

Lucas Mason-Brown

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EDUCATION	MIT , Cambridge, MA <i>PhD</i> , Mathematics, September 2015 – May, 2020 (expected) Thesis: The K -Structure of Unipotent Representations GPA: 5.0
	Trinity College Dublin , Dublin, Ireland <i>MSc</i> , Mathematics, September 2013 – May 2014 Thesis: Natural Operations in Differential Geometry GPA: 4.0
	Brown University , Providence, RI <i>BSc</i> , Mathematics/Philosophy, September 2009 – May 2013 GPA: 4.0
RESEARCH	I am primarily interested in representation theory, Lie groups, and algebraic geometry. Most of my research is inspired by the Orbit Method, a mysterious correspondence between the co-adjoint orbits of a Lie group and its irreducible unitary representations.
TEACHING	MIT Teaching Assistant, Intro to Probability and Statistics Teaching Assistant, Intro to Probability and Statistics Teaching Assistant, Real Analysis Teaching Assistant, Lecture Series in Mathematics Teaching Assistant, Project Lab in Mathematics Spring, 2017 Summer, 2018 Fall, 2018 Winter, 2019 Spring, 2019
	Edward W. Brooke Middle School Seventh grade math and science teacher 2014-2015
	MATHletes Challenge Co-organizer of Ireland's first free, national math competition in partnership with Kahn Academy. Designed weekly problem sets as well as local, regional, and national exams. Over 3,000 students enrolled and over 20,000 Euros of prize money awarded 2013-2014
RESEARCH MENTORSHIP	UROP+ Mentored one MIT undergraduate in a graduate-level research project related to the structure theory of reductive Lie groups. 2019
	DRP Mentored two MIT undergraduates in research-level reading projects in geometric representation theory. 2017
	MSRP Mentored two college students in graduate-level research projects in combinatorics and representation theory as part of a summer research program at MIT for talented undergraduates from underrepresented backgrounds. 2016
	PRIMES Mentored two high-school students in yearlong, graduate-level research projects in algebra and combinatorics. 2015-2016
AWARDS	Forbes 30 Under 30 MathWorks Graduate Fellowship NBC Universal 'Erase the Hate' Award Echoing Green Fellowship George Lusztig Mentorship Prize 2019 2019 2017 2017 2016

George J. Mitchell Scholarship	2013
David Howell Premium for Excellence in Mathematics	2013
Brown University Humanities Initiative Research Grant	2012
Karen T. Romer Undergraduate Teaching and Research Award	2012
John Carter Brown Research Grant	2012
National Merit Scholarship	2009

SPEAKING	Upper Triangularity for Unipotent Representations	7/27/20
	‘Unipotent Representations and Associated Varieties,’ Peking University, Beijing, China	
	Unipotent Representations Attached to Principal Nilpotent Orbits	1/17/20
	AMS-MAA-SIAM Joint Mathematics Meeting, Denver, CO	
	Coherent Sheaves on Fastened Chains	10/23/19
	UMD Lie Groups and Representation Theory Seminar, College Park, MD	
	Unipotent Representations and Microlocalization	6/26/19
Representation Theory XVI, Dubrovnik, Croatia		
	The K-types of Unipotent Representations	4/3/19
MIT Lie Groups Seminar, Cambridge, MA		

PUBLICATIONS **Gluing Sheaves over Codimension 1**, in preparation (joint with James Tao)
<http://math.mit.edu/~lmbrown/pdfs/gluingsheaves.pdf>

Unipotent Representations Attached to Principal Nilpotent Orbits
<https://arxiv.org/abs/1909.07359>

Upper Triangularity for Unipotent Representations
<https://arxiv.org/abs/1910.02538>

Unipotent Representations and Microlocalization
<https://arxiv.org/abs/1805.12038>

Natural Operations in Differential Geometry, Masters thesis
<http://math.mit.edu/~lmbrown/pdfs/mastersthesis.pdf>

Decoding Roger Williams: the Lost Essay of Rhode Island’s Founding Father
Waco, TX: Baylor University Press, 2014