

Newark Campus
Department of Mathematics
The Ohio State University
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<http://nilesjohnson.net>

Employment

Associate Professor Department of Mathematics, The Ohio State University, Newark	2018 – present
Assistant Professor Department of Mathematics, The Ohio State University, Newark	August 2012 – 2018
Postdoctoral Associate in Mathematical Ecology Odum School of Ecology, University of Georgia	May 2012 – August 2012
VIGRE Postdoctoral Associate Department of Mathematics, University of Georgia	August 2009 – May 2012

Education

University of Chicago, IL Ph.D. in Mathematics, August 2009 M.S. in Mathematics, May 2005	2003 – 2009
University of Rochester, NY B.A., M.A., majoring in Mathematics, May 2003	1999 – 2003

Honors and Awards

Scholarly Accomplishment Award Newark Campus, Tenure-track category.	March 2018
Teaching Excellence Award Newark Campus, Tenure-track category.	March 2016
Service Award Newark Campus, Tenure-track category.	March 2016

Research

- A 2-categorical group-completion** In preparation.
Joint with Nick Gurski and Angélica Osorno.
- The 2-dimensional stable homotopy hypothesis** [arxiv:1712.07218](#)
Joint with Nick Gurski and Angélica Osorno. *Journal of Pure and Applied Algebra*.
223 no. 10 (2019), pp 4348–4383.
- Stable Postnikov data of Picard 2-categories** [arxiv:1606.07032](#)
Joint with Nick Gurski, Angélica Osorno, and Marc Stephan. *Algebraic & Geometric Topology*.
17-5 (2017), pp 2763–2806.
- Extending homotopy theories across adjunctions** [arxiv:1508.00054](#)
Joint with Nick Gurski and Angélica Osorno. *Homology, Homotopy and Applications*.
19 (2017), no. 2, pp 89–110.
- K-theory for 2-categories** [arxiv:1503.07824](#)
Joint with Nick Gurski and Angélica Osorno. *Advances in Mathematics*.
322 (2017), pp 378–472.
- Lifting homotopy T -algebra maps to strict maps** [arxiv:1301.1511](#)
Joint with Justin Noel. *Advances in Mathematics*.
264 (2014), pp 593–645.
- Modeling stable one-types** [arxiv:1201.2686](#)
Joint with Angélica Osorno. *Theory and Applications of Categories*.
26 No. 20 (2012), pp 520–537.
- Second cohomology for finite groups of Lie type** [arxiv:1110.0228](#)
Joint with UGA VIGRE Algebra Group. *Journal of Algebra*.
360 (2012), pp 21–52.
- First cohomology for finite groups of Lie type: simple modules with small dominant weights** [arxiv:1010.1203](#)
Joint with UGA VIGRE Algebra Group. *Transactions of the American Mathematical Society*.
365 No. 2 (2013), pp 1025–1050.
- Azumaya Objects in Triangulated Bicategories** [arxiv:1005.4878](#)
Journal of Homotopy and Related Structures.
9 No. 2 (2014), pp 465–493.
- For Complex Orientations Preserving Power Operations, p -typicality is Atypical** [arxiv:0910.3187](#)
Joint with Justin Noel. *Topology and its Applications*.
157 (2010) pp 2271–2288.

Computer Software

- Visualization of $A(2)$** February 2013
Joint with Robert Bruner. Interactive javascript application for visualizing multiplicative structure of Steenrod subalgebra.
Available at <http://nilesjohnson.net/Aof2/>.
- Multivariate Power series Arithmetic** August 2011
[Sage](#) software peer-reviewed and included since version 4.7.1
- Composition factors of Weyl modules** July 2011
[Sage](#) software for computing composition factors of certain Weyl modules.
Available at <http://nilesjohnson.net/rep-thy.html>.

