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Janina C. Letz

Postdoctoral Researcher

Research

Area *Commutative Algebra, Representation Theory and Homological Algebra*

Topics of interest *Triangulated Categories, Derived Categories, Stable Categories*

Employment

Sept 2023–
Aug 2024 **Visiting Researcher**, *University of California, Los Angeles*, Los Angeles, California, USA, Feodor Lynen Research Fellowship (Humboldt foundation)

Jul 2020–
Aug 2023 **Postdoctoral Researcher**, *Bielefeld University*, Bielefeld, Germany

Research Stays

Sept 2022–
Dec 2022 **Hausdorff Trimester Program**, *Hausdorff Center for Mathematics*, Bonn, Germany
Spectral Methods in Algebra, Geometry, and Topology

Education

Aug 2015–
May 2020 **Ph.D. Mathematics**, *University of Utah*, Salt Lake City, Utah, USA
Advisor: Srikanth Iyengar
Title of thesis: *Generation Time in Derived Categories*

Apr 2012–
Aug 2015 **B.Sc. Physics**, *Johannes Gutenberg-University*, Mainz, Germany
Advisor: Peter Virnau
Title of thesis: *Computersimulationen zum Phasenverhalten von aktiven Dimeren (computer simulations about phase characteristics of active dimers)*

Apr 2012–
Sept 2014 **B.Sc. Mathematics**, *Johannes Gutenberg-University*, Mainz, Germany
Advisor: Manuel Blickle
Title of thesis: *Bernstein-Gelfand-Gelfand Korrespondenz*

Oct 2008–**Pre-university course work**, *Johannes Gutenberg-University*, Mainz,
Mar 2012 Germany
University courses during high school in mathematics (Frühstudium).

Peer-reviewed Articles

- [7] Dalia Artenstein, [Janina C. Letz](#), Amrei Oswald, and Andrea Solotar. The Hochschild cohomology ring of monomial algebras. **J. Algebra**, 654:108–131, 2024.
- [6] Henning Krause and [Janina C. Letz](#). The spectrum of a well-generated tensor-triangulated category. **Bull. Lond. Math. Soc.**, 55(2):680–705, 2023.
- [5] [Janina C. Letz](#). Brown representability for triangulated categories with a linear action by a graded ring. **Arch. Math. (Basel)**, 120(2):135–146, 2023.
- [4] Srikanth B. Iyengar, [Janina C. Letz](#), Jian Liu, and Josh Pollitz. Exceptional complete intersection maps of local rings. **Pacific J. Math.**, 318(2):275–293, 2022.
- [3] Benjamin Briggs, Srikanth B. Iyengar, [Janina C. Letz](#), and Josh Pollitz. Locally complete intersection maps and the proxy small property. **Int. Math. Res. Not. IMRN**, 2022(16):12625–12652, 2021.
- [1] [Janina C. Letz](#). Local to global principles for generation time over commutative noetherian rings. **Homology Homotopy Appl.**, 23(2):165–182, 2021.

Monographs

- [2] Ragnar-Olaf Buchweitz. *Maximal Cohen–Macaulay Modules and Tate Cohomology*, volume 262 of **Math. Surveys Monogr.** American Mathematical Society, Providence, RI, 2021. with appendices by Luchezar L. Avramov, Benjamin Briggs, Srikanth B. Iyengar, and [Janina C. Letz](#).

Preprints

- [] [Janina C. Letz](#) and Marc Stephan. Generation time for biexact functors and Koszul objects in triangulated categories. arXiv e-prints, 2024. [2403.00695v1](#).
- [] [Janina C. Letz](#). Transfer of A-infinity structures to projective resolutions. arXiv e-prints, 2023. [arXiv:2312.13696v1](#).
- [] Benjamin Briggs, James C. Cameron, [Janina C. Letz](#), and Josh Pollitz. Koszul homomorphisms and universal resolutions in local algebra. arXiv e-prints, 2023. [arXiv:2310.08400v1](#).

