

Felix Janda

Curriculum Vitae

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Education

- 2011–2015 **ETH Zürich**, *Ph.D.*, Thesis: “Relations in the tautological ring”, Advisor: Rahul Pandharipande.
- 2007–2011 **Ludwigs-Maximilians-Universität München**, *Diploma*: “*Sehr gut*”, Thesis: “The geometry and arithmetic of a singular cubic surface”, Advisor: Ulrich Derenthal.

Employment

- 2019–2020 **Insitute for Advanced Study**, *Member*.
- Spring 2017 **MSRI**, *Member of program*: “Enumerative geometry beyond numbers”.
- 2016–2019 **University of Michigan**, *D.J. Lewis Research Assistant Professor*, Host: Yongbin Ruan.
- 2015–2016 **Institut de Mathématiques de Jussieu**, *FSMP postdoctoral position*, Host: Dimitri Zvonkine.

Honors/Grants

- 2017 **AMS-Simons Travel Grant**.
- 2016 **ETH medal for outstanding doctoral thesis**.
- 2009–2011 **Scholarship of the “Studienstiftung des deutschen Volkes” (German Academic Scholarship Foundation)**.

Publications/Preprints

1. “*The logarithmic gauged linear sigma moel*” (with Qile Chen and Yongbin Ruan) , arXiv:1906.04345
2. “*Structure of Higher Genus Gromov-Witten invariants of Quintic 3-folds*” (with Shuai Guo and Yongbin Ruan) , arXiv:1812.11908
3. “*Double ramification cycles with target varieties*” (with Rahul Pandharipande, Aaron Pixton and Dimitri Zvonkine) , arXiv:1812.10136
4. “*Towards a Theory of Logarithmic GLSM Moduli Spaces*” (with Qile Chen,

- Yongbin Ruan and Adrien Sauvaget) **submitted**, arXiv:1805.02304
5. “*A mirror theorem for genus two Gromov-Witten invariants of quintic threefolds*” (with Shuai Guo and Yongbin Ruan) **submitted**, arXiv:1709.07392
 6. “*Higher-genus wall-crossing in the gauged linear sigma model*” (with Emily Clader and Yongbin Ruan) **submitted**, arXiv:1706.05038
 7. “*Higher-genus quasimap wall-crossing via localization*” (with Emily Clader and Yongbin Ruan) **submitted**, arXiv:1702.03427
 8. “*Appendix on the class of the locus of holomorphic differentials*” (with Rahul Pandharipande, Aaron Pixton and Dimitri Zvonkine) in “**Tautological relations via r-spin structures**” by Rahul Pandharipande, Aaron Pixton and Dimitri Zvonkine to appear in **Journal of Algebraic Geometry**, arXiv:1607.00978
 9. “*Powers of the theta divisor and relations in the tautological ring*” (with Emily Clader, Samuel Grushevsky and Dmitry Zakharov) in “**International Mathematics Research Notices**” Volume 2018 Issue 24, 12 December 2018, Pages 7725–7754, arXiv:1605.05425
 10. “*Double ramification cycles on the moduli space of curves*” (with Rahul Pandharipande, Aaron Pixton and Dimitri Zvonkine) in “**Publications de l’IHES**” 125 (2017), 221–266, arXiv:1602.04705
 11. “*Pixton’s double ramification cycle relations*” (with Emily Clader) “**Geometry and Topology**” 22-2 (2018), 1069–1108, arXiv:1601.02871
 12. “*Relations on $\overline{M}_{g,n}$ via equivariant Gromov-Witten theory of \mathbb{P}^1* ” in “**Algebraic Geometry**” (Foundation Compositio Mathematica) Volume 4, Issue 3 (May 2017), 311–336, arXiv:1509.08421
 13. “*Appendix: The weighted fundamental class of $\tilde{\mathcal{H}}_g(\mu)$* ” (with Rahul Pandharipande, Aaron Pixton and Dimitri Zvonkine) in “**The moduli space of twisted canonical divisors**” by Gavril Farkas and Rahul Pandharipande in “**Journal of the Institute of Mathematics of Jussieu**” Volume 17, Issue 3 (June 2019), 615–672, arXiv:1508.07940
 14. “*Frobenius Manifolds near the Discriminant and Relations in the Tautological Ring*” part of thesis, in “**Letters in Mathematical Physics**” 108(7), 1649–1675, arXiv:1505.03419
 15. “*The hypergeometric functions of the Faber-Zagier and Pixton relations*” (with Alexandr Buryak and Rahul Pandharipande) in **Pure and Applied Mathematics Quarterly** Volume 11 (2015), Number 4 (Special volume dedicated to Prof. Eduard Looijenga), 591–631, arXiv:1502.05150
 16. “*Comparing tautological relations from the equivariant Gromov-Witten theory of projective spaces and spin structures*” part of thesis, not submitted, arXiv:1407.4778
 17. “*Gromov-Witten theory of target curves and the tautological ring*” in **Michigan Mathematical Journal**, Volume 66, Issue 4 (2017), (683–698), arXiv:1308.6182
 18. “*Tautological relations in moduli spaces of weighted pointed curves*” part

