

# Gunther Cornelissen • curriculum vitæ • publication list appended • March 17, 2022

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Born July 4th, 1971 — Gent (Belgium)  
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## Current position

*Professor of mathematics*  
Chair in Geometry and Number Theory  
Universiteit Utrecht, The Netherlands

## Areas of specialization

Number theory | Arithmetic & algebraic geometry  
Graph Theory | Differential Geometry | Logic | Mathematical physics

## Appointments held (↑)

2019 Universiteit Utrecht, promoted to full professor H1 (highest departmental level)  
2015-2017 Universiteit Utrecht, Head of Department of Mathematics  
(Mathematical Institute & Science Education Institute)  
2014 University of Warwick (UK); visiting professor (1.5 months)  
Caltech (USA); visiting professor (1.5 months)  
2012- Universiteit Utrecht, full professor H2; Core Chair “Geometry and Number Theory”  
2007-2012 Universiteit Utrecht; full professor; Profile Chair “The interaction between mathematical physics  
and arithmetic geometry”  
2001-2007 Universiteit Utrecht; lecturer; ’03/’05 part-time parental leave  
2001 Katholieke Universiteit Leuven (Belgium); part-time visiting professor  
1997-2001 Max-Planck-Institut für Mathematik (Bonn, Germany); researcher  
1996 Universität des Saarlandes (Saarbrücken, Germany); one month research assistant  
1993-2001 FWO (Flemish National Science Foundation, Belgium); pre-/post-doctoral researcher  
1993-1997 Universiteit Gent (Belgium); research and teaching assistant

## Grants, honours, named lectures & awards (↑)

2020 Research Member MSRI Program *Decidability, definability and computability in number theory* (online in 2020; 1 month offline follow-up in 2022)  
2017 Utrecht Faculty of Science Westerdijk Award (for creating a more diverse organisation)  
2017 Morning speaker, 69<sup>th</sup> *British Mathematical Colloquium*, Durham  
2014 Invited research professor, *Trimestre on noncommutative geometry*, Hausdorff Institute (Bonn)  
2012 Elected member of the *Royal Holland Society of Sciences and Humanities* (KHMW)  
2012 Twenty-first annual *Charles R. DePrima* memorial lecturer, Caltech  
2011 Elected *Arbeitstagung* speaker, Bonn  
2009 Speaker at *Joint New York Number Theory Seminar* (Columbia/CUNY/NYU)

- 2009 Invited researcher, *Hausdorff Institute* (Bonn), Trimestre on diophantine equations (declined)
- 2007 Invited speaker at the *Clay Mathematical Institute* (Boston)
- 2004 Berkeley/MSRI semester-long visiting professorship (declined)
- 2002;07 Nominated best junior teacher at Universiteit Utrecht by mathematics student union
- 1997–2000 Max-Planck-Gesellschaft one year research scholarship (repeatedly offered)
- 1993–2001 FWO pre- and postdoctoral research scholarship (full salary & benefits)

### individual grants

- 2021 NWO ENW-M grant for PhD position (€ 300,000)
- 2012 NWO GQT-cluster PhD position grant (€ 170,000)
- 2009 Partial funding for PhD position from University Focus Area Grant “Foundations of Natural Sciences” (approx. € 100,000)
- 2008 NWO personal 5-year senior innovational research grant (VICI) (€ 1,250,000)  
*From arithmetic geometry to noncommutative Riemannian geometry, and back*
- 2004 NWO personal 5-year mid-career innovational research grant (VIDI) (€ 600,000)  
*Non-archimedean geometry and automorphic forms*

### collaborative grants

- 2017–2021 CS department collaboration grant; one PhD student (with Bodlaender; € 200,000)
- 2015–2021 Principal applicant “Utrecht Geometry Centre”; 4 PhD students (NWO; € 850,000)
- 2009–2014 ESF network “Interactions between low-dimensional topology and physics” (director J.E. Andersen; approx. € 600,000)
- 2007–2008 Two Dutch-French NWO Van Gogh exchange grants with Paris (with Mézard; € 9,600)
- 1997–2001 Co-principal investigator on FWO-project Algebraic Geometry (€ 11,500)

### smaller grants

- 2019 Visitor grant, DIAMANT research cluster, for Farbod Shokrieh (€ 2000)
- 2018 Visiting Professorship, UU Complex Systems Focus Area, for Matilde Marcolli (€ 2100)
- 2004 Grants for various workshops from NWO, Research schools, Research clusters, Foundation Compositio, Monna Fund and ESF (approx. € 50,000)
- 2002 NWO visitor grant for F. Kato (Kyoto) (€ 1,000)
- 1997 Travel grant from Wuytack Fund (€ 1,500)

### Marie-Curie Fellow grants

- 2017 Marie-Curie grant for Ana Ros Camacho (€ 166,000; proposal written by Ros Camacho)
- 2015 Marie-Curie grant for Martijn Caspers (€ 166,000; proposal written by Caspers)
- 2009 Marie-Curie grant for Jonathan Reynolds (€ 120,000; proposal written by Reynolds)

### Education (↑)

- 1993–1997 PhD in mathematics, Universiteit Gent, Belgium  
Supervisors: Jan Van Geel (Gent) and Ernst-Ulrich Gekeler (Saarbrücken)
- 1989–1993 Masters (“Licentiaat”) in pure mathematics, Universiteit Gent, summa cum laude  
Supervisors: Jan Van Geel (Gent) and Juliusz Brzezinski (Göteborg)
- 1993 One semester Erasmus exchange student at Chalmers Högskola (Göteborg)
- 1983–1989 High school diploma at Sint-Lievencollege Gent (main subjects: Latin/mathematics)

## Qualifications (↑)

- 2016 Administrative academic leadership track, Universiteit Utrecht (Erwin Vermeulen)
- 2016 Programme “Managing expectations in professionals”, Wheel of Change (Elmira Nijhuis)
- 2015 Training “Gender awareness”, Direction (Esther Mollema)
- 2008 Training “Assessment and development interviews”, Universiteit Utrecht (Juditha Melssen; Teun van Aken)
- 2008 Senior qualification in university teaching (SKOw), Universiteit Utrecht
- 2008 Senior qualification in research (SKOz), Universiteit Utrecht
- 2002 Basic university teaching qualification (BKOW), Universiteit Utrecht
- 1992–1996 Certificate of Swedish language (Hogeschool Gent)
- 1993 (Legal) degree in high school teaching, Universiteit Gent, magna cum laude

## Invitations (↑)

### Recent scientific invitations

- 2022 Mathematische Gesellschaft (= Colloquium), Göttingen  
Pure Mathematics Colloquium, Durham (online)
- 2021 Number theory seminar, U Wisconsin–Madison (online)  
Seminario de Álgebra, Combinatoria y Teoría de Lie, INMABB Argentina (online)  
Workshop *Arithmetic, Geometry, Cryptography, and Coding Theory*, CIRM Marseille (contributed, online)
- 2020 IMPAN number theory seminar, Warsawa (online)  
Number theory seminar, Stockholm (SU)  
Colloquium, Stockholm Mathematical Centre (KTH & SU)
- 2019 Collaborative Number Theory Seminar, CUNY Graduate Center  
Algebra Seminar, UPenn  
Mathematical Colloquium, Toronto  
Mathematisches Kolloquium, Ulm  
Shaoul Fund IAS Workshop on *Function Field Arithmetic*, Tel-Aviv
- 2018 Pure Mathematics Colloquium, Durham  
Pure Mathematics Seminar, Newcastle  
Workshop *Modular forms and automorphic functions for function fields*, CRM SNS Pisa  
Dynamical Systems Seminar, Kraków  
Conference *Dynamics: Topology and Numbers*, MPIM Bonn  
North British Functional Analysis Seminar (14 universities), Newcastle-upon-Tyne  
Colloquium, Groningen  
Algebra, geometry and number theory seminar, Leiden
- 2017 Colloquium, Münster  
British Mathematical Colloquium, Durham  
Quantum Gravity Seminar, Nijmegen
- 2016 *XIV Karlsruher Weihnachtsworkshop zur Geometrie und Zahlentheorie*, KIT Karlsruhe  
Mathematical Colloquium, Université de Luxembourg  
Oberseminar Algebra, Universität Ulm  
Workshop *Ergodic Theory & Number Theory*, Göteborg  
Colloquium (E.-U. Gekeler’s retirement), Saarbrücken  
Summer School & Conference *Noncommutative Geometry*, Villa de Leyva (5 lectures)  
Conference *Arithmétique en plat pays*, Mons

