

Curriculum Vitae

Geoffrey JANSSENS

PERSONAL DATA

BIRTH DATE: 16 November, 1989, Belgium
CITIZENSHIP: Belgian
EMAIL: geofjans@vub.ac.be
MOTHER TONGUE: French, Dutch
FLUENT: English, German

EMPLOYMENT AND EDUCATION

FROM 10/2021 ON Senior Postdoctoral Research Fellow, VUB
Fellowship: Fonds voor Wetenschappelijk Onderzoek (FWO¹)

3/2020 - 9/2020 Postdoctoral visiting researcher, Université de Paris
Member of the research team 'Groupes, Représentations et Géométrie'
working with Prof. Dr. Bernhard Keller.

CURRENTLY Junior Postdoctoral Research Fellow, VUB
Fellowship: Fonds voor Wetenschappelijk Onderzoek (FWO)

10/2014 - 5/2017 Ph.D. in Mathematics, Vrije Universiteit Brussel
Title: Identities of Algebras and Groups and their Asymptotic Behaviour
Supervisor: Prof. Dr. Eric Jespers and Dr. Alexey Gordinenko
Grant: Fonds voor Wetenschappelijk Onderzoek (FWO)

10/2012 - 9/2014 Teaching assistant, Mathematics Department VUB

9/2010 - 6/2012 Master in Fundamental Mathematics, Vrije Universiteit Brussel
Grade: Grootste Onderscheiding
Thesis: "The Isomorphism problem for Integral Group Rings"
Supervisor: Prof. Dr. Eric Jespers

9/2007 - 8/2010 Bachelor in Mathematics option physics, Vrije universiteit Brussel

SCIENTIFIC AWARDS

2016-3 KWG prize
The prize is yearly awarded at the Dutch National Mathematical Congress for mathematical merits during the PhD and ability to make subject accessible to non-specialists.

2018-11 Reinhold Baer prize
The prize is annually granted jointly by the association AGTA and publisher Aracne for outstanding PhD thesis in group theory and its applications. Received a special mention.

PUBLICATIONS AND PREPRINTS

Publications

- (1) G. Janssens, *Primitive Central Idempotents of Rational Group Algebras*, J. Algebra Appl. 12 (2013), no. 1, 125–130
- (2) A. Gordienko, G. Janssens, *$\mathbb{Z}S_n$ -modules and polynomial identities with integer coefficients*, Int. J. Algebra Comput. 23 (2013), no. 8, 1925–1943
- (3) E. Aljadeff, G. Janssens, Y. Karasik, *The Polynomial Part of the Codimension Growth of Affine PI algebras*, Adv. Math. 309 (2017), 487–511.
- (4) A. Gordienko, G. Janssens, E. Jespers, *Semigroup graded algebras and graded PI-exponent*, Israel J. Math. 220 (2017), no.1, 387–452
- (5) G. Janssens, E. Jespers, D. Temmerman, *Free products in the unit group of the integral group ring of a finite group*, Proc. Amer. Math. Soc. 145 (2017), no. 7, 2771–2783
- (6) G. Janssens, *A Glimpse into the Asymptotics of Polynomial identities*, Nieuw Arch. Wiskd. (5) 18 (2017), no.1, 60–64
- (7) F. Eisele, G. Janssens, T. Raedschelders, *A reduction theorem for τ -rigid modules*, Math. Z. 290 (2018), 3–4, 1377–1413
- (8) A. Bächle, G. Janssens, E. Jespers, A. Kiefer, D. Temmerman, *Abelianization and fixed point properties of linear groups and units in integral group rings*, Math. Nachr., in press, 56 pp, arXiv:1811.12184

Preprints

- (9) A. Bächle, G. Janssens, E. Jespers, A. Kiefer, D. Temmerman, *Higher modular groups as amalgamated products and a dichotomy for integral group rings*, submitted (2019), 33 pp, arXiv:1811.12226
- (10) G. Janssens, *Codimension Growth of Lie algebras with a generalized action*, submitted (2019), 12 pp, arXiv:1911.12335
- (11) F. Caenepeel, G. Janssens, *Glider Representation Rings with a view on distinguishing groups*, submitted (2019), 34 pp, arXiv:1911.11733

SUPERVISION

Supervision of Ph.D. students

- 2015 - 2019 Doryan Temmerman, *Fixed point properties for low rank linear groups over orders and applications to integral group rings*, co-supervisor: Eric Jespers
Defended on 24th of May 2019

Supervision of bachelorpapers

- 2015 - 2016 Charlotte Verwimp, *Free groups and the Growth of Groups*
2015 - 2016 Maurits van Roozendaal, *The McKay Correspondence*
2019 - 2020 Maxime Wybouw, *S_n through the looking glass en GL_d als de Mad Hatter - Shur-Weyl dualiteit*
2019 - 2020 Julie Symons, *How abelian can a finite group be? : The Joseph Conjectures*
2020 - 2021 Robynn Corveleyn, *Lie methods in Group Theory : On Wilson and Zelmanov's GI-PI theorem*

Supervision of pedagogical projects

2013 - 2014 Ilse Spruyt, Onderwijsstage Analyse I

2016 - 2017 Estelle Osman, Onderwijsstage Groepentheorie

TEACHING EXPERIENCE

Lecturer for the following courses:

Fall 2019 - 2022 Ring- en Modultheorie

Introduction to representation theory of finite groups and to ring theory for 2nd year bachelor in Mathematics.