of thesis, not submitted, arXiv:1306.6580

19. “*Socle pairings on tautological rings*” (with Aaron Pixton) in **Epjournal de Géométrie Algébrique, Volume 3 (2019), Article no. 4**, arXiv:1304.0026
20. “*Gaussian rational points on a singular cubic surface*” (with Ulrich Derenthal) in “**Torsors, étale homotopy and applications to rational points**”, **LMS Lecture Notes 405, Cambridge University Press, Cambridge, 2013, pp. 210-231**, arXiv:1105.2807

Teaching experience and training

- Winter 2019 **Mini course on “Tautological rings and the double ramification cycle”.**
- Fall 2018 **MATH 115: Calculus I**, Instructor.
- Fall 2017 **MATH 217: Linear Algebra**, Instructor.
- August 2017 **IBL training at Michigan.**
- Winter 2017 **MATH 590: Introduction to Topology**, Instructor.
- Fall 2016 **MATH 417: Matrix Algebra**, Instructor.
- August 2016 **Professional program at Michigan.**
- Spring 2015 **Algebraic Topology II**, *Pandharipande*, Organization.
- Fall 2014 **Funktionentheorie**, *Knörrer*, Grading/Exercise Class.
- Spring 2014 **Topologie**, *Werner*, Grading.
- Spring 2014 **Mathematisches Denken**, *Leupp*, Grading.
- Fall 2013 **Lecture Series on “Pixton’s relations via stable quotients”.**
- Fall 2013 **Funktionentheorie**, *Teichmann*, Grading/Exercise Class.
- Spring 2013 **Algebraic Geometry**, *Pandharipande*, Grading/Exercise Class.
- Fall 2012 **Functional Analysis**, *Soner*, Grading/Exercise Class.
- Spring 2012 **Lineare Algebra II**, *Knörrer*, Grading/Exercise Class.
- 2011-05–2011-07 **Lineare Algebra II**, *Derenthal*, Grading.

Talks

- 2019-06 “**Gromov-Witten invariants of quintic threefolds via log GLSM**”, *New Perspectives in Gromov-Witten Theory*, Paris.
- 2019-03 “**On Gromov-Witten invariants of quintic threefolds**”, *Algebraic Geometry Seminar*, University of Michigan.

- 2019-03 **“Holomorphic Anomaly Equations for quintic threefolds”**, *Algebraic Geometry Seminar*, Harvard/MIT.
- 2019-02 **“Enumerative Geometry: Old and New”**, *Colloquium*, University of Utah.
- 2019-02 **“Logarithmic GLSM moduli spaces”**, *Algebraic Geometry Seminar*, University of Utah.
- 2019-02 **“Variants of the DR cycle”**, *Winter School on Enumerative Geometry and Modular Forms*, Frankfurt.
- 2019-01 **“Enumerative Geometry: Old and New”**, *Algebra/Topology Seminar*, University of Copenhagen.
- 2018-12 **“Enumerative Geometry: Old and New”**, *Colloquium*, Texas A&M University.
- 2018-12 **“Enumerative Geometry: Old and New”**, *Differential Geometry and Symplectic Topology Seminar*, University of Minnesota.
- 2018-12 **“Enumerative Geometry: Old and New”**, *Colloquium*, Stony Brook University.
- 2018-11 **“From holomorphic differentials to Witten’s r-spin class”**, *Topology Seminar*, University of Michigan.
- 2018-10 **“Double ramification cycles and strata of differentials”**, *AMS Fall Central Sectional Meeting, Special Section on From Hyperelliptic to Superelliptic Curves*, University of Michigan.
- 2018-10 **“Logarithmic GLSM moduli spaces”**, *Moduli Spaces: Birational Geometry and Wall Crossings*, BIRS.
- 2018-10 **“Logarithmic GLSM moduli spaces”**, *Geometry and Physics Seminar*, University of Michigan.
- 2018-08 **“Logarithmic GLSM”**, *Workshop on Higher Genus Gromov-Witten invariants*, Institute of Advanced Study in Mathematics, Zhejiang University.
- 2018-06 **“On higher genus Gromov-Witten invariants of quintic threefolds”**, *AMS/CMS Joint International Meeting, Special Session on Symplectic Geometry*, Fudan University, Shanghai.
- 2018-06 **“On higher genus Gromov-Witten invariants of quintic threefolds II”**, *Helvetic Algebraic Geometry Seminar*, Schloss Hünigen, Switzerland.
- 2018-06 **“On higher genus Gromov-Witten invariants of quintic threefolds I”**, *Helvetic Algebraic Geometry Seminar*, Schloss Hünigen, Switzerland.