Ergodic Theory & Dynamical Systems Seminar, Kraków  
Noncommutative Geometry Seminar, Polish Academy of Sciences, Warszawa  
Mini-workshop *Operator Spaces and Noncommutative Geometry in Interaction*, Oberwolfach

### Some earlier invitations (C=Colloquium; Conf=Conference) at

AIM Palo Alto (Conf), Amsterdam UvA (C+Conf), Amsterdam VU (C), Banff (Conf), Barcelona (Conf), Benasque (Conf), HIM Bonn, MPIM Bonn (Conf), Brussels, Caen, Caltech, Clay Institute Boston (Conf), Crete, CUNY, Dagstuhl (Conf), UC Dublin, Eindhoven (C), Erlangen (C), Essen, ETH Zürich, FSU (C), Gent, Göteborg, Göttingen (C), Groningen (C), Hannover, Hiroshima (Conf), Hokkaido, ICTP Trieste (Conf), IMPA Rio (C), Kassel, Kinoshita (Conf), Köln, Kyoto, Leiden (C), Leuven, London, MPIM Bonn, Münster (Conf), Nijmegen (C+Conf), Oberflockenbach (Conf), Oberwolfach, Ohio State (Conf), Osaka, Oslo, Oxford (Conf), Saarbrücken (C), Stanford, UCLA (C), UCSD (C), UPenn, Utrecht (C), Toulouse, Vanderbilt (Conf), Versailles (Conf), Warwick, Zürich

### Educational talks & outreach & media

— at Utrecht unless indicated; NWD = ‘Nationale wiskundedagen’, Noordwijkerhout (Math teacher postgraduate event, 700 participants); VVW = ‘Vierkant voor Wiskunde’ (Math summer camp for high school students); Ouderdag = lectures for parents of mathematics students

- 2022 *Littlewood polynomials*, NWD (with David Hokken)
- 2021 Interviewed for a podcast on the future of mathematics education, Hogeschool Arnhem-Nijmegen
- 2020 Lecture *Solving polynomial equations in integers* for freshmen, As<sup>2</sup> student organisation
- 2020 Interviewed for the project *Achieving good science – A cross-disciplinary study (UvA)*
- 2020 *Graphs and matrices: from walks on graphs to complex numbers*, NWD
- 2019 *A research career in mathematics*, for mathematics honours bachelor students
- 2018-21 “U-talent” lecture for high school students
- 2017 Interviewed for Faculty Intranet and Student Society “Vakidoot” about diversity
- 2017 *Doing a PhD (or not)*, As<sup>2</sup> (Student society) Career Days
- ‘Meet the Professor’ on *Shape reconstruction* for elementary school children
- 2017;18 Webinar Masters Mathematics (video presentation for prospective students)
- Emmy Noether and symmetry*, NWD
- 2016 Interviewing Gerard ’t Hooft at Masters Introduction Graduate School of Natural Sciences
- Talk at FysiCie (Utrecht Physics Students society) on *Isospectrality*
- 2015 *Graphs and matrices*, VVW
- 2014 Interviewed about Gender policy by  $\beta$ -inspired
- Euler or Excel: how computers and calculators changed number theory*, NWD
- 2013 Internationalisation@Home panel, Universiteit Gent
- Three “U-talent” lectures for high school students
- Junior college module (high school students): *The Riemann hypothesis* (with Andringa)
- Two-day masterclass on *Diophantine equations* for high school students
- 2012 Marie Curie Colloquium (Nijmegen Physics Student Union): *One hundred years of drumming*
- Opening lecture Dutch university mathematical olympiad: *Meeting donuts*
- 2011 Work with Marcolli discussed in Marcus Y. Woo, *Unexpected connections*, in: *Engineering and Science* (Winter 2011) pp. 26–31.
- National PhD student research afternoon, Utrecht: *The work of Milnor on isospectrality*
- 2010 Interviewed (with Klaas Landsman) for N.W.O.-brochure *Mathematics clusters*, “Geometry

and Quantum Theory”-theme.

*Klein's Erlangen programme*, NWD

2009

“*Listening*” to shapes, NWD

Mathematics and Passion, Gent: *Solve, or I will shoot...*; preceded by the play “Evariste” by theater group NUNC

*Things you will never be able to do* (Undecidable problems), Ouderdag

2008–

Visited various high schools with a project on diophantine equations (e.g., in Haarlem, Woerden, Zeist)

Organized project afternoons on number theory for high school students

2008

Initiated project on polyhedra at two elementary schools in Utrecht

Lustrum lecture for student union “de Leidsche Flesch”

Initiated project Dutch subtitles for documentary about Julia Robinson; for high school use

Teacher post-graduate education at “ $\beta$  onder de Dom”; Lorentz Center

*Wonders of mathematical cooking* (Banach-Tarski paradox), Ouderdag

Consulted for *Int. J. Radiation Oncology Biol. Phys.* 72 (2008), No. 5, 1416–1425.

2007

*Listening to shapes* (Isospectrality), Ouderdag

Opening lecture Dutch university mathematical olympiad: *Diophantine equations*

2005

*How to get from A to B?* (Coarse geometry), Ouderdag

*Euler, balloons, and all that*, VVW

2004

*Looking at diophantine equations “from a distance”*, NWD

2001–

Various talks at open days for prospective students: *Can  $1 + \dots + m = 1^2 + \dots + n^2$ ?*

1995

Interviewed by Steven Stroejkens, *Fermat eindelijk overwonnen*, de Standaard (newspaper)

## Supervision & teaching (↓)

### Senior staff supervised

2012–

Dr. Jaap van Oosten, associate professor in mathematical logic

2016–2020

Dr. Damaris Schindler, assistant professor in analytic number theory

2017–

Dr. Viktor Blåsjö, assistant professor in history of mathematics

2017–

Dr. Steven Wepster, assistant professor with educational profile

2019–

Dr. Valentijn Karemaker, assistant professor in arithmetic geometry

2020–

Dr. Lola Thompson, associate professor of number theory

### Postdoc supervision

2009–2011

Bram Mesland

Jorge Plazas

Jonathan Reynolds (Marie-Curie scholarship)

2011

Lode Wylleman

2015–2018

Martijn Caspers (Marie-Curie scholarship)

2016–2019

Ana Ros Camacho (Marie-Curie scholarship & 3-year NWO veni grant)

### PhD thesis supervision (12)

2008

Oliver Lorscheid, *Toroidal automorphic forms for function fields*

2009

Jakub Byszewski, *Aspects of equivariant deformation theory* (co-supervisor Ariane Mézard)

2011

Jan Willem de Jong, *Zeta function rigidity — a view from non-commutative geometry*

2012

Jan Jitse Venselaar, *Classification & equivalences of noncommutative tori & quantum lens spaces*

