Curriculum vitae of Robin de Jong

Personal data

Full name:	Robin Sander de Jong
Date of birth:	June 26, 1976, Vlaardingen, The Netherlands
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Positions held

- Assistant professor, U Leiden, 2007–.
- Postdoc, U Leiden, 2005–2006.

Personal grants

- TOP grant, compartiment 2 (209 kE), NWO, 2015.
- VENI grant (208 kE), NWO, 2006.

Relevant diplomas

- Basiskwalificatie Onderwijs (BKO), 2011.
- PhD, U Amsterdam, 2004.
- MSc Philosophy, U Leiden, 2001.
- MSc Mathematics, U Leiden, 1999.

Visits abroad (two months or longer)

- Max Planck Institut für Mathematik, Bonn, Spring 2009.
- Mittag-Leffler Institute, Stockholm, Spring 2007.
- Institut des Hautes Etudes Scientifiques, Paris, Fall 2004.

Preprints

- *Positivity of the height jump divisor.* Preprint, `arxiv:1701.00370` (joint with J. Burgos Gil and D. Holmes).
- *Singularities of the biextension metric for families of abelian varieties.* Preprint, `arxiv:1604.00686` (joint with J. Burgos Gil and D. Holmes).
- *Faltings delta-invariant and semistable degeneration.* Preprint, `arxiv:1511.06567`.

Publications in journals

- *Néron-Tate heights of cycles on jacobians.* To appear in Journal of Algebraic Geometry.
- *Néron models and the height jump divisor.* To appear in Transactions of the AMS (joint with O. Biesel and D. Holmes).
- *Point-like limit of the hyperelliptic Zhang-Kawazumi invariant.* Pure and Applied Mathematics Quarterly 11 (2015), 633–653.
- *Asymptotics of the Néron height pairing*, Mathematical Research Letters 22 (2015), 1337–1371 (joint with D. Holmes).
- *Canonical heights and division polynomials*, Mathematical Proceedings of the Cambridge Philosophical Society 157 (2014), 357–373 (joint with J. S. Müller).
- *Asymptotic behavior of the Kawazumi-Zhang invariant for degenerating Riemann surfaces*, Asian Journal of Mathematics 18 (2014), 507–524.
- *Normal functions and the height of Gross-Schoen cycles*, Nagoya Mathematical Journal 214 (2014), 53–77.
- *Second variation of Zhang's λ-invariant on the moduli space of curves*, American Journal of Mathematics 135 (2013), 275–290.
- *Special values of canonical Green's functions*, Mathematische Zeitschrift, DOI 10.1007/s00209-012-1064-2.
- *Local heights on Galois covers of the projective line*, Acta Arithmetica 152 (2012), 51–70.
- *Conjecture de Shafarevitch effective pour les revêtements cycliques*, Algebra and Number Theory 5 (2011), 1133–1143 (joint with G. Rémond).
- *One half log discriminant and division polynomials*, Archiv für Mathematik 97 (2011), 251–257.
- *Symmetric roots and admissible pairing*, Transactions of the American Mathematical Society 363 (2011), 4263–4283.
- *Covers of surfaces with fixed branch locus*, International Journal of Mathematics 21 (2010), 859–874 (joint with B. Edixhoven and J. Schepers).
- *Admissible constants for genus two curves*, Bulletin of the London Mathematical Society 42 (2010), 405–411.
- *Theta functions on the theta divisor*, Rocky Mountain Journal of Mathematics 40 (2010), 155–176.
- *Local invariants attached to Weierstrass points*, manuscripta mathematica 129 (2009), 273–292.
- *Explicit Mumford isomorphism for hyperelliptic curves*, Journal of pure and applied Algebra 208 (2007), 1–14.
- *On the Arakelov theory of elliptic curves*, l'Enseignement Mathématique 51 (2005), 179–201.

- *Arakelov invariants of Riemann surfaces*, Documenta Mathematica 10 (2005), 311–329.

