
Curriculum vitæ of Raf Cluckers

Positions

- 2016– Full Professor at the KU Leuven, Belgium (20% part time position).
2015– Senior researcher of the CNRS (DR2, Directeur de recherche de 2e classe du CNRS) with affiliation at Université de Lille, France.
2009–2015 Research Associate of premier class of the CNRS (CR1, Chargé de recherche de première classe du CNRS) with affiliation at Université de Lille.
2013–2016 Associate Professor at the KU Leuven (20% part time position).
2009–2013 Assistant Professor at the KU Leuven (20% part time position).
2007–2009 Postdoctoral Fellow of the Fund for Scientific Research – Flanders Belgium, (F.W.O.), KU Leuven, during which:
- Visiting Postdoctoral Fellow at the Ecole Normale Supérieure de Paris, 01/10/2007 - 30/09/2008 with an F.W.O. mobility grant.
 - Visiting Postdoctoral Fellow at the Queen Mary University of London, 01/03/2007 - 30/09/2007 with an F.W.O. mobility grant.
- 2003–2007 Postdoctoral Fellow of the Fund for Scientific Research – Flanders, Belgium (F.W.O.), KU Leuven, during which:
- Visiting Postdoctoral Fellow at the Ecole Normale Supérieure de Paris, 01/10/2003 - 28/02/2007 (F.W.O. mobility grant, followed by an European Network EA-GER grant, followed by a Marie Curie Fellowship).
- 1999–2003 Research Assistant of the Fund for Scientific Research – Flanders (Aspirant) Belgium, (F.W.O.), KU Leuven, preparation of Ph.D. thesis under supervision of Prof. Dr. J. Denef.

Studies and diplomas

- 2014 Habilitation à Diriger des Recherches at the University of Lille.
2002 Ph.D. at KU Leuven, with supervisor Jan Denef.
1999 Graduate studies in mathematics at KU Leuven: 24/09/1997 - 26/06/1999. I finished my graduate studies with the highest degree given at KU Leuven (Félicitations van de jury).
2008 Diploma of Actuarial Sciences at the V.U. Brussels.

Contact information and personalia

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Date of birth: 02/02/1976

Place of birth: Bonheiden, Belgium

Nationality: Belgian

Civil status: married, two children

Honors

- 2016 I was a speaker at the Boston College and MIT Joint Number Theory Seminar, September 13th 2016.
- 2014 The Nachdiplom-Vorlesungen at the ETH in Zürich were given by me in the spring term of 2014, during a part of which I was a research member of the MSRI.
- 2014 I obtained an ERC Consolidator Grant with ERC Grant Agreement nr. 615722 and acronym MOTMELSUM, starting in March 2014 for a five year period.
- 2011 "Prime d'Excellence Scientifique" of the CNRS of France.
- 2003 I was a Marie Curie Fellow at the ENS of Paris for two years.

Lectures

Main lectures at conferences and other international meetings:

- Model theory and applications, Mons, Belgium, January 16 - 19 (2017),
- Oberwolfach Workshop Definability and Decidability Problems in Number Theory, Germany, October 23 - 29 (2016),
- Second joint Conference of the Belgian, Royal Spanish and Luxembourg Mathematical Societies, Logroño, La Rioja, Spain, June 6 - 8 (2016) (Plenary speaker),
- Explicit p -adic methods in number theory, Oxford, March 20 - 24 (2016),
- Real Analytic Geometry and Trajectories of Vector Fields, CIRM (Centre International de Rencontres Mathématiques), Luminy, France, June 8 - 12 (2015),
- Artin Approximation and Infinite Dimensional Geometry, CIRM (Centre International de Rencontres Mathématiques), Luminy, France, March 23 - 27 (2015),
- Oberwolfach Workshop "Valuation Theory and Its Applications", Germany 26 October - 1 November (2014),
- Simons Symposium "Families of Automorphic Forms and the Trace Formula", January 26 - February 1 (2014),
- Recent Developments in the Applications of Model Theory to Algebraic, Analytic and Diophantine Geometry, ICMS, Edinburgh (UK) July 7 - 11 (2014),
- Model Theory and Applications to Geometry, Lisbon (Portugal), July 18 - 19 (2013),
- Conference on Motivic Invariants and Singularities, University of Notre Dame, US, June 3 - 7 (2013),
- Miniworkshop on o -minimality and Diophantine Geometry, University of Oxford, UK, August 24 - 25 (2012),
- Aspects of Singularities, University of Lille, France, May 30 - June 1 (2012),
- Workshop on o -minimality, Fields Institute, Toronto, Canada, August 8 - 12 (2011),
- Second International Valuation Theory Conference, Segovia, Spain, July 18 - 30 (2011),
- ASL European Annual Conference, Logic Colloquium 2011, Barcelona, Spain, July 11 - 16 (2011),