2013

Janne Kool, *Curves, graphs and dynamics*



- 2014 Sebastian Klein, *Chow groups and intersection products for tensor triangulated categories* (co-supervisor Paul Balmer)
- 2016 Valentijn Karemaker, *Hecke algebras, Galois representations and abelian varieties*
- 2020 Harry Smit, *Relating Galois representations via  $L$ -series and dynamical systems*  
 Recipient of the Hendrik Lenstra Wisselbeker (best PhD lecture at DIAMANT symposium) 2018
- 2020 Timo Kluck, *Dimensional & algorithmic reductions for Calogero–Ruijsenaars & Landau–Ginzburg models* (co-supervisors Ana Ros Camacho and Johan van de Leur)
- 2021 Marieke van der Wegen, *Complexity of graph problems: gonality, colouring and scheduling* (co-supervisor Hans Bodlaender)  
 Recipient of a Swaantje Mondt Fund Travel Grant 2017–2018
- 2021 Jan-Willem van Ittersum, *Partitions and quasi-modular forms: variations on the Bloch–Okounkov theorem* (co-supervisor Don Zagier)  
 Winner of the KWG PhD Prize 2020 for the best thesis presentation  
 Winner of the Stieltjes Prize 2020 for the best Dutch PhD thesis in mathematics
- 2026 (exp.) David Hokken, *Zeros of Littlewood polynomials* (co-supervisor Lola Thompson)

### Formal PhD supervision (6)

In the Dutch system, every PhD student needs a “promotor”; a formal supervisor who is a full professor, and sometimes a formal second supervisor

- 2019 Lasse Grimmelt (promotor; daily supervisor: Damaris Schindler)
- 2022 Sophie Huiberts (promotor; daily supervisor: Daniel Dadush, CWI)
- 2020– Berend Ringeling (second promotor; daily supervisor and promotor: Wadim Zudilin; Radboud Universiteit)
- 2020– Mar Curcó Iranzo (promotor; daily supervisor: Valentijn Karemaker)
- 2021– Mireia Martínez i Selarès (promotor; daily supervisor: Viktor Blåsjö)
- 2022– Sebastián Carillo Santana (promotor; daily supervisor: Lola Thompson)

### Master thesis supervision (39)

- 2004 Syb Botma, *Tro- $p$ -adical geometry* (with Stienstra)
- 2005 Sander Bessels, *One step beyond the solvable equation*
- 2006 Marco Streng, *Elliptic divisibility sequences with complex multiplication*  
 published in *Algebra & Number Theory*, 2 (2008), No. 2, 183–208
- Ruden Teuben, *The theorem of Riemann–Roch for number fields*
- 2007 Maarten van Pruijssen, *Tautological cycles on Jacobians* (main supervisor: van der Geer)
- 2008 Esther Bod, *Hilbert’s tenth problem*
- Lotte van der Zalm, *Arithmetic equivalence*  
 published in *J. Numb. Th.* 130, (2010), 1000–1012
- 2009 Rutger de Looij, *Primes in elliptic divisibility sequences*
- Sebastian Klein, *Reconstructive geometry in certain triangulated categories*  
 Prize for best master thesis from national research cluster in geometry and quantum theory, 2009
- 2011 Jori Matthijssen, *Common divisors of elliptic divisibility sequences over function fields*
- Peter Toth, *Geometric abelian class field theory* (main supervisor: Heinloth)
- 2012 Renée Hoekzema, *Generalized causal dynamical triangulations in 2d* (main supervisor: Loll)
- 2014 Florian Kluck, *A metric in the space of spectral triples*
- Koen van Woerden, *Variation of the number of points on elliptic curves*
- Peter Lombaers, *Dessins d’enfants for surfaces*
- 2015 Jeroen Hanselman, *Semi-stable reduction and models of curves*

- 2016 Harry Smit, *Global field isomorphisms: a class field theoretical approach*  
Daniel Kroes, *Edge reconstruction of graphs*
- 2017 Tom van Overbeke, *The Euler totient function in short intervals*  
preprint arxiv:1706.04028, unpublished  
Lois van der Meijden, *Iteration of rational functions in positive characteristic*  
appendix in preprint arxiv:1706.04028, appeared in Contemp. Math.
- 2017 Maxim Faber, *Elliptic functions in condensed matter physics* (with Rembert Duine, ITF)  
Marieke van der Wegen, *Stable gonality of graphs* (with Hans Bodlaender, CS)  
preprint arxiv:1706.05670; extended abstract in WG 2018 (Springer LNCS); Best Student Paper Award;  
appeared in TCS  
Jelco Bodewes, *Divisorial gonality of graphs* (with Hans Bodlaender, CS)  
preprint arxiv:1706.05670; extended abstract in WG 2018 (Springer LNCS); Best Student Paper Award;  
appeared in TCS
- 2018 Sophie Huiberts, *How large is the shadow? Smoothed analysis of the simplex method* (main supervisor: Daniel Dadush)  
preprint arxiv:1711.05667; extended abstract in STOC 2018 (ACM Digital Library)  
appeared in Siam J. Computing  
Jeroen Huijben, *Deformation theory of group actions on curves*  
Djurre Tijsma, *Elements of finite order in the Nottingham group through automata*  
preprint arXiv:2008.04971, to appear in J. Alg.  
Marc Houben, *Dynamics on algebraic groups*  
preprint arXiv:1904.04942, appeared in Contemp. Math.
- 2019 Joost Franssen, *Essential dimension*  
Berend Ringeling, *Zeros of modular forms*
- 2020 Lars van den Berg, *Topics in the theories of means and discrete dynamical systems*  
Tysger Boelens, *Existential decidability in power series rings over finite fields*  
Alex Braat, *Behavior of primes in division fields of elliptic curves*  
Mar Curcó Iranzo, *Weierstrass points on modular curves and supersingular elliptic curves*  
Robert Slob, *Primitive divisors on elliptic curves*  
preprint arXiv:2103.06787; to appear in NYJM
- 2021 Onno van Zomeren, *Solving polynomial equations in power series using function fields: algorithms, bounds and experiments*  
David Hokken, *Zeros of Littlewood polynomials with restricted Galois group*
- 2022 (exp.) Corijn Rudrum, *Elliptic curves and class groups of hyperelliptic function fields*  
Marlien Wennekes, *Dynamics on reductions of elliptic curves modulo primes*  
Dylan Feenstra, *An adelic look at the class number formula and the Birch–Swinnerton-Dyer conjecture*  
Mieke Wessel, *Sparse power series of finite order*
- Bachelor thesis supervision (43)**
- 2002 Ryk Westwood, *Dirichlet theorem for polynomials over finite fields*
- 2003 Wouter Waalewijn, *Rank of elliptic curves under field extensions*  
Marius de Leeuw, *Integer points on elliptic curves*  
Martijn Kool, *The local-global principle for conics and elliptic curves*  
Ruden Teuben, *Fermat’s last theorem for regular primes*
- 2004 Willem Maat, *Collatz Problems*  
Jan-Willem de Jong, *Cyclotomic field extensions of  $\mathbb{Q}$  and  $\mathbb{F}_q(T)$*

