

CURRICULUM VITÆ of MARTIJN KOOL

PUBLICATIONS AND PREPRINTS

1. with N. Arbesfeld and T. Laarakker, *Vafa-Witten invariants from wall-crossing for framed sheaves*, 38 pages, arXiv:2602.07898.
2. with N. Arbesfeld and W. Lim, *The geometry of Nekrasov's gauge origami theory*, 67 pages, arXiv:2602.00984.
3. with J. V. Rennemo, *Proof of a magnificent conjecture*, 59 pages, arXiv:2507.02852.
4. with J. Oh, J. V. Rennemo, and R. P. Thomas, *A Hopf index for isotropic sections of orthogonal bundles*, 27 pages, arXiv:2502.13050.
5. with Y. Bae and H. Park, *Counting surfaces on Calabi-Yau 4-folds II: DT-PT₀ correspondence*, 97 pages, arXiv:2402.06526.
6. with J. Jelisiejew and R. F. Schmiermann, *Behrend's function is not constant on $\text{Hilb}^n(\mathbb{A}^3)$* , *Geometry & Topology* 29 (2025) 4469–4476.
7. with D. van Bree, A. Gholampour, and Y. Jiang, *A virtual PGL_r - SL_r correspondence for projective surfaces*, *Moduli (Foundation Compositio Mathematica)* 2 e5 (2025) 1–41.
8. with Y. Cao and S. Monavari, *A Donaldson-Thomas crepant resolution conjecture on Calabi-Yau 4-folds*, *Transactions of the American Mathematical Society* 376 (2023) 8225–8268.
9. with Y. Bae and H. Park, *Counting surfaces on Calabi-Yau 4-folds I: Foundations*, to appear in *Geometry & Topology*, 150 pages, arXiv:2208.09474.
10. with L. Göttsche and T. Laarakker, *$\text{SU}(r)$ Vafa-Witten invariants, Ramanujan's continued fractions, and cosmic strings*, *Michigan Mathematical Journal* 75 (2025) 3–63.
11. with L. Göttsche, *Sheaves on surfaces and virtual invariants*, *Surveys in Differential Geometry* 24 (2019) 67–116.
12. with L. Göttsche, *Virtual Segre and Verlinde numbers of projective surfaces*, *Journal of the London Mathematical Society* 106 (2022) 2562–2608.
13. with Y. Jiang, *Twisted sheaves and $\text{SU}(r)/\mathbb{Z}_r$ Vafa-Witten theory*, *Mathematische Annalen* 382 (2022) 719–743.
14. with Y. Cao and S. Monavari, *Stable pair invariants of local Calabi-Yau 4-folds*, *International Mathematics Research Notices* 2022 (2022) 4753–4798.
15. with Y. Cao and S. Monavari, *K-theoretic DT/PT correspondence for toric Calabi-Yau 4-folds*, *Communications in Mathematical Physics* 396 (2022) 225–264.
16. with Y. Cao, *Curve counting and DT/PT correspondence for Calabi-Yau 4-folds*, *Advances in Mathematics* 375 (2020) 107371.
17. with L. Göttsche and R. A. Williams, *Verlinde formulae on complex surfaces: K-theoretic invariants*, *Forum of Mathematics, Sigma* 9 (2021) 1–31.
18. with L. Göttsche, *Refined $\text{SU}(3)$ Vafa-Witten invariants and modularity*, *Pure and Applied Mathematics Quarterly* 14 (2018) 467–513.
19. with Y. Cao, *Counting zero-dimensional subschemes in higher dimensions*, *Journal of Geometry and Physics* 136 (2019) 119–137.
20. with L. Göttsche, *A rank 2 Dijkgraaf-Moore-Verlinde-Verlinde formula*, *Communications in Number Theory and Physics* 13 (2019) 165–201.
21. with Y. Cao, *Zero-dimensional Donaldson-Thomas invariants of Calabi-Yau 4-folds*, *Advances in Mathematics* 338 (2018) 601–648.
22. with A. Gholampour, *Higher rank sheaves on threefolds and functional equations*, *Épjournal de Géométrie Algébrique* 3 (2019) 1–29.
23. with L. Göttsche, *Virtual refinements of the Vafa-Witten formula*, *Communications in Mathematical Physics* 376 (2020) 1–49.