Teaching Assistant for the following courses:

Fall 2019

Lineaire algebra: stelsels, matrices en afbeeldingen

Linear algebra for 1st year Bachelor in Mathematics and Physics

Fall 2012–2014 &
Spring 2016–2019

Lineaire Algebra

Introduction to linear algebra, 1st year Bachelor in Informatics, Biology or Chemistry

Fall 2018

Inleiding Algebraïsche Meetkunde

Introduction to algebraic geometry following Fulton's book, 3th year Bachelor in Mathematics

Spring 2016–2017

Galoistheorie

Galois theory for 3th Bachelor in Mathematics

Spring 2015–2017

Inleiding Groepen Theorie

Introduction to group theory, 1st year Bachelor in Mathematics

2012–2016

Clinics Lineaire Algebra

Evening classes on Introduction to linear algebra, Schakel in Informatics

Spring 2013–2015

Wiskunde voor Computerwetenschappen

Wavelet and Fractal data compression, 2nd year Bachelor in Informatics

Spring 2013–2015

Clinics Wiskunde voor Computerwetenschappen

Evening classes on Wavelet and Fractal data compression, Schakel in Informatics

2012–2014

Analyse: Afleiden, integreren en numerieke software

Introduction to Analysis, 1st year Bachelor in Mathematics and Physics

Spring 2013

Affiene en projectieve meetkunde

Introduction to affine and projective geometry, 2nd year Bachelor in Mathematics

Spring 2013

Aanvullingen Lineaire Algebra

Follow up on linear algebra, 1st year Bachelor in Mathematics

FELLOWSHIPS

- 2014-10 Aspirant Fellowship, Research Foundation Flanders (FWO)
Personal four year PhD research grant (ranked 2nd)
- 2018-10 Post-doctoral Fellowship, Research Foundation Flanders (FWO)
Personal three year post-doctoral grant (ranked 1st)
- 2021-10 Senior Post-doctoral Fellowship, Research Foundation Flanders (FWO)
Personal three year post-doctoral grant
- 2021-10 Chargé de Recherches, Fund for Scientific Research (F.R.S.–FNRS)
Personal three year post-doctoral grant

INVITED TALKS

Invited talks at conferences

- "The Subgroup Congruence Problem and its role in group rings",
GTA: Gran Bilbao, conference, Bilbao, Spain, 28 February 2019
- "The integral isomorphism problem, a helping hand from (geometric) group theory",
AGTA Workshop - Reinhold Baer Prize, Napoli, Italy, 5 November 2018
- "A Glimpse into the asymptotics of Polynomial identities",
Conference Groups, Rings and the Yang-Baxter equation, Spa, Belgium, 20 June 2017
- "Abstracte groepen, meer dan gewoon abstracte objecten",
Nationale Wiskunde Dagen, Noordwijkerhout, Netherlands, 4 February 2017
- "Identities of Algebras and Groups and their Asymptotic behaviour",
BeNeLux Mathematical Congress, University of Amsterdam, Netherlands, 23 March, 2016

Invited talks at seminars

- "Amalgamated Decompositions of Higher Modular Groups and their Elementary Part ",
Seminário de Álgebra, University of Brasilia, online, 9 April 2021
- "A reduction theorem for τ -rigid modules: string algebras ringing",
Séminaire d'algèbre, Institut Henri Poincaré (IHP), Paris, 16 March 2020
- "From Laws to Polynomial Identities: rewrapping Lehmer conjecture ",
The Junior Seminar in Pure Mathematics, KU Leuven, 11 December 2019
- "The integral isomorphism problem, a helping hand from (geometric) group theory",
Algebra seminar UPV/EHU, Bilbao, Spain, 17 April 2018
- "Polynomial identities through the eye of Kemer",
Algebra seminar Haifa university, Israel, 23 November 2017
- "(integral) Isomorphism Problem, a (geometric) group theory point of view",
Algebra seminar Technion, Haifa, Israel, 9 November 2017
- "A glimpse into the asymptotics of polynomial identities",
Antwerp algebra seminar, University of Antwerp, Belgium, 28 April 2017
- "A glimpse into the asymptotics of polynomial identities",
Oberseminar Gruppen und Geometrie, Bielefeld, Germany, 19 October 2016
- "Growth of Algebras and Groups", *Junior Seminar in Analytic, Geometric and Topological Group Theory*, Louvain-La-Neuve, Belgium, 29 January 2015
- "PI-exponent of algebras and some applications on distinguishing varieties of algebras",
Oberseminar algebra, Stuttgart, Germany, 25 November 2014