Contributions to books

- *Torus bundles and 2-forms on the universal family of Riemann surfaces*, in: A. Papadopoulos (ed.), Handbook of Teichmüller theory, Volume VI. EMS Publishing House 2016.
- *Short introduction to heights and Arakelov theory*, in: J.-M. Couveignes, B. Edixhoven (eds.), Computational aspects of Modular Forms and Galois Representations. Annals of Mathematics Studies 176, Princeton University Press 2011 (joint with B. Edixhoven).
- *Applying Arakelov theory*, in: J.-M. Couveignes, B. Edixhoven (eds.), Computational aspects of Modular Forms and Galois Representations. Annals of Mathematics Studies 176, Princeton University Press 2011 (joint with B. Edixhoven).
- *Bounds for Arakelov invariants of modular curves*, in: J.-M. Couveignes, B. Edixhoven (eds.), Computational aspects of Modular Forms and Galois Representations. Annals of Mathematics Studies 176, Princeton University Press 2011 (joint with B. Edixhoven).
- *Gauss map on the theta divisor and Green's functions*, in: B. Edixhoven, G. van der Geer, B. Moonen (eds.), Modular Forms on Schiermonnikoog, Cambridge University Press 2008.
- *Faltings' delta-invariant of a hyperelliptic Riemann surface*, in: G. van der Geer, B. Moonen, R. Schoof (eds.), Number Fields and Function Fields: Two Parallel Worlds. Progress in Mathematics vol. 239, Birkhäuser Verlag 2005.

Books edited

- *Geometry and Arithmetic*, C. Faber, G. Farkas, R. de Jong (eds.), EMS Series of Congress Reports, EMS Publishing House 2012.

PhD thesis

- *Explicit Arakelov geometry*, PhD thesis, U Amsterdam, December 2004.

PhD students (co-)supervised

- S. van der Lugt (expected 2019).
- A. Botero (expected 2017, with J. Kramer, Humboldt U Berlin).
- E. Martinez (expected 2017, with A. Schmitt, Freie U Berlin).
- U. Doğan (expected 2017, with E. Große-Klönne, Humboldt U Berlin).
- N. Damjanovic (expected 2017, with V. Koziarz, U Bordeaux).
- M. Djukanovic (expected 2017, with F. Pazuki, U Bordeaux).
- A. Javanpeykar (2013, with B. Edixhoven, U Leiden and J.-B. Bost, U Paris-Sud/Orsay). Now junior professor at U Mainz.
- P. Bruin (2010, with B. Edixhoven, U Leiden). Now assistant professor at U Leiden.

Master theses supervised (available at http://www.math.leidenuniv.nl/nl/theses/)

- H. Wang (2017), TBA.
- J. Hekking (2017), *Segal objects in homotopical categories and K-theory of proto-exact categories* (main supervisor: Ieke Moerdijk (UU)).
- F. Giovenzana (2016), *On the canonical key formula.*
- M. Jespers (2016). *An analogue of Chern-Weil theory for the line bundle of weak Jacobi forms on a non-compact modular surface.*
- S. van der Lugt (2015), *Arakelov intersection theory applied to torsors of semi-stable elliptic curves.*
- S. Zarabara (2015), *Étale cohomology over* Spec(k).
- H. Rohrbach (2014), *The geometry of the Gauss map and moduli of abelian varieties.*
- C. Panda (2013), *Néron local height functions for elliptic curves.*
- J. Commelin (2013), *Algebraic cycles, Chow motives, and L-functions.*
- V. Zakharevich (2012), *Mixed intermediate jacobians.*
- S. Pouwelse (2012), *Bounds on cohomology by stratifications.*
- Y. Achnine (2011), *On the main conjecture on algebraic geometric MDS codes.*
- D. Calliari (2011), *Reconstruction of cubic surfaces* (with R. van Luijk).
- N. Sambin (2010), *Geometric constructions of the irreducible representations of* $GL_n(\mathbb{C})$.
- H. Chang (2010), *Asymptotically good generalized algebraic geometry codes.*
- A. Mohajer (2008), *Algebraic and analytic multiplier ideals and applications.*
- R. Jurrius (2008), *Classifying polynomials of linear codes* (with R. Pellikaan).
- A. Aryasomayajula (2007), *Average height of isogenous abelian varieties.*
- P. Bruin (2006), *Green functions on Riemann surfaces and an application to Arakelov theory* (with B. Edixhoven).

Bachelor theses supervised (available at http://www.math.leidenuniv.nl/nl/theses/)

- D. Godding (2017), TBA.
- J.-W. van Beek (2015), *De stelling van Borsuk-Ulam.*
- M.P. Noordman (2014), *G-bundles, Cech cohomology and the fundamental group.*
- J. Hekking (2014), *Belyi pairs, dessins d'enfants and hypermaps.*
- N. Schoots (2013), *A categorical approach to varieties over k.*
- O. Jaïbi (2013), *Gaussian curvature and the Gauss-Bonnet theorem.*
- S. van der Lugt (2012), *Projectieve vlakken.*
- H. Rohrbach (2011), *De sluitstelling van Poncelet.*
- R. Wols (2010), *Eindige topologische ruimten.*
- R. Hoogwater (2010), *Potentieel goede reductie van elliptische krommen met een gegeven periodenrooster.*