- 2005 Marco Streng, *Analytic proofs of quadratic and quartic reciprocity*
- 2006 Sander Bessels, *Primes of the form  $x^2 + ny^2$*
- 2008 Joris Borgdorff, *Expanding graphs*
- 2009 Wouter van der Bilt, *Elliptic curves and class numbers*
- Johan Konter, *K-theory of graphs and buildings*  
 published in: J. Konter and A. Vdovina, Classifying polygonal algebras by their  $K_0$ -group,  
 Proc. Edinburgh Math. Soc. (2) 58 no. 2 (2015), 485–497
- Daniele Giovannini, *Elementary proofs of Dirichlet's theorem for polynomials*
- Rianne Maes, *Cryptography with elliptic curves*
- 2010 Maria Velema, *Graph puzzles and exceptional geometries*
- Thom Klaasse, *Distances between metric spaces*
- 2012 Ederick Ruiz, *Finite  $p$ -groups are nilpotent*
- 2013 Willem Pranger, *Riemann's explicit formula for the prime counting function*
- 2014 Merlijn Staps, *Sumsets and difference sets*  
 published in: The relative sizes of sumsets and difference sets, Integers 15 #A42 (2015), 6pp.
- Franziska Gerken, *The Ihara zeta function of a graph*
- 2015 Jan-Willem van Ittersum, *Mahler's measure and Möbius transformations*  
 published in: A group invariant version of Lehmer's conjecture on heights,  
 J. Numb. Th. 171 (2017), 145–154
- Thijs van der Gugten, *Fermat's last theorem for regular primes*
- Alexander Gietelink, *The noncommutative boundary of the moduli space of elliptic curves*
- Jetze Zoethout, *The edge adjacency matrix of a graph*
- Lars van den Berg, *The Riemann hypothesis for elliptic curves over finite fields*
- 2016 Ragnar Groot Koerkamp, *Computational aspects of gonality of graphs*
- Joost Franssen, *The casus irreducibilis*
- Mees Verheije, *The scarcity of polynomial with non-maximal Galois group*
- Joost Houben, *Undecidability of the spectral gap*
- 2018 Eva van Ammers, *Galois groups and Drinfeld modules*
- Rens de Heer, *Deciding solvability in radicals in polynomial time*
- Laurent Floor, *Provable security in cryptography*
- Alex Braat, *Counting functions for primes in polynomial rings*
- 2020 Joost Mein, *Divisibility sequences and primitive divisors*
- 2021 Anouk Eggink, *Cyclic extensions of function fields and power series of finite compositional order*
- Fien van Berkel, *On Frucht's theorem and universality for various classes of finite graphs*
- 2021 Levi van de Pol, *On  $m$ -curling sequences* (main supervisor: Dion Gijswijt)
- Serge van den Broek, *Lens sequences in Apollonian circle packings*
- 2022 Luke van de Kraats, *Diophantine triples and elliptic curves*
- Thom Zwamborn, *Subdividing polygons into an odd number of equal area triangles*
- Maarten van Dijk, *Modular representations and Brauer characters, & applications to manifolds*
- 2022 (exp.) Jasper Oostlander, *The Heisenberg group: group cohomology, projective representations, and quantum mechanics*
- Marloes de Roock, *Symmetric primes and Schinzel's hypothesis*

### Other supervision

- 2002– Supervision of various small first year bachelor research projects (constructibility by ruler and compass, transcendental numbers, ...) and first year master research projects (periodic points of polynomials mod  $p$ ,...)



- 2006 Jannis Visser, *Computations in the  $K$ -theory of  $C^*$ -algebras of graphs with small Betti number* [University College Science Lab SCI 291 thesis]
- 2007 Valentijn Karemaker, Brigitte Sprenger, Bruno van Albada, *Understanding sliding puzzles, Rubik's Cube, and other permutation puzzles* [Junior College Thesis (high school students)]  
 van Melsen Prize for best science highschool thesis  
 & prize winner at European Young Investigators Conference (St.-Petersburg)
- Puspita Sari, *Graph puzzles* [Master's Thesis in Mathematics Education (half of the thesis concerning mathematics research)]
- 2009 Saskia Chambille, Tessa Matser, Marisse Westbroek, *Gödel's theorem under a variable logic* [Junior College thesis (high school students)]
- Alvaro Veliz Osorio, *Holographic dendrology* [Master class "Calabi-Yau Geometries" essay]
- 2010 Ori Yudilevich, *Zeta functions on Riemannian manifolds and noncommutative spaces* [Master class "Arithmetic geometry and noncommutative geometry" essay]
- Javier Saenz, *On the group completion of the fundamental group of a compact Riemann surface* [Master class "Arithmetic geometry and noncommutative geometry" essay]
- 2015 Bobby Subroto, *Group cohomology* [honours project]
- 2020 Koen Olij and Arthur van Ooijen, *Coxeter groups* [honours project]
- 2021 Benjamin Mason and Charlie Tang, *The role of the axiom of choice in abstract algebra* [honours project]
- Bjorn Kiezebrink, *Historical evolution of the group theory concept* [honours project]

#### Teaching (at Utrecht, unless stated otherwise)

- 1993 *Calculus* (High school teaching Lyceum; St.-Lievenscollege Gent, 4 weeks)
- 1993–1997 T.A. for *Algebra* (Gent, 2nd year) T.A. for *Computer algebra* (Gent, 3rd year)
- 2001 *Riemann surfaces* (Leuven, masters)  
*Mathematics for Chemists: vector calculus* (bachelor level; evening classes)  
*Algebraic number theory* (3rd year)
- 2001 *Algebra A (Rings)* (2nd year)  
*Algebra B (Groups)* (2nd year)  
*Algebra C (Galois theory)* (2nd year)
- 2002;03;08 *Caleidoscope of mathematics* (1st year); lecture on "Rational points on conics"
- 2002 *Rings* (2nd year)  
*Groups and Galois theory* (2nd year)  
*Elliptic curves* (3rd year) (2nd year)
- 2003 *Group theory* (2nd year)  
*Galois theory* (2nd year)  
*Seminar on  $p$ -adic numbers* (3rd year, following a book by Cassels)
- 2004 *Rings and Galois theory* (2nd year)  
*The Mordell-Weil theorem for abelian varieties* (Spring School Abelian Varieties; 7h)
- 2005 *Group theory* (2nd year)
- 2006 *Rings and Galois theory* (2nd year)
- 2007 *Arithmetic of elliptic curves* (Summer School; 6h)
- 2008 *Elliptic curves* (national masters)  
*Topics in mathematical research:  $K$ -theory of graphs* (Gent, guest lecture; 4h)
- 2008;09 *Diophantine equations: possibilities and impossibilities* (Junior College Utrecht; highschool Mathematics level D)
- 2009 *Moduli of elliptic curves* (masters)

- 2010 *Seminar on Fuchsian groups* (masters, following a book by Katok)  
*Seminar on spectral triples* (masters, following original papers)
- 2011 *Seminar on metric spaces* (bachelor, following a book by Burago-Burago-Ivanov)  
*What is mathematics?* (bachelor, 1st year)
- 2012 *21st century notions of “space” in mathematics* (Descartes College; university-wide honours)  
*What is mathematics?* (bachelor, 1st year)  
*Seminar on quadratic forms and L-series* (bachelor, following a book by Serre)
- 2013 *Seminar on Galois groups and fundamental groups* (masters, following a book by Szamuely)  
*Group Theory* (bachelor, 2nd year)  
*Seminar on Fourier analysis on number fields* (masters, following a book by Ramakrishnan and Valenza)  
*Honours bachelor seminar on graph theory* (bachelor; with F. Beukers and T. Müller)
- 2014 *Group Theory* (bachelor, 2nd year)
- 2015 *Seminar on Arithmetic on Curves* (masters, following papers; with C. Faber)  
*Orientation on research in geometry* (coordinator & presented 6h lectures on  $L$ -series)
- 2016 *Seminar Advanced Topics in Elliptic Curves* (masters; with V. Karemaker, following a book by Milne and papers)  
*p-adic numbers* (6h, bachelors; Summer School)  
*Orientation on research in mathematics* (coordinator & presented 4h lectures on isospectrality)
- 2017 *Seminar Number Theory: Local-global principles* (masters; with D. Schindler and H. Smit), following books by Poonen and Davenport)  
*PhD research training* (for honours masters students; with H. Smit)  
*Zeta functions* (6h, bachelors; Summer School)
- 2018 *Orientation on research in mathematics* (coordinator)  
*Seminar Number Theory: Quadratic forms* (masters; with D. Schindler and H. Smit)  
*PhD research training* (for honours masters students; with J.W. van Ittersum)  
Lecture at matching days
- 2019 *Seminar Number Theory: Applications of modular forms* (masters; with J.W. van Ittersum and H. Smit)  
*Academic CV writing* (for honours masters students; with J.W. van Ittersum)  
*Communicating Mathematics* (bachelor, 2nd year)
- 2020 *Seminar Number Theory: Expanding graphs* (masters; with J.W. van Ittersum, H. Smit and Marieke van der Wegen)  
(for honours masters students; with J.W. van Ittersum)  
*Communicating Mathematics* (bachelor, 2nd year)  
*Introduction to groups and rings* (bachelor, 1st year)
- 2021 *Seminar Number Theory: Arithmetic dynamics* (masters; with V. Karemaker)  
*Academic CV writing* (for masters students; with David Hokken)  
*Communicating Mathematics* (bachelor, 2nd year)  
*Introduction to groups and rings* (bachelor, 1st year)
- 2022 *Seminar Number Theory: Arithmetic manifolds* (masters; with L. Thompson)  
*Communicating Mathematics* (bachelor, 2nd year)  
*Introduction to groups and rings* (bachelor, 1st year)

