

# Ronald van Luijk

Curriculum Vitae  
November 2021

Mathematisch Instituut  
PO Box 9512  
2300 RA Leiden  
the Netherlands

Phone : +31 71 5277147  
<http://www.math.leidenuniv.nl/~rvl>  
[rvl@math.leidenuniv.nl](mailto:rvl@math.leidenuniv.nl)

## Affiliations

- 2019– **Universiteit Leiden**, the Netherlands (full professor)
- 2014–2019 **Universiteit Leiden**, the Netherlands (associate professor)
- 2008–2014 **Universiteit Leiden**, the Netherlands (assistant professor)
- 2012 (Fall) **École Polytechnique Fédérale de Lausanne (EPFL)**, Switzerland
- 2012 (Sum.) **Centre Interfacultaire Bernoulli (CIB), EPFL**, Lausanne, Switzerland (visiting professor)
- 2008 **Warwick University**, Coventry, United Kingdom
- 2006–2008 **Pacific Institute for the Mathematical Sciences (PIMS), SFU/UBC**, Vancouver, Canada
- 2007 (Sum.) **Jacobs University Bremen, International Center for Transdisciplinary Studies**, Germany
- 2006 (Fall) **Universidad de los Andes**, Bogotá, Colombia (visiting professor)
- 2006 (Spr.) **Mathematical Sciences Research Institute (MSRI)**, Berkeley, USA
- 2005 (Fall) **Centre de Recherches Mathématiques (CRM)**, Montréal, Canada
- 2004 (Fall) **Institut Henri Poincaré (IHP)**, Paris, France

## Education

- 2005.05 **University of California at Berkeley**, USA  
Ph.D. in Mathematics (advisor : H.W. Lenstra, Jr.)  
Thesis title: *Rational points on K3 surfaces*
- 2000.06 **Universiteit Utrecht**, the Netherlands  
Doctoraalexamen in Mathematics (cum laude)  
Thesis title: *On perfect cuboids* (advisors: F. Beukers and B. Moonen)
- 1996 **Universiteit Utrecht**, the Netherlands  
Propedeuse in Mathematics (cum laude)  
Propedeuse in Computer Science (cum laude)

## Grants

- 2017 NWO Visitor grant for Nils Bruin
- 2012–2018 Vidi grant, NWO, Innovational Research Incentives Scheme  
*Counting points on surfaces*
- 2012–2016 International Research Training Group, Berlin–Amsterdam–Leiden, NWO/DFG  
*Moduli and Automorphic Forms: Arithmetic and Geometric Aspects*
- 2012–2013 DIAMANT support for postdoc (Rachel Newton)
- 2008– Various supporting grants for organized conferences
- 2007 Marie-Curie fellowship, University of Warwick
- 2006 PIMS postdoctoral fellowship, UBC/SFU, Vancouver
- 2006 Three year fellowship from Deutsche Forschungsgemeinschaft (DFG) (declined)
- 2000–2001 Talentenprogramma fellowship (NUFFIC)

## Awards

- 2007 G. de B. Robinson Award for best paper in the Canadian Mathematical Bulletin
- 2003 Outstanding Graduate Student Instructor Teaching Award, UC Berkeley
- 1998 Timman prize for exceptional solution to the “Universitaire Wiskundecompetitie” (University Mathematical Competition for undergraduates in The Netherlands and Flanders)
- 1997–2000 First place in “Universitaire Wiskundecompetitie” (see above)
- 1996 Fourth place in “Universitaire Wiskundecompetitie” (see above)
- 1994, 1995 Bronze medal at International Mathematical Olympiad (IMO)

