

CV: John Nicholson

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EMPLOYMENT	University of Glasgow Rankin-Sneddon Research Fellow	Sep 2023 - Sep 2026
	Imperial College London Heilbronn Research Fellow	Oct 2021 - Sep 2023
EDUCATION	University College London PhD Mathematics, EPSRC PhD Studentship (grant: EP/N509577/1) Thesis: Projective modules over integral group rings and Wall's D2 problem Supervisor: Francis E. A. Johnson	Oct 2017 - Oct 2021
	University of Cambridge, Emmanuel College MMath Mathematics (Part III), First Class Honours BA Mathematics, First Class Honours in all years Thesis: Exotic Spheres Supervisor: Oscar Randal-Williams	Sep 2013 - July 2017
PUBLICATIONS AND PREPRINTS	<ol style="list-style-type: none">8. Simple homotopy types of even dimensional manifolds with C. Nagy and M. Powell Submitted, 76 pages, arxiv:2312.00322 (2023)7. Stably free modules and the unstable classification of 2-complexes Submitted, 29 pages, arXiv:2108.02220 (2021)6. Cancellation for (G, n)-complexes and the Swan finiteness obstruction Submitted, 29 pages, arXiv:2005.01664 (2020)5. Projective modules and the homotopy classification of (G, n)-complexes Algebr. Geom. Topol. to appear, 28 pages, arXiv:2004.042524. Homotopy classification of 4-manifolds whose fundamental group is dihedral with D. Kasprowski and B. Ruppik Algebr. Geom. Topol., 22 (2022), 2915-2949, arXiv:2011.035203. Connected sum decompositions of high-dimensional manifolds with I. Bokor, D. Crowley, S. Friedl, F. Hebestreit, D. Kasprowski and M. Land 2019-20 MATRIX Annals (2021), 5-30, arXiv:1909.026282. On CW-complexes over groups with periodic cohomology Trans. Amer. Math. Soc., 374 (2021), 6531-6557, arXiv:1905.120181. A cancellation theorem for modules over integral group rings Math. Proc. Cambridge Philos. Soc., 171 (2021), 317-327, arXiv:1807.00307	
FUNDING AND AWARDS	Rankin-Sneddon Research Fellowship, University of Glasgow, 3-year research fellowship. Salary & Expenses.	2023 - 2026
	Focused Research Grant, Heilbronn Institute for Mathematical Research, To fund workshop " <i>Algebraic methods in 4-manifold topology</i> ". PI. £8,000.	2023 - 2024

EPSRC Vacation Bursary Award, two awards for 3-month projects. £9,072. 2022 - 2023
To support the undergraduate research projects of Lukas Ertl and William Thomas

Cecilia Tanner Research Impulse Grant, Imperial College London. £800. 2023

Fields Research Fellowship, to visit Fields Institute. CAD\$7,500 (=£4910). 2022 - 2023

1-week visit to Max Planck Institute for Mathematics (Ian Hambleton's grant) (~£450) 2022

3-week visit to Indiana University (Jim Davis's grant) (~£1,700 + accom.)

Two 1-week visits to Durham University (Mark Powell's grant) (~£200 + accom.) 2022

Heilbronn Research Fellowship, Heilbronn Institute for Mathematical Research,
 2-year research fellowship. £189,852. 2021 - 2023

Guest Program, Max Planck Institute for Mathematics, 2-month visit. €2,936 (=£2,609). 2021
Took place virtually due to COVID-19 restrictions

EPSRC PhD DTP Studentship, 4-year studentship. Salary, Fees & £1,400 p.a. 2017 - 2021

Bridgewater Studentship for Undergraduate Research (~£2,000) 2016

LMS Undergraduate Summer School (selected as 1 out of 3 from University of Cambridge) 2015

Undergraduate Prizes: Braithwaite Batty Prize for Mathematics (x2), Senior Scholar (x3),
 Rowley Mainhood Award (x2), Emmanuel College Prize (x2) 2014 - 2017
 (plus additional funding for conferences, invited talks and research visits less than one week)