Awards and third-party funding

- 2023 **Humboldt Foundation**, *Feodor Lynen Research Fellowship*
Research stay of 12 month at the University of California, Los Angeles, USA
- 2023 **European Mathematical Society**, *EMS Summer School*
Funding for the BIREP Summer School on persistence modules—The Interplay of Representation Theory and Topological Data Analysis

Conference Talks

- 2023 **Generation time in triangulated categories under biexact functors and for Koszul objects**, *Workshop: Tensor-Triangular Geometry and Interactions*, Mathematisches Forschungsinstitut Oberwolfach, Germany
- 2023 **Transferring resolutions along a Koszul homomorphism**, *Workshop: Resolutions in Local Algebra and Singularity Theory*, Mathematisches Forschungsinstitut Oberwolfach, Germany
- 2023 **Brown representability for triangulated categories with a linear action**, *Algebras and Representation Theory Network Meeting*, Cologne, Germany
Flashtalk
- 2022 **Homotopical characterization of exceptional complete intersection maps**, *Workshop: Spectra, triangles, and higher structures*, Hausdorff Research Institute for Mathematics, Bonn, Germany
Invited Speaker
- 2022 **Homotopical characterization of exceptional complete intersection maps**, *Geometric and combinatorial methods in homological algebra*, Aarhus, Denmark
Invited Speaker
- 2022 **The spectrum of a well-generated tensor triangulated category**, *Abel symposium 2022: Triangulated categories in representation theory and beyond*, Ålesund, Norway
Invited Speaker
- 2021 **Homotopical characterization of exceptional complete intersection maps**, *Workshop on Homotopy Theory and Group Theory (IRP Higher Homotopical Structures)*, virtually
Invited Speaker
- 2021 **Computations for thick subcategories in Macaulay2**, *AMS Spring Southeastern Sectional Meeting*, virtually
Invited Speaker
- 2020 **Smallness properties and locally complete intersections**, *Joint Mathematics Meeting*, Denver, Colorado, USA
Poster at the AWM Poster Session, Funded

- 2020 **Local to global principles for generation time over commutative rings**, *Joint Mathematics Meeting*, Denver, Colorado, USA
Invited speaker
- 2019 **Smallness properties and locally complete intersections**, *KUMUNU*, Lincoln, Nebraska, USA
Poster
- 2019 **Smallness properties and locally complete intersections**, *AMS Fall Central Sectional Meeting*, Wisconsin, Madison, USA
Invited speaker
- 2019 **Smallness properties and locally complete intersections**, *Equivariant Topology and Derived Algebra*, Trondheim, Norway
Gong show talk (10 minutes)
- 2019 **Smallness properties and locally complete intersections**, *RRAGE: Ragnar's Ramifications in Algebra and Geometry Emerging Workshop*, Toronto, Canada
5-minute talk
- 2019 **Local to global principles for generation time over commutative rings**, *KUMUNUjr*, Lincoln, Nebraska, USA
Invited speaker

Seminar Talks

- 2024 **Generation time for biexact functors and Koszul objects in triangulated categories**, *Algebra Seminar*, Syracuse University, Syracuse, New York, USA
- 2024 **Koszul homomorphisms and universal resolutions in local algebra**, *Algebra and Algebraic Geometry seminar*, University of Washington, Seattle, Washington, USA
- 2023 **Koszul homomorphisms and universal resolutions in local algebra**, *Algebra seminar*, UCLA, Los Angeles, California, USA
- 2023 **Koszul homomorphisms and universal resolutions in local algebra**, *Commutative algebra seminar*, University of Utah, Salt Lake City, Utah, USA
- 2023 **The spectrum of a well-generated tensor triangulated category**, *Seminario de Álgebra del IMERL*, Universidad de la República, Montevideo, Uruguay, virtually
- 2023 **Homotopical characterization of exceptional complete intersection maps**, *Algebra and Representation Theory Seminar*, Universität zu Köln, Köln, Germany
- 2023 **Koszul homomorphisms**, *Oberseminar Algebra*, Osnabrück, Germany