**Peer-reviewed articles**

1. The action of the Weyl group on the E8 root system (with R. Winter)  
*Graphs and Combinatorics* (2021), 100 pages. <https://doi.org/10.1007/s00373-021-02315-8>
2. Finiteness theorems for K3 surfaces over arbitrary fields (with M. Bright and A. Logan)  
*European Journal of Mathematics*, Volume 6 (2020), 336–366
3. Unirationality of del Pezzo surfaces of degree two over finite fields (with D. Festi)  
*Bulletin of the London Mathematical Society*, Volume 48 (2016), 135–140
4. Computing Néron–Severi groups and cycle class groups (with B. Poonen and D. Testa)  
*Compositio Mathematica*, Volume 151 (2015), no. 4, 713–734
5. Density of rational points on Del Pezzo surfaces of degree one (with C. Salgado)  
*Advances in Mathematics*, Volume 261 (2014), 154–199
6. Explicit Selmer groups for cyclic covers of  $\mathbb{P}^1$  (with M. Stoll)  
*Acta Arithmetica*, Volume 159 (2013), 133–148
7. The Cayley–Oguiso automorphism of positive entropy on a K3 surface  
(with D. Festi, A. Garbagnati, and B. van Geemen)  
*Journal of Modern Dynamics*, Volume 7, No. 1 (2013), 75–97
8. Density of rational points on elliptic surfaces  
*Acta Arithmetica*, Volume 156, no. 2 (2012), 189–199
9. Squares from blocks of consecutive integers: a problem of Erdős and Graham (with M.A. Bennett)  
*Indagationes Mathematicae*, Volume 23 (2012), 123–127
10. Two-coverings of Jacobians of curves of genus two (with D. Testa and V. Flynn)  
*Proceedings of the London Mathematical Society*, Volume 104, no. 2 (2012), 387–429
11. Cubic points on cubic curves and the Brauer–Manin obstruction for K3 surfaces  
*Acta Arithmetica*, Volume 146, no. 2 (2011), 153–172
12. On character varieties of two-bridge knot groups (with M. Macasieb and K. Petersen)  
*Proceedings of the London Mathematical Society*, Volume 103, no. 2 (2011), 473–507
13. Wehler K3 surfaces with Picard number 3 and 4  
Appendix to: Orbits of points on certain K3 surfaces, by Arthur Baragar  
*Journal of Number Theory*, Volume 131, Issue 3 (2011), 600–603
14. Lines on Fermat surfaces (with M. Schütt and T. Shioda)  
*Journal of Number Theory*, Volume 130 (2010), 1939–1963
15. Density of rational points on diagonal quartic surfaces (with A. Logan and D. McKinnon)  
*Algebra and Number Theory*, Volume 4, No. 1 (2010), 1–20
16. Nontrivial elements of Sha explained through K3 surfaces (with A. Logan)  
*Mathematics of Computation*, Volume 78 (2009), 441–483
17. Non-Euclidean Pythagorean triples, a problem of Euler, and rational points on K3 surfaces  
*Mathematical Intelligencer*, Volume 30, No. 4 (2008), 4–10 (with R. Hartshorne)
18. The diameter of the circumcircle of a Heron triangle  
*Elemente der Mathematik*, Volume 63, Issue 3 (2008), 118–121
19. K3 surfaces with Picard number one and infinitely many rational points  
*Algebra and Number Theory*, Volume 1, No. 1 (2007), 1–15
20. K3 surfaces with Picard number three and canonical vector heights (with A. Baragar)  
*Mathematics of Computation*, Volume 76 (2007), 1493–1498
21. An elliptic K3 surface associated to Heron triangles  
*Journal of Number Theory*, Volume 123 (2007), 92–119
22. A K3 surface associated with certain integral matrices with integral eigenvalues  
*Canadian Mathematical Bulletin*, Volume 49, No. 4 (2006), 560–577
23. Quartic K3 surfaces without nontrivial automorphisms  
*Mathematical Research Letters*, Volume 13, No. 3 (2006), 423–439

### Non-peer-reviewed publications

1. NMC Nieuwe stijl  
*Nieuw Archief voor Wiskunde* (5), Volume 16, No. 2 (2015), 130–132
2. Two-coverings of Jacobians  
*Oberwolfach Reports (OWR)*, Explicit Methods in Number Theory (2009)
3. The Manin conjecture for K3 surfaces  
*Oberwolfach Reports (OWR)*, EMNT (2007)
4. Explicit computations on the Manin conjectures  
*Oberwolfach Reports (OWR)*, EMNT (2005)
5. A linear algebra exercise (with F. Beukers and R. Vidunas)  
*Nieuw Archief voor Wiskunde* (5), Volume 3, No. 2 (2002), 139–140
6. Hex, dots and boxes (with S. van Rijnsouw, book report)  
*Nieuw Archief voor Wiskunde* (5), Volume 2, No. 4 (2001), 358–361
7. Wiskunde Olympiade (with J. van de Craats and T. Notenboom)  
*Nieuw Archief voor Wiskunde* (5), Volume 1, No. 4 (2000), 448–450

