

Ann KIEFER

Curriculum Vitae

CONTACT INFORMATION

INSTITUTION: Université du Luxembourg
FACULTY: Faculté des Sciences Humaines, des Sciences de l'Éducation
et des Sciences Sociales
DEPARTMENT: Luxembourg Institute of Educational Testing (LUCET)
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ACADEMIC POSITIONS

JAN. 2021 - AUG. 2025	Postdoctoral Researcher, University of Luxembourg LUCET (Luxembourg Centre for Educational Testing) Position: STEM Expert
SEP. 2020 - JAN. 2021	Maternity Leave
OCT. 2019 - AUG. 2020	Postdoctoral Researcher, Vrije Universiteit Brussel Algebra Research Group (Prof. Eric Jespers) Position: Wetenschappelijk medewerker VUB
FEB. 2018 - SEP. 2019	Postdoctoral Research Fellow, Vrije Universiteit Brussel Algebra Research Group (Prof. Eric Jespers) Fellowship: Fonds voor Wetenschappelijk Onderzoek (FWO)
NOV. 2017 - JAN. 2018	Maternity Leave
OCT. 2017	Postdoctoral Research Fellow, Vrije Universiteit Brussel Algebra Research Group (Prof. Eric Jespers) Fellowship: Fonds voor Wetenschappelijk Onderzoek (FWO)
APR. 2016 - SEP. 2017	Postdoctoral Researcher, Universität Bielefeld Research Group of Prof. Christopher Voll Position: Wissenschaftliche Mitarbeiterin (FWO on pause)
JAN. 2015- MAR. 2016	Postdoctoral Researcher, Universität Bielefeld Research Group of Prof. Christopher Voll Fellowship: Fonds voor Wetenschappelijk Onderzoek (FWO)
OCT. 2014 - DEC.2014	Postdoctoral Researcher, Université Fribourg Research Group of Prof. Ruth Kellerhals Fellowship: Fonds voor Wetenschappelijk Onderzoek (FWO)
2010-2014	Ph.D. in Mathematics, Vrije Universiteit Brussel Title: <i>Units in integral group rings via fundamental domains and hyperbolic geometry</i> Advisor: Prof. Eric Jespers Co-advisor: Prof. Ángel del Río Grant: Fonds voor Wetenschappelijk Onderzoek (FWO)

EDUCATION

2018-2019	Master in Secondary Education - Mathematics Université Libre de Bruxelles, Brussels Grade: magna cum laude
2008-2010	Master in Mathematical Sciences, Université Libre de Bruxelles, Brussels Grade: summa cum laude Thesis: <i>Polyhedra Associated to Symmetric and Alternating Groups</i> Advisor: Prof. Dimitri Leemans
2005-2008	Bachelor in Mathematical Sciences, Université Libre de Bruxelles, Brussels Grade: summa cum laude