- S. van Lieshout (2009), *Zariski topology vs. strong topology.*
- M. Kosters (2008), *Schubert calculus.*
- R. Jurrius (2005), *Algebraïsche topologie en de Lefschetz fixpuntstelling.*

Pre-University College theses supervised

- E. Nandorfí, J. Wagenaar (2009), *On elliptic curves and Mordell's theorem.*
- J. Groeneweg, L. Meekes (2009), *Binaire codes.*
- J. Leuven, L. van Steijn (2008), *Bewaakte polygonen.*
- S. Polak, T. Rijken (2008), *De abc-stelling voor polynomen met complexe coëfficiënten.*
- T. Foppen, N. Goet, K. de Jong (2007), *De gulden snede.*
- H. Rohrbach, T. van der Peet (2006), *Elliptische krommen.*
- J. Hootsmans, C. Schoenbach (2005), *Twee vreemde ruimtevullers.*

Courses taught (contents available via http://www.math.leidenuniv.nl/∼rdejong/)

- Lineaire Algebra voor Informatica en Economie (linear algebra), Fall 2015, 2016.
- Bachelor seminar Algebra, meetkunde en getaltheorie, Spring 2015, 2016, 2017.
- Advanced Algebraic Geometry (WONDER/mastermath), Fall 2014.
- Continue Wiskunde voor Informatica en Economie (calculus), Fall 2014, 2015, 2016.
- Algebraic Geometry (mastermath), Spring 2012, 2014, 2016, Fall 2016.
- Calculus A (chemistry students), Fall 2012.
- Wiskundige Structuren (mathematical structures), Fall 2012, 2013.
- Reading course Complex Geometry, Spring 2012.
- Reading course Intersection Theory, Spring 2012.
- Introduction to Algebraic Topology, Fall 2011, 2013.
- Lineaire Algebra voor Natuur- en Sterrenkunde (linear algebra), Fall 2011, 2012, 2013.
- Jacobians and Theta Functions (MRI Masterclass Moduli Spaces), Fall 2010.
- Coderingstheorie (coding theory), Spring 2010, 2011.
- Topics in Geometry II (singular homology, sheaves, cohomology), Fall 2009.
- Topics in Geometry I (algebraic geometry), Fall 2006, 2007, 2008.
- Algebra 3 (field extensions, Galois theory), Spring 2006, 2010.
- Complexe Analyse voor LAV-1 (complex analysis), Spring 2006.
- Topologie (topology), Spring 2005.
- Wiskunde 1A voor BFW/LST (calculus), Fall 2005, 2006, 2007, 2008.

Invited talks

- Intercity Number Theory Seminar, Universiteit Leiden, March 2017.
- Number theory seminar, Université de Bordeaux, January 2017.
- General colloquium, VU Amsterdam, November 2016.
- Number theory seminar, Copenhagen University, November 2016.
- Conference Arakelov Geometry: archimedean and non-archimedean aspects, Regensburg, September 2016.
- Summer School Current trends in algebraic and arithmetic geometry, Vlieland, The Netherlands, September 2016.
- Workshop on generalizations of $\mathbb{A}^1$-homotopy invariance in algebraic geometry and homotopy theory, Zinnowitz/Usedom, Germany, April 2016.
- 5th Swiss-French workshop on algebraic geometry. Lecture series on the arithmetic Riemann-Roch theorem, Charmey, Switzerland, January 2016.
- Research trimester on multiple zeta values, multiple polylogarithms and quantum field theory, ICMAT, Madrid, October 2014.
- Intercity seminar Arakelov Geometry, Rome, September 2014.
- Number theory seminar, Adam Mickiewicz U, Poznań, May 2014.
- Locally free seminar, Amsterdam, May 2014.
- GAGA seminar, U Utrecht, Utrecht, November 2013.
- Paris-Kyoto-Barcelona seminar, Paris, September 2013.
- BIRS workshop Integrable systems and moduli spaces, Banff, August 2013.
- NoGAGS seminar, Hannover, May 2013.
- Seminar aritmetische Geometrie und Zahlentheorie, U Hamburg, Hamburg, May 2013.
- Séminaire Autour de la Géométrie d'Arakelov, U Paris VI, Paris, May 2013.
- Advances in Teichmüller theory, ESI Vienna, February 2013.
- Heraeus Seminar Algebro-geometric methods in fundamental physics, Physikzentrum Bad Honnef, September 2012.
- Seminar Galois covers and deformations, Bordeaux, June 2012.
- Seminar Graduiertenkolleg Curvature, cycles, cohomology, Regensburg, December 2011.
- Algebro-geometric methods in gauge theory and general relativity, Hanse Institute for Advanced Study, Delmenhorst, September 2011.
- Research program Moduli spaces of Riemann surfaces, Park City, July 2011.
- Conference Heights 2011, Tossa de Mar, April 2011.
- Intercity seminar Algebraic Geometry, Amsterdam, December 2010.
- Intercity seminar Algebraic Geometry, Leiden, September 2010.
- EIDMA Seminar Combinatorial Theory, TU Eindhoven, September 2010.
- DIAMANT symposium, Nunspeet, May 2010.