24. with J. Bryan, *Donaldson-Thomas invariants of local elliptic surfaces via the topological vertex*, Forum of Mathematics, Sigma 7 (2019) 1–45.
25. with R. P. Thomas, *Stable pairs with descendents on local surfaces I: the vertical component*, Pure and Applied Mathematics Quarterly 13 (2017) 581–638.
26. with J. Bryan and B. Young, *Trace identities for the topological vertex*, Selecta Mathematica, New Series 24 (2018) 1527–1548.
27. with A. Gholampour, *Rank 2 wall-crossing and the Serre correspondence*, Selecta Mathematica, New Series 23 (2017) 1599–1617.
28. with A. Gholampour and B. Young, *Rank 2 sheaves on toric 3-folds: classical and virtual counts*, International Mathematics Research Notices 2018 (2017) 2981–3069.
29. with A. Gholampour, *Stable reflexive sheaves and localization*, Journal of Pure and Applied Algebra 221 (2017) 1934–1954.
30. *Stable pair invariants of surfaces and Seiberg-Witten invariants*, The Quarterly Journal of Mathematics 67 (2016) 365–386.
31. with A. Gholampour and Y. Jiang, *Sheaves on weighted projective planes and modular forms*, Advances in Theoretical and Mathematical Physics 21 (2017) 1455–1524.
32. with R. P. Thomas, *Reduced classes and curve counting on surfaces II: calculations*, Algebraic Geometry (Foundation Compositio Mathematica) 1 (2014) 384–399.
33. with R. P. Thomas, *Reduced classes and curve counting on surfaces I: theory*, Algebraic Geometry (Foundation Compositio Mathematica) 1 (2014) 334–383.
34. with V. Shende and R. P. Thomas, *A short proof of the Göttsche conjecture*, Geometry & Topology 15 (2011) 397–406.
35. *Euler characteristics of moduli spaces of torsion free sheaves on toric surfaces*, Geometriae Dedicata 176 (2015) 241–269.
36. *Fixed point loci of moduli spaces of sheaves on toric varieties*, Advances in Mathematics 227 (2011) 1700–1755.

JOBS AND EDUCATION

- 1-6-2020–: Associate Professor, Math. Inst. Utrecht University.
- 1-7-2018–31-5-2020: Assistant Professor (permanent), Math. Inst. Utrecht University.
- 1-1-2015–30-6-2018: Assistant Professor (tenure track), Math. Inst. Utrecht University.
- 1-9-2013–31-12-2014: PIMS Post-doctoral Fellowship under the PIMS Collaborative Research Group in Geometry and Physics, Dep. Math., University of British Columbia, and Pacific Institute for the Math. Sc.
- 1-4-2010–31-8-2013: Research Associate, Dep. Math., Imperial College, London. Funded by part of Prof. R. P. Thomas’s EPSRC grant “Applied derived categories”.
- 1-10-2006–27-5-2010: DPhil, Math. Inst., University of Oxford. DPhil thesis: *Moduli spaces of sheaves on toric varieties*. Supervisor: Prof. D. D. Joyce. Funded by an EPSRC studentship as part of Prof. D. D. Joyce’s EPSRC grant “Generalised Donaldson-Thomas invariants”.
- 2001–2006: MSc, Dep. Phys. and Astron., Utrecht University. MSc thesis: *Anomalies of the (super)conformal algebra in string theory*. Supervisor: Prof. G. Arutyunov.
- 2001–2005: MSc, Dep. Math., Utrecht University. MSc thesis: *The McKay correspondence, derived categories and braid relations*. Supervisor Dr. B. Szendrői.

GRANTS, AWARDS, AND VISITING SCHOLARSHIPS

- Vici grant VI.C.252.022, *Real and logarithmic counting invariants — new connections*, Sep 2026–, €1,497,608.

- Lorentz Center Workshop *Algebraic structures in gauge theory and geometry*, contribution Lorentz Center €21,152.
- ERC Consolidator Grant FourSurf, *Surfaces on fourfolds*, Sep 2023–, €1,870,000.
- Vidi grant VI.Vidi.192.012, *Moduli of sheaves: new directions*, Dec 2019–Dec 2025, €800,000.
- TOP2 grant 613.001.701, *Moduli of sheaves on general type surfaces*, Sep 2018–Sep 2022, €234,563.
- Research Member in MSRI program *Enumerative geometry beyond numbers*, Berkeley, April–May 2018, €5,936.
- Marie Skłodowska-Curie IF EF 656898, *Invariants of local Calabi-Yau 3-folds*, June 2015–June 2017, €165,559.
- Lincoln College Senior Scholarship 2008/2009 (on academic merit), Univ. Oxford, €385.
- June–July 2008, Scholarship BIGS Exchange Programme for Ph.D. students, Math. Inst., University of Bonn. Supervisor: Prof. D. Huybrechts, €2,000.
- 19-6-2006: Prins Bernhard Cultuurfonds Scholarship, Pieter Beijer Fund, €7,500 (not consumed).

