Committee for Mark Shoemaker (2021).