- 2022 **Homotopical characterization of exceptional complete intersection maps**, *Kolloquium Geometrie und Arithmetik*, Johannes Gutenberg-University Mainz, Mainz, Germany
- 2022 **The spectrum of a well-generated tensor triangulated category**, *SFB Lecture*, University of Regensburg, Regensburg, Germany
- 2022 **The spectrum of a well-generated tensor triangulated category**, *FD Seminar*, virtually
- 2021 **A homotopical characterization of locally complete intersection maps**, *Algebra Seminar*, University of Leeds, virtually
- 2021 **Generation in derived categories and applications to commutative algebra**, *New directions in group theory and triangulated categories*, virtually
- 2020 **A homotopical characterization of locally complete intersection maps**, *Algebra and Discrete Mathematics Seminar*, Clemson University, virtually
- 2020 **Local to global principles for generation time over commutative rings**, *Algebra Seminar*, Syracuse University, Syracuse, New York, USA
- 2020 **Local to global principles for generation time over commutative rings**, *Algebra and Algebraic Geometry Seminar*, University of Wisconsin, Madison, Wisconsin, USA
- 2019 **Local to global principles for generation time over commutative rings**, *Oberseminar Algebra*, Osnabrück, Germany
- 2019 **Local to global principles for generation time over Noether algebras**, *BIREP seminar*, Bielefeld, Germany
- 2019 **Local to global principles for generation time over commutative rings**, *Commutative algebra seminar*, University of Nebraska, Lincoln, Nebraska, USA
- 2019 **Local to global principles for generation time over commutative rings**, *Commutative algebra seminar*, University of Utah, Salt Lake City, Utah, USA

Conferences Organized

- 2024 **Commutative and Noncommutative Algebra, Together at Last**, San Francisco, California, USA
Special Session at the Spring 2024 Western Sectional Meeting
- 2023 **BIREP Summer School on persistence modules—The Interplay of Representation Theory and Topological Data Analysis**, Bad Driburg, Germany
Funding obtained from the EMS
- 2022 **Representation Theory and Triangulated Categories—a conference in honor of Henning Krause**, Paderborn, Germany

- 2021 **BRIDGES**, Salt Lake City, Utah, USA, hybrid
Aimed towards early graduate students and advanced undergraduate students interested in representation theory, number theory, and commutative algebra
- 2020 **Zoom Special Session on DG Methods in Commutative Algebra and Representation Theory**, virtually
Originally planned as a special session of the AMS Spring Western Sectional Meeting

Service

Referee for various mathematics journals (9 Reports)

Reviewer for MathSciNet (3 Reviews)

Reviewer for zbMATH Open (10 Reviews)

- 2021–current **FDLIST**, *Network for research in representation theory of finite-dimensional algebras and related topics*
Setup and maintenance of the forum
- 2020–2023 **Faculty of Mathematics**, *Bielefeld University*, Bielefeld, Germany
- 2022–2023: Member of the commission for research and young academics
 - 2020–2022: Member of the examination committee Bachelor of Science in Mathematics
 - 2020–2022: Member of the examination committee Master of Science in Mathematics
- 2020–2021 **Seminar Representation Theory**, *Bielefeld University*, Bielefeld, Germany
Co-Organizer
- 2017–2020 **Student Chapter of the Association for Women in Mathematics**, *University of Utah*, Salt Lake City, Utah, USA
- 2019–2020: Chair of the conference committee
Organizing a conference aimed towards early graduate students and advanced undergraduate to support students from underrepresented groups.
 - 2019–2020: Webmaster
- 2018–2020 **Graduate Student Advisory Committee**, *University of Utah*, Salt Lake City, Utah, USA
- 2019–2020: Co-chair of the Professional development committee
Organizing a job material editing group and some workshops and panels.
 - 2019–2020: Co-chair of the peer mentoring program
Pairing incoming graduate students with advanced graduate students.
 - 2018–2019: Graduate student colloquium chair
- 2018–2019 **Student Seminar in Commutative Algebra (BIKES)**, *University of Utah*, Salt Lake City, Utah, USA
Organizer