PUBLICATIONS

Published

- [1] Andreas Bächle, Geoffrey Janssens, Eric Jespers, Ann Kiefer, and Doryan Temmerman. Abelianization and fixed point properties of units in integral group rings. *accepted in Mathematische Nachrichten*, 2021. [arXiv:1811.12184\[math.GR\]](#).
- [2] Ann Kiefer. On units in orders in 2-by-2 matrices over quaternion algebras with rational center. *Groups Geom. Dyn.*, 14(1):213–242, 2020.
- [3] E. Jespers, S. O. Juriaans, A. Kiefer, A. de A. e Silva, and A. C. Souza Filho. Dirichlet-Ford domains and double Dirichlet domains. *Bull. Belg. Math. Soc. Simon Stevin*, 23(3):465–479, 2016.
- [4] E. Jespers, A. Kiefer, and Á. del Río. Presentations of groups acting discontinuously on direct products of hyperbolic spaces. *Math. Comp.*, 85(301):2515–2552, 2016.
- [5] E. Jespers, A. Kiefer, and Á. del Río. Revisiting Poincaré’s Theorem on presentations of discontinuous groups via fundamental polyhedra. *Expo. Math.*, 33(4):401–430, 2015.
- [6] F. Eisele, A. Kiefer, and I. Van Gelder. Describing units of integral group rings up to commensurability. *J. Pure Appl. Algebra*, 219(7):2901–2916, 2015.
- [7] E. Jespers, S. O. Juriaans, A. Kiefer, A. de A. e Silva, and A. C. Souza Filho. From the Poincaré theorem to generators of the unit group of integral group rings of finite groups. *Math. Comp.*, 84(293):1489–1520, 2015.
- [8] Ann Kiefer and Dimitri Leemans. On pairs of commuting involutions in $\text{Sym}(n)$ and $\text{Alt}(n)$. *Comm. Algebra*, 41(12):4408–4418, 2013.
- [9] A. Kiefer and D. Leemans. On the number of abstract regular polytopes whose automorphism group is a Suzuki simple group $\text{Sz}(q)$. *J. Combin. Theory Ser. A*, 117(8):1248–1257, 2010.

Preprint

- [10] Andreas Bächle, Geoffrey Janssens, Eric Jespers, Ann Kiefer, and Doryan Temmerman. A dichotomy for integral group rings via higher modular groups as amalgamated products. *submitted*, 2018. [arXiv:1811.12226\[math.GR\]](#).

HONOURS, AWARDS AND GRANTS

- 2021 WINNER OF THE LUXEMBOURG SCIENCE SLAM
- 2019 WINNER OF THE TRIER SCIENCE SLAM
- 2014 FONDS VOOR WETENSCHAPPELIJK ONDERZOEK (FWO)
3 year Research Fellowship, 2014-2017
- 2010 FONDS VOOR WETENSCHAPPELIJK ONDERZOEK (FWO)
4 year Research Fellowship, 2010-2014
- 2010 FONDS NATIONAL DE LA RECHERCHE SCIENTIFIQUE (FNRS)
Research Fellowship (not accepted because of acceptance of FWO-grant)
- 2008 RUTH AND JOE GANI PRIZE IN PROBABILITY
Award for the best student in the Probability and Statistic Classes
of the Bachelor degree at the Université Libre de Bruxelles
- 2006 PRIX FLEURICE MERCIER
Award for best overall student of the Faculty of Science of the
Université Libre de Bruxelles

OUTREACH ACTIVITIES

Large Audience Outreach Activities

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| WE CREATE, WE TRACE | Entertainer at the Mathematics Exposition
at the Expo 2020 Dubai (with Hugo Parlier and Bruno Teheux)
February 2022 |
| SCIENCE FESTIVAL 2021 | <i>The Simplicity of Complexity</i> (with Hugo Parlier and Bruno Teheux)
FNR Luxembourg
Novembre 2021 |
| CRÉATIVITÉ ET SCIENCES | Participant at a round table about the realization of
a creative workshop in math or science class
<i>I Love Science</i> Festival Brussels
Octobre 2021 |
| LUXEMBOURG'S SCIENCE SLAM | First Price
LuxDoc and DESCOM
https://www.youtube.com/watch?time_continue=279&v=00cszH7ozYQ&feature=emb_title
Octobre 2021 |
| MANNEKEN PISTHAGORAS/
PEETHAGORAS/PISTHAGORE | Together with a team of researchers and a cloth designer
we created a mathematical suit for Brussels' famous Manneken Pis
Vrije Universiteit Brussel
article in French
March 2019 |
| TRIER SCIENCE SLAM | First Price
Kultur Raum Trier e.V.
January 2020 |

BRIGHT CLUB	During Bright Club, scientists are transformed into stand-up performers and deliver a comedy set around their life and work as a researcher Wtnschap.be and Vrije Universiteit Brussel https://www.youtube.com/watch?time_continue=2&v=HpcEsVI8ccc March 2019
MATHS JAM SESSION	Co-organization of the evening program of the large audience conference <i>The Beautiful Impact of Mathematics in Society</i> organized by the VUB Septembre 2016