- Colloque Solstice, Paris, France, June 23 - 24 (2011),
- Exponential sums over finite fields and applications, ETH Zürich, Switzerland, November 1 - 5 (2010),
- Anglo-Belgian Workshop in Model Theory and Applications II, QMUL, London, UK, September 13 - 14 (2010),
- Oberwolfach Workshop "Model Theory: Around Valued Fields and Dependent Theories", Germany, January 3 - 9 (2010),
- Anglo-Belgian Workshop in Model Theory and Applications, Mons, Belgium, December 2 - 3 (2009),
- Real Singularities in Analysis and Geometry, Rennes, France, October 26-30 (2009),
- New Directions in the Model Theory of Fields, Durham, UK, July 20 - 30 (2009),
- Mini-conférence en théorie des modèles, Mons, Belgium, December 18 - 19 (2008),
- MODNET Barcelona conference, Barcelona, Spain, November 3 - 7 (2008),
- Conference "Motivic Integration and its Interactions with Model Theory and Non-Archimedean Geometry" ICMS, Edinburgh, UK, May 12 - 17 (2008),
- International Workshop on Zeta Functions in Algebra and Geometry, Segovia, Spain, June 25 - 29 (2007),
- Workshop "Model theory of fields", Freiburg, Germany, November 25-27 (2006),
- Representation Theory and Prehomogeneous Vector Spaces Conference, Strasbourg, France, September 11 - 14 (2006),
- An introduction to recent applications of model theory, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK (March 2005),
- Thematic semester on model theory and applications, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK (March 2005),
- Association for Symbolic Logic 2005 Annual Meeting, Stanford, US (March 2005),
- Model Theory and Complex Analytic Geometry, Mathematisches Forschungsinstitut Oberwolfach, Germany (July 2004),
- Journées Arithmétiques, Caen, France (June 2004),
- Interactions between model theory and geometry, Banff, Canada, (March 2004),
- The fifth annual colloquiumfest on valuation theory, Paris, France (April 2004),
- The second annual colloquiumfest on valuation theory, Saskatoon, Canada (March 2001).

Special sessions at the conferences:

- Conference Inaugurale du LABEX CEMPI, Université de Lille, France, September 24 - 28 (2012),
- Logic Colloquium 2006, Nijmegen, the Netherlands (July 27 - August 2, 2006),
- Joint BeNeLuxFra conference in mathematics, Gent, Belgium (May 2005),
- Logic Colloquium 2004, Torino, Italy (July 2004),
- Joint meeting RSME-AMS, Sevilla, Spain (June 2003),
- Euro-Conference on Model Theory and Applications, Ravello, Italy (2002).

Colloquium and seminar talks:

- Algebra, Combinatorics, and Geometry Seminar, Pittsburgh, US, September 20 (2016),
- Séminaire Structures Algébriques Ordonnées, Paris 7, January 19 (2016),
- Logic Seminar, Oxford, November 19 (2015),
- Colloquium talk, Pisa, March 13 (2015),
- Geometry Seminar at EPFL, Lausanne, February 24 (2015),
- Séminaire de Géométrie, Bordeaux, January 16 (2015),
- Séminaires de Géométrie Arithmétique et Motivique, Paris 13, November 21 (2014),
- Séminaire de géométrie algébrique, Rennes, November 13 (2014),
- Séminaire GTM "Géométrie et Théorie des Modèles", ENS Paris, December 13 (2013),

