

## Dr. Jonathan M. Wilson

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### CONTACT INFORMATION

Instituto de Matemáticas  
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### RESEARCH INTERESTS

Cluster algebras and their generalisations, cluster structures from surfaces, representation theory of quivers, categorification of cluster algebras, combinatorial theory of polytopes.

### EMPLOYMENT

**Instituto de Matemáticas, Universidad Nacional Autónoma de México (UNAM)**, Mexico

Postdoctoral Researcher, October 2018–present

- Postdoctoral mentors: Prof. Christof Geiss and Dr. Daniel Labardini-Fragoso

**Eberhard-Karls-Universität Tübingen**, Germany

Postdoctoral Researcher, October 2017– September 2018

- Postdoctoral mentor: Prof. Christoph Bohle

### EDUCATION

**Durham University**, UK

Ph.D., Pure Mathematics, October 2013–May 2017

- Adviser: Dr Anna Felikson
- Area of Study: Cluster Algebras

**University of Cambridge**, UK

MASt, Part III, October 2012–2013

- Area of Study: Pure Mathematics

**Swansea University**, UK

BSc., Mathematics, October 2009–2012

### PREPRINTS

[1] *Laurent phenomenon algebras arising from surfaces II – laminated surfaces*. [arXiv:1802.06962](https://arxiv.org/abs/1802.06962), 2018, submitted to Selecta Mathematica.

[2] *Positivity for quasi-cluster algebras*. [arXiv:1912.12789](https://arxiv.org/abs/1912.12789), 2019.

### PUBLICATIONS

[3] *Shellability and sphericity of finite quasi-arc complexes*. [10.1007/s00454-017-9929-0](https://doi.org/10.1007/s00454-017-9929-0), Discrete and Computational Geometry, Volume 59, Issue 3, April 2018, pp 680–706.

[4] *Laurent phenomenon algebras arising from surfaces*. [10.1093/imrn/rnw341](https://doi.org/10.1093/imrn/rnw341), International Mathematics Research Notices, Volume 2018, Issue 12, 13 June 2018, Pages 3800–3833.

### LECTURE SERIES

- Expansion formulas and good bases for surface cluster algebras (3 talks). In: *International Centre for Theoretical Sciences (ICTS), Bangalore, India: School on Cluster Algebras*, December 8–23, 2018.

TALKS AT  
INTERNATIONAL  
CONFERENCES

- Expansion formulae for quasi-cluster algebras (intended). In *Oaxaca, BIRS-CMO*, Dec 8–9, 2019.
- Expansion formulae for quasi-cluster algebras. In *University of Leeds: New Connections and Directions in Representation Theory and Related Topics*, April 15–17, 2019.
- Expansion formulae for quasi-cluster algebras. In *University of Leicester: Tropical Geometry meets Representation Theory II*, April 8–12, 2019.
- Expansion formulae for quasi-cluster algebras. In *UNAM, Mexico: Mini Workshop on Cluster Theory*, March 21–22, 2019.
- Cluster structures from laminated surfaces. In: *CIRM, Luminy, France: Representations in Lie Theory and Interactions*, November 5–9, 2018.
- Cluster structures from laminated surfaces. In: *Michigan State University: Cluster Algebras and Mathematical Physics*, May 7–12, 2018.
- Nonorientable Surfaces and their cluster structure. In: *University Notre Dame: Quivers and Bipartite Graphs: Physics and Mathematics*, May 2–6, 2016.
- The cluster structure of non-orientable surfaces. In: *Münster: Cluster Algebras and Geometry*, March 10–12, 2016.
- Wilson, J. Quasi-cluster algebras and the structure of the finite type exchange graphs. In: *KIAS; Korea: Young Mathematicians Workshop on Cluster Algebras*, December 12, 2014.
- Wilson, J. Quasi-cluster algebras from non-orientable surfaces. In: *Cardiff University: LMS Workshop on Cluster Algebras and Preprojective Algebras*, October 17–18, 2014.

SEMINAR TALKS

- Cluster structures from surfaces and the magic of perfect matchings. In *UNAM: Instituto de Matemáticas Colloquium*, April 15–17, 2019.
- Expansion formulae for quasi-cluster algebras. In *CIMAT: Commutative Algebra and Algebraic Geometry Seminar*, Guanajuato, Mexico, October 7, 2019.
- An introduction to Hall Algebras. In *UNAM: Representation theory seminar*, Mexico City, Mexico, September 30, 2019
- Cluster structures from laminated surfaces. In: *Durham University Cluster Algebra Seminar*, Durham, UK May 4, 2017.
- A short course (6 talks) on Laurent Phenomenon algebras and their connection to surfaces. In: *Durham University Cluster Algebra Seminar*, Durham, UK, January - March 2017.
- Triangulated non-orientable surfaces and their flip structure. In: *University of Manchester Geometry Seminar*, Manchester, UK, March 3, 2016.
- The structure of arc complexes. In: *Durham University Gandalf Seminar*, October 13, 2015.

TEACHING  
EXPERIENCE

**Instituto de Matemáticas, Universidad Nacional Autónoma de México (UNAM), Mexico**

*Lecturer:* Course on Cluster Algebras for graduate students, 26 lectures. **February 2019 - June 2019**

**Eberhard-Karls-Universität Tübingen, Germany**

*Lecturer:* Course on Cluster Algebras for graduate students, 28 lectures. **October 2017 - July 2018**

**Durham University, UK**

*Tutor* for Algebra II. **October 2015 - May 2017**

- 2<sup>nd</sup> year undergraduate course in *Groups, Rings and Fields*. Tutor for 3 groups of approx. 15 students.

*Tutor* for Algebra II. **October 2014 - May 2015**

- 2<sup>nd</sup> year undergraduate course in *Groups, Rings and Fields*. Tutor for 2 groups of approx. 15 students.

OTHER MEETING  
ATTENDANCE

**General Participant**

- New Trends in Representation Theory: The Impact of Cluster Theory in Representation Theory, *Leicester, UK*, June 19 – 23, 2017.
- Joint Notre Dame - La Sapienza workshop on lie theory and cluster algebras, *Rome, Italy*, October 17–21, 2016.
- Total Positivity: A bridge between Representation Theory and Physics, *Canterbury, UK*, January 7 – 12, 2016.
- Journées de Géométrie Hyperbolique, *Fribourg, Switzerland*, October 15 – 16, 2015.
- GEAR Junior Retreat, *Ann Arbor, Michigan*, May 23 – June 1, 2014.
- IRMA Master Class : Around Thurston-Grothendieck-Teichmüller theories, *Strasbourg, France*, February 9–17, 2014.
- 3<sup>rd</sup> Young Geometric Group Theory Meeting, *Luminy, France*, January 20–24, 2014.

OTHER ACTIVITIES

**Referee:**

- Boletín de la Sociedad Matemática Mexicana

**Reviewer:**

- MathSciNet

AWARDS

**Eberhard-Karls-Universität Tübingen**

- Teach@Tübingen Award, 2017–2018

**Durham University**

- EPSRC Doctoral Scholarship, 2013–2017

**Swansea University**

- Institute of Mathematics Prize, 2011–2012
- Senior Foulkes Prize in Mathematics, 2011–2012
- Lynne Charles Prize in Mathematics, 2010–2011
- Junior Foulkes Prize in Mathematics, 2009–2010