Felix Janda

Curriculum Vitae

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Nationality: Germany (US permanent resident)
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Employment

2023–	**University of Illinois, Urbana–Champaign**, *Assistant Professor*.
2023–2024	**University of Notre Dame**, *Adjunct Assistant Professor*.
2020–2023	**University of Notre Dame**, *Assistant Professor*.
2019–2020	**Insitute for Advanced Study**, *Member*.
2019–2020	**University of Michigan**, *Adjunct Assistant Professor*.
Spring 2018	**Mathematical Sciences Research Institute**, *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.

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.

Honors/Grants

2023–2028	**NSF CAREER grant DMS-2239320**.
2019–2023	**NSF standard grant DMS-1901748/DMS-2054830**.
2017–2019	**AMS-Simons Travel Grant**.
2016	**ETH medal for outstanding doctoral thesis**.
2014	**Oberwolfach Leibniz Graduate Student**.
2009-2011	**Scholarship of the "Studienstiftung des deutschen Volkes" (German Academic Scholarship Foundation)**.

Publications/Preprints

1. *"Punctured Logarithmic R-maps"* (with Qile Chen and Yongbin Ruan) **submitted**, arXiv:2208.04519
2. *"A comparison of group testing architectures for COVID-19 testing"* (with Joshua Batson, Yaim Cooper, Nathaniel Bottman) , arXiv:2005.03051
3. *"Virtual cycles of stable (quasi-)maps with fields"* (with Qile Chen and Rachel Webb) **in "Advances in Math" Volume 385, 16 July 2021, Art. No. 107781, 49pp**, arXiv:1911.09825
4. *"The logarithmic gauged linear sigma model"* (with Qile Chen and Yongbin Ruan) **in "Inventiones mathematicae", 225(3), 1077-1154, 2022**, arXiv:1906.04345
5. *"Structure of Higher Genus Gromov-Witten invariants of Quintic 3-folds"* (with Shuai Guo and Yongbin Ruan) , arXiv:1812.11908
6. *"Double ramification cycles with target varieties"* (with Rahul Pandharipande, Aaron Pixton and Dimitri Zvonkine) **in "Topology" Volume 13 Issue 4, December 2020, Pages 1725–1766**, arXiv:1812.10136
7. *"Towards Logarithmic GLSM: The r-spin case"* (with Qile Chen, Yongbin Ruan and Adrien Sauvaget) **in "Geometry and Topology" Issue 26-7, 2022, Pages 2855–2939**, arXiv:1805.02304
8. *"A mirror theorem for genus two Gromov-Witten invariants of quintic threefolds"* (with Shuai Guo and Yongbin Ruan) , arXiv:1709.07392
9. *"Higher-genus wall-crossing in the gauged linear sigma model"* (with Emily Clader and Yongbin Ruan) **in "Duke Mathematical Journal" 170 (4), 697-773, (15 March 2021)**, arXiv:1706.05038
10. *"Topological recursion relations from Pixton's formula"* (with Emily Clader, Xin Wang and Dmitry Zakharov) **in "Michigan Math Journal" 73 (2023), 227-241**, arXiv:1704.02011
11. *"Higher-genus quasimap wall-crossing via localization"* (with Emily Clader and Yongbin Ruan) **accepted at "Algebraic Geometry" (Foundation Compositio Mathematica)**, arXiv:1702.03427
12. *"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 in "Journal of Algebraic Geometry" 28 (2019), 439–496**, arXiv:1607.00978
13. *"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
14. *"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
15. *"Pixton's double ramification cycle relations"* (with Emily Clader) **in**

"Geometry and Topology" 22-2 (2018), 1069–1108, arXiv:1601.02871

16. *"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

17. *"Appendix: The weighted fundamental class of $\widetilde{\mathcal{H}}_g(\mu)$"* (with Rahul Pandharipande, Aaron Pixton and Dimitir 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

18. *"Frobenius Manifolds near the Discriminant and Relations in the Tautological Ring"* **part of thesis, in "Letters in Mathematical Physics" 108 (2018), no 7, 1649–1675**, arXiv:1505.03419

19. *"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

20. *"Comparing tautological relations from the equivariant Gromov-Witten theory of projective spaces and spin structures"* **part of thesis, not submitted**, arXiv:1407.4778

21. *"Gromov-Witten theory of target curves and the tautological ring"* **in Michigan Mathematical Journal, Volume 66, Issue 4 (2017), (683–698)**, arXiv:1308.6182

22. *"Tautological relations in moduli spaces of weighted pointed curves"* **part of thesis, not submitted**, arXiv:1306.6580

23. *"Socle pairings on tautological rings"* (with Aaron Pixton) **in Epijournal de Géométrie Algébrique, Volume 3 (2019), Article no. 4**, arXiv:1304.0026

24. *"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

Mentoring

Winter 2023–	**Undergraduate reading and research with Jonathan Pal.**
Winter 2021	**Directed reading with Juan Lanfranco.**
2019 – 2022	**PhD student Nawaz Sultani (thesis title: "Gromov-Witten Theory of Non-Convex Complete Intersections", now postdoc at Academia Sinica, Taipei).**
Summer 2018	**REU with Felipe Castella (topic: GLSM spaces).**