- Colloquium talk, UCL, Louvain-la-Neuve, November 15 (2012),
- Logic Advanced Class, Oxford, October 25 (2012),
- Heilbronn Seminar, Bristol, October 24 (2012),
- seminarium Number Theory, Leiden, March 12 (2012),
- Séminaire GTM "Géométrie et Théorie des Modèles", ENS Paris, January 29 (2010),
- KU Leuven Algebra Seminar, Leuven, May 13 (2009),
- Séminaire GTM "Géométrie et Théorie des Modèles", Paris, January 9 (2009),
- Séminaire de géométrie algébrique et Séminaire de géométrie algébrique réelle, Université de Rennes, France, March 13 (2008) (2 talks),
- Séminaire interuniversitaire de logique mathématique, U.M.H. Mons, Belgium, February 28 (2008),
- Seminar at the Queen Mary University of London, UK, September 12 (2007),
- Séminaire SAGA (Séminaire d'Arithmétique et de Géométrie Algébrique), Orsay, France, May 29 (2007),
- Séminaire à l'Université de Nice Sophia-Antipolis February 21 (2007),
- Séminaire GTM "Géométrie et Théorie des Modèles", Paris, November 24 (2006),
- Logic seminar, Hebrew University of Israel, April 26 (2006),
- Séminaire de Logique, Jussieu, Paris March 6 (2006),
- Séminaire de Théorie des Nombres, Bordeaux, France March 2 (2006),
- Séminaire de Logique, Lyon, France, April 6 (2006),
- Number theory and algebraic geometry seminar, KU Leuven May 4th and 11th (2005),
- UIC Model Theory Seminar, Chicago, US (March 2005),
- Model theory seminar, UIUC, US (March 2005),
- Departemental colloquium talk, KU Leuven, Belgium (February 2005),
- Number Theory/Representation Theory Seminar, Toronto University, Canada (November 2004),
- Algebra Geometry and Combinatorics Seminar, University of Pittsburgh, US (October 2004),
- Logic seminar, Fields Institute, Canada (March 2004),
- Logic Colloquium/Model Theory Seminar, McMaster University, Canada, (March 2004),
- Séminaire de Géométrie, Université de Bordeaux, France (February 2004),
- Logic Seminar, University of Oxford, UK (March 2003),
- Logic seminar, Fields Institute, Canada (March 2001),
- Number theory and algebraic geometry seminar, KU Leuven (several talks in 2000),
- Séminaire interuniversitaire de logique mathématique, U.L.B. - U.M.H., Belgium (February 2001),
- Séminaire d'Algèbre et de Géométrie, Ecole Normale Supérieure, Paris, France (March 2002),
- Séminaire de Logique Paris VII, France (January 2001).

Stays at foreign Universities

Almost all of the listed visits were research visits during which I worked together with experts at the place of visit; during many of the visits I gave seminar talks (see list of lectures).

- MIT, University of Pittsburgh, and UBC (Vancouver) (12 - 26 September 2016),
- University of Oxford (regular research visits in 2015 - 2016),
- MSRI, Berkely, US (8 - 16 May 2014),

- ETH, Zürich, (spring semester 2014: 17/02/2014 - 30/05/2014),
- IHÉS, France, (21/10/2013 - 21/01/2014),
- IHÉS, France, (08/06/2013 - 01/07/2013),
- University of Oxford, UK (13/05/2013 - 16/05/2013),
- University of Notre Dame, Indiana, US (10/10/2010 - 16/10/2010),
- Purdue University, Indiana, US (10/10/2007 - 14/10/2007),
- Queen Mary University of London, UK (01/03/2007 - 30/09/2007),
- Purdue University, Indiana, US (23/02/2007 - 28/02/2007),
- The Hebrew University of Jerusalem, Israel, (24/04/2006-28/04/2006),
- Université de Bordeaux, France, (28/02/2006 - 6/03/2006) and (24/05/2005 - 27/05/2005),
- University of Illinois at Chicago, US, (14/03/2005 - 18/03/2005),
- École Normale Supérieure, Paris, France, (01/03/2005 - 28/02/2007),
- Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, (01/03/2005 – 30/04/2005 with interruption for visit to Chicago),
- Université de Bourgogne, France, one week, February 2005,
- Purdue University, US, 04/11/2004 - 12/11/2004,
- Toronto University, Canada, 26/10/2004 - 04/11/2004,
- École Normale Supérieure, Paris, France, (01/10/2003 - 28/02/2005),
- McMaster University, Canada, two weeks, 3/2004,
- University of Oxford, UK, 4/03/2003 - 7/03/2003,
- Paris 7, Paris, one week, France, March 2001,
- École Normale Supérieure, Paris, France, 4/3/2002 - 8/3/2002,
- University of Illinois, Purdue University, and Ohio State University, US, in total from 28/03/2002 till 10/05/2002,
- McMaster University, Ontario, Canada, 28/2/2001 - 7/4/2001.