SUPERVISION

PhD students:

- Tom Manopulo, PhD candidate since September 2024.
- Weisheng Wang, PhD candidate since 1-10-2023.
- Reinier F. Schmiermann, *Singularities and virtual structures on the Hilbert scheme of points and its variants*, PhD 1-9-2021 until 7-10-2025 (PhD work published in Geom. Topol.).
- Dirk van Bree, *Virasoro constraints and moduli of twisted sheaves*, PhD 1-9-2020 until 9-7-2024 (PhD work published in Forum of Math. Sigma, Moduli).
- Sergej Monavari, *Equivariant enumerative geometry and Donaldson-Thomas theory*, PhD 1-9-2018 until 13-6-2022 (PhD work published in Compos. Math., Comm. Math. Phys., Forum Sigma, IMRN, J. Algebra, Can. Math. Bull., J. Geom. Phys.).
- P. Ties A. Laarakker, *Universality in enumerative geometry and Vafa-Witten theory*, PhD 1-4-2016 until 16-10-2019 (PhD work published in Geom. Topol., Selecta Math. (2×)).

Postdocs:

- Olivier de Gaay Fortman, September 2024 – September 2026.
- Pim Spelier, September 2024 – September 2026.
- Woonam Lim, 1-9-2023–31-8-2024.
- Younghan Bae (supported by his Swiss NSF Grant), 1-9-2023–31-8-2024.

INVITED LECTURE SERIES

- *Algebraic geometry and Vafa–Witten theory*, 4 lectures, Physical Mathematics of Quantum Field Theory Summer School 2025, UMass Amherst, 9–13 June 2025.
- *Algebraic geometry and Vafa–Witten theory*, Physics Latam, ICTP Physics without Frontiers, 8-9-2023 (online).
- *Donaldson-Thomas invariants of Calabi-Yau 4-folds and Hilbert schemes of points*, three lectures, SISSA Trieste, February 2018.
- *Toric varieties and equivariant vector bundles*, one day mini-course, GQT School and Colloquium, Den Dolder, November 2016.
- *Virtual counts on surfaces*, lecture series, KIAS Winter School on Virtual Enumerative Geometry, Seoul, 6–9-1-2015.

- *Four lectures on stable pairs*, lecture series, International Workshop on Complex Geometry, CUHK, Hong Kong, 18–19-4-2013.

INVITED TALKS

- *Developments in Vafa-Witten theory*, algebraic and symplectic geometry seminar, Oxford University, 27-1-2026.
- *Nekrasov’s gauge origami and virtual structures*, algebraic and arithmetic geometry seminar, University of Pisa, 3-12-2025.
- *Isotropic Hopf index for orthogonal bundles and Magnificent Four*, the Dutch differential topology & geometry seminar, Leiden 31-10-2025.
- *Donaldson-Thomas invariants of Calabi-Yau fourfolds — overview and conjectures*, workshop “Wall-crossing: techniques and applications”, American Institute of Mathematics, Pasadena, 16-9-2025 (online).
- *Surfaces on Calabi-Yau fourfolds*, 2025 summer research institute in algebraic geometry, enumerative geometry session, Fort Collins, Colorado, 22-7-2025.
- *Virtual structure on Hilbert schemes of affine 4-space*, Geometric moduli spaces — rigidity, genericity, stability, workshop ICMS Edinburgh, 19-5-2025.
- *Virtual structure on Hilbert schemes of affine 4-space*, M-seminar, Kansas State University, 3-4-2025 (online).
- *Nekrasov’s gauge origami and Oh-Thomas’s virtual cycles*, algebra and quantum geometry of BPS quivers, SwissMAP workshop, 20-1-2025.
- *Vafa-Witten invariants and framed sheaves*, department of mathematics and physics, Roma Tre, 9-1-2025.
- *Sheaves on Calabi-Yau 4-folds and virtual invariants – an overview*, plenary speaker, International congress of basic science, BIMSA, Beijing, 17-7-2024.
- *Gauge origami and Oh-Thomas virtual cycles*, workshop Moduli stacks and enumerative geometry, Cambridge, 19-6-2024.
- *Surface counting on toric Calabi-Yau 4-folds*, algebraic geometry seminar, Academia Sinica, 15-5-2024 (online).
- *Hilbert schemes of points on affine space of dimension < 5* , algebra and number theory seminar, University of Vienna, 30-4-2024.
- *Intersection theory on Hilbert schemes on Calabi-Yau 4-folds*, workshop enumerative geometry of the Hilbert scheme of points SRS research station, Les Diablerets, 29-1-2024.
- *K-theoretic DT/PT correspondence for surfaces on Calabi-Yau fourfolds*, STEW Oslo, 12-12-2023.
- *Counting surfaces on Calabi-Yau fourfolds*, BIMSA-YMSC algebraic geometry seminar, 23-11-2023 (online).
- *The geometry of Magnificent Four*, Fundamentals of the universe symposium, Groningen, 9-11-2023.
- *Hilbert schemes on affine 4-space and the geometry of Magnificent Four*, workshop Hilbert schemes of points, Humboldt University Berlin, 28-9-2023.
- *Sheaves on Calabi-Yau 4-folds and virtual invariants — a survey*, plenary speaker String Math 2023 in Melbourne, 11-7-2023.
- *K-theoretic DT/PT correspondence for surfaces on Calabi-Yau fourfolds*, workshop on moduli spaces, virtual invariants and shifted symplectic structures, Seoul 27-6-2023.
- *Counting surfaces on Calabi-Yau fourfolds*, workshop Refined invariants in moduli theory, SISSA, Trieste 2-5-2023.
- *Counting surfaces on Calabi-Yau fourfolds*, workshop Moduli spaces: theory and coding, Les Diablerets, Switzerland, 27-2-2023.