Teaching experience and training

Fall 2023	**MATH 347: Fundamental Mathematics**, Instructor.
May 2023	**attend "NDStart: Diversity, Equity and Inclusion"**.
January 2023	**attend "Building Better Bookends: The First Day of Class"**.
Fall 2022	**MATH 60710: Introduction to Algebraic Geometry**, Instructor.
Fall 2022	**MATH 10550: Calculus I**, Instructor.
Fall 2021	**MATH 80210: Topics in Algebra: Moduli of curves**, Instructor.
Spring 2021	**MATH 10560: Calculus II**, Instructor.
Winter 2021	**MATH 20985: The Math of COVID-19**, Instructor.
Fall 2020	**MATH 60710: Introduction to Algebraic Geometry**, Instructor.
Winter 2019	**Minicourse on "Tautological rings and the double ramification cycle"**.
Fall 2018	**MATH 115: Calculus I**, Instructor.
Fall 2017	**MATH 217: Linear Algebra**, Instructor.
August 2017	**Inquiry based learning 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*, Teaching Assistant.
Fall 2014	**Funktionentheorie**, *Knörrer*, Grading/Tutoring.
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/Tutoring.
Spring 2013	**Algebraic Geometry**, *Pandharipande*, Grading/Tutoring.
Fall 2012	**Functional Analysis**, *Soner*, Grading/Tutoring.
Spring 2012	**Lineare Algebra II**, *Knörrer*, Grading/Tutoring.
2011-05–2011-07	**Lineare Algebra II**, *Derenthal*, Grading.

Talks

Colloquium

2022-12 **"Enumerative Geometry: Old and New"**, *Special Colloquium*, University of Illinois, Urbana-Champaign.

2022-03 **"Enumerative Geometry: Old and New"**, *Special Colloquium*, University of Southern California, Zoom.

2020-02 **"Understanding maps between Riemann surfaces"**, *Colloquium*, University of Minnesota.

2020-02 **"Enumerative Geometry: Old and New"**, *Colloquium*, Louisiana State University.

2020-01 **"Enumerative Geometry: Old and New"**, *Colloquium*, University of Notre Dame.

2020-01 **"Enumerative Geometry: Old and New"**, *Colloquium*, Michigan State University.

2019-02 **"Enumerative Geometry: Old and New"**, *Colloquium*, University of Utah.

2018-12 **"Enumerative Geometry: Old and New"**, *Colloquium*, Texas A&M University.

2018-12 **"Enumerative Geometry: Old and New"**, *Colloquium*, Stony Brook University.

2018-04 **"Counting curves on quintic threefolds"**, *Smith Colloquium*, Kansas University.

Conference

2020-08 **"Logarithmic GLSM: Applications"**, *GLSMs 2020*, Virgina Tech, Zoom.

2020-01 **"All genus Landau–Ginzburg/Calabi–Yau correspondence"**, *Special session: "Cohomological Field Theories and Wall Crossing"*, JMM Denver.

2019-11 **"The logarithmic gauged linear sigma model"**, *Moduli and Invariants*, Casa Matemática Oaxaca.

2019-06 **"Gromov-Witten invariants of quintic threefolds via log GLSM"**, *Summer School: "New Perspectives in Gromov-Witten Theory"*, Paris.

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.

2018-08	**"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.
2018-05	**"Compactifying the space of maps with a p-field"**, *Crossing the Walls in Enumerative Geometry*, Snowbird, Utah.
2018-03	**"Log compactifications of GLSM moduli spaces"**, *Structures in Enumerative Geometry*, MSRI.
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.
2017-05	**"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.
2017-03	**"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.
2016-07	**"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 **"Pixton's formulas: a proof for functions and a sketch for differentials"**, *Moduli spaces of holomorphic differentials*, Berlin.

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.

2014-10 **"Relations in the tautological ring"**, *Current Developments in Moduli Theory*, Northeastern University.

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.

2013-10 **"Relations in the tautological ring from stable quotients"**, *FIM Conference: "Cohomology of the moduli space of curves"*, ETH Zürich.

2012-09 **"Diophantine equations, heights and the Manin conjecture"**, *Studienkonferenz DMV*, Saarbrücken.

Mini-course

2019-02 **"Variants of the DR cycle"**, *Winter School on Enumerative Geometry and Modular Forms*, Frankfurt.

Seminar

2023-09 **"Higher genus mirror symmetry for quintic threefolds"**, *Mathematical Physics Seminar*, Purdue.

2023-09 **"Fixed point loci in moduli problems"**, *Algebraic Geometry Seminar*, UIUC.

2023-03 **"All genus LG/CY correspondence via log GLSM"**, *Online Algebraic Geometry Seminar*, Academica Sinica Taipei.

2022-05 **"Punctured R-maps"**, *Algebra Seminar*, University of Oregon.