## Service to the profession (↓)

### Editorships

- 2006-2009 Zebra (book series for high school students)
- 2008-2013 Nieuw Archief voor Wiskunde (Dutch Mathematical Society magazine)
- 2018- Indagationes Mathematicae (since 2019 coordinating editor for algebra, number theory and algebraic geometry)

### Guest Editorships

- 2005 (edited with Frans Oort) *Problems from the workshop on “Automorphisms of Curves”* (Leiden, August, 2004), Rend. Sem. Mat. Univ. Padova **113** (2005), 129–177; updated version published 2019 as Appendix 2 “Automorphisms of curves—2005 collection” in: Open problems in arithmetic algebraic geometry, pp. 285–293, Adv. Lect. Math. (ALM) **46**, Int. Press, Somerville, MA
- 2008 (edited with Gerard Albers, Patrick Ooninx and Martin Raussen) *Amsterdam Archive*, special issue of Nieuw Arch. Wiskd. (5) **9**, nr. 2 (June 2008), issued on the occasion of the fifth European Congress of Mathematics, Amsterdam, July 13–18, 2008
- 2013 (edited with Gianni Landi) Special issue *Noncommutative Algebraic Geometry and its Applications to Physics* (Leiden, March, 2012), Journal of Geometry and Physics
- 2020 (edited with Jan van Neerven) Special issue in memory of *Hans Duistermaat*, Indagationes
- 2021 (edited with Eric Opdam) Special issue (3 volumes) in memory of *T.A. Springer*, Indagationes

### Memberships of professional & learned societies

- 2005- Koninklijk Wiskundig Genootschap (Dutch Mathematical Society)
- 2005- American Mathematical Society (Life long member)
- 2006- DIAMANT research cluster (Discrete, Interactive and Applied Mathematics, Algebra and Number Theory)
- 2006- GQT research cluster (Geometry and Quantum Theory)
- 2012- Koninklijke Hollandsche Maatschappij der Wetenschappen (Royal Holland Society of Sciences and Humanities; elected member)

### Conference & Seminar Organisation

- 1996 *Drinfeld modules, moduli schemes and applications* (Alden-Biezen); with Van Geel.
- 1999 *Hilbert’s 10<sup>th</sup> problem: relations with arithmetic & algebraic geometry* (Gent); with Denef et al.
- 1998–2001 weekly Oberseminar MPIM (Bonn)
- 1998–2001 weekly number theory lunch seminar MPIM (Bonn)
- 2000 *Arithmetic geometry*, meeting BMS/DMV meeting (Liège); with Huber, Künemann, Veys
- 2001 *Day on 200 years of number theory after Gauss* (Gent), with Van Geel
- 2001– Various Dutch Intercity Seminars on Number Theory at Utrecht
- 2002 Mini-workshop *Hilbert’s tenth problem, Mazur’s conjecture and divisibility sequences* (Oberwolfach); with Matijasevich, Shlapentokh, Vsemirnov, Zahidi
- Intercity Learning Seminar *Automorphic forms that admit an infinite series expansion*; with Dijkgraaf, Heckman, Looijenga
- 2003–2006 Weekly colloquium Utrecht; with Crainic, van de Leur
- 2004 *Automorphisms of curves* (Leiden); with Oort
- 2005 *Arithmetic geometry and high energy physics* (Leiden); with Marcolli, Waldron
- 2008 *Applications of noncommutative geometry* at ECM (Amsterdam); with Landsman

- GQT meets DIAMANT (cluster meeting) (Leiden); with Draisma  
*Genus two day*, Utrecht  
 12<sup>th</sup> *Workshop on Elliptic Curve Cryptography* (ECC), Utrecht; with Bernstein et. al.
- 2009 *The analytic theory of automorphic forms* (Utrecht); with Beukers  
 Seminar day  $\Delta$  and  $\Delta$ : *number theory and global analysis* (Utrecht)  
*Aachen-Köln-Lille-Siegen-etc. seminar day on modular forms* (Utrecht); with Bruinier
- 2010 Intercity seminar day on *Number theory and physics* (Utrecht)
- 2011 Intercity seminar day on *Number theory and measure theory* (Utrecht)  
 WONDER-afternoon on the work of Milnor (Utrecht)
- 2012 WONDER-afternoon on the work of Szemerédi (Amsterdam); with Eisner  
 Mini-symposium on *Noncommutative spaces* (Utrecht)  
*Noncommutative algebraic geometry and physics* (Leiden); with Bruzzo, Landi, Roubtsov
- 2013 WONDER-afternoon on the work of Deligne (Delft); with van Neerven  
*Special functions and special numbers* (Utrecht); with Dahmen  
 Mini-symposium on *combinatorics & arithmetic geometry* (Utrecht)  
 Intercity seminar day on *Gonality* (Utrecht)
- 2013-2014 *Geometry and Quantum Theory Graduate School & Colloquium* (Woudschoten); with Cavalcanti, Posthuma and Solleveld
- 2013-2017 Seminar *Geometry and Algebra* (Utrecht); with Faber
- 2014 WONDER-afternoon on the work of Sinai (Eindhoven); with Koren  
 Berkovich Skeletons: a minicourse by Nicaise and Payne (Utrecht); with Draisma  
 Intercity seminar day on *Number Theory and Algebraic Groups* (Utrecht)  
 Mini-symposium on *Triangulated categories & algebraic geometry* (Utrecht)
- 2015 *Aachen-Köln-Lille-Siegen-etc. seminar day on modular forms* (Utrecht); with Zwegers
- 2016 Mini-symposium *Hecke meets Galois* (Utrecht)
- 2018 Utrecht Geometry Centre Masterclass on *Topological Data Analysis* (Utrecht); with Moerdijk  
*Aachen-Köln-Lille-Siegen-etc. seminar day on automorphic forms* (Utrecht); with Moree
- 2019 Intercity Number Theory Seminar (Utrecht)  
 2-day workshop on *Complexity of Chip Firing and Sandpile Models* at Utrecht Centre for Complex Systems Studies; with Bodlaender
- 2022 Combined meeting *Arithmétique en plat pays / Getaltheorie in het vlakke land & Intercity Number Theory Seminar* (Utrecht)