- *Vafa-Witten invariants of projective surfaces - overview*, workshop New four-dimensional gauge theories, MSRI Berkeley, 24-10-2022.
- (cancelled) *Proof of Magnificent Four*, ICM 2022 satellite conference, Integrable systems and geometry of moduli spaces, Yaroslavl, July 2022.
- *The Geometry of Magnificent Four*, New trends in non-perturbative gauge/string theory and integrability, IMB, Dijon, 30-6-2022.
- *Counting surfaces on Calabi-Yau 4-folds: Reduced virtual cycles*, seminar talk, Seoul National University, 30-5-2022.
- *Counting surfaces on Calabi-Yau 4-folds I*, workshop: Curves and K3 surfaces, Univ. Bonn, 12-5-2022.
- *Counting surfaces on Calabi-Yau fourfolds*, the Sheffield geometry and physics seminar, Univ. Sheffield, 9-5-2022.
- *Counting surfaces on Calabi-Yau fourfolds*, strings and geometry 2022, Utrecht Univ., 3-5-2022.
- *Counting surfaces on Calabi-Yau fourfolds*, Connections between string theory and special holonomy, Simons Collaboration on Special Holonomy in Geometry, Analysis, and Physics, Univ. Oxford, 12-1-2022 (online).
- *Proof of Magnificent Four*, Online Workshop on mirror symmetry and related topics, Kyoto Univ., 14-12-2021 (online).
- *Virtual invariants of projective surfaces*, Kansas geometry day, Univ. Kansas, 5-8-2021 (online).
- *The geometry of Magnificent Four*, mathematical colloquium, Vrije Universiteit, Amsterdam, 19-5-2021 (online).
- *Proof of a magnificent conjecture*, Utrecht geometry seminar, Utrecht University, 23-3-2021 (online).
- *Proof of Magnificent Four*, algebraic geometry and moduli seminar, ETH Zürich, 17-3-2021 (online).
- *Virtual Euler characteristics of moduli spaces of torsion free sheaves on general type surfaces*, GAAG 2020, Univ. Federal Fluminense, Niterói, Brasil, 16-12-2020 (online).
- *Virtual Segre and Verlinde numbers of projective surfaces*, UC San Diego algebraic geometry seminar, 16-10-2020 (online).
- *Virtual invariants of projective surfaces*, Harvard-MIT algebraic geometry seminar, 6-10-2020 (online).
- *New directions in Vafa-Witten theory*, colloquium, ShanghaiTech University, 27-12-2019.
- *DT/PT correspondence for Calabi-Yau 4-folds*, Moduli and Invariants, Casa Matemática Oaxaca (CMO), 20-11-2019.
- *DT/PT correspondence for Calabi-Yau fourfolds*, School and Workshop on Gauge Theories and Differential Invariants, ICTP, Trieste, 7-10-2019.
- *New directions in Vafa-Witten theory*, Warwick Algebraic Geometry Seminar, 30-4-2019.
- *Moduli spaces of sheaves on general type surfaces and virtual invariants*, Rationality of algebraic varieties, Schiermonnikoog, 16-4-2019.
- *New calculations in Vafa-Witten theory*, Winter School on Enumerative Geometry and Modular Forms, Goethe Universität, Frankfurt am Main, 15-2-2019.
- *Zero-dimensional Donaldson-Thomas invariants of Calabi-Yau fourfolds*, Seminar Algebraic Geometry, University of Bonn, 6-12-2018.
- *New calculations in Vafa-Witten theory*, Algebraic geometry and moduli seminar, ETH Zürich, 28-9-2018.
- *New calculations in Vafa-Witten theory*, Workshop: Geometric Correspondences of Gauge Theories, ESI Vienna, 3-9-2018.