INVITED
 SEMINAR TALKS

University of Cambridge, Differential Geometry & Topology Seminar Feb 2024

University of Glasgow, Algebra & Number Theory Seminar Jan 2024

University of Glasgow, Geometry & Topology Seminar Nov 2023

University of Augsburg, Differential Geometry Seminar July 2023

University of Southampton, Topology Seminar May 2023

McMaster University, Geometry & Topology Seminar Apr 2023

University of Toronto, Geometry & Topology Seminar Apr 2023

The London Algebra Colloquium Feb 2023

University of Exeter, Number Theory and Algebra Seminar Dec 2022

University of Oxford, Topology Seminar Oct 2022

University of Münster, Geometric Group Theory Seminar

Indiana University Bloomington, Topology Seminar April 2022

The London Geometry and Topology Seminar Jan 2022

The University of Alabama, Algebra/Topology Seminar Nov 2021

Universidad de Buenos Aires, Topology Seminar Oct 2021

LMU München, Arithmetic & Algebraic Geometry Seminar June 2021

Université du Québec á Montréal, Geometry & Topology Seminar Apr 2021

Max Planck Institute for Mathematics, Topology Seminar Mar 2021

New Directions in Group Theory and Triangulated Categories Dec 2020

University of Southampton, Pure Mathematics Colloquium Nov 2020

University of Regensburg, Low-Dimensional Topology Seminar Oct 2020

Ohio State University, Topology Seminar July 2020
 Durham University, Geometry and Topology Seminar Oct 2019
 University of Melbourne, Topology Seminar Aug 2018
 University of Sydney, Geometry and Topology Seminar Aug 2018
 (plus additional talks in junior seminars and reading groups)

CONFERENCE
TALKS

A Festival Remembering Victor Snaith: Topology, Number Theory and Interactions
 University of Bristol, UK (Flash Talk) July 2023
Geometric Group Theory and Low Dimensional Topology, 3rd International Meeting
 Karlsruhe University of Education, Germany (Invited) Nov 2022
4-manifolds: From Above and Below
 Centre International de Recontres Mathématiques, France (Flash Talk) Sep 2022
Early Career Researchers in Mathematics 2022
 University College London, UK (Plenary) June 2022
Topological and Homological Methods in Group Theory
 Bielefeld University, Germany (Contributed) Mar 2022
Special Session on Geometric Topology in the Middle Dimensions, AMS Spring Sectional Meeting Purdue University, USA (Invited) Mar 2022
Four Manifolds: Confluence of High and Low Dimensions
 Fields Institute, Canada (Contributed) July 2019

CONFERENCES
AND
WORKSHOPS

A Festival Remembering Victor Snaith: Topology, Number Theory and Interactions
 University of Bristol, UK July 2023
Algebraic Methods in 4-Manifold Topology (Organised with Mark Powell) June 2023
 University of Glasgow, UK
EPSRC Pure Mathematics Community Workshop Mar 2023
 University of Bristol, UK
Geometric Group Theory and Low Dimensional Topology, 3rd International Meeting
 Karlsruhe University of Education, Germany (*online*) Nov 2022
4-manifolds: From Above and Below CIRM, France Sep 2022
Heilbronn Annual Conference 2022 Sep 2022
 University of Bristol, UK
Early Career Researchers in Mathematics 2022 UCL, UK June 2022
Topological and Homological Methods in Group Theory
 Bielefeld University, Germany Mar 2022
AMS Spring Central Sectional Meeting Purdue University, USA (*online*) Mar 2022
Workshop on Finiteness Properties Karlsruhe Institute of Technology, Germany Feb 2022
Manifolds & K-theory: the legacy of Andrew Ranicki Edinburgh, UK (*online*) June 2021
British Mathematical Colloquium (BMC) Glasgow, UK (*online*) April 2021
Geometric Group Theory and Low Dimensional Topology, 2nd International Meeting
 Karlsruhe University of Education, Germany (*online*) Dec 2020
LMS Graduate Student Meeting London, UK (*online*) Nov 2020