Mathematical Outreach Projects with High Schools

RACONTE-MOI LES MATHS	Pupils between the ages of 15 and 17 work on a chosen mathematical theory related to their school program. The goal is to produce a short movie about their topic. In cooperation with Nighthawks Production ASBL financed by Innoviris, Région de Bruxelles-Capitale and Fédération Wallonie-Bruxelles. https://nighthawksproductions.be/2020/08/19/raconte-moi-les-maths/ 2019-today
MATH.EN.JEANS	Plenary Speaker the the MeJ Congres 2022 Supervision of the MeJ-group of the Lycée Classique Diekirch 2021-22 Speaker at the Journée MeJ at the University of Luxembourg 2021 In charge of the first Flemish pupils participating, 2019
ANN KIEFER - MATHÉMATICIENNE PORTRAITS FILMÉS DE FEMMES SCIENTIFIQUES	Short movies about female scientists Produced by high school pupils https://vimeo.com/channels/1450903 February 2019

Workshops for High Schools

DE GEHEIME GESCHIEDENIS: WISKUNDE EN CODETHEORIE	Workshop on the mathematics behind Coding Theory given to Dutch-speaking students of Belgian high schools 2012, 2013
DE DONKERE MATERIE VAN DE GETALLENAS	Workshop on number sets and constructible numbers given to Dutch-speaking students of Belgian high schools 2011, 2012, 2013
PRINTEMPS DES SCIENCES	Scientific Exposition organized by ULB Student Support for one group of participating students 2012
MATHS LUDIQUES: LES ORIGAMIS	Workshop on the link between origamis and mathematics given to French-speaking students of Belgian high schools 2008, 2009, 2010

Activities for Primaryschool children

KINDERUNIVERSITEIT	Activity around mathematics and football for children aged 10 to 12 Vrije Universiteit Brussel May 2019
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Outreach Talks given to students

- *Einheiten in ganzzahligen Gruppenringen mithilfe von hyperbolischer Geometrie* (Units in Integral Group Rings with the Help of Hyperbolic Geometry), Upstream Perspective, Universität Heidelberg, Decembre 2016
- *Die Jagd nach Primzahlzwillingen und warum 2 und 70.000.000 ganz nah beieinander sind* (Chasing Twin Primes and why 2 and 70.000.000 are very close to each other), Weil Frauen Naturwissen schaffen, Zentrum für interdisziplinäre Forschung in Bielefeld, March 2016
- *Fermats letzter Satz aus der Sicht von Monsieur Le Blanc* (Fermat's Theorem and Monsieur Le Blanc), Netzwerktreffen Young Women in the CRC 701, Universität Bielefeld, June 2015
- *Les Maths et le Foot* (Mathematics and Football), Mathematikon, Université de Fribourg, Novembre 2014
- *De stelling van Fermat en Monsieur Le Blanc* (Fermat's Theorem and Monsieur Le Blanc), Seminarie Actuele Wetenschappen en Samenleving, Vrije Universiteit Brussel, Decembre 2012
- *Le Théorème de Fermat vu par M. Le Blanc* (Fermat's Theorem and Monsieur Le Blanc), Brussels Summer School of Mathematics, Université Libre de Bruxelles, August 2012

Outreach publications

- * P. Igodt and A. Kiefer. Sophie germain een onvoldoende bekende pionier. *Vector - Tijdschrift voor wiskundeonderwijs*, 2019.
- * A. Kiefer. Le théorème de Fermat vu par M. Le Blanc (Fermat's Theorem seen by M. Le Blanc). *Brussels Summer School of Mathematics, Notes de la cinquième BSSM*, pages 51–65, 2012.

