

Magdalena Boos

Curriculum Vitae

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🌐 <http://www.rub.de/ffm/Lehrstuehle/Algebra/boos.html>

Education

- 11.2008 - 07.2012 **Doctoral studies of Mathematics**, *Bergische Universität*, Wuppertal.
Certificate: Promotion (Doctorate)
Dissertation: “Conjugation on varieties of nilpotent matrices”
Main focus: “Representation Theory”, “Invariant Theory” and “Algebraic Geometry”
- 04.2008 - 11.2008 **Diploma studies of Mathematics**, *Bergische Universität*, Wuppertal.
Certificate: Diplom (Advanced Degree)
Diploma thesis: “B-Bahnen 2-nilpotenter Matrizen”
- 10.2003 - 10.2007 **Diploma studies of Mathematics**, *Westfälische Wilhelms-Universität*, Münster.
Main focus: “Representation Theory” and “Probability Theory”
Minor field of study: “Mathematical Logic”

Employment History

- 02.2021 - 02.2024 **Temporary Position for Principal Investigator**, *Ruhr-Universität*, Bochum.
Individual Research Grant, Deutsche Forschungsgemeinschaft
- 06.2020 - 02.2021 **Parental leave**.
- 04.2018 - 11.2018 Three sons (*October 2016, *April 2018, *July 2020)
- 09.2016 - 06.2017
- 09.2019 - 06.2020 **Research assistant**, *Ruhr-Universität*, Bochum.
Faculty of Mathematics, Chair of Algebra
- 08.2019 **Oberwolfach Leibniz Fellow**, *Math. Forschungsinstitut*, Oberwolfach.
- 08.2017 Joint with Dr. H. Franzen
- 07.2019 **Return grant**, *Ruhr-Universität*, Bochum.
DFG Rückkehrstipendium
- 01.2019 - 06.2019 **Visiting researcher**, *Sapienza Università*, Rome.
DFG Forschungsstipendium
- 11.2018 - 12.2018 **Research assistant**, *Ruhr-Universität*, Bochum.
- 06.2017 - 04.2018 Faculty of Mathematics, Chair of Algebra
- 04.2016 - 09.2016 *Reduced position (75%) from 12.17 - 04.18*
- 08.2014 - 03.2016 **Research assistant**, *Bergische Universität*, Wuppertal.
Department of Mathematics, Research group “Algebra and Number Theory”
- 10.2012 - 08.2014 **Product manager**, *zeb/information.technology GmbH & Co. KG*, Münster.
Duties: Full responsibility of one of the software applications, for example of budget, customer contact, requirements and testing; Supervision of a Bachelor thesis (information technology)

- 11.2008 - 09.2012 **Research assistant**, *Bergische Universität*, Wuppertal.
Department of Mathematics, Research group “Algebra and Number Theory”
- 04.2008 - 11.2008 **Student assistant**, *Bergische Universität*, Wuppertal.
- 10.2007 - 12.2007 **Intern**, *Escola de Educação Infantil Kinderland*, Curitiba, Brasil.
- 2005-2007 **Student assistant**, *Westfälische Wilhelms-Universität*, Münster.

Research

Publications and Preprints

- 2021 **On degenerations and extensions of symplectic and orthogonal quiver representations**, with *Giovanni Cerulli Irelli*.
Preprint, arxiv:2106.08666
- Symmetric degenerations are not in general induced by type A degenerations**, with *Giovanni Cerulli Irelli*.
Preprint, arxiv:2107.10559
- 2020 **Weight Spaces and Attracting Sets for Torus Actions on Quiver Moduli**, with *Hans Franzen*.
Preprint, arxiv:2002.12049
- The (cyclic) enhanced nilpotent cone via quiver representations**, with *Gwyn Bellamy*.
manuscripta mathematica, Volume 161, Issue 3, 333–362
- 2019 **Parabolic Conjugation and Commuting Varieties**, with *Michaël Bulois*.
Transformation Groups, Volume 24, Issue 4, 951–986
- Parabolic orbits of 2-nilpotent elements for classical groups**, with *Giovanni Cerulli Irelli and Francesco Esposito*.
Journal of Lie Theory, Volume 29, Issue 4, 969–996
- Multi-graded nilpotent tuples**.
Communications in Algebra, Volume 47, Issue 8, 3399–3420
- 2017 **Semi-simplicity of the category of admissible D-modules**, with *Gwyn Bellamy*.
To appear in: *Kyoto Journal of Mathematics*, arxiv:1709.08986
- Staircase algebras and graded nilpotent pairs**.
Journal of Pure and Applied Algebra, Volume 221, Issue 8, 1899–2156
- 2015 **Finite parabolic conjugation and commuting varieties**.
Oberwolfach Reports, No. 25/2015, Mathematisches Forschungsinstitut Oberwolfach
- 2014 **Finite parabolic conjugation on varieties of nilpotent matrices**.
Algebras and Representation Theory, Volume 17, Issue 6, 1657–1682
- Non-reductive conjugation on the nilpotent cone**.
Algebras and Representation Theory, Volume 17, Issue 6, 1683–1706
- 2011 **B-orbits of 2-nilpotent matrices and generalizations**, with *Markus Reineke*.
Highlights in Lie Algebraic Methods, *Progr. Math.*, 147–166

