

# NICHOLAS WILLIAMS

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## EDUCATION

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### **PhD in Mathematics**

University of Leicester  
Supervisor: Sibylle Schroll

*September 2018 – present*

### **Graduate Diploma in Quantitative Economics**

Birkbeck, University of London  
Distinction

*October 2017 – June 2018*

### **MMathPhil in Mathematics & Philosophy**

Worcester College, Oxford  
Double First Class Honours

*October 2012 – June 2016*

## PUBLICATIONS

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(With Jordan McMahon.) The combinatorics of tensor products of higher Auslander algebras of type *A*. *Glasgow Mathematical Journal*. To appear.

## PREPRINTS

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The first higher Stasheff–Tamari orders are quotients of the higher Bruhat orders. [arXiv:2012.10371](#), 2020.

New interpretations of the higher Stasheff–Tamari orders. [arXiv:2007.12664](#), 2020.

## PRIZES AND SCHOLARSHIPS

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### **Gibbs prize for Mathematics & Philosophy**

University of Oxford  
For top performance in Mathematics papers

*2016*

### **Gibbs prize for Mathematics & Philosophy**

University of Oxford  
For top performance in Mathematics papers

*2015*

### **Academic scholarship**

Worcester College, Oxford

*2013*

### **Honorary scholarship**

Westminster School

*2007*

## INVITED TALKS

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### **An algebraic interpretation of the higher Stasheff–Tamari orders**

*International Conference on Representations of Algebras*

Selected to give talk by scientific committee based on research snapshot

*November 2020*

## CONTRIBUTED TALKS

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- Vertex figures of cubillages of cyclic zonotopes** *November 2020*  
*London Mathematical Society Graduate Student Meeting*
- Nice triangulations of cyclic polytopes** *June 2019*  
*London Mathematical Society Graduate Student Meeting*
- Higher analogues of Grassmannian clusters** *April 2019*  
*Maurice Auslander Distinguished Lectures and International Conference*
- Higher analogues of Grassmannian clusters** *April 2019*  
*New Connections and Directions in Representation Theory*  
University of Leeds
- Higher analogues of Grassmannian clusters** *April 2019*  
*Tropical Geometry meets Representation Theory*  
University of Leicester

## SEMINAR TALKS

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- KP solitons** *October 2020*  
PhD seminar  
University of Leicester
- KP solitons and the higher Stasheff–Tamari orders II** *October 2020*  
Working seminar in algebra and geometry  
University of Leicester
- KP solitons and the higher Stasheff–Tamari orders I** *September 2020*  
Working seminar in algebra and geometry  
University of Leicester
- Triangulations of odd-dimensional cyclic polytopes** *June 2020*  
PhD seminar  
University of Leicester
- Fukaya categories and higher Auslander algebras of type  $A$**  *April 2020*  
Working seminar in algebra and geometry  
University of Leicester
- Cluster categories and crossing conditions** *February 2020*  
Working seminar in algebra and geometry  
University of Leicester
- An algebraic interpretation of the higher Stasheff–Tamari orders** *November 2019*  
Pure mathematics seminar  
University of East Anglia
- An algebraic interpretation of the higher Stasheff–Tamari orders** *November 2019*  
Working seminar in algebra and geometry  
University of Leicester
- Nice triangulations of cyclic polytopes** *October 2019*  
PhD seminar  
University of Leicester

**Higher analogues of Grassmannian clusters***April 2019*

Algebra and number theory seminar

University of Graz

**Alternating strand diagrams, plabic graphs, and Grassmannians***January 2019*

PhD seminar

University of Leicester

**Grassmannians***October 2018*

Working seminar in algebra and geometry

University of Leicester

**POSTERS**

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**New interpretations of the higher Stasheff–Tamari orders***January 2021**Combinatorial algebra meets algebraic combinatorics*

Université du Québec à Montréal (online)

**An algebraic interpretation of the higher Stasheff–Tamari orders***November 2020**International Conference on Representations of Algebras*

“Research snapshot”

**New interpretations of the higher Stasheff–Tamari orders***September 2020**Virtual Heidelberg Laureate Forum***Representation theory and Grassmannians***March 2019**STEM for Britain*

Poster competition at UK Parliament

**GRANTS**

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London Mathematical Society Scheme 8

*April 2020*

Postgraduate research conference grants

*Categorifications in Representation Theory* conference organised with Aran Tattar

GBP 2,500

**ORGANISATION**

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**Categorifications in Representation Theory conference***September 2020*

Co-organised with Aran Tattar

Online

**Mathematics PhD seminar***September 2019 – August 2020*

University of Leicester

**Representation theory and mirror symmetry conference***May 2019*

Local organising committee

University of Leicester

**RESEARCH STAYS**

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University of Graz

*April 2019*

Visiting: Jordan McMahon

Host: Karin Baur

1 week

## REVIEWING

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zbMATH

*September 2020 – present*

## REFEREEING

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Journal of Algebraic Combinatorics

## TEACHING

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**Calculus & Analysis**

*October 2020 – present*

Class teacher

University of Leicester

**Second-year algebra**

*January 2020 – April 2020*

Class teacher

University of Leicester

**Calculus & Analysis**

*October 2019 – April 2020*

Class teacher

University of Leicester

**Elements of Number Theory**

*October 2019 – December 2019*

Class teacher

University of Leicester

**Calculus & Analysis**

*January 2019 – March 2019*

Class teacher

University of Leicester

## COMMITTEE ROLES

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Mathematics & Philosophy Representative

*2015 – 2016*

Joint Consultative Committee with Undergraduates

University of Oxford

Undergraduate Representative

*2015 – 2016*

Joint Committee for Mathematics and Philosophy

University of Oxford

Undergraduate Representative

*2015 – 2016*

Mathematics Department Art Committee

University of Oxford

## OUTREACH

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University of Leicester Representative

*November 2018, 2019, 2020*

Research in the UK afternoon

University of Cambridge

Student Helper

*March 2013, 2014, 2015*

Oxford and Cambridge Student Conferences

## OTHER

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London Mathematical Society  
Associate member

*June 2019 – present*

**Programming**      Python, Sage, Maple, node.js  
                                 Git

### Languages

	(CEFR levels)
English	Native
German	B1
French	B1
Spanish	A1
Japanese	A1

## OTHER EMPLOYMENT

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**Enders Analysis**  
Research analyst, Telecoms

*November 2016 – August 2018*