### Preprints, and books and papers in preparation

1. Concurrent lines on del Pezzo surfaces of degree one (with R. Winter)  
submitted, arXiv:1906.03162, 29pp
2. Rational points on del Pezzo surfaces of degree one (with J. Bulthuis, in preparation)
3. Extending isomorphisms of subgraphs to automorphisms (in preparation)
4. Geometry and arithmetic of surfaces (with M. Bright and D. Testa, book in preparation)
5. Linear Algebra 1 (with M. Stoll, book in preparation)
6. Linear Algebra 2 (with M. Stoll, book in preparation)

### Students and postdocs

#### Postdocs

- 2019–2021 Adelina Mânzăteanu, Leiden  
2015–2017 Efthymios Sofos, Leiden  
2012–2014 David Holmes, Leiden  
2012–2014 Rachel Newton, Leiden  
2009–2011 Cecília Salgado, Leiden

#### Ph.D. students

- 2021 Jan Bouw, *On the computation of norm residue symbols*,  
Leiden, main advisor Hendrik Lenstra
- 2021 Rosa Winter, *Geometry and arithmetic of del Pezzo surfaces of degree 1*,  
Leiden, co-advisor Martin Bright  
(Top five for KWG prize for best PhD student in Mathematics in the Netherlands, 2020)
- 2018 Erik Visse, *Counting points on K3 surfaces and other arithmetic-geometric objects*, Leiden  
(Top five for KWG prize for best PhD student in Mathematics in the Netherlands, 2017)
- 2017 Niels Lindner, *Hypersurfaces with defect and their densities over finite fields*,  
Berlin/Leiden, main advisor Remke Kloosterman
- 2016 Yan Zhao, *Deformations of nodal surfaces*,  
Algant Leiden/Milano, main advisor Bert van Geemen
- 2016 Dino Festi, *Topics in the arithmetic of del Pezzo and K3 surfaces*,  
Algant Leiden/Milano, co-advisor Bert van Geemen
- 2013 René Pannekoek, *Topological aspects of rational points on K3 surfaces*, Leiden  
(Philips prize for best PhD student in Mathematics in the Netherlands, 2013)

### Master students

- 2022 (exp.) Line van Nifterik, Leiden
- 2022 (exp.) Erik Massop, Leiden
- 2021 (exp.) Wim Nijgh, Leiden
- 2018 Jelle Bulthuis, *Rational points on del Pezzo surfaces of degree one*, Leiden
- 2016 Arthur Bik, *The varieties of  $e$ -th powers*, Leiden
- 2014 Rosa Winter, *Concurrent exceptional curves on del Pezzo surfaces of degree one*, Leiden
- 2014 Erik Visse, *Local computations on the Cassels–Tate pairing on an elliptic curve*, Leiden
- 2012 Dino Festi, *Density of rational points on a family of diagonal quartic surfaces*, Leiden
- 2011 Davide Calliari, *Reconstruction of cubic surfaces*, Leiden
- 2006 Enrique Acosta, *Rational tetrahedra*, Bogotá

### Bachelor students

- 2021 (exp.) Patrick Stok, *Computing the dimension of a variety with Gröbner bases*, Leiden
- 2021 (exp.) Joep Veenman, *The mathematics of juggling*, Leiden
- 2021 Patrick Berkhoff, *Graphical Calculation of the Pfaffian*, Leiden, co-advisor Owen Biesel
- 2020 Nada Sisan, *Gröbner bases en Euclidische meetkunde*, Leiden
- 2018 Anneloes Viergever, *Two cases of Fermat’s Last Theorem using descent on elliptic curves*, Leiden
- 2016 Tim Brouwer, *Solving an arbitrary permutation puzzle*, Leiden
- 2016 Ingela Mennema, *Roosters*, Leiden, co-advisor Erik Visse
- 2014 Arthur Bik, *Elliptic curves with high rank*, Delft
- 2012 Ellen Schlebusch, *Het Hasse-principe*, Leiden
- 2012 Erik Massop, *Hilbert’s tenth problem*, Leiden
- 2011 Remy van Dobben de Bruyn, *The modularity theorem*, Leiden, co-advisor Cecília Salgado
- 2010 Wouter Zomervrucht, *De complexiteit van Buchbergers algoritme*, Leiden
- 2009 Youssef Achnine, *Rationale tetraëders*, Leiden