Selected Talks

- 2021 **SMRI Algebra and Geometry**, *University of Sydney*, Online.
Title: Advertising symmetric quivers and their representations
- Women and Mathematics**, *Institute for Advanced Study*, (Princeton / Online).
Title: Classical Lie-theoretic questions via Representation Theory
- Women in Combinatorics and Representation Theory**, *UC Riverside*, Online.
Title: Classical group actions via symmetric representations
- FD Seminar**, Online.
Title: On symmetric quivers and their degenerations
- 2020 **Emmy-Noether-Seminar**, *Friedrich-Alexander-Universität*, Erlangen.
Title: Approaching degenerations in classical Lie types
- 2019 **Algebra and Representation Theory Seminar**, *Tor Vergata*, Rome.
Title: Towards degenerations for algebras with self-dualities
- Incontri di Algebra e Geometria**, *Sapienza Università*, Rome.
Title: Conjugation on the nilpotent cone
- 2017 **Conference “Some Trends in Algebra 2017”**, Prague.
Title: The U-invariant ring of the nilpotent cone
- OS Darstellungstheorie**, *Rheinische Friedrich-Wilhelms-Universität*, Bonn.
Title: Representation theory of the enhanced (cyclic) nilpotent cone
- OS Gruppen und Geometrie**, *Universität Bielefeld*.
Title: Examining parabolic group actions with quiver representations
- 2016 **OS Algebra**, *Westfälische Wilhelms-Universität*, Münster.
Title: “Finiteness of parabolic conjugation with representation-theoretic methods”
- Workshop “Young Women in Representation Theory”**, *Rheinische Friedrich-Wilhelms-Universität*, Bonn.
Title: “A finiteness criterion for parabolic conjugation”
- Séminaire Stéphanois de mathématiques accessibles**, *Institut Camille Jordan*, St. Étienne.
Title: “Quivers and their representations: Linear algebra at its best”
- Séminaire d’algèbre**, *Institut Camille Jordan*, Lyon.
Title: “Graded nilpotent pairs via quiver representations”
- 2015 **Darstellungstheoretage 2015**, *Universität Stuttgart*.
Title: “Staircase algebras and graded nilpotent pairs”
- BIREP Seminar**, *Universität Bielefeld*.
Title: “Criteria for finite parabolic conjugation”
- OS Darstellungstheorie**, *Rheinische Friedrich-Wilhelms-Universität*, Bonn.
Title: “Towards a criterion for finite parabolic conjugation motivated by commuting varieties”
- Workshop “Enveloping Algebras and Geometric Representation Theory”**, *Mathematisches Forschungsinstitut*, Oberwolfach.
Title: “Finite parabolic conjugation and commuting varieties”

- 2014 **Séminaire d'algèbre**, *Institut Camille Jordan*, Lyon.
Title: "Finite parabolic conjugation on varieties of nilpotent matrices"
- Conference "Representations of Algebraic Groups and Related Objects"**,
Friedrich Schiller University, Jena.
Title: "Parabolic conjugation on varieties of nilpotent matrices"
- 2011 **Doktorandentagung**, *Rheinische Friedrich-Wilhelms-Universität*, Bonn.
Title: "Borel-conjugation on varieties of nilpotent matrices"
- 2010 **BIREP - Workshop**, *Universität Bielefeld*.
Title: "Parabolic orbits of 2-nilpotent matrices"
- ICRA XIV**, *University of Tokyo*.
Title: "B-orbits of 2-nilpotent matrices"

