

CURRICULUM VITAE

MARTIN G. GULBRANDSEN

PERSONAL DATA

Born October 16., 1977. Male. Norwegian citizen. Cohabitant, two children.

EMPLOYMENT HISTORY

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|------------------|--|
| 2015–present | Professor in mathematics, University of Stavanger |
| 2013–2015 | Associate professor in mathematics, University of Stavanger |
| 2009–2013 | Associate professor in mathematics, Stord/Haugesund University College |
| 2008–2009 | Postdoc at Max-Planck-Institut für Mathematik (MPIM) in Bonn, Germany (one year) |
| 2006–2008 | Postdoc shared between the Institut Mittag-Leffler and the Royal Institute of Technology (KTH) in Stockholm, Sweden (two years) |
| Spring term 2006 | Lecturer at the Norwegian University of Science and Technology (NTNU) in Trondheim (temporary position) |
| 2002–2006 | Doctoral fellowship at the University of Oslo, with 25% teaching (four years) |
| 2001 | Civil service (siviltjeneste) at the Interventional Centre, Rikshospitalet, Oslo (one year). |

Parental leave a total of 43 weeks during 2012–2014.

DEGREES

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| 2006 | Doctoral degree (dr. scient.) in mathematics, University of Oslo
Thesis: <i>Fibrations on generalized Kummer varieties</i>
Advisor: Geir Ellingsrud
Funded by the Norwegian Research Council. One term was spent at the Centre for Advanced Study (Oslo), and one term at the Universität Mainz (Germany), under the guidance of Prof. Manfred Lehn. |
| 2000 | Master degree (cand. scient.) in mathematics, University of Oslo
Master thesis: <i>Hilbert schemes of linear group orbits in the affine plane</i>
Advisor: Geir Ellingsrud |

PEDAGOGICAL TRAINING

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| 2017 | Developing Doctoral Supervision , University of Agder/University of Stavanger/Nord University (no credits, equivalent to 3 working weeks) |
| 2013 | Didactics for engineering (EDU 6300), Norwegian University for Science and Engineering, Trondheim (15 ECTS credits) |

GRANTS

- 2014–2018 **Young Research Talent** (NOK 6.7M) funding from the Research Council of Norway and the University of Stavanger (FRIPRO/Fellesløftet): a 4 year research project “Sheaves on abelian varieties”, with Martí Lahoz (Paris), Ciaran Meachan (Edinburgh) and Daniel Huybrechts (Bonn) as partners, and myself as project leader
- 2010 **NILS mobility project** mobility grant (short term reciprocal visits, about NOK 8000), in collaboration with Martí Lahoz (Barcelona) (<http://www.ucm.es/centros/webs/gi5041/>)
- 2001–2005 **Personal doctoral fellowship** from the Research Council of Norway

PUBLICATIONS

Published in a peer reviewed mathematics journal:

- (1) with S. Alaoui Soulimani: *Bridgeland stability conditions and skew lines in \mathbb{P}^3*
Comm. Algebra (online 2024; to appear in print)
- (2) with L. Halle, K. Hulek and Z. Zhang: *The geometry of degenerations of Hilbert schemes of points*
J. Algebraic Geom. 30 (2021)
- (3) with L. Halle and K. Hulek: *A GIT construction of degenerations of Hilbert schemes of points*
Documenta Math. 24 (2019)
- (4) with M. Lahoz: *Schottky via the punctual Hilbert scheme*
Tohoku Math. J. 69 (2017)
- (5) with A. Ricolfi: *The Euler characteristic of the generalized Kummer scheme of an Abelian threefold*
Geom. Dedicata. 182 (2016)
- (6) with L. Halle and K. Hulek: *A relative Hilbert–Mumford criterion*
Manuscripta Math. 148 (2015)
- (7) *Counting sheaves on Calabi–Yau and abelian threefolds*
Fields Inst. Comm. 677, No. XXVI (2013)
- (8) *Vector bundles and monads on abelian threefolds*
Comm. Algebra 41 (2013)
- (9) *Donaldson–Thomas invariants for complexes on abelian threefolds*
Math. Z. 273, (2013)
- (10) with M. Lahoz: *Finite subschemes of abelian varieties and the Schottky problem*
Ann. Inst. Fourier. 61 (2011)
- (11) *Stack structures on GIT quotients parametrizing hypersurfaces*
Math. Nachr. 284 (2011)
- (12) *Fourier–Mukai transformations of line bundles on derived equivalent abelian varieties*
Le Matematiche. LXIII (2008)
- (13) *Lagrangian fibrations on generalized Kummer varieties*
Bull. SMF. 135 (2007)
- (14) *Computing the Euler characteristic of generalized Kummer varieties*
Ark. Mat. 45 (2007)
- (15) *A partial resolution of the punctual Hilbert scheme of a nonsingular surface*
Math. Scand. (2005)