### Reviewing & Refereeing

- 1999- Referee for journals (with multiplicities): Acta Arith., Acta Math., Adv. Math., Am. J. Math., Ann. E.N.S., Ann. Inst. Fourier, Ann. K-theory, Archiv Math., Comm. Numb. Th. Phys., Compos. Math., C.R.A.S., Discrete Math., Duke Math. J., Illinois J. Math., Indagationes Math., Integers, I.M.R.N., Int. J. Numb. Th., Israel J. Math., J. Algebra, J. A.M.S., J. E.M.S., J. Geom. Phys., J. London Math. Soc., J. Noncommut. Geom., J. Numb. Th., J. Pure Appl. Alg., Lett. Math. Phys., Math. Ann., Math. Proc. Camb. Phil. Soc., M.R.L., Pacific J. Math., *p*-adic Numb. Ultrametric Anal. Appl., Proc. A.M.S., Proc. Edinburgh Math. Soc., Quarterly J. of Math., Ramanujan J., etc.; as well as various proceedings volumes
- 1999-2015 Reviewer for *Zentralblatt der Mathematik* (approx. 3 reviews per year, total 45)
- 1999- Referee for ANR, DFG, EPSRC, ERC, ESF, FONDECYT, FWO, ISF, NSERC, NSA, NSF, NWO
- 2015- Evaluation for various tenure/promotion proposals (Greece, UK, USA,...)
- 2005-2006 Selection committee for NWO personal early career grants (VENI)
- 2009-2011 Selection committee for NWO MEERVOUD programme (“more women in exact sciences”)

- 2012 Selection committee for NWO-EW Free Competition grants  
 2013 Selection committee for NWO-EW TOP-2 Grants (Chair)  
 2016 ESF Lead reviewer for the mathematical research unit, University of Luxemburg  
 2017- ESF College of Expert Reviewers, member  
 2018 Evaluation panel Clusters of Excellence in mathematics (DFG)  
 2019 Evaluation panel Graduiertenkolleg (DFG)

### PhD thesis evaluation committees

— R=reading committee, E=exam committee; at Utrecht Mathematics unless indicated

— In the period 2015-2018, I chaired (most) PhD defenses ex officio, so I could not be on the committee

- 1999 Karim Zahidi (R, Gent)  
 2001 Francis Gardeyn (R, ETHZ/Gent)  
 2008 Rogier Swierstra (R), Cécile Poirier (R, RuG/Toulouse); Sander Dahmen (R), Giorgio Trenti-  
 naglia (R), Alex Boer (E), Camilo Arias Abad (E)  
 2009 Charlene Kalle (E), Vincent van der Noort (E)  
 2010 Marco Streng (R, Leiden), Andor Lukacs (E), Jeroen Sijssling (R), Marius de Leeuw (R, UU  
 Physics), Pjotr Negadailov (E)  
 2011 Dave Carchedi (R), Maarten van de Meent (R, UU Physics), Job Kuit (E), Vadim Gorin (E),  
 Bora Yalkinoglu (E, Paris 8)  
 2012 Bart van den Dries (E), Timothy Budd (R, UU Physics)  
 2013 Simen Rustad (R, Oslo), Ionut Marcu (E), Bas Fagginger-Auer (E)  
 2015 Athanasios Angelakis (R, Leiden), Roberta Iseppi (R, Nijmegen); Enrico Varela (R, Saar-  
 brücken)  
 2018 Joost Nuiten (E)  
 2019 Maria Montanucci (R, Salento), Tom van der Zanden (E, UU CS), Ties Laarakker (R), Garnet  
 Akeyr (R, Leiden), Gabriele Dalla Torre (E, Leiden)  
 2021 Annemiek van Leendert (R, UU FI), Joey van Langen (R, VU Amsterdam)  
 2022 Sergej Monavari (R)

### Other service to the profession

- 2007- Problem author at the Dutch University Mathematics Olympiad (LIMO)  
 2009-2013 Board of Mathematical Cluster GQT “Geometry and Quantum Theory”  
 2010 Co-author of research self-assessment of GQT  
 2009-2011 Director of the Research school “Mathematical Research Institute” (MRI)  
 2009-2014 Board and steering committee ESF-network “Interaction of low-dimensional Topology and  
 Physics” (ITGP)  
 2011-2014 (Founding) director Dutch Research Graduate School for Mathematics (WONDER)  
 2011 Examiner (mathematics) for Unitas’ “375 years Utrecht University: Knowledge Game”  
 2012 Search committee professor of non-commutative geometry at Antwerp  
 2012 Search committee professor of algebra and number theory at Antwerp  
 2012 Search committee associate professor at QGM/Aarhus  
 2012 Committee Update of Dutch Masterplan for Mathematics (NWO)  
 2012 Committee on “learning outcomes” for Flemish mathematics Bachelors/Masters (VLIR)  
 2012- Program committee “Nationale Wiskunde Dagen” (Math Teacher’s Event)  
 2012-2020 Vice-chair of the National committee on Mathematical Research (Platform Mathematics)  
 — co-authored policy documents on implementation of Delta/Sectorplan, diversity, grant schemes, ...  
 2013-15;19 Selection committee ASML Young Talent Prize for mathematics students



- 2015 Search committee professor of algebraic geometry at ULB Brussels
- 2016 Selection committee for the 2017 Brouwer Medal (tri-annual prize of the KWG)
- 2017 Search committee tenure-track assistant professor at TU Delft
- 2018-2020 Member of the Mathematics Round Table, advisory committee of NWO Domain Sciences
- 2018 Selection committee for the Martinus van Marum prize (KHMW)
- 2019 Keynote on “diversity in hiring”, TUDelft EWI Faculty
- 2019 Speaker and panelist “Fixing the leaky pipeline” at European Women in Mathematics–NL
- 2020 Invited participant “Cross-disciplinary deliberations on the importance of difference in science”, UvA/AMC
- 2020 Search committee for a faculty position in geometry at VU Amsterdam
- 2021 Appointment committee for a professorship in geometry at RU Nijmegen
- 2021 Selection committee for the N.G. de Bruijn prize
- 2022 External assessor for senior position in pure mathematics at Newcastle (UK)

### Service to the university

- 2002 Curriculum committee for the Bachelor “Mathematics and Applications”
- 2007-2009 Departmental advisory board
- 2008 Teaching qualification committee
- 2007 Chairman advisory committee on the future of the mathematical institute
- 2009 Chairman committee on efficient teaching (curriculum review)
- 2009 Search committee for a chair “ICT use in mathematics education”
- 2009 Co-author and coordinator of the departmental research self-assessment 2003-2008
- 2010-2013 Advisory committee for grant applications in natural sciences (2012- Chair)
- 2011 Interdisciplinary “Task force mathematical institute”
- 2011 Nominator for Tom Ward (UEA) as *F.C. Donders* visiting professor
- 2011- Ambassador of natural sciences at Utrecht (faculty reorganization subcommittee)
- 2011 Co-author departmental strategic plan
- 2011 Committee on tenure/hiring criteria
- 2011- Chair of the Monna Trust committee
- 2012 Search committee for two full professors
- 2012 Chair of search committee for one assistant professor
- 2012 Committee on midterm research evaluation
- 2013 Chair of search committee for one assistant professor
- 2013 Chair of assessment committee for a profile chair in Scientific Computing
- 2013 Faculty project team Gender
- 2014 Member of search committee for an endowed chair on Public understanding of science
- 2015 Search committee for two assistant professors/Westerdijk Fellows (ex officio)
- 2015-2018 Chair of the department of mathematics (mathematical & science education institute)
- Major projects initiated or (co-)executed:
- Refurbishment of Library/Discussion rooms for students/staff (outcome: labelled “top-program”)
  - 6-yearly research evaluation (outcome: highest possible - “excellent” in research, relevance and viability)
  - Introduction of an independent management structure for the science education institute
  - Introduction of informal lunch meetings & new quarterly colloquium
  - Negotiations for university professor appointment in mathematics
  - Gender policy; increase in percentage of female research staff from 7% to 15%
  - PhD student scan and workshop on PhD supervision (with Elmira Nijhuis and Jason Frank)
- 2015 Review committee of bachelor curriculum mathematics, with special attention for algebra and