Academic Self-Administration

Funding, research stays and awards

- 2021 **Application procedure "Juniorprofessur W1"**, HHU Düsseldorf.
 Place on the nomination list
- 02.2021 - 02.2024 **Individual Research Grant: Temporary Position for Principal Investigator**,
 DFG.
Research project: "Modelling classical types: Algebraic group actions via algebras with symmetries"
- 08.2017/08.2019 **Oberwolfach Leibniz Fellow**, *Funding Grant*, MFO.
 Research stay of two months (with Dr. Hans Franzen)
- 07.2019 **Return grant**, *Funding grant Rückkehrstipendium*, DFG.
 Full funding for one month
- 01.2019 - 06.2019 **Research Fellowship**, *Funding grant*, DFG.
 Full funding for a research stay of six months at Sapienza University in Rome
- 04.2016 **Professeur invité**, *Grant*, Université Jean Monnet, St. Étienne.
 Full funded research stay of one month
- 10.2014 - 01.2016 **Position: Director of "Mathewerkstatt"**.
 Funded by "Gemeinsames Bund-Länder-Programm für bessere Studienbedingungen und mehr Qualität in der Lehre", Federal Ministry of Education and Research
- 05.2015 **Oberwolfach Leibniz Graduate Student**, *Funding Grant*, MFO.
Workshop: "Enveloping Algebras and Geometric Representation Theory"
- 12.2014 **Research stay**, *Université Jean Monnet, St. Étienne*.
 Funded by Institut Camille Jordan

Activities

- 05.2021 **Panel discussion "Sustaining the career"**, *Panelist*.
 Women in Combinatorics and Representation Theory (UC Riverside/Online)
- 2018 - 2022 **GRK "Algebro-geometric Methods in Algebra, Arithmetic & Topology"**,
 Heinrich-Heine-Universität Düsseldorf and Bergische Universität Wuppertal.
 Member

- 2016 - 2019 **Participation in project “Geometry and representation theory at the interface of Lie algebras and quivers”**, *Supported by DFG and RSF, M. Reineke and E. Feigin.*
 Subproject “Actions of Borel subalgebras and abelian algebras on representations”
- 01.2017 **Darstellungstheoretage**, *Organiser (together with Prof. Dr. B. Späth).*
- 10.2014 - 01.2016 **“Mathewerkstatt”**, *Director.*
 Funded by “Gemeinsames Bund-Länder-Programm für bessere Studienbedingungen und mehr Qualität in der Lehre”, Federal Ministry of Education and Research
- Committees**
- 06.2016 - 09.2016 **Professor Search Committee (Algebra)**, *Active Member.*
- 10.2014 - 03.2016 **Structural Committee**, *Elected Member.*
- Reviewing and referee activities**
Mathematical Reviews, zbMATH, RUB Research School.

Teaching

Ruhr-Universität Bochum

- 2019 - 2020 **Exercise classes “Mathematics for Engineers”**, *Prof. Dr. J. Winkelmann.*
- 2017 - 2018 **Exercise classes “Linear Algebra 1”**, *Prof. Dr. C. Thäle.*
Exercise classes “Linear Algebra 2”, *Prof. Dr. M. Reineke.*
- 2016 **Exercise classes “Mathematics for Engineers 2”**, *Prof. Dr. G. Laures.*

Bergische Universität Wuppertal

- 2014-2016 **Commutative Algebra**, *with Prof. Dr. M. Reineke.*
Seminar “Commutative Algebra”, *with Prof. Dr. M. Reineke.*
Lie Algebras, *with Dr. T. Weist.*
- 2011-2012 **Elementary Number Theory**, *with Prof. Dr. K. Bongartz.*
Seminar “Number Theory”, *with Prof. Dr. R. Huber and H. Franzen.*
Tutorial “Linear Algebra”, *with Prof. Dr. R. Huber.*
- 2009-2010 **Linear Algebra 1 and 2**, *with Prof. Dr. M. Reineke and Dr. O. Lorscheid.*
Seminar “Number Theory”, *with Prof. Dr. M. Reineke and Dr. R. Olbricht.*
Number Theory, *with Prof. Dr. M. Reineke and Dr. R. Olbricht.*
- 2008-2009 **Exercise classes “Algebra”**, *with Prof. Dr. M. Reineke and Dr. R. Olbricht.*
Exercise class “Preparatory class”, *Prof. Dr. K. Bongartz.*

Westfälische Wilhelms-Universität Münster

- 2005-2007 **Exercise classes “Linear Algebra”**, *Prof. Dr. S. Bosch, Prof. Dr. M. Reineke.*

Further Skills

- Computers **LaTeX2e, MS Office (Excel, Powerpoint, ...)**, Proficient.
HTML, Scala, Singular, Basic Knowledge.
- Languages **German**, First language.

English, Business fluent.

Portuguese, French, Italian, Basic skills.

Volunteer **Paediatric oncology of the University Medical Centre, Münster.**
activities Person in charge of skiing groups
Skill enhancement: "Skiing with disabled children and adolescents"