2022-03 **"Counting covers of a torus"**, *Graduate Seminar*, University of Notre Dame, Zoom.

2022-03 **"Counting curves on quintic threefolds"**, *Algebraic Geometry and Number Theory Seminar*, Chalmers/the University of Gothenburg, Zoom.

2021-10 **"Higher genus mirror symmetry for complete intersection Calabi-Yau threefolds"**, *Geometry and Physics Seminar*, Northwestern University, Zoom.

2021-07 **"Counting curves on quintic threefolds"**, *Arithmetische und Algebraische Geometrie*, LMU Munich, Zoom.

2021-03 **"Tautological classes from complete intersections"**, *AGCA*, Notre Dame, Zoom.

2020-05 **"The locus of curves with holomorphic differentials and Witten's r-spin class II"**, *Algebraic Geometry and Moduli Zoominar*, ETHZ, Zoom.

2019-11 **"Counting curves on quintic threefolds"**, *Algebraic Geometry Seminar*, Princeton University.

2019-10 **"On Gromov-Witten invariants of quintic threefolds"**, *Algebra-Number Theory Seminar*, University of Maryland.

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 **"Logarithmic GLSM moduli spaces"**, *Algebraic Geometry Seminar*, University of Utah.

2019-01 **"Enumerative Geometry: Old and New"**, *Algebra/Topology Seminar*, University of Copenhagen.

2018-12 **"Enumerative Geometry: Old and New"**, *Differential Geometry and Symplectic Topology Seminar*, University of Minnesota.

2018-11 **"From holomorphic differentials to Witten's r-spin class"**, *Topology Seminar*, University of Michigan.

2018-10 **"Logarithmic GLSM moduli spaces"**, *Geometry and Physics Seminar*, University of Michigan.

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 **"On Gromov-Witten invariants of hypersurfaces"**, *EGN Moduli and Representation Theory seminar*, MSRI.

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.

2018-01 **"Moduli of meromorphic functions on algebraic curves"**, *Analysis and Geometry Seminar*, Central Michigan University.

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.

2017-04 **"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.

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.

2016-02 **"Double ramification cycles"**, *Informal Mathematical Physics Seminar*, Columbia University, New York.

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.

2015-05 **"Pixton's formula for the double ramification cycle"**, *Symplectic Geometry and Mathematical Physics*, Beijing International Center for Mathematical Research.

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 **"The tautological ring and cohomological field theories"**, *Geometry and Physics Seminar*, University of Michigan.

2014-01 **"Tautological relations and chomological field theories"**, *Algebraic Geometry Seminar*, University of Utah.

2013-07 **"Relations in the tautological ring from stable quotients"**, *Algebraic Geometry and Moduli Seminar*, ETH Zürich.

2012-03 **"The housing theorem"**, *Algebraic Geometry Seminar*, ETH Zürich.

Others

2019-11 **"The logarithmic gauged linear sigma model"**, *Future Science Prize Forum*, Beijing, China.

2019-09 **"Counting curves on quintic threefolds"**, *Short talks by postdoctoral members*, IAS Princeton.

2015-03 **"What is ... a tautological class"**, *Graduate Colloquium*, ETH Zürich.

▬▬▬ Service

- Member of the UIUC math department Climate, Equity and Inclusivity committee (Fall 2023)
- Member of the Notre Dame math department postdoc committee (Fall 2022)
- Main organizer for FRG workshop on matrix factorizations and related topics (2022)
- Co-leader at the Riverbend Math Circle (Fall 2022)
- Judge at the Northern Indiana Regional Science & Engineering Fair (2022 and 2023)
- Main organizer for FRG workshop on strata of abelian differentials and related topics (2019)
- Local organizer for Workshop on Modular structures in Gromov-Witten theory and related topics (2018)
- Organizer for Workshop on Higher Genus Gromov-Witten theory invariants (2018)
- Organizer for FRG/RTG mirror symmetry conference for young researchers (2017)
- Main organizer for RTG conference on Witten's class and related topics (2017)
- Reviewer for Advances, Algebraic Geometry (Compositio Foundation), Algebra & Number Theory, Annals of Combinatorics, Compositio, Duke,

Inventiones, Forum of Math Pi, G&T, IMRN, JAMS, JEMS, JIMJ, Portugaliae Mathematica, Selecta and SIGMA

○ Serving on an NSF proposal review panel
○ Reviewer for AMS Mathematical Reviews
○ Dissertation committee member for Rongxiao Mi, Rachel Webb and Renata Picciotto

Conference Participation

2023-06	**Arithmetic, Birational Geometry, and Moduli Spaces**, *Brown University*.
2022-05	**Topics in Enumerative Geometry**, *University of Oregon*.
2021-06	**Enumerative geometry of surfaces**, *Oberwolfach, Germany*.
2019-09	**AGNES**, *Boston College*.
2019-03	**AGNES**, *UMass Amherst*.
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**, *SFSU*.
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, Switzeland*.
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**, *Humbold 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*.