NILES JOHNSON

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Employment

2024 – present
2018 – 2024
August 2012 – 2018
August 2009 – May 2012
2003 – 2009
1999 – 2003
March 2018
March 2016
March 2016

Books

Homotopy Theory of Enriched Mackey Functors Joint with Donald Yau. Accepted to LMS Lecture Notes, Cambridge Univ	arXiv:2212.04276 /ersity Press.
Bimonoidal Categories, E_n -Monoidal Categories, and Algebraic	arXiv:2107.10526
<i>K</i> - Theory Joint with Donald Yau. Accepted to <i>Mathematical Surveys and Monograp.</i> <i>ematical Society</i> .	hs, American Math-
2-Dimensional Categories Joint with Donald Yau. <i>Oxford University Press</i> (2021) ISBN: 97801988 rata.	arxiv:2002.06055 371378. Known Er-
Research Articles	
Universal pseudomorphisms, with applications to diagrammatic coherence for braided and symmetric monoidal functors Joint with Nick Gurski. Submitted.	arXiv:2312.11261
The symmetric monoidal 2-category of permutative categories Joint with Nick Gurski and Angélica Osorno. To appear in <i>Higher Structu</i>	arXiv:2211.04464 <i>Ires</i> .
Multicategories Model All Connective Spectra Joint with Donald Yau. <i>Homology, Homotopy and Applications</i> . Vol. 25 (2023), No. 1, pp 147–172.	arXiv:2111.08653
Multifunctorial <i>K</i> -Theory is an Equivalence of Homotopy The- ories Joint with Donald Yau. <i>Journal of Homotopy and Related Structures</i> . Vol. 17 (2022), pp 569–592.	arXiv:2205.08401
Homotopy Equivalent Algebraic Structures in Multicategories and Permutative Categories Joint with Donald Yau. <i>Theory and Applications of Categories</i> . Vol. 38 (2022) No. 30, pp 1156-1208.	arXiv:2202.13659
Multifunctorial Inverse <i>K</i> - Theory Joint with Donald Yau. <i>Annals of K-Theory</i> . Vol. 7 (2022), No. 3, pp 507–548	arXiv:2109.01430
2-categorical opfibrations, Quillen's Theorem B, and $S^{-1}S$ Joint with Nick Gurski and Angélica Osorno. <i>New York Journal of Mathe</i> Vol. 27 (2021), pp 1009–1059.	arxiv:2010.11173 matics.
The 2-dimensional stable homotopy hypothesis Joint with Nick Gurski and Angélica Osorno. Journal of Pure and Applied	arxiv:1712.07218 Algebra.

Vol. 223 (2019) No. 10 , pp 4348–4383.	
K-theory for 2-categories Joint with Nick Gurski and Angélica Osorno. <i>Advances in Mathematics</i> . Vol. 322 (2017), pp 378–472.	arxiv:1503.07824
Stable Postnikov data of Picard 2-categories Joint with Nick Gurski, Angélica Osorno, and Marc Stephan. <i>Algebraic & Geo</i> Vol. 17 (2017) Iss. 5, pp 2763–2806.	arxiv:1606.07032 ometric Topology.
Extending homotopy theories across adjunctions Joint with Nick Gurski and Angélica Osorno. <i>Homology, Homotopy and Ap</i> Vol. 19 (2017), No. 2, pp 89–110.	arxiv:1508.00054 plications.
Lifting homotopy <i>T</i> -algebra maps to strict maps Joint with Justin Noel. <i>Advances in Mathematics</i> . Vol. 264 (2014), pp 593–645.	arxiv:1301.1511
Azumaya Objects in Triangulated Bicategories Journal of Homotopy and Related Structures. Vol. 9 (2014) No. 2, pp 465–493.	arxiv:1005.4878
First cohomology for finite groups of Lie type: simple modules	arxiv:1010.1203
with small dominant weights Joint with UGA VIGRE Algebra Group. <i>Transactions of the American Math</i> Vol. 365 (2013) No. 2, pp 1025–1050.	nematical Society.
Modeling stable one-types Joint with Angélica Osorno. <i>Theory and Applications of Categories</i> . Vol. 26 No. 20 (2012), pp 520–537.	arxiv:1201.2686
Second cohomology for finite groups of Lie type Joint with UGA VIGRE Algebra Group. <i>Journal of Algebra</i> . Vol. 360 (2012), pp 21–52.	arxiv:1110.0228
For complex orientations preserving power operations, p- typicality is atypical Joint with Justin Noel. <i>Topology and its Applications</i> . Vol. 157 (2010) pp 2271–2288.	arxiv:0910.3187

Expository Articles

Calculating complex cosine clusters 2022 Joint with Alan Loper and Greg Oman. *Pi Mu Epsilon Journal*, Vol. 15 (2022), No. 7, pp. 405–414. **Topological Invariants from Higher Categories**2019Joint with Nick Gurski and Angélica Osorno. Notices of the Americal Mathematical Society,Vol. 66 (2019) No. 8, pp. 1225–1237