- 2018-05 “**Compactifying the space of maps with a p-field**”, *Crossing the Walls in Enumerative Geometry*, Snowbird, Utah.
- 2018-05 “**On Gromov-Witten invariants of hypersurfaces**”, *EGN Moduli and Representation Theory seminar*, MSRI.
- 2018-04 “**Counting curves on quintic threefolds**”, *Smith Colloquium*, Kansas University.
- 2018-04 “**On Gromov-Witten invariants of quintic threefolds**”, *Algebraic Geometry Seminar*, University of Arizona.
- 2018-04 “**On Gromov-Witten invariants of quintic threefolds**”, *Algebra Seminar*, University of Oregon.
- 2018-03 “**Log compactifications of GLSM moduli spaces**”, *Structures in Enumerative Geometry*, MSRI.
- 2018-01 “**Moduli of meromorphic functions on algebraic curves**”, *Analysis and Geometry Seminar*, Central Michigan University.
- 2018-01 “**Yamaguchi-Yau’s conjecture and finite generation**”, *Higher genus workshop*, ETH Zürich.
- 2018-01 “**Moduli spaces and virtual classes related to the quintic**”, *Higher genus workshop*, ETH Zürich.
- 2017-12 “**Structures for Gromov-Witten invariants of quintic threefolds**”, *Algebraic Geometry Seminar*, Harvard/MIT.
- 2017-10 “**Genus two curves on quintic threefolds**”, *Algebraic Geometry Seminar*, Stanford.
- 2017-08 “**Four ways of computing the locus of holomorphic differentials**”, *Algebraic Geometry and Moduli Seminar*, ETH Zürich.
- 2017-05 “**Wall-crossing in Higher-Genus Quasimap Theory**”, *RTG/FRG Mirror Symmetry Conference for Young Researchers*, University of Michigan.
- 2017-05 “**A conjectural formula for Witten’s r-spin class**”, *Geometry of Moduli Spaces*, UC San Diego.
- 2017-04 “**Four ways to compute strata of holomorphic differentials**”, *Algebraic Geometry Seminar*, University of Minnesota.
- 2017-04 “**Wall-Crossing via Localization**”, *Geometry and Physics Seminar*, University of Michigan.
- 2017-03 “**Faber’s tautological relations**”, *Workshop on Enumerative Geometry*, IHP.

- 2017-01 **“Higher genus epsilon wall-crossing via localization”**, *FRG Workshop: Crossing the Walls in Enumerative Geometry*, Columbia University.
- 2017-01 **“Conjectural formula for Witten’s r -spin class”**, *RTG Conference on Witten’s r -spin class and related topics*, University of Michigan.
- 2016-10 **“Topological Recursion Relations from Pixton’s relations”**, *Algebraic Geometry Seminar*, Ohio State University.
- 2016-09 **“Topological Recursion Relations”**, *Geometry and Physics Seminar*, University of Michigan.
- 2016-07 **“Frobenius manifolds near the discriminant and relations in the tautological ring”**, *AMS von Neumann Symposium*, Hilton Charlotte University Place.
- 2016-06 **“Wall-crossing in higher genus FJRW-theory of the quintic”**, *Chengdu International Conference on Gromov-Witten Theory*, Sichuan University.
- 2016-05 **“Around Pixton’s formula for the double ramification cycles”**, *Workshop on Symplectic Geometry and Mathematical Physics*, Beijing International Center for Mathematical Research.
- 2016-02 **“Double ramification cycles”**, *Informal Mathematical Physics Seminar*, Columbia University, New York.
- 2016-02 **“Pixton’s formulas: a proof for functions and a sketch for differentials”**, *Moduli spaces of holomorphic differentials*, Berlin.
- 2015-11 **“A formula for the double ramification cycle”**, *Mathematics - String Theory Seminar*, IPMU.
- 2015-09 **“Wall-crossing in higher genus FJRW theory”**, *Symplectic Geometry and Mathematical Physics*, Beijing International Center for Mathematical Research.
- 2015-08 **“A formula for the double ramification cycle”**, *George Boole Mathematical Sciences Conference*, Cork, Ireland.
- 2015-06 **“Pixton’s formula for the double ramification cycle”**, *AMS-EMS-SPM International Meeting*, Porto, Portugal.
- 2015-06 **“Frobenius manifolds near the discriminant and relations in the tautological ring”**, *Geometric Invariants and Spectral Curves*, Lorentz Center, Leiden.
- 2015-05 **“Pixton’s formula for the double ramification cycle”**, *Symplectic Geometry and Mathematical Physics*, Beijing International Center for Mathematical Research.