Invited Talks 2012–present

- A 2-categorical group-completion** February 2019
Topology Seminar, University of Kentucky
- The 2-dimensional stable homotopy hypothesis** April 2018
AMS Spring Sectional Meeting, Vanderbilt University
- A 2-categorical group completion** April 2017
Special Session on Homotopy Theory, AMS Spring Central Sectional Meeting, Indiana University
- Categorical models in homotopy theory** March 2017
Topology Seminar, University of Kentucky
- Algebraic models of stable Postnikov invariants** May 2016
Workshop on “Operations in Highly Structured Homology Theories”
Banff International Research Station
- K-theory for Two-Categories** February 2015
Topology Seminar, Purdue University
- Modeling Stable Two-Types** April 2014
Midwest Topology Seminar, IUPUI
- Lifting homotopy T-algebra maps**

Topology Seminar, University of Minnesota March 2013

Visualizing Seven-Manifolds
Colloquium, University of Rochester November 2012

Ecological Niche Topology
Colloquium, DePaul University October 2012
Topology Seminar, University of Kentucky October 2012

Picard groupoids in algebra and topology
Algebra Seminar, University of Georgia September 2012

Animations

Hopf fibration – fibers and base August 2011
<http://nilesjohnson.net/hopf>
Shows Hopf fibration via projection to 3-ball.

Visualizing Seven-Manifolds January 2012
<http://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.

Teaching Experience

Calculus and its History for Teachers 2016, 2018
Ohio State University, Newark

Algebra and Coordinate Geometry for Teachers 2015, 2017, 2019
Ohio State University, Newark

Measurement and Geometry for Teachers 2014 – 2019
Ohio State University, Newark

Number and Operations for Teachers 2014 – 2018
Ohio State University, Newark

Math for Elementary Teachers I and II 2012 – 2014
Ohio State University, Newark

Calculus 2013
Ohio State University, Newark

Homological Algebra University of Georgia (graduate course)	Spring 2012
Multivariable Calculus University of Georgia	Fall 2011
Geometry for Elementary School Teachers University of Georgia	Spring 2011
Point Set Topology University of Georgia	Fall 2010
Intermediate Calculus University of Chicago and University of Georgia	2007 – 2009
Graduate Student Assistant Abroad <i>Spring Quarter in Paris</i> Mathematics Program, France Assisted students in upper-level undergraduate coursework during nine-week intensive mathematics program.	Spring 2009

Service 2012–Present

Site Administrator, MathMeetings.net https://mathmeetings.net	2010 – present
Academic Affairs Committee Ohio State University, Newark campus	2017 – 2019
Presenter, Teaching and Learning Seminar “Constructing mathematical knowledge for elementary educators” University of Kentucky	February 28, 2019
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

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- Panelist, AWM Panel Discussion** August 2016
“Prioritizing Your Career and Professional Goals”
Mathfest, Columbus OH
- Organizer, Spring 2016 Midwest Topology Seminar** May 14, 2016
Ohio State University, Columbus campus
<http://nilesjohnson.net/MTS>
- Organizer, 2016 Pi Measurement Challenge** March 13, 2016
Great Circle Earthworks, Newark, Ohio
<https://u.osu.edu/piday>
- Presenter, Chamber of Commerce After Hours** February 18, 2016
Ohio State University, Newark campus
- Library Committee** 2013 – 2015
Ohio State University, Newark campus
- Saturday Market Presentation** April 11, 2015
OSU STEAM Factory
<https://steamfactory.osu.edu/>
- Faculty Representative, Buckeye Visit Day** March 27, 2015
Ohio State University, Newark campus
- Mathematics for Teachers Committee** 2013 – 2014
Ohio State University, all campuses
- Organizer, K-8 Geometry for Teachers Workshop** August 2014
Ohio State University, all campuses
<http://nilesjohnson.net/K8-geometry-teachers-workshop.html>
- Poster Judge, Student Research Forum** March 2014
Ohio State University, Newark campus
- Organizer, AMS Special Session on Homotopy Theory** January 2014