- *Zero-dimensional Donaldson-Thomas invariants of Calabi-Yau fourfolds*, Workshop on Degenerate Contributions to Enumerative Invariants, Imperial College London, 30-7-3-8-2018.
- *New directions in Vafa-Witten theory*, Enumerative Geometry beyond Numbers Main Seminar, MSRI Berkeley, 2-5-2018.
- *Using the topological vertex outside toric geometry*, Enumerative Geometry beyond Numbers postdoc and student seminar, MSRI Berkeley, 3-4-2018.
- *Virtual cobordism classes of moduli of sheaves on surfaces*, Mirror Symmetry and Enumerative Geometry, Simons Collaboration on Homological Mirror Symmetry, UC Berkeley, 30-3-2018.
- *Invariants of moduli of sheaves on general type surfaces*, Oberseminar Algebraische Geometrie, University of Zürich, 27-11-2017.
- *Moduli of sheaves on general type surfaces and modular forms*, SFB/TRR45 Kolloquium, University of Mainz, 6-7-2017.
- *Vafa-Witten formula and Donaldson invariants of general type surfaces*, GAGA seminar, Utrecht University, 7-3-2017.
- *Donaldson-Thomas invariants of local elliptic surfaces*, Workshop on Geometric Correspondence of Gauge Theories, ICTP, Trieste, 12-9-2016.
- *Stable pairs of local surfaces with smooth canonical divisor*, Advanced School and Workshop on Moduli Spaces, Mirror Symmetry and Enumerative Geometry, ICTP, Trieste, 15-8-2016.
- *Stable pairs of local surfaces with smooth canonical divisor*, Workshop Curves on Surfaces and 3-Folds, CIB/EPFL, Lausanne, 23-6-2016.
- *Serre correspondence, wall-crossing, and Quot schemes*, Workshop Global Singularity Theory and Curves, CIB/EPFL, Lausanne, 10-5-2016.
- *Enumerative geometry: from Ancient Greeks to Modern Physicists*, Staff Colloquium, Utrecht University, 3-12-2015.
- *Enumerative geometry: from Ancient Greeks to Modern Physicists*, Math. Colloquium, University of Groningen, 1-12-2015.
- *Enumerative geometry: from Ancient Greeks to Modern Physicists*, General Math. Colloquium, VU, Amsterdam, 28-10-2015.
- *Donaldson-Thomas invariants of local elliptic surfaces*, Intercity Number Theory Seminar, Utrecht University, 16-10-2015.
- *Donaldson-Thomas invariants of local elliptic surfaces*, MAGIC Seminar, Imperial College London, 5-10-2015.
- *Moduli spaces of rank 2 sheaves on toric 3-folds*, Boole Conference 2015, Theme 6: Invariants from Moduli Spaces, University College Cork, 27-8-2015.
- *Stable pair invariants and surfaces with holomorphic 2-form*, GQT Colloquium, Den Dolder, 5-6-2015.
- *Enumerative geometry: from Ancient Greeks to Modern Physicists*, General Math. Colloquium, UvA, Amsterdam, 20-5-2015.
- *Stable pair invariants and surfaces with holomorphic 2-form*, Algebraic geometry and moduli seminar, ETH Zürich, 17-4-2015.
- *Donaldson-Thomas invariants of local elliptic surfaces*, GAGA seminar, Utrecht University, 3-4-2015.
- *Donaldson-Thomas invariants of local elliptic surfaces*, Mini-Workshop on Refined Invariants, University of Warwick, 9-3-2015.
- *Stable pair invariants and surfaces with holomorphic 2-form*, KIAS, Seoul, 2-9-2014.