Outreach

- 2023 **‘Symmetrische Polynome—Wie sehen sie aus und wie viele gibt es?’ (Symmetric polynomials—How do they look and how many are there?)**, Gütersloh, Bielefeld
Talk at the award ceremony of the regional round of the national Mathematical Olympiad in the district Gütersloh.
- 2022–2023 **CampusTalk**, *Bielefeld University*, Bielefeld, Germany
Discussion with high school students on studies in mathematics.
- 2022 **Girl’s day: Forschen und Knobeln—als Beruf (Exploring and puzzle-solving—for a profession)**, *Bielefeld University*, Bielefeld, Germany
Facilitator for a day with girls of the ages 11–15 to provide insight in the profession of a mathematician.
- 2022 **Workshop on the game SET**, *Bielefeld University*, Bielefeld, Germany
Co-organizer of a workshop for grades 7–9 at the state-round of the national Mathematical Olympiad in North Rhine-Westphalia.
- 2019–2020 **Mentoring program for undergraduate students**, *University of Utah*, Salt Lake City, Utah, USA
Mentor for an undergraduate student in mathematics.
- 2019–2020 **Peer mentoring program for graduate students**, *University of Utah*, Salt Lake City, Utah, USA
Mentor for two first year graduate students in mathematics.
- 2018 **‘What is math day?’**, *University of Utah*, Salt Lake City, Utah, USA
Facilitator for an activity with middle school kids.
- 2012–2015 **Training camp for the federal round of the national Mathematical Olympiad**, Rhineland-Palatine, Germany
Facilitator of workshops for various grades.
- 2011 **Training camp for the federal round of the national Mathematical Olympiad**, Mainz, Germany
Organizer and Participant of a 2-day workshop.

Teaching

- 2024 **Instructor**, *University of California, Los Angeles*, Los Angeles, California, USA
Teaching undergraduate courses with full responsibility for lectures and grades.
- Linear Algebra
Winter 2024, Spring 2024
- 2023 **Instructor**, *Bielefeld University*, Bielefeld, Germany
Teaching a lecture with exercises with full responsibility for content and grades.
- Commutative Algebra (Kommutative Algebra)
Summer 2023

- 2020–2022 **Instructor and Organizer for Tutorials**, *Bielefeld University*, Bielefeld, Germany
 Writing problem sheets, organizing tutorial sessions and leading a tutorial session.
- Linear Algebra 2 (Lineare Algebra 2)
 Summer 2022
 - Linear Algebra 1 (Lineare Algebra 1)
 Winter 2021/22
 - Complex Analysis (Funktionentheorie)
 Winter 2020/21
- 2016–2019 **Instructor**, *University of Utah*, Salt Lake City, Utah, USA
 Teaching undergraduate courses with full responsibility for lectures and grades.
- Accelerated Engineering Calculus II
 Fall 2019
 - Engineering Calculus II
 Spring 2019, Fall 2018, Spring 2018
 - Bridge to Engineering Calculus II (one-week intensive course)
 Spring 2019, Fall 2018
 - Engineering Calculus I
 Fall 2017
 - Calculus II
 Fall 2016
- 2019 **Directed Reading Program: Mentor**, *University of Utah*, Salt Lake City, Utah, USA
 Mentoring an undergraduate student for an independent reading project.
 Mentee: Corbin Baldwin, Project: Category Theory
- 2015–2017 **Lab instructor**, *University of Utah*, Salt Lake City, Utah, USA
 Leading group discussions and grading problem sheets.
- Engineering Calculus II
 Spring 2017
 - Calculus I
 Spring 2016
 - Engineering Calculus I
 Fall 2015
- 2012–2015 **Lab instructor (Übungsleiter)**, *Johannes Gutenberg-University*, Mainz, Germany
 Leading group discussions and grading problem sheets.
- Theoretical Physics IV (Theoretische Physik IV)
 Summer 2015
 - Basics of numerics (Grundlagen der Numerik)
 Summer 2014
 - Linear algebra 1 (Lineare Algebra 1)
 Winter 2013/14, Summer 2013, Winter 2012/13

Professional Affiliations/Memberships

- 2022–current **Alexander von Humboldt Foundation**, *Recipient of a Feodor Lynen Research Fellowship*
- 2021–current **European Mathematical Society**, *Individual membership*
- 2021–current **Deutsche Mathematiker-Vereinigung (German Mathematical Society)**, *Regular membership*