Research

My research is situated in several domains of mathematics: number theory, model theory, algebraic geometry, algebra, representation theory, motivic integration, and has applications to the Langlands program and to p -adic harmonic analysis. The theory of p -adic and motivic integration often plays a central role in my research. Other central themes are real and p -adic tame geometry, and exponential sums.

Organization of Conferences and Workshops

- 2017 Model theory and applications Mons, January 16 - 19, Scientific Committee.
- '16– From 2016 on, Z. Chatzidakis and I organize the monthly days GTM 'Geometry and model theory' at the ENS in Paris.
- 2016 With Pablo Cubides and Kien Nguyen, we organized a Special Day on Motivic Integration and Non-Archimedean Geometry, in Lille (France), October 10.
- 2016 With David Bourqui, Johannes Nicaise and Julien Sebag, we organized a conference on arc schemes and singularities in Rennes, France, November 2016.
- 2016 With E Baro and F. Point we organized the special session *Model Theory and Applications* of the Second joint Conference of the Belgian, Royal Spanish and Luxembourg Mathematical Societies, Logroño, La Rioja, Spain, June 6 - 8.

- 2014 With J. Pila and T. Scanlon we organized the workshop *Model Theory in Geometry and Arithmetic*, 12 - 16 May, which concluded the MSRI Spring 2014 semester program *Model Theory, Arithmetic Geometry and Number Theory*.
- 2013 Together with A. Chambert-Loir, F. Loeser, and J. Nicaise, we organized an Oberwolfach meeting devoted to motivic integration, 13 - 19 October 2013.
- 2011 With J. Nicaise and W. Veys of KU Leuven we have organized the Conference in Honor of Jan Denef's 60th birthday at CIRM in Luminy, 12 - 16 September 2011.
- 2008 With A. Macintyre, J. Nicaise, and J. Sebag, we organized the Workshop on Motivic Integration "Motivic Integration and its Interactions with Model Theory and Non-Archimedean Geometry" at the Maxwell Institute ICMS in Edinburgh, May 12 - 17 (2008).

Grants and funds

- In 2013 I obtained an ERC Consolidator Grant of almost one million euros, with ERC Grant Agreement nr. 615722 and acronym MOTMELSUM, from 1 March 2014 to 28 February 2019.
- Together with J. Nicaise (KU Leuven) we obtained the F.W.O. research grant G.0415.10, of almost 300.000 euros, for the period 2010 - 2014.
- In 2005 I obtained a Marie Curie Fellowship of the European Programme FP7 for two years at the Ecole Normale Supérieure of Paris.
- In 2004 I obtained an European Eager Network Grant to stay five months at the Ecole Normale Supérieure in Paris.
- Twice, a mobility grant of the Fund for Scientific Research – Flanders (F.W.O.) to stay twelve months at the Ecole Normale Supérieure in Paris was given to me (in 2003 and in 2007).
- Several funds from Vlaamse Leergangen (Belgium) and from the Fund for Scientific Research – Flanders (F.W.O.) (Belgium) to attend conferences and to pursue visits to foreign universities were attributed to me.