- *Curves on surfaces*, WAGS (Western Algebraic Geometry Symposium), University of Colorado at Boulder, 12–13-4-2014.
- *Rank 2 sheaves on toric 3-folds*, BAGS (Bellingham Algebraic Geometry Seminar), Western Washington University, Bellingham, 6-4-2014.
- *Curves on surfaces*, CRG Geometry and Physics Seminar, UBC, Vancouver, 7-10-2013.
- *Curves on surfaces*, ERC Research Meeting at Pavia (organized by J. Stoppa), University of Pavia, 25-6–27-6-2013.
- *Curves on surfaces*, Hillbert Schemes, Sheaves and Representations (VBAC 2013), SISSA, Trieste, 16-6–20-6-2013.
- *Reduced classes and curve counting on surfaces*, Junior Hausdorff Trimester Program, Mathematical Physics, Workshop: BPS States, HIM, Bonn 12–14-11-2012.
- *Reduced classes and curve counting on surfaces*, Algebraic and Symplectic Geometry Seminar, University of Oxford, 16-10-2012.
- *Reduced classes and curve counting on surfaces*, Tropical Geometry in Europe Itinerant Seminar, University of Toulouse, 4-10-2012.
- *Reduced classes and curve counting on surfaces*, The Conference of Mirror Symmetry and Related Topics, Kunming University of Science and Technology, 23-8-2012.
- *Reduced classes and curve counting on surfaces*, Warwick Algebraic Geometry Seminar, University of Warwick, 8-2-2012.
- *Reduced classes and curve counting on surfaces*, London Geometry and Topology Seminar, Imperial College London, 7-10-2011.
- *A short proof of the Göttsche conjecture*, Algebraic and Symplectic Geometry Seminar, University of Oxford, 3-5-2011.
- *A short proof of the Göttsche conjecture*, Workshop of Algebraic Geometry, Seminario di Natale, University of Milan, 17-12-2010.
- *A short proof of the Göttsche conjecture*, Geometry and Topology Seminar, University of Glasgow, 15-11-2010.
- *Moduli spaces of sheaves on toric varieties*, MAGIC Seminar, Imperial College London, 21-6-2010.
- *Moduli spaces of sheaves on toric varieties*, Algebraic and Symplectic Geometry Seminar, University of Oxford, 16-2-2010.
- *Moduli spaces of sheaves on toric varieties*, Junior Geometry and Topology Seminar, University of Oxford, 3-12-2009.
- *Fixed point loci of moduli spaces of sheaves on toric varieties*, Freie Universität Berlin, 19-1-2009.
- *Moduli of equivariant and invariant sheaves on toric varieties*, University of Bonn, 10-6-2008.
- *Moduli of equivariant and invariant sheaves on toric varieties*, ICTS Program on Vector Bundles, TIFR, Mumbai 13-3-2008.
- *Moduli of equivariant and invariant sheaves on toric varieties*, Junior Geometry and Topology Seminar, University of Oxford, 7-2-2008.
- *Torus invariant sheaves on toric varieties*, CMS Graduate Studies Open Day, University of Cambridge, 7-11-2007.
- *The McKay correspondence, derived categories and braid relations*, Seminar McKay Correspondence, Utrecht University, Spring 2006.

(OTHER) CONFERENCES ATTENDED

- *K3 surfaces & friends: Brauer groups and moduli*, Lorentz centre, Leiden, 30-6–4-7-2025.
- *Hodge theory in Leiden*, a conference in honour of Chris Peters' 75th birthday, Leiden, 5–6-9-2024.

- *Enumerative geometry beyond spaces*, workshop BIRS, invited participants only, Banff, 26–30-8-2024.
- *Geometry and Analysis of Moduli Spaces*, invited participants only (part of: Simons Collaboration on Special Holonomy in Geometry, Analysis, and Physics), Imperial College London, 6–10-1-2020.
- *Geometric Invariant Theory and Enumerative Geometry*, Helvetic Algebraic Geometry Workshop, Park Hotel Oberhofen, Thunersee, Switzerland, 5–7-7-2017.
- *Moduli Spaces and Arithmetic Geometry*, Lorentz Center, Leiden, 9–13-11-2015.
- *2015 Summer Research Institute on Algebraic Geometry*, University of Utah, Salt Lake City, 20–24-7-2015.
- *On the geometry of sheaves in low dimensions*, Winter School, Centro Stefano Franscini, Ascona, 21–25-1-2013.
- *Derived categories*, Newton Inst., Cambridge 11–15.04.2011.
- *Derived categories of algebro-geometric origin and integrable systems*, 15th Midrasha Mathematicae, IAS, Hebrew University of Jerusalem, 19–24-12-2010.
- *Wall-crossing in mathematics and physics*, University of Illinois at Urbana-Champaign, 24–28-5-2010.
- *BPS state counting, stability structures and derived algebraic geometry*, Summer School, University of Hamburg, 31-8–4-9-2009.
- *Modern moduli theory*, MSRI, Berkeley 23–27-2-2009.
- *Mirror symmetry*, HIM, University of Bonn 6–12-7-2008.
- *Introduction to explicit methods in algebraic geometry*, University of Warwick, 3–7-9-2007.

EDUCATION

20-11-2024: SKO teaching certificate (senior teaching qualification).

4-6-2024: Teacher of the year award 2024 (for the Mathematical Institute, elected by votes of students).

21-12-2016: BKO certificate (basic teaching qualification). The courses below are taught at Utrecht University unless mentioned otherwise.