Computer Software

Visualization of A(2) Joint with Robert Bruner. Interactive javascript applica ture of Steenrod subalgebra. Available at https://nilesjohnson.net/Aof2/.	February 2013 tion for visualizing multiplicative struc-
Multivariate Power series Arithmetic Sage software peer-reviewed and included since version	August 2011 4.7.1
Composition factors of Weyl modules Sage software for computing composition factors of ce Available at https://nilesjohnson.net/rep-thy.html.	July 2011 rtain Weyl modules.
Invited Talks 2016–present	
Graded Picard categories and the 2-type of the s Topology Seminar, University of Haifa Algebra Seminar, Florida State University	p here April 2022 March 2022
Algebraic <i>K</i> -theory for 2-categories Colloquium, Florida State University Colloquium, University of Louisiana, Lafayette Topology Seminar, University of Chicago Colloquium, Case Western Reserve University	March 2022 February 2021 March 2020 November 2019
Visualizing the Hopf fibration Colloquium, Reed College	October 2020
Homotopy theory of Picard categories Topology Seminar, Case Western Reserve University	November 2019
The algebra of stable 2-types Topology Seminar, Johns Hopkins University	February 2019

A 2-categorical group-completion

Curriculum Vitae	Niles Johnson
Topology Seminar, University of Kentucky	February 2019
The 2-dimensional stable homotopy hypothesis AMS Spring Sectional Meeting, Vanderbilt University	April 2018
A 2-categorical group completion Special Session on Homotopy Theory, AMS Spring Central Sectional Meeting, Indiana University	April 2017
Categorical models in homotopy theory Topology Seminar, University of Kentucky	March 2017
Algebraic models of stable Postnikov invariants Workshop on "Operations in Highly Structured Homology Theories" Banff International Research Station	May 2016
nimations	
Hopf fibration - fibers and base https://nilesjohnson.net/hopf Shows Hopf fibration via projection to 3-ball.	August 2011
Visualizing Seven-Manifolds https://nilesjohnson.net/seven-manifolds Gives a visualization of exotic seven-spheres and related manifolds. Presented at the Second Abel Conference in celebration of John Milnor.	January 2012
eaching 2016–Present	
Calculus Ohio State University, Newark	2020, 2023
Calculus II Ohio State University, Newark	2023
College Algebra Ohio State University, Newark	2021–2022
Calculus and its History for Teachers Ohio State University, Newark	2016, 2018
Algebra and Coordinate Geometry for Teachers	2015, 2017, 2019

Curriculum Vitae	Niles Johnson
Ohio State University, Newark	
Measurement and Geometry for Teachers Ohio State University, Newark	2014 – 2019
Number and Operations for Teachers Ohio State University, Newark	2014 – 2018
Ph.D. Students	
Amogh Parab	2020–present
Michael Horst	Graduated 2020
Corey Staten	Graduated 2018
Service 2016–Present	
Site Administrator, MathMeetings.net https://mathmeetings.net	2010 – present
Past-Chair, Faculty Assembly Ohio State University, Newark Campus	2022 – 2023
Chair, Faculty Assembly Ohio State University, Newark Campus	2021 – 2022
Vice-Chair, Faculty Assembly Ohio State University, Newark Campus	2020 – 2021
Academic Affairs Committee Oho State University, Newark campus	2017 – 2019
Presenter, Mrs. Gordon's 2nd grade class "Snowflake Symmetry" Garfield Elementary School	December 09, 2022
Presenter, Math Collaboration Group "Euler Characteristic: An introduction to algebraic topology" Ohio High School Students	February 20, 2022
Organizer, Mayday 2019 Conference University of Chicago; https://nilesjohnson.net/mayday2019/	October 4 – 6 2019
Presenter, Teaching and Learning Seminar	February 28, 2019

Curriculum Vitae	NILES JOHNSON
"Constructing mathematical knowledge for elementary educators" University of Kentucky	
Presenter, Blowing Off STEAM "Confessions of a Mathematician" Thirty One West	January 9, 2018
Presenter, Franklinton Friday "Snowflake Symmetry" OSU STEAM Factory	December 8, 2017
Presenter, Ms. Cline's 2nd grade class "Snowflake Symmetry" Garfield Elementary School	December 15, 2017
Secretary, Faculty Assembly Ohio State University, Newark campus	2015 – 2016
Panelist, AWM Panel Discussion "Prioritizing Your Career and Professional Goals" Mathfest, Columbus OH	August 2016
Organizer, Spring 2016 Midwest Topology Seminar Ohio State University, Columbus campus https://nilesjohnson.net/MTS	May 14, 2016
Organizer, 2016 Pi Measurement Challenge Great Circle Earthworks, Newark, Ohio https://u.osu.edu/piday	March 13, 2016
Presenter, Chamber of Commerce After Hours Ohio State University, Newark campus	February 18, 2016