Courses

At the doctoral and research level:

- Research course on motivic integration at the University of Lille (autumn term 2015) 15 lectures.
- Nachdiplom-Vorlesungen, ETH, Zürich, Switzerland, (spring term 2014) 20 lectures.
- Oberwolfach Seminar: Motivic Integration, Germany, 13 - 19 October (2013) 3 lectures.
- Notre Dame, three lectures on Motivic Integration and applications to the Langlands program, invited by S. Starchenko (October 2010).
- two tutorial sessions for Ph.D. students in Logic, Ghent, February 19 - 20 (2009).
- In La Roche-en-Ardenne, Belgium, I have taught four training sessions on Motivic Integration at the Modnet Training workshop, April 20 - 26 (2008) (see also above, list of lectures).
- I have taught one afternoon session in the *Asian-French Summer School in Algebraic Geometry and Number Theory 2006: Motives and related topics*, Orsay, France, July 17 - 29 (2006).

- KU Leuven, three lectures on Motivic Integration, invited by Wim Veys and Jan Denef (May 2005).
- Toronto University, five lectures on Motivic Integration, invited by Henry Kim (October - November 2004).

At the master level:

- From 2012 - 2013 on, every other year, I teach a one semester course on logic and model theory to graduate students at KU Leuven.

At the Bachelor level:

- From 2012 - 2013 on, I am responsible and teach a one semester course on algebraic structures at KU Leuven.

Service courses:

- From 2009 till 2011, I have taught the service course "Mathematics for Economists" to economy students at KU Leuven, Belgium.

Broad public courses:

- During a summer school for entering students at KU Leuven I have given 8 hours of introductory courses on mathematics to a group of about 150 students.

Supervision

Postdocs:

- Wouter Castryck, University of Lille, 2016-2017.
- Pablo Cubides, University of Lille, 2014-2016.
- Jorge Cely, University of Lille, 2016-2017.
- Arne Smeets, University of Lille, 2015-2016.
- Dmitry Sustretov, University of Lille, 2016-2017.

PhD. Students:

- Kien H. Nguyen, University of Lille.
- Saskia Chambille, University of Lille, in cotutelle with W. Veys (KU Leuven).
- Alexander Lemmens, KU Leuven.
- T. Kuijpers, KU Leuven (2000 - 2014).
- E. Leenknegt, KU Leuven (2007 - 2011).

Master students:

I was the supervisor of the following master thesis and mémoires M2:

- Wim Moreau, 2015 - 2016, KU Leuven.
- Saskia Chambille, 2013 - 2014, Paris 7.
- Kien H. Nguyen, 2013 - 2014, Paris 6.
- Bruno Herman, 2011 - 2012, KU Leuven.
- Stijn Lemmens, 2008 - 2009, KU Leuven.

Bachelor students:

- I supervised six students for their bachelor thesis, 2013 - 2014, KU Leuven.
- I supervised four students for their bachelor thesis in 2007 - 2008, KU Leuven.

Expertise**University committees:**

- Member of the evaluation committee CES de l'ANR (l'Agence Nationale de Recherche de France) in 2014 and in 2015.
- Member of the conseil du laboratoire P. Painlevé of the University of Lille from January 2010 until January 2015.

Jury for PhD thesis:

- Member of the jury of the PhD Thesis of Benjamin Druart (Grenoble, 2015).
- Member of the jury of the PhD Thesis of Pablo Cubides (Paris 7, 2013).
- Member of the jury of the PhD Thesis of Florent Martin (Paris 6, 2013).

Committees for Recruitment:

- President of the Comité de Sélection for a junior professor position (PR), University of Lille, 2017.
- President of the Comité de Sélection for a full professor position (PR), University of Lille, 2016.
- Member of the Comité de Sélection for a junior professor position (MCF), University of Lille, 2012.

Scientific reports:

- I'm a reviewer for the *Mathematical reviews* on Mathscinet.
- Referee for numerous journals.

Research contracts and projects

- I'm the principal investigator of the ERC Grant MOTMELSUM nr. 615722, 2014–2019, CNRS, University of Lille.
- I was the co-investigator of the F.W.O. reserach grant G.0415.10, for the period 2010 - 2014 with main investigator J. Nicaise at KU Leuven.
- I'm a participant in the Advanced ERC Grant of F. Loeser (Paris) beginning January 2010 with ERC Grant Agreement no. 246903 "NMNAG".
- Until its end in 2010, I was a participant of the grant ANR-06-BLAN-0183 of F. Loeser.
- I am a participant of the GDR "Singularities and Applications" in France.
- I was a participant of the European network Modnet.

References

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