## modelling

- 2016 Committee on scientific scan of professors in CS department
- 2016 Hiring committee for Head of Support, Science Faculty
- 2016 Search committee for two assistant professors (ex officio)
- 2016 Review committee of bachelor curriculum mathematics, with special attention for analysis
- 2017 Organisation of the exhibit “Women in Mathematics throughout Europe” (Sylvie Paycha; Noel Matoff)
- 2017 Organisation of an interactive interview with Alan Sokal (of “Impostures Intellectuelles”) on the relation between natural and social sciences
- 2018 Initiated a match-making event between female junior and senior staff in the science faculty
- 2018 Opening the project “Development without borders” of Faculty of Science
- 2018 Committee review of natural science honours track
- 2018-20 Running a ‘meet the expert’-session in the UU Research Leadership course, on “Creating and maintaining diversity”
- 2018- Member of the mathematics curriculum committee
- 2019 Advisory committee for ERC Consolidator Grant applications
- 2019- Member of a pool of mentors for senior faculty members (university-wide)
- 2019 Hiring committee for a professor in physics
- 2019 Co-author Sector Plan application (outcome: government sponsored  $6\frac{1}{2}$  new positions in the department)
- 2019 Search committee for several assistant professors
- 2019 Evaluation committee for a chair in computer science
- 2019 Promotional video “Master Mathematical Sciences Utrecht University”
- 2019 Chair of the faculty wide committee on promotion criteria
- 2019 Figurehead in a campaign for the use of knowledge clips in education (Educate-IT)
- 2019 Organisation of a movie screening of “The Discrete Charm of Geometry” for students and staff, with director Ekatarina Eremenko (with Joke Daemen)
- 2020-2021 Faculty-wide promotion committee to professor level H1 (chair)
- 2021 Advisory committee for faculty positions in logic
- 2021,22 Open Days Bachelor Mathematics (presenter)
- 2022 Faculty-wide committee for promotion to full professor (chair)
- 2022- University-wide committee for promotion to professor level H1 (chair)
- 2022 Departmental committee on academic skills in the bachelor

**Research articles in refereed journals & refereed conference proceedings**

- 1995 [1] *Sur les zéros des séries d'Eisenstein de poids  $q^k - 1$  pour  $GL(2, \mathbb{F}_q[T])$* , C. R. Acad. Sci. Paris, **321**, Ser. I (1995) 817-820.
- 1997 [2] *Drinfeld modular forms of level  $T$* , in: Drinfeld modules, modular schemes and applications (eds. E.-U. Gekeler et al.), pp. 272-281, World Scientific - Singapore, 1997.
- [3] *Drinfeld modular forms of weight one*, J. Numb. Th. **67**, nr. 2 (1997), 215-228.
- 1999 [4] *Stockage diophantien et hypothèse abc généralisée*, C. R. Acad. Sci. Paris, **328**, Ser. I (1999), 3-8.
- [5] *Zeros of Eisenstein series, quadratic class numbers and supersingularity for rational function fields*, Math. Ann. **314**, nr. 1 (1999), 175-196.
- [6] *Deligne's congruence and supersingular reduction of Drinfeld modules*, Arch. der Math. **72** (1999), 346-353.
- 2000 [7] (with Karim Zahidi) *Topology of diophantine sets: remarks on Mazur's conjectures*, in: Hilbert's Tenth Problem: Relations with arithmetic and algebraic geometry, Contemp. Math. **270** (2000), 253-260.
- 2001 [8] (with Fumiharu Kato and Aristides Kontogeorgis) *Discontinuous groups in positive characteristic and automorphisms of Mumford curves*, Math. Ann. **320**, nr. 1 (2001), 55-85 [Correction **376**, nr. 1 (2020), 821-822].
- [9] *Two-torsion in the Jacobian of hyperelliptic curves over finite fields*, Arch. der Math. **77** (2001), 241-246 [Loose erratum: **85** (2005), no. 6].
- [10] *The 2-primary class group of certain hyperelliptic curves*, J. Numb. Th. **91**, nr. 1 (2001), 174-185.
- 2003 [11] (with Fumiharu Kato) *Equivariant deformation of Mumford curves and of ordinary curves in positive characteristic*, Duke Math. J. **116**, nr. 3 (2003), 431-470.
- [12] (with Fumiharu Kato) *Mumford curves with maximal automorphism group II: Lamé type groups in genus 5-8*, Geom. Dedicata **102** (2003), 127-142.
- 2004 [13] (with Fumiharu Kato) *Mumford curves with maximal automorphism group*, Proc. A.M.S. **132** (2004), 1937-1941.
- 2005 [14] (with Fumiharu Kato) *Zur Entartung schwach verzweigter Gruppenoperationen auf Kurven*, J. reine und angew. Math. **589** (2005), 201-236.
- [15] (with Karim Zahidi and Thanases Pheidas) *Division-ample sets and the Diophantine problem for rings of integers*, J. Théorie des Nombres de Bordeaux **17** (2005), 727-735.
- [16] *Lifting an automorphism to finite characteristic*, Rend. Sem. Mat. Univ. Padova **113** (2005), 137-139.
- 2006 [17] (with Ariane Mézard) *Relèvements des revêtements de courbes faiblement ramifiés*, Math. Z. **254** (2006), 239-255.
- 2007 [18] (with Karim Zahidi) *Elliptic divisibility sequences and undecidable problems about rational points*, J. reine und angew. Math. **613** (2007), 1-33.