- Supervised projects for Orientation on Mathematical Research: *Projective duality in the plane* ($2\times$), *Curves, singularities, and knots* ($1\times$).
- Chair Examination Committee, Department of Mathematics, Utrecht University, December 2022–.
- Lecturer *Analyse*, Block 3 2025-2026.
- Lecturer *Algebraic geometry 1* (with M. Hablicsek), mastermath, Fall 2025-2026.
- Lecturer *Analyse*, Block 3 2024-2025.
- Lecturer *Algebraic geometry 1* (with M. Hablicsek), mastermath, Fall 2024-2025.
- Lecturer *Analyse*, Block 3 2023-2024.
- Lecturer *Algebraic geometry 1* (with M. Hablicsek), mastermath, Fall 2023-2024.
- Lecturer *Analyse*, Block 3 2022-2023.
- Lecturer *Algebraic geometry 1* (with M. Hablicsek), mastermath, Fall 2022-2023.
- Lecturer *Mathematics colloquium: computational affine geometry* (with T. van Leeuwen), Block 4 2021-2022.
- Lecturer *Analyse*, Block 3 2021-2022.
- Lecturer *Algebraic geometry 1* (with M. Hablicsek), mastermath, Fall 2021-2022.
- Lecturer *Algebraic geometry 1* (with L. Taelman), mastermath, Fall 2020-2021.

- Lecturer *Mathematics colloquium: computational affine geometry* (with T. van Leeuwen), Block 4 2019-2020.
- Lecturer *Algebraic geometry 1* (with L. Taelman), mastermath, Fall 2019-2020.
- Lecturer *Groepentheorie*, Block 1 2019-2020.
- Lecturer *Inleiding meetkunde*, Block 3 2018-2019.
- Lecturer *Algebraic geometry 1* (with B. Edixhoven), mastermath, Fall 2018-2019.
- Lecturer *Groepentheorie*, Block 1 2018-2019.
- Lecturer *Lab course in group theory*, UCU Utrecht University, Winter Term 2017-2018.
- Lecturer *Groepentheorie*, Block 1 2017-2018.
- Lecturer *Algebraic surfaces* (with M. Shen), mastermath, Fall 2017-2018.
- Lecturer *Mathematics colloquium: computational affine geometry* (with T. van Leeuwen), Block 1 2017-2018.
- Lecturer *Algebraic geometry 2* (with C. Faber), mastermath, Spring 2016-2017.
- Lecturer *Mathematics colloquium: computational affine geometry* (with T. van Leeuwen), Block 4 2016-2017.
- Lecturer *Inleiding meetkunde*, Block 3 2016-2017.
- Lecturer *Algebraic surfaces* (with M. Shen), mastermath, Spring 2015-2016.
- Lecturer *Lab course in group theory*, UCU Utrecht University, Winter Term 2015-2016.
- Lecturer *Algebraic geometry 2* (with C. Faber), Block 1–2 2015-2016.
- Lecturer *Ring en Galoistheorie*, Block 4 2014-2015.
- Lecturer *Advanced Mathematics*, UCU Utrecht University, Spring Semester 2014-2015.
- Lecturer *Differential Calculus with Applications to Commerce and Social Sciences* at UBC, Winter Term 2013.
- Lecturer *Manifolds* at Imperial College, Autumn Terms 2011 and 2012.
- TA 1st year course *Analysis* at Imperial College, Spring Term 2013.
- TA 2nd year course *Complex Analysis* at Imperial College, Spring Term 2011.
- TA 1st year courses *Mathematics for Aeronautics/Chemical Engineering* at Imperial College, Autumn Term 2010 and Spring Term 2011.
- TA 3rd year course *Algebraic Curves*, University of Oxford, Hilary Term 2010.
- College Tutor 2nd year courses *Analysis* and *Integration* at Lincoln College, University of Oxford, Hilary Term 2009.

ORGANISATION WORKSHOPS & SEMINARS

- Co-organizer, *Geometry of quiver moduli*, Utrecht University, 23–24 February, 2026.
- Co-organizer *Spin structures in enumerative geometry*, Leiden, 16–18 June 2025.
- Co-organizer *VBAC—quivers and sheaves*, Utrecht, 14–15 May 2025.
- Chair Scientific Committee Dutch Mathematical Congress 2025. Member Scientific Committee Dutch Mathematical Congress 2023.
- Co-organizer *Geometry meets physics: Calabi-Yau fourfolds and beyond*, joint mathematics-physics workshop, Woudschoten, 27–30-1-2025.
- Co-organizer *Algebraic structures in gauge theory and geometry*, Lorentz center workshop, Leiden 1–5 July 2024.
- Co-organizer Belgian-Dutch algebraic geometry seminar (2–3 times per year), 3-2020–.
- Co-organizer *Workshop in honour of Lothar Göttsche's 60th birthday*, Dec. 2021.
- Co-organizer GQT graduate school and colloquium, 4–8 June 2018, 26–30 November 2018, 1–5 July 2019, 18–22 January 2021, 22–26 August 2022, 28-8–1-9-2023, 26-8–30-8-2024.
- Co-organizer workshop *Gauge theory and virtual invariants*, Hamilton Mathematics Institute, Trinity College (Dublin), 13–17-5-2019.
- Co-organizer of The Utrecht Mathematical Colloquium 2015–2019.