GIVEN TALKS AND POSTER PRESENTATIONS

Selected Talks given at international conferences

- **Invited Speaker**, Groups and Rings Talking: Conference in Honor of Ángel del Río's 60th Birthday, Murcia, Spain; June 2020
- *Generators for discrete subgroups of 2-by-2 matrices over rational quaternion algebras*, Conference Groups St Andrews, Birmingham, United Kingdom; August 2017
- *Generators for discrete subgroups of 2-by-2 matrices over rational quaternion algebras*, **Invited speaker**, Journées de Géométrie Hyperbolique, Fribourg, Suisse; Mars 2017
- *Units in Integral Group Rings via Fundamental Domains and Hyperbolic Geometry*, **Invited speaker**, Second joint Conference of the Belgian, Royal Spanish and Luxembourg Mathematical Societies, Logroño, Spain, June 2016

- *Generators for discrete subgroups of 2-by-2 matrices over rational quaternion algebras*, Conference Groups and their Actions, Bedlewo, Poland; June 2015
- *A Presentation for a Group Acting Discontinuously on a Direct Product of Copies of Hyperbolic Spaces*, Conference Brock International Conference on Groups, Rings and Group Rings, St. Catharines, Canada; July 2014
- *Generators and Relations for a discrete subgroup of $SL_2(\mathbb{C}) \times SL_2(\mathbb{C})$* , Conference Groups St Andrews, St Andrews, United Kingdom; August 2013
- *Units in integral group rings and hyperbolic geometry*, Forum des jeunes mathématiciennes-s, Institut Henri Poincaré, Paris, France; Novembre 2012
- *Generators and Relations for a discrete subgroup of $SL_2(\mathbb{C}) \times SL_2(\mathbb{C})$* , Conference Groups, Rings and Group Rings 2012, Universidade de São Paulo, Ubatuba, Brazil; July 2012
- *Poincaré Bisectors and Application to Units*, Conference Groups, Rings, and Group-Rings, University of Alberta, Edmonton, Canada; July 2011

Colloquium Talks

- *Fermat's Last Theorem viewed by Monsieur Le Blanc*, SFB Kolloquium Regensburg, Germany; Decembre 2015

Poster Presentations

- *Discontinuous actions of unit groups of orders in rational group rings $\mathbb{Q}G$* , Conference Locally Compact Groups Beyond Lie Theory, Université Catholique de Louvain-La-Neuve, Spa, Belgium; April 2013

STUDENT SUPERVISION

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| 2022 | Co-Supervision (with Hugo Parlier) of a Master Thesis
Université du Luxembourg |
| 2020 | Co-Supervision (with Antonella Perucca) of a Master Thesis
Université du Luxembourg |
| 2015 | Supervision of a Bachelor Thesis
Universität Bielefeld |
| 2019 | Supervision of a Bachelor Thesis
Vrije Universiteit Brussel |

TEACHING EXPERIENCE

Lecturer for the following Courses

L'IMPORTANCE DES DIFFÉRENTS LANGAGES EN MATHÉMATIQUES	Master in Secondary Education - Mathematics Université du Luxembourg Spring 2022
INLEIDING GROEPENTHEORIE	Introduction to Group Theory, 1st year Bachelor in Mathematics Vrije Universiteit Brussel Spring 2019
ELEMENTARE ZAHLENTHEORIE	Elementary Number Theory, Bachelor in Mathematics Universität Bielefeld Spring 2017

Organizer of the following Student Seminars

SEMINARIE ACTUELE WETENSCHAPPEN EN ZAMENLEVING	Seminar where Mathematicians peak about their Job 1st year Bachelor in Mathematics VUB 2019-2020
PROSEMINAR COXETER GRUPPEN	Introduction to Coxeter Groups 2nd year Bachelor in Mathematics Bielefeld Spring 2015