- 2015-03 **“What is ... a tautological class”**, *Graduate Colloquium*, ETH Zürich.
- 2015-03 **“The moduli space of curves and the Airy function”**, *Séminaire de géométrie algébrique*, Paris.
- 2015-02 **“Pixton’s double ramification cycle relations”**, *Algebraic Geometry and Moduli Seminar*, ETH Zürich.
- 2015-02 **“Pixton’s formula for double ramification cycles II”**, *Forschungsseminar “Algebraische Geometrie”*, HU Berlin.
- 2014-10 **“Relations in the tautological ring”**, *Current Developments in Moduli Theory*, Northeastern University.
- 2014-10 **“The tautological ring and cohomological field theories”**, *Geometry and Physics Seminar*, University of Michigan.
- 2014-10 **“r-spin relations on the moduli space of curves: new connections”**, *Workshop on Pixton’s conjectures*, ETH Zürich.
- 2014-09 **“Tautological relations from equivariant P^1 ”**, *Summer School: “Modern trends in Gromov-Witten theory”*, Leibniz Universität Hannover.
- 2014-01 **“Tautological relations and chomological field theories”**, *Algebraic Geometry Seminar*, University of Utah.
- 2013-10 **“Relations in the tautological ring from stable quotients”**, *FIM Conference: “Cohomology of the moduli space of curves”*, ETH Zürich.
- 2013-07 **“Relations in the tautological ring from stable quotients”**, *Algebraic Geometry and Moduli Seminar*, ETH Zürich.
- 2012-09 **“Diophantine equations, heights and the Manin conjecture”**, *Studienkonferenz DMV*, Saarbrücken.
- 2012-03 **“The housing theorem”**, *Algebraic Geometry Seminar*, ETH Zürich.

Service

- Main organizer for RTG conference on Witten’s class and related topics (2017)
- Organizer for FRG/RTG mirror symmetry conference for young researchers (2017)
- Organizer for Workshop on Higher Genus Gromov-Witten theory invariants (2018)
- Local organizer for Workshop on Modular structures in Gromov-Witten

- theory and related topics (2018)
- Main organizer for FRG workshop on strata of abelian differentials and related topics (2019)
 - Reviewer for Algebraic Geometry (Compositio Foundation), Compositio, Duke, Inventiones, G&T, IMRN, JAMS, JEMS, JIMJ and Selecta
 - Reviewer for AMS Mathematical Reviews
 - Dissertation committee member for Rongxiao Mi

Conference Participation

- 2018-09 **AGNES**, *Brown University*.
- 2018-05 **Through the Looking-Glass: Mirror Symmetry and Quantum Cohomology**, *UC Berkeley*.
- 2018-03 **Mirror Symmetry and Enumerative Geometry**, *UC Berkeley*.
- 2018-03 **WAGS**, *UC Berkeley*.
- 2017-07 **Conference on Enumerative Geometry, Mirror Symmetry and Physics**, *University of Illinois at Urbana-Champaign*.
- 2016-06 **String Math**, *College de France*.
- 2016-06 **Workshop - Curves on surfaces and 3-folds**, *CIB-EPFL*.
- 2016-06 **Workshop on Global Mirror Symmetry**, *Chern Insitute of Mathematics*.
- 2015-07 **Summer Research Institute on Algebraic Geometry**, *University of Utah*.
- 2015-01 **SwissMAP Geometry and Topology conference**, *Engelberg, Switzzeland*.
- 2014-09 **British Algebraic Geometry Meeting**, *University of Warwick*.
- 2014-06 **Classical Algebraic Geometry**, *Oberwolfach, Germany*.
- 2014-04 **Mirror symmetry and spin curves**, *Cortona, Italy*.
- 2013-10 **Cohomology of the moduli space of curves**, *ETH Zürich*.
- 2013-08 **Summer School on Moduli spaces in algebraic geometry and physics**, *Hamburg*.
- 2013-07 **Conference on Algebraic Geometry**, *University of Amsterdam*.
- 2013-05 **Advanced Course: “Compactifying moduli spaces”**, *CRM*.

- 2013-01 **Geometry of sheaves in low dimensions**, *Centro Stefano Franscini, Ascona.*
- 2012-10 **Geometry and topology of moduli**, *Humboldt Universität Berlin.*
- 2012-06 **GAeL**, *Grenoble.*
- 2012-04 **The moduli space of curves and its intersection theory**, *KTH, Stockholm.*
- 2011-07 **3rd Summer Workshop on Algebraic Geometry**, *Tübingen.*
- 2011-03 **Winter School “Heights and Algebraic Numbers”**, *Eberhard-Karls-Universität Tübingen.*