- Co-organizer GAGA seminar, Math. Inst., Utrecht University (2015–2017).
- Local organizer of the CRG Geometry and Physics Seminar (UBC/UAlberta), 9-2013–12-2014.
- Co-organizer of the London Geometry and Topology Seminar, 1-2012–7-2013.

REFEREEING & EDITORSHIPS

- Member nomination committee *Frontier of Science Award*, section: Commutative Algebra and Algebraic Geometry, ICBS Beijing 2024, 2025 (2×).
- Guest editor for *Special Issue on Enumerative and Gauge-Theoretic Invariants in honor of Lothar Göttsche on the occasion of his 60th birthday*, SIGMA.
- I refereed for: Adv. Math. (4×), Alg. Geom. (2×), Amer. Jour. Math., Compos. Math. (2×), Doc. Math., Duke, Eur. Jour. Math., Forum Pi, Frontiers in G&T, Geom. Topol. (2×), IMRN (4×), Int. Jour. Math., Jour. Alg. Geom., Jour. AMS, Jour. Diff. Geom., Jour. EMS, Jour. Geom. Phys. (2×), Jour. LMS, Math. Ann., Math. Nachr., Proc.-Math. Sc., Schiermonnikoog 2014, Selecta, SIGMA.
- Member of the PhD committees of M. Ronzani (SISSA), N. Piazzalunga (SISSA), R. Afghani (ICTP/SISSA), N. Fasola (SISSA), A. Bojko (Oxford), H. Park (SNU), Ch. Li (UU), M. Graffeo (SISSA), P. Magni (Nijmegen), R. Ontani (SISSA), S. Schirren (Roma Tre), L. Taams (Nijmegen), D. Leijnse (UvA).
- Referee for Austrian Science Fund (FWF) proposal, 2025.
- Assessor for Research Council of Norway (FRIPRO panel) 2025.
- Referee for DFG proposal 2022.
- Referee van Gogh programme 2022-2023.
- Referee Swiss NSF Ambizione Grant, proposal, 2022.
- Referee Royal Society URF\R, proposal, 2021, 2026 (2×).
- Member NWO assessment committee pre- and full proposals mathematics clusters – PhD positions (2021).

OTHER ACADEMIC ACTIVITIES/QUALIFICATIONS

28-5-2020: SKO research certificate (senior university research qualification).

I have participated in the Research Leadership Programme for assistant professors and Academic Leadership Programme for associate professors at Utrecht University.

I have participated in “Leergang voor examencommissie” at Utrecht University.

- Member hiring committee for assistant professor position at the Mathematical Institute of Utrecht University 2026.
- Chair hiring committee for assistant professor position at the Mathematical Institute of Utrecht University 2024.
- Board member GQT cluster, 1-9-2024–.
- Member promotion committee Department of Mathematics, UvA (2×).
- Member promotion committee Computer Science Department, Utrecht University (4×).
- ERC CoG advisory committee at Utrecht University (3×).
- Presentation at ERC information meeting CWI, Amsterdam, 27-11-2023.

- Working group update MSc tracks at the Mathematical Institute, Fall 2023–.
- Member Mathematical Institute renovation committee.
- Board Member Utrecht Geometry Centre, November 2022–.
- Member Diversity Committee, Faculty of Science, Utrecht University, Summer 2020–Winter 2023.
- Jury member GSNS master thesis award (Utrecht University): 2020, 2021, 2022.
- Temporary member “curriculumcommissie”, Math. Institute, Utrecht University (2018).
- Member Research Working Grp. “Strategic Plan: Science 2021”, Utrecht University (2016).
- Working group algebra courses, 2015–.
- Member ODC Math. Inst. Utrecht University (2015–2019).
- Reviewing for Math. Rev. (until May 2021).

OUTREACH

- Mini-lecture open day for prospective students, Utrecht University, 22 November 2025.
- Member “wiskunde B-dag” committee (since 2018, excluding academic year 2024-2025).
- Interview for podcast “Atomen Enzo”, F. Helinski, 12-02-2024.
- *Krommen tellen: van de Griekse Oudheid tot snaartheorie*, public lecture at exhibit Imaginary, stadskantoor Utrecht, 10-2-2017.
- *Projective duality in the plane*, one day lectures for international bachelor students, Utrecht Geometry Summer School, August 2019.
- *Curves, singularities, and knots*, one day lectures for international bachelor students, Utrecht Geometry Summer School, August 2017, 2018.
- *Symmetrieën en Du Val singulariteiten*, lecture for high school students (4VWO) U-Talent, Utrecht University, 24-3-2015, 5-4-2016, 10-12-2018, 9-12-2019, 24-11-2020, 4-1-2021, 14-2-2022, 26-9-2022, 12-12-2022, 27-11-2023, 5-2-2024, 3-2-2025.