	Four Manifolds: Confluence of High and Low Dimensions	
	Fields Institute - Toronto, Canada	July 2019
	Topology of Manifolds, Interactions Between High and Low Dimensions	
	MATRIX Institute - Melbourne, Australia	Jan 2019
	Harnessing Higher Structures in Homotopy: Workshop on Manifolds	
	Isaac Newton Institute - Cambridge, UK	Dec 2018
	Manifolds, Groups and Homotopy Isle of Skye, UK	June 2018
UNIVERSITY TEACHING	School of Mathematics & Statistics, University of Glasgow	
	<i>Lecturer</i> : Linear Algebra (21 lectures, 10 tutorials, 10 hub sessions, ~ 60 students)	2023 - 2024
	<i>Lecturer</i> : Galois Theory (20 lectures, 10 tutorials, 10 hub sessions, ~30 students)	2023 - 2024
	Department of Mathematics, Imperial College London	
	<i>Lecturer</i> : Algebra III (24 lectures, 4 problems classes, 3 exams, ~50 students)	2022 - 2023
	Department of Mathematics, University College London	
	<i>Problems class instructor</i> : Algebra III (2 classes, 30 students each)	2019 - 2020
	<i>Problems class instructor</i> : Algebra IV (130 Students)	2018 - 2019
	<i>Tutor</i> : Algebra I, Algebra II, Analysis I, Analysis II (7 Students)	2018 - 2019
	<i>Problems class assistant</i> : Algebra II (70 students)	2017 - 2018
STUDENT SUPERVISION	Undergraduate Research Project, Imperial College London	2022-23
	<i>William Thomas</i> (Title: Geometric realisation over aspherical groups)	
	Undergraduate Research Project, Imperial College London	2022-23
	<i>Lukas Ertl</i> (Title: Relation modules over Baumslag-Solitar groups)	
	MSc Thesis, Imperial College London	2022-23
	<i>Kamen Pavlov</i> (Title: The Wall finiteness obstruction)	
	Winner of the prize for Best MSc Project in Pure Mathematics	
	Currently a PhD student at the University of Southampton	
	MSc Thesis, Imperial College London	2021-22
	<i>Alexandre Tissot</i> (Title: On group cohomology and Poincaré duality groups)	
OUTREACH AND PRE-UNIVERSITY EDUCATION	Talks at London Schools (both non-selective state schools)	
	<i>Harris Academy St Johns' Wood</i> : Assembly for Mathematics students (~70 students)	2022
	<i>Chelsea Academy</i> : Assembly for full Sixth Form (~200-300 students)	2022
	ROSS Mathematics Program, USA	(Columbus, Ohio)
	<i>Lecturer</i> (1 week): Introduction to Algebraic Topology (<i>online</i>)	Jan 2021
	<i>Lecturer</i> (1 week): Introduction to Algebraic Topology	July 2019
	Chalkdust Magazine	
	<i>Member of Editorial Team</i> : Reviewed pure maths submissions, wrote a column	2019 - 2020
	Advanced Mathematics Support Programme, University College London	
	<i>Teacher</i> : Special STEP sessions on Mechanics and Statistics	2018, 2019
	<i>Teaching assistant</i> : STEP II and III course (Cambridge Entrance Exam)	2018, 2019
	Co-author: Edexcel A-level Further Mathematics, Core Pure 2	2018
	Core curriculum textbook for high school students in the UK. Available from Amazon: https://amazon.co.uk/Edexcel-level-Further-Mathematics-Textbook/dp/1292183349/	
	ROSS Mathematics Program, Asia	(Huangshan, China)
	<i>Counselor</i> (2 × 5 weeks): responsible for marking work and tutoring 5 students in Number Theory, seminar instructor, mini-courses on various topics	2017, 2018

Department of Mathematics, University of Cambridge*Teacher:* Millenium Mathematics Project (volunteering in schools) 2016, 2017*Teacher and Mentor:* Sutton Trust Summer Schools 2015, 2016*Teacher:* STEP Easter School (preparing students for STEP exam) 2015**Cambridge Admissions Office***CAMBassador:* This involved running events which were aimed at encouraging young people from disadvantaged backgrounds to consider applying for university 2015 - 2017**Underground Mathematics***Resource Developer* (6 weeks): Created resources for use in UK 16-18 education, assisted with the general running of the website: <https://undergroundmathematics.org/> 2015

SERVICE

Article Reviewer Algebraic & Geometric Topology, Journal of Pure and Applied Algebra**EPSRC Pure Mathematics Community Workshop** Attendee Mar 2023**Imperial UROP Prize (Undergraduate Research Opportunities)** Judge/Reviewer 2022-23**PhD Staff-Student Consultative Committee (PGRSSCC)** 2019 - 2021**Undergraduate Admissions Interviewer for University College London** 2018**Eureka Mathematics Journal (Archimedean)** Assistant Editor 2015 - 2016**Maths Faculty Board, Cambridge** Student Representative 2015, 2016

ORGANISATION

Geometry & Topology Seminar, University of Glasgow Organiser (with Jim Belk) 2023-**Algebraic Methods in 4-Manifold Topology** Organiser (with Mark Powell) 2022-23**Heilbronn Show & Tell Seminar** Organiser (with Alex Best and Caleb Springer) 2022-23

SKILLS

Programming and markup languages:Magma, GAP, L^AT_EX (advanced)

SageMath, Python, MATLAB, Mathematica, HTML, Bash (proficient)

Languages: English (native), Spanish (advanced)