OUTREACH

Broad public articles

- (i) G. Janssens, *A Glimpse into the Asymptotics behind Polynomial Identities in algebras*, Newsletter Belgian Mathematical Society 108 (2016), 7–9
- (ii) G. Janssens, *A Glimpse into the Asymptotics of Polynomial identities*, Nieuw Arch. Wiskd. (5) 18 (2017), no.1, 60–64

Broad public talks

- (a) "Identities of Algebras and Groups and their Asymptotic behaviour", *BeNeLux Math. Congress*, University of Amsterdam, Netherlands, 23 March, 2016
- (b) "Abstracte groepen, meer dan gewoon abstracte objecten", *Nationale Wiskunde Dagen*, Noordwijkerhout, Netherlands, 4 February 2017
- (c) "How to apply successfully for an FWO post-doctoral Fellowship", *FWO grant info-session*, Vrije Universiteit Brussel, 5 October 2018

High school students

2012–2019 Open House Day VUB and SID-in
Spokesperson for the mathematics programme of VUB at diverse events for high school students

Museum Night Fever (MNF)

2015–2018 Interactive historical and scientific activities during MNF
MNF is a yearly event where all Brussels musea are open in the evening with a special program. With the student group SWAMP we were present in, a.o., the BELvue museum and Museum for Natural sciences with corresponding historical interactive games.
In 2017 we were 2nd at the public prize

PROFESSIONAL ACTIVITIES

Research visits and stays

2021-6/7	Université de Paris (Diderot), France, hosted by Bernhard Keller (one month)
2019-3	University of the Basque Country, Spain, hosted by Urban Jezernik (three weeks)
2018-12	University of the Basque Country, Spain, hosted by Urban Jezernik (one week)
2018-4	University of the Basque Country, Spain, hosted by Urban Jezernik (two weeks)
2018-3	University of Glasgow, hosted by Theo Raedschelders (one week)
2017-10/11	Techion- Israel institute of Technology, hosted by Eli Aljadeff (two months)
2017-6	City University London, hosted by Florian Eisele (one week)
2016-10	University of Bielefeld, hosted by Ann Kiefer (one week)
2016-2	City University London, hosted by Florian Eisele (one week)
2015-2	University of Bonn, hosted by Theo Raedschelders (one week)
2014-11	University of Stuttgart, hosted by Leo Margolis (one week)

Conference and Colloquium Organisation

2nd June 2017	Fourth Young mathematician Colloquium (main organizer) <i>The YMC aimed at gathering together young researchers from Belgium and the North of France and from all fields of Mathematics.</i>
13 May 2016	Third Young mathematician Colloquium (co-organizer)
9-15 June 2019	Groups, Rings and associated structures (local organizer)
18-24 June 2017	Groups, Rings and the Yang-Baxter Equation (local organizer)

Seminar (co)-Organisation

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|-----------------|---|
| 2016 – Dec 2019 | ALGB research group seminar
<i>main organiser of the weekly seminar of ALGB.</i> |
| Fall 2016 | Reading seminar (co-organizer)
<i>on modular representation theory of affine algebraic groups.</i> |
| April-June 2015 | Student seminar "From groups to fusion categories" (co-organizer)
<i>reading seminar on fusion categories and isocategorical groups.</i> |
| March-May 2014 | TTC student seminar (co-organizer)
<i>reading seminar on tilting and torsion Theory in representation theory.</i> |

Commissions

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| 2021-2023 | Universiteitsraad
<i>Representant of the OAP inside the university counsel</i> |
| 2013-2017 | Departementsraad
<i>Representant of the teaching assistants inside the Mathematics department counsel</i> |
| 2015-2017 | Faculteitsraad
<i>Mathematics representant inside the Science and Bio-engineering faculty counsel</i> |
| May 2015 | Hiring committee for full-time tenure track position, WE/2015/008,
in 'Digital Mathematics' |
| May 2016 | Hiring committee for 70% position, WE/2016/001, in 'statistical
and computational harmonic analysis' |

Referee Work

Transactions of the AMS, Advances in Mathematics, Proceedings of the AMS, Journal of Algebra, Advances in Group Theory and Applications, Beiträge zur Algebra und Geometrie, Journal of Algebra and its Applications, Comptes Rendus de l'Académie des Sciences