- [19] (with Matilde Marcolli, Kamran Reihani and Alina Vdovina) *Noncommutative geometry on trees and buildings*, in: *Traces in Geometry, Number Theory and Quantum Fields* (eds. S. Albeverio et. al.), *Aspects of Math. E* **38**, pp. 73-98, Vieweg Verlag (2007).
- 2008 [20] (with Oliver Lorscheid and Matilde Marcolli) *On the  $K$ -theory of graph  $C^*$ -algebras*, *Acta Appl. Math.* **102** (2008), no. 1, 57-69.
- [21] (with Alexandra Shlapentokh) *Defining the integers in large subrings of number fields using one universal quantifier*, *Proc. St.-Petersburg Math. Sem.* **358** (2008), 199-223 (special volume: 60th birthday volume for Yuri Matijasevich "Studies in Constructive Mathematics and Mathematical Logic, Part XI", ed. Maxim Vserminov) [= *J. Math. Sci.* **158** (2009), no. 5, 713-726].
- [22] (with Matilde Marcolli) *Zeta functions that hear the shape of a Riemann surface*, *J. Geom. Phys.* **58** (2008), no. 5, 619-632.
- 2009 [23] (with Oliver Lorscheid) *Toroidal automorphic forms for certain function fields*, *J. Numb. Th.* **129** (2009), 1456-1463.
- [24] (with Jakub Byzewski) *Which weakly ramified group actions admit a universal formal deformation?*, *Ann. Inst. Fourier* **59** (2009), no. 3, 877-902.
- 2010 [25] (with Aristides Kontogeorgis and Lotte van der Zalm) *Arithmetic equivalence, the Goss zeta function, and a generalisation*, *J. Numb. Th.* **130** (2010), no. 4, 1000-1012.
- [26] (with Nikolas Akerblom) *A compact codimension two braneworld with precisely one brane*, *Phys. Rev. D* **81** (2010), 124025 (6pp.).
- [27] (with Fumiharu Kato and Aristides Kontogeorgis) *Three examples of the relation between rigid-analytic and algebraic deformation parameters*, *Israel J. Math.* **180** (2010), 345-370.
- 2011 [28] (with Nikolas Akerblom, Gerben Stavenga and Jan-Willem van Holten) *Nonrelativistic Chern-Simons vortices on the torus*, *J. Math. Phys.* **52** (2011), 072901 (17 pp.).
- [29] (with Nikolas Akerblom) *Relative entropy as a measure of inhomogeneity in general relativity*, *J. Math. Phys.* **53** (2012), 012502 (10 pp.).
- 2012 [30] (with Jakub Byszewski and Fumiharu Kato) *Un anneau de déformation universel en conducteur supérieur*, *Proc. Japan Acad. Sci., Ser. A, Math. Sci.* **88** (2012), nr. 2, 25-27.
- [31] (with Oliver Lorscheid) *Toroidal automorphic forms, Waldspurger periods and double Dirichlet series*, in: *Multiple Dirichlet Series, L-functions and Automorphic Forms*, *Progress in Math.* **300**, Birkhäuser (2012), pp. 131-146.
- [32] (with Jan Willem de Jong) *The spectral length of a map between Riemannian manifolds*, *J. Noncommut. Geom.* **6** (2012), 721-748.
- [33] (with Jonathan Reynolds) *Matrix divisibility sequences*, *Acta Arith.* **156** (2012), 177-188.
- 2013 [34] (with Janne Kool) *Measure theoretic rigidity for Mumford curves*, *Ergodic Th. Dyn. Syst.* **33**, nr. 3 (2013), 851-869.
- [35] (with Matilde Marcolli) *Graph reconstruction and quantum statistical mechanics*, *J. Geom. Phys.* **72** (2013), 110-117.
- [36] *Curves, dynamical systems, and weighted point counting*, *Proc. Natl. Acad. Sci. USA* **110**, no. 24 (2013), 9669-9673.

- 2014 [37] (with Matilde Marcolli) *Quantum statistical mechanics, L-series and anabelian geometry I: Partition Functions*, in: Trends in Contemporary Mathematics, INdAM Series, Vol. 8 (2014), 47-57, Springer Verlag.
- 2015 [38] (with Fumiharu Kato and Janne Kool) *A combinatorial Li-Yau inequality and rational points on curves*, Math. Ann. **361**, no. 1 (2015), 211-258.
- 2016 [39] (with Jonathan Reynolds) *The perfect power problem for elliptic curves over function fields*, New York J. Math. **22**, 95-114 (2016).
- 2017 [40] (with Aristides Kontogeorgis) *Distances in spaces of physical models: partition functions versus spectra*, Lett. Math. Phys. **107**, Issue 1, 129-144 (2017).
- [41] (with Valentijn Karemaker) *Hecke algebra isomorphism and adelic points on algebraic groups*, preprint, Doc. Math. **22**, 851-871 (2017).
- 2018 [41] (with Janne Kool) *Edge reconstruction of the Ihara zeta function*, Electron. J. Combin. **25**, Issue 2, Paper #P2.26, 22pp. (2018).
- [42a] (with Jelco M. Bodewes, Hans L. Bodlaender and Marieke van der Wegen) *Recognizing hyperelliptic graphs in polynomial time*, in: Graph-Theoretic Concepts in Computer Science, 44th International Workshop, WG 2018, Cottbus, Germany, Proceedings (Eds. A. Brandstädt, E. Köhler and K. Meer), Springer Lecture Notes in Computer Science, vol. 11159, pp. 52-64 (2018); extended abstract of [42b] [Best Student Paper Award for Bodewes and van der Wegen].
- [43] (with Jakub Byszewski) *Dynamics on abelian varieties in positive characteristic* (with an appendix by Robert Royals and Thomas Ward), Algebra Number Theory **12**, no. 9 (2018), 2185-2235.
- 2019 [44] (with Bart de Smit, Xin Li, Matilde Marcolli and Harry Smit) *Characterization of global fields by Dirichlet L-series*, Res. Number Theory **5**:7, 15 pp. (2019).
- [45] (with Xin Li, Matilde Marcolli and Harry Smit) *Reconstructing global fields from dynamics in the abelianized Galois group*, Selecta Math. **25**:24, 18 pp. (2019).
- [46] (with Janne Kool) *Rigidity and reconstruction for graphs*, J. Fractal Geom. **6**, Issue 3, 247-262 (2019).
- 2020 [47] (with Jakub Byszewski and Marc Houben) *Dynamically affine maps in positive characteristic* (with an appendix by the authors and Lois van der Meijden), Contemp. Math. **744** ("Dynamics: Topology and Numbers"; Eds. P. Moree, A. Pohl, L. Snoha, and T.B. Ward), pp. 125-156, 2020.
- [42b] (with Jelco M. Bodewes, Hans L. Bodlaender and Marieke van der Wegen) *Recognizing hyperelliptic graphs in polynomial time*, Theoret. Comput. Sci. **815**, 121-146 (2020); full version of [42a].
- [48] (with Jakub Byszewski and Djurre Tijsma) *Elements of finite order in the Nottingham group and automata*, preprint arxiv:2008.04971 (63 pp. plus ancillary files, 2020), favourably reviewed for J. Alg.

### Preprints

- [Pre1] (with Nobert Peyerimhoff) *Twisted isospectrality, homological wideness, and isometry*, preprint arxiv:2107.00253 (book version 107 pp., 2021).



[Pre2] (with Jakub Byszewski and Marc Houben) *Endomorphisms of algebraic groups: fixed points and orbit distribution*, memoir in preparation (currently 134 pp., 2021)

[Pre3] (with Hans Bodlaender and Marieke van der Wegen), *Problems hard for treewidth but easy for stable gonality*, preprint arXiv:2202.06838 (43pp., 2022).

### Unpublished

2002 [U1] (with Marina Tripolitaki) *Torsion of Drinfeld modules and equicharacteristic unimodular Galois covers*, preprint arxiv:math.NT/0209023 (2002), unpublished, should be revised.

2010 [U2] (with Matilde Marcolli) *Quantum statistical mechanics, L-series and anabelian geometry*, preprint arxiv:1009.0736 (2010), 46 pp., not for publication, split into 3 parts with different co-authors ([37], [44], [46] above).

### Research expository writing

1993 [M] *Endomorphisms of elliptic curves*, Master's thesis (Universiteit Gent), 100 pp.

1997 [T] *Geometric properties of modular forms over rational function fields*, PhD thesis (Universiteit Gent), 141 pp.

1997 [E1] *A survey of Drinfeld modular forms*, in: *Drinfeld modules, modular schemes and applications* (eds. E.-U. Gekeler et al.), pp. 167–187, World Scientific - Singapore, 1997.

2000 [E2] *Nichtarchimedische Geometrie*, in: *Max-Planck-Gesellschaft: Jahrbuch 2000*, pp. 566–571, Verlag Vandenhoeck & Ruprecht, Goettingen, 2000.

[E3] *Diangle groups*, in: *Proceedings 2000 Kinosaki Symposium on algebraic geometry*, pp. 138–143, 2001.

2005 [E4] (with Fumiharu Kato) *The  $p$ -adic icosahedron*, *Notices A.M.S.* **52**, no. 7 (August, 2005), 720–727.

[E5] Five short contributions to the problem collection of the AIM workshop “Extensions of Hilbert’s Tenth Problem”, <https://aimath.org/WWN/hilberts10th/hilberts10th.pdf>

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