Other:

- with J. Kleppe, T. Kro and J.E. Vatne: *Matematikk for ingeniørfag* (textbook for engineering students), Gyldendal (2014)
- *Winfried Scharlau: Wer ist Alexander Grothendieck?* Book review (Norwegian), *Normat* 57 (2009)
- With Elle et al: *Early recognition of regional cardiac ischemia using a 3-axis accelerometer sensor*, *Physiol. Meas.* 26 (2005) (Interdisciplinary work published in a medical journal, from my civil service/peace service at Rikshospitalet, Oslo in 2001.)

TALKS

Conference talks:

- 2021 Moduli and Algebraic Cycles, Institut Mittag–Leffler, Djursholm, Sweden: *Geometry of wall crossings for the Hilbert scheme of skew lines*
- 2019 Interactions between Brauer Groups, Derived Categories and Birational Geometry of Projective Varieties, Banff international research station, Canada: *Donaldson–Thomas theory for abelian threefolds*
- 2018 Enumeration and Moduli, Oslo: *Stabilizer groups of sheaves on abelian threefolds*
- 2017 A Fall Meeting in Algebraic Geometry and Related Topics, Torino: *Degenerations of Hilbert schemes of points*
- 2017 Periods and Ricci flat manifolds, Warsaw: *Degenerations of Hilbert schemes of points*
- 2016 Mediterranean Complex Projective Geometry in Carry-le-Rouet (Marseille): *Degenerations of Hilbert schemes of points*
- 2015 VBAC 2015: Fourier–Mukai, 34 years on, Warwick: *Donaldson–Thomas invariants on abelian threefolds*
- 2014 Algebraic Geometry Days at the Mittag–Leffler Institute, Stockholm: *Degenerations of Hilbert schemes of points*
- 2010 Nasjonalt algebramøte/Stein Arild Strømme 60 (national algebra meeting), Bergen: *Endelige delskjemaer av abelske varieteter og Schottky-problemet* (Finite subschemes of abelian varieties and the Schottky problem).
- 2010 Komplexe Analysis, Oberwolfach. Short presentation: *Vector bundles on abelian threefolds*
- 2009 Nasjonalt algebramøte (national algebra meeting), Oslo: *Vektorbunter og monader på noen trefoldigheter* (Vector bundles and monads on some threefolds).
- 2006 Workshop on holomorphic symplectic varieties, Max-Planck-Institut, Bonn: *Fibrations on generalized Kummer varieties*
- 2005 Scandinavian meeting for PhD-students in algebra and algebraic geometry, Oslo: *Hilbert schemes of points on an abelian surface* (I also coorganized, with Tord Romstad, this meeting)
- 2002 Workshop on Hilbert schemes, combinatorics and vertex algebras, Centre for Advanced Study, Oslo: *Symplectic quotient singularities – after Verbitsky and Kaledin.*

Selected research seminar talks:

- October 26, 2021, Mittag-Leffler Institut, Stockholm: *Geometry of wall crossings from the Hilbert scheme of skew lines*
- February 9, 2017, Universität Augsburg: *Degenerations of Hilbert schemes of points*
- October 1, 2015, University of Oslo: *The dual cell complex of Hilbert scheme degenerations*
- November 27, 2013, University of Stavanger (Maths/Physics seminar at Sogndalstrand): *What is an abelian variety?*
- November 26, 2012, University of Stavanger (Maths/Physics seminar at Sogndalstrand): *Moduli of sheaves and Donaldson–Thomas invariants*
- March 29, 2012, University of Bergen: *Å telle knipper på Calabi–Yau og abelske trefoldigheter* (Counting sheaves on Calabi–Yau and abelian threefolds)
- March 7 2011, University of Oslo: *Effective Torelli via the punctual Hilbert scheme*
- April 13 2011, University of Bergen: *Hilbertskjemaet til en degenerert flate* (The Hilbert scheme of a degenerate surface)
- September 17 2010, Universitat de Barcelona: *Monads and the Serre construction of vector bundles on abelian threefolds*
- July 9 2010, Leibniz Universität Hannover: *Obstruction theory for perfect complexes on abelian threefolds*
- March 5 2010, University of Bergen: *Donaldson-Thomas invariants with a view toward abelian threefolds*
- October 30 2008, Max-Planck-Institut Bonn: *Fourier-Mukai transforms of line bundles on derived equivalent abelian varieties*
- December 5 2007, Royal Institute of Technology/Stockholm University: *Classical GIT quotients as stacky Proj*
- January 25 2007, Institut Mittag-Leffler: *Fibrations on (examples of) symplectic varieties*
- December 14 2005, Royal Institute of Technology/Stockholm University: *Lagrangian fibrations on generalized Kummer varieties*
- November 21 2005, University of Oslo: *Birasjonale symplektiske varieteter* (Birational symplectic varieties)
- February 21 2005, University of Oslo: *Om abelske fibrasjoner av irreducibile symplektiske varieteter* (On abelian fibrations on irreducible symplectic varieties)
- April 26 2004, Johannes Gutenberg Universität Mainz: *Low dimensional moduli spaces of sheaves on abelian surfaces*
- February 23 2004, University of Oslo: *Low dimensional moduli spaces of sheaves on an abelian surface*
- February 24 2003, University of Oslo: *Towards a resolution of singularities of the punctual Hilbert scheme of a surface*

Popularized talks:

- Corona shutdown video talk: *On the geometry of viruses, after Viggo Brun, 2020*

- Wide world of maths lecture series, University of Stavanger: *What is pure maths?*, 2019
- Årsmøtet i Norsk Matematikkråd: *Abelprisvinneren 2019, Karen Keskulla Uhlenbeck*
- Mathematical Circle (no credits): biweekly evening meetings for high school students around geometry, topology and combinatorics, 2019
- School visit: *Klokken, 12-tone-musikk og kryptografi* (The clock, 12 tone music and cryptography), Randaberg videregående skole, 2014
- Torsdagsseminar i naturvitenskap (the Thursday science seminar), University of Stavanger: *Aritmetisk geometri: Fra pytagoreiske tripler til Fermats siste sats og Faltings teorem* (Arithmetic geometry: from Pythagorean triples to Fermat's last theorem and Falting's theorem), 2013.
- "Mattelørdag": special day of systems of differential equations for high school students (no credits), University of Stavanger, 2012
- Matematisk forum för lärare (mathematical forum for teachers), Royal Institute of Technology, Stockholm: *Pythagoras sats och punkter på kurvor med rationella koordinater* (The Pythagorean theorem and points on curves with rational coordinates), 2007.

TEACHING EXPERIENCE

PhD students:

- Sammy Alaoui Soulimani, PhD candidate (2023): "Bridgeland stability conditions and the Hilbert scheme of skew lines in projective space"
- Andrea Ricolfi (2017): "Local Donaldson–Thomas invariants and their refinements". With Lars Halle (Copenhagen) as coadvisor.

Supervision of bachelor/master projects:

- Omega Zimba (master, 2023): The unicity of a blow-down
- Fredrik Myhre Gjerde (master lektor, 2021): Generaliseringer av Brianchon og Pascal sine teoremer om kjeglesnitt
- Endrit Kukalaj (master, 2020): Geometry of secants
- Didrik Seland (bachelor lektor, 2020): Knuter og rasjonale floker
- Olav Hansen Hjellup (bachelor lektor, 2020): Introduksjon i rasjonale floker
- Marius B. Mahiout (bachelor, 2019): Algebraic curves
- Fredrik Myhre Gjerde (bachelor lektor, 2019): En introduksjon til kjeglesnitt
- Alida Hjelljord (bachelor, 2018): Gröbner bases and their applications
- Karianne Tesaker (bachelor lektor, 2018): En introduksjon til representasjonsteori
- Kristoffer Skjæveland Larsen (bachelor, 2016): Invariants of Binary Forms

Courses lectured:

- "Matrix Groups", University of Stavanger, 2023
- "History of Mathematics", University of Stavanger, 2023 and 2024
- "Linear Algebra", University of Stavanger, 2020
- "Algebraic Geometry", University of Stavanger, 2018 and 2020
- "Abstract Algebra", University of Stavanger, 2019 and 2024
- "Groups and Symmetry", University of Stavanger, 2016

- “Discrete Mathematics”, University of Stavanger, 2015, 2017, 2018 and 2019
- “Field theory”, University of Stavanger, 2015
- “Matematiske metoder 1” (one variable calculus), University of Stavanger, 2013 and 2014
- “Matematikk B” (power series methods and vector calculus), Stord/Haugesund University College, 2010, 2011 and 2012
- “Matematikk A” (one variable calculus and linear algebra), Stord/Haugesund University College, 2009
- Thermodynamics and fluid mechanics (a third of the course “Teknisk sikkerhet II”), Stord/Haugesund University College, 2009, 2010 and 2011
- “Matematikk 2” (vector calculus and linear algebra), Norwegian University of Science and Technology (Trondheim), 2006
- One variable calculus (“MAT100A”), University of Oslo, 2002

Other:

- Geometric invariant theory (10 ECTS credits): advisor for guided self study course, University of Stavanger, 2015
- Deformation theory (10 ECTS credits): advisor for guided self study course (with Lars Halle), University of Stavanger, 2014
- Advanced minicourse: Four lectures on “Local aspects of geometric invariant theory” (no credits), Royal Institute of Technology (Stockholm), 2008

ASSESSMENT WORK

- During 2009–2024, I have refereed manuscripts for Abel Symposia, Algebraic Geometry, Bulletin de la SMF, Geometry & Topology, Journal of LMS, Mathematica Scandinavica, Mathematische Zeitschrift, Proceedings of the LMS, Results in Mathematics, Transformation Groups and Kyoto Journal of Mathematics.
- Member of the PhD committee for the thesis and defence of Fredrik Meyer, University of Oslo, 2017.
- Member of the PhD committee for the thesis and defence of Daniel Bergh, Stockholm University, 2014.
- External examiner for the master degrees of Jarle Stavnes (Oslo, 2014), Astri Strand Lindbæck (Oslo, 2015), Ståle Zerener Haugnæss (Oslo, 2015), Thomas Howard (Oslo, 2015), Martin Helsø (Oslo, 2016), Håvard Bjørgum (Oslo, 2016), Yngve Are Antonsen (2016), Magnus Røen Vodrup (Oslo, 2017), Morten Øygarden (Bergen, 2018), Søren Gammelgaard (Oslo, 2018), Anne Brugaard (Oslo, 2023), Peter Stavelin (Oslo, 2023).
- External examiner for the course “Derived categories”, University of Bergen, 2016
- External examiner for the course “Algebraic geometry II”, University of Oslo, 2015, 2016, 2017, 2018, 2020, 2021, 2022, 2023.
- External examiner for the course “Algebraic geometry I”, University of Oslo, 2018, 2019, 2020, 2022.
- External examiner for the course “Diskret matematikk I og lineær algebra” (Discrete maths and linear algebra), Bergen University College, 2010

- External examiner for grade appeals for the courses “Ingeniørmatematikk” I, II and III (Mathematics for engineering), Østfold University College, 2009, 2009, 2010, 2012, 2012

ADMINISTRATION

- Representative for the University of Stavanger, Norwegian Mathematical Council (Norsk matematikkråd), since 2019
- Leader of the Department Council at the Department of Mathematics and Physics, University of Stavanger, since 2018
- Organizer, with Bergström, Lahoz, Meachan and Rydh, of the workshop: “Sheaves, curves and moduli”, Stavanger 2018.
- Organizer, with Lahoz and Meachan, of the workshop: “Derived categories and moduli spaces”, Stavanger 2015.
- Member of the organizing committee for the local Abel Prize event, Stavanger 2014.
- Chair of the evaluation committee for a position as Associate Professor in Mathematics, Stavanger 2014.
- Representative for Stord/Haugesund University College, Norwegian Mathematical Council (Norsk matematikkråd), 2011–2013
- Contact person at Stord/Haugesund University College for mathematics in engineering education, The Norwegian Association of Higher Education Institutions (Universitets- og Høgskolerådet), 2011–2013