### Ph.D. defense committees

- 2021 Abtien Javan Peykar, Pavel Solomatin, Guido Lido
- 2020 Sjabbo Schaveling, Thibault Poiret, Steven Berghout
- 2019 Anna Somoza Henares, Peter Koymans, Julian Lyczak, Niels Langeveld, Garnet Akeyr, Gabriele Dalla Torre (Leiden)
- 2018 Eduardo Ruiz Duarte (Groningen), Raymond van Bommel (Leiden)
- 2017 Jinbi Jin, Mima Stanojkovski, Martin Djukanović (Leiden)
- 2016 Florian Bouyer (Warwick)
- 2015 Athanasios Angelakis, Weidong Zhuang (Leiden)
- 2014 Michiel Kusters (Leiden)
- 2013 Andrea Siviero, Samuele Anni, Chao Zhang (Leiden)
- 2011 Arjen Stolk (Leiden), Bas Heijne (Groningen)
- 2010 Marco Streng (Leiden)
- 2009 Jos Brakenhoff (Leiden)

### Organized meetings

- 2018.04 *Nederlands Mathematisch Congres (NMC)*, Veldhoven (program committee)
- 2015.04 *Nederlands Mathematisch Congres (NMC)*, Leiden (chair of organising committee)
- 2011.11 *Criptografía*, Universidad de los Andes, Colombia (Master student workshop)
- 2010.10 *Arithmetic of surfaces*, Lorentz center, Leiden (conference)
- 2009.04 *Hendrik Lenstra’s 60th birthday*, Leiden
- 2009.04 *Counting points on varieties*, Lorentz center, Leiden (conference)
- 2009.04 *Counting points on varieties*, Lorentz center, Leiden (Ph.D. student workshop)
- 2009.02 *Norm residue symbols*, Leiden (workshop)
- 2008.12 *Arithmetic of  $K3$  surfaces*, Banff International Research Station, Canada (conference)
- 2008.10 *The Hasse principle*, Universidad de los Andes, Colombia (Master student workshop)
- 2008.04 *Surfaces: geometry and arithmetic*, University of Warwick (Ph.D. student workshop)
- 2006.10 *Number theory in cryptography*, Universidad de los Andes, Colombia (Master student workshop)

### Lecture Series

- 2016.04 *The geometry of del Pezzo surfaces*, Higher School of Economics (HSE), Moscow (3 lectures)
- 2011.11 *Criptografía*, Universidad de los Andes, Colombia (4 lectures)
- 2009.04 *Batyrev–Manin conjecture*, Lorentz center, Leiden (4 lectures)
- 2008.10 *The Hasse principle*, Universidad de los Andes, Colombia (4 lectures)
- 2008.04 *Arithmetic and geometry of surfaces: Brauer–Manin obstructions*, University of Warwick, United Kingdom (5 lectures)
- 2006.10 *Cryptography in number theory*, Universidad de los Andes, Colombia (5 lectures)
- 2004, 2005 *Freshmen Preparation Bootcamp* (Summer), UC Berkeley’s Multicultural Engineering Program