- Séminaire de Théorie des Nombres, U Paris VI, Paris, March 2010.
- Workshop Arakelov theory and arithmetical applications, Regensburg, February 2010.
- Intercity seminar Number Theory, Groningen, November 2009.
- Algebra and Geometry seminar, U Amsterdam, June 2009.
- Number Theory seminar, Institut Fourier, Université Grenoble I, Grenoble, France, June 2009.
- Number Theory seminar, Max Planck Institut für Mathematik, Bonn, April 2009.
- Arithmétique, géométrie, cryptographie et théorie des codes, CIRM, Luminy, April 2009.
- Journées de géométrie d'Arakelov à Rennes, Rennes, December 2008.
- Intercity Seminar on the Fundamental Lemma, Utrecht, November 2008.
- Conference Moduli spaces, Warwick, July 2008.
- Conference Moduli spaces, Max Planck Institut für Mathematik, Bonn, January 2008.
- Conference Effective aspects of complex hyperbolic varieties, Brest, September 2007.
- Seminar of the Mittag-Leffler Institute, Stockholm, April 2007.
- Arithmetik und Geometrie Seminar, Humboldt U, Berlin, November 2006.
- Lunchcolloquium Faculty of Science, Leiden, November 2006.
- Conference on Modular Forms, Schiermonnikoog, October 2006.
- Workshop Abelian varieties, Amsterdam, May 2006.
- Lunchcolloquium Leidsche Flesch, Leiden, March 2006.
- Intercity Seminar on Khare's work on Serre's conjecture, Nijmegen, November 2005.
- General colloquium, Leiden, October 2005.
- Séminaire Autour de la Géométrie d'Arakelov, U Paris VI, Paris, October 2005.
- Conference Arakelov geometry, Oberwolfach, September 2005.
- Series of lectures at the summer school Number fields and curves over finite fields, Anogia, Crete, July 2005.
- Conference Explicit algebraic number theory, Oberwolfach, July 2005.
- Number Theory seminar, UPC Barcelona, Barcelona, May 2005.
- Intercity seminar Number Theory, Leiden, February 2005.
- Seminario di Teorie dei numeri, Roma Tor Vergata, Rome, January 2005.
- General colloquium, U Amsterdam, December 2004.
- Arithmetik und Geometrie Seminar, Humboldt U, Berlin, June 2004.
- Conference Analogy between number fields and function fields, Texel, April 2004.
- Number Theory Seminar ETH, Zürich, January 2004.

- Intercity seminar on Hodge Theory, RU Nijmegen, March 2002.

Organizational and administrative activities

- PI of the International Graduate School Moduli and Automorphic Forms: Arithmetic and Geometric Aspects, involving U Leiden, U Amsterdam, Humboldt U Berlin, Freie U Berlin, since January 2013.
- PI of the International Erasmus Mundus ALGANT Graduate School and Master Programme, involving U Leiden, U Paris-Sud/Orsay, U Bordeaux, U Padova, U Milano, U Regensburg, U Duisburg-Essen, since January 2006.
- Research manager of the Diamant cluster, since Fall 2010.
- Chair of the Leiden Mathematical Institute's PR committee, recruitment of new students, since September 2010, member since July 2005.
- Member of the Leiden Mathematical Institute's admission committee, since September 2013.
- Member of several PhD reading or opposition committees
- Reviewer for MathSciNet (83 reviews as of January 2017).
- Referee for several journals.
- Editor of the Leiden Mathematical Institute's public webpages, 2005–2014.
- Organizer of the semi-annual Diamant symposium, since Fall 2010.
- Organizer of the research conference Heights and moduli spaces, Lorentz Center, Leiden (joint with G. Freixas i Montplet and G. van der Geer), June 2013.
- Organizer of the Diamant minisymposium at NMC, 2011–2014.
- Organizer of the research conference Geometry and Arithmetic, in honor of the 60th birthday of Gerard van der Geer, Schiermonnikoog Island (joint with C. Faber and G. Farkas), September 2010.
- Organizer of the Intercity seminar Functorial compactification of moduli of abelian varieties (joint with J. Heinloth), Autumn 2010.