Teaching Assistant at Université du Luxembourg for the following Courses

COMMUTATIVE ALGEBRA	Dialectical Exercise Sessions for future Teachers Master in Secondary Education - Mathematics Fall 2021
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Teaching Assistant at Universität Bielefeld for the following Courses

ANWENDUNGEN DER MATHEMATIK	Applications of Mathematics, Master Primary School Teachers Fall 2016
ALGEBRAISCHE ZAHLENTHEORIE	Algebraic Number Theory, Master in Mathematics Spring 2016
ANALYSIS 2	Analysis 1st year Bachelor in Mathematics Spring 2016
ALGEBRA 1	Introduction to Group Theory 2nd year Bachelor in Mathematics Fall 2015
GRAPH THEORY II	Follow up on basic Graph Theory Master in Mathematics Spring 2015

Teaching Assistant at Vrije Universiteit Brussel for the following Courses

DIFFERENTIAALMEETKUNDE	Differential Geometry 2nd year Bachelor in Mathematics/Physics Fall 2018, 2019
DIGITALE WISKUNDE	Digital Mathematics 2nd/3rd year Bachelor in Mathematics/Informatics Spring 2018

INLEIDING GROEPENTHEORIE	Introduction to Group Theory 1st year Bachelor in Mathematics Spring 2018, 2014, 2013, 2012, 2011
KANSTHEORIE	Probability Theory 2nd year Bachelor in Mathematics Spring 2013
LINEAIRE ALGEBRA	Linear Algebra 1st year Bachelor in Biology and Geography Fall 2013
RING- EN MODUULTHEORIE	Ring and Module Theory 2nd year Bachelor in Mathematics Fall 2012, 2011, 2010

Assistant of Teaching Assistant at Université Libre de Bruxelles for the following Course

ALGÈBRE LINÉAIRE	Linear Algebra, 1st year Bachelor in Physics Fall 2009
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Student Support Sessions in Mathematics at Université Libre de Bruxelles

GUIDANCES EN MATHÉMATIQUES	Support in Mathematics, 1st Bachelor all students of the Faculty of Science Fall 2008, Spring 2009
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Tutoring Courses in Mathematics for High School Students

COURS DE RATTRAPAGE	Tutoring courses in mathematics for high school students organized by Lycée Classique Diekirch classes of 5 to 10 students 2 weeks in Septembre from 2004 to 2009
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ORGANISATIONAL TASKS

2019-2020	Member of the Council of the Math Department to represent the postdoctoral researchers Vrije Universiteit Brussel
JUNE 2019	Local Organizer of the Conference <i>Groups, Rings and Associated Structures</i> Spa, Belgium
FEBRUARY 2018 -	Organizer of the ArXiv-seminar Vrije Universiteit Brussel

JUNE 2017	Local Organizer of the Conference <i>Groups, Rings and the Yang-Baxter Equation</i> Spa, Belgium
2016-2019	Local Organizer of the Conference <i>The Beautiful Impact of Mathematics in Society</i> Vrije Universiteit Brussel
2015-2017	Member of <i>Young Women in the CRC 701</i> initiative organizing meetings aimed to female students to come in contact with female researchers and exchange experiences
2012-2014	Local Organizer of <i>Wiskunnend Wiske wedstrijd</i> Mathematics Competition for high school students with several rounds, organized by the Vrije Universiteit Brussel

RESEARCH STAYS

NOVEMBRE 2019	Research Stay at Universidad de Murcia Murcia, Spain Research Group of Prof. Ángel del Río
OCTOBRE 2014 - DECEMBRE 2014	Research Stay at Université de Fribourg Fribourg, Switzerland Research Group of Prof. Ruth Kellerhals
2012 - 2014	several research stays of 3 weeks at Universidad de Murcia Murcia, Spain Research Group of Prof. Ángel del Río

LANGUAGES

MOTHER TONGUE:	Luxembourgish
ADVANCED LEVEL:	French, German
FLUENT:	English, Dutch
GOOD:	Spanish