### Invited Conference Talks

- 2019.07 Rational Points 2019, **Schney**
- 2018.07 Recent progress in the arithmetic and geometry of K3 surfaces, **Trento**
- 2018.05 Rational and Integral Points via Analytic and Geometric Methods, **Oaxaca**
- 2015.11 Moduli Spaces and Arithmetic Geometry (Frans Oort 80), **Leiden**
- 2015.07 Rational Points 2015, **Schney**
- 2015.05 Pontos Racionais, **Rio de Janeiro**
- 2014.12 Foundations of Computational Mathematics, **Montevideo**
- 2014.05 Theoretical and Practical Aspects of the Discrete Logarithm Problem, **Ascona**
- 2013.05 Rational Points–Geometric, Analytic and Explicit Approaches, **Warwick**
- 2013.02 Brauer groups and obstruction problems: moduli spaces and arithmetic, **Palo Alto**
- 2013.02 Nationale Wiskunde Dagen, **Noordwijkerhout**
- 2012.02 Workshop on algebraic surfaces, **Hannover**
- 2012.01 Joint Mathematics Meetings, AMS Special Session on Rational Points on Varieties, **Boston**
- 2010.05 Rational Points – Theory & Experiment, **Zürich**
- 2010.03 Arithmetic aspects of elliptic surfaces, HIM, **Bonn**
- 2010.02 Algebraic Geometry in Characteristic  $p$  and Related Topics, Hosei Univ., **Tokyo**
- 2009.09 Arithmetic and algebraic geometry of higher-dimensional varieties, **Bristol**
- 2009.09 3rd Annual Meeting – GTEM (Galois Theory and Explicit Methods), **Warwick**
- 2009.07 Explicit Methods in Number Theory, **Oberwolfach**
- 2008.10 Arithmetic of K3 surfaces, BIRS, **Banff**
- 2008.07 Canadian Number Theory Association meeting (CNTA X), **Waterloo**
- 2008.06 Dynamique et surfaces K3, **Rennes**
- 2008.06 Rational Points on Curves and Higher Dimensional Varieties, **Warwick**
- 2008.06 Foundations of Computational Mathematics (FoCM 6), **Hong Kong**
- 2007.07 Rational Points on Curves and Higher-Dimensional Varieties: Theory and Explicit Methods, **Bremen**
- 2007.07 Explicit Methods in Number Theory, **Oberwolfach**
- 2007.02 Explicit Methods for Rational Points on Curves, BIRS, **Banff**
- 2007.02 10th International Workshop on Differential Equations, Number Theory, Data Analysis Methods and Geometry, **Havana**
- 2006.07 Canadian Number Theory Association meeting (CNTA IX), **Vancouver**
- 2006.05 Analytic Methods for Diophantine Equations, BIRS, **Banff**
- 2006.01 Joint Mathematics Meetings, AMS Special Session on Field Extensions and Algorithms, **San Antonio**
- 2005.10 Arithmetic and Geometry of Higher Dimensional Varieties with Special Emphasis on Calabi-Yau Varieties and Mirror Symmetry, Fields Institute, **Toronto**
- 2005.07 Explicit Methods in Number Theory, **Oberwolfach**
- 2005.04 The Pacific North West Number Theory Conference 9, **Vancouver**
- 2004.11 Explicit Methods in Number Theory, BIRS, **Banff**
- 2004.10 Arithmetic Geometry, IHP, **Paris**

### **Seminar and colloquium talks**

- 2021.11 Algebraic Geometry Seminar, **HSE University, Moscow**
- 2016.06 Department colloquium, **VU Amsterdam**
- 2016.03 Intercity Number Theory Seminar, **UvA Amsterdam**
- 2013.10 Oberseminar für algebraische Geometrie und Arithmetik, **Essen**
- 2013.05 Séminaire “Variétés rationnelles”, ENS, **Paris**
- 2013.02 Department colloquium, **Utrecht**
- 2013.02 Algebraic geometry seminar, **Cambridge**
- 2012.12 Algebraic geometry seminar, **Zürich**
- 2012.10 Rational Points and Algebraic Cycles seminar, **Lausanne**
- 2012.05 Intercity seminar number theory, **Leiden**
- 2011.11 Algebra seminar, **Bogotá**
- 2011.05 Séminaire “Variétés rationnelles”, ENS, **Paris**
- 2011.03 Intercity seminar number theory, **Amsterdam**
- 2010.11 Number theory seminar, **Cambridge**
- 2010.04 Intercity seminar number theory, **Leiden**
- 2009.09 Intercity seminar number theory, **Eindhoven**
- 2009.06 Forschungsseminar “Arithmetische Geometrie”, **Berlin**
- 2009.05 Department colloquium, **Leiden**
- 2008.11 Algebra seminar, **Leiden**
- 2008.10 Department colloquium, Universidad de los Andes, **Bogotá**
- 2008.09 Intercity seminar number theory, **Leiden**
- 2008.05 Heilbronn number theory seminar, **Bristol**
- 2008.05 Number theory seminar, **Oxford**
- 2008.05 Number theory seminar, **Berkeley**
- 2008.04 Number theory seminar, **Warwick**
- 2008.02 SFU/UBC Number theory Seminar, **Vancouver**
- 2008.02 Algebraic geometry seminar, UBC, **Vancouver**
- 2007.10 Intercity seminar number theory, CWI, **Amsterdam**
- 2007.09 SFU/UBC Number theory seminar, **Vancouver**
- 2007.06 Number theory seminar, **Bristol**
- 2007.05 Intercity seminar number theory, **Leiden**
- 2007.01 Number theory seminar, **Berkeley**
- 2007.01 SFU/UBC Number theory seminar, **Vancouver**
- 2006.09 Department colloquium, Universidad de los Andes, **Bogotá**
- 2006.05 Number theory seminar, **San Diego**
- 2006.03 MSRI, **Berkeley**
- 2006.02 Number theory seminar, **Austin**
- 2005.10 Number theory seminar, Boston University, **Boston**
- 2005.10 Québec–Vermont seminar series, **Montréal**
- 2005.10 Department colloquium, Queen’s University, **Kingston**
- 2005.10 Number theory seminar, Queen’s University, **Kingston**
- 2005.03 Intercity seminar number theory, **Groningen**
- 2005.02 Number theory seminar, **Harvard**

## Teaching

### National mastermath courses (Netherlands)

2020, Fall	Advanced Algebraic Geometry: Rational Points
2020, Spring	Elliptic curves
2013, Fall	Rational points on varieties
2011, Fall	Elliptic curves
2009, Fall	Elliptic curves

### Universiteit Leiden

2022, Spring	Algebra 3 (Galois theory)
2021, Fall	Linear algebra 2
2020, Fall	Linear algebra 2
2020, Spring	Algebra 1 (group theory)
2019, Fall	Linear algebra 2
2019, Spring	Algebra 1 (group theory)
2018, Fall	Linear algebra 2
2018, Spring	Algebra 1 (group theory)
2017, Fall	Linear algebra 2
2017, Spring	Algebra 3 (Galois theory)
2016, Fall	Linear algebra 2
2015, Fall	Linear algebra 1
2015, Fall	Linear algebra 2
2014, Fall	Linear algebra 1
2014, Fall	Linear algebra 2
2014, Spring	Calculus
2013, Fall	Linear algebra 1
2013, Spring	Algebra 1 (group theory)
2013, Spring	Bachelor seminar
2012, Spring	Bachelor seminar
2011, Fall	Linear algebra 1
2011, Spring	Local fields
2011, Spring	Algebra 1
2011, Spring	Bachelor seminar
2010, Fall	Linear algebra 1
2010, Spring	Bachelor seminar
2009, Fall	Linear algebra 1
2009, Spring	Bachelor seminar
2008, Fall	Linear algebra 1

### Universidad de los Andes

2006, Fall	Elliptic curves
2006, Fall	Calculus

### University of California at Berkeley

2005, Spring	Calculus (Professional Development Program)
2004, Summer	Calculus (Lecturer)
2003, Fall	Calculus (Professional Development Program)
2003, Spring	Calculus (Professional Development Program)
2002, Fall	Linear algebra (Graduate Student Instructor)
2002, Summer	Discrete mathematics (Lecturer)
2001, Fall	Calculus (Professional Development Program)
2001, Spring	Calculus (Graduate Student Instructor)

**Committees**

- 2017–2018 NWO (Dutch Science Foundation): VENI grant committee (chair in 2018)
- 2017– Foundation Computer Algebra Nederland (CAN)
- 2014– Chair Board of Examiners, Leiden

**Broader impact**

- 2019 Pre-university: lecturer and advisor of Rafaël Houkes and Rik van der Linde, winners Jan Kijne prize
- 2018 Speaker at Science Family Day on juggling
- 2017 Guide for the exhibition “Imaginary” in Leiden
- 2011 Chief Coordinator (grading) International Mathematical Olympiad (IMO) 2011
- 2011 Member of the Problem Selection Committee for IMO 2011
- 2010 Chief Coordinator Benelux Mathematical Olympiad
- 2004–2013 Editor of problem section of “Nieuw Archief voor Wiskunde”
- 1996–2001 Trainer of the Dutch team for the International Mathematical Olympiad
- 1999–2001 Deputy leader of the Dutch team at the International Mathematical Olympiad
- 1996–2000 Editor of problem section in Dutch mathematical magazine “Pythagoras” for high school students
- 1996 Leader of a mathematics summer camp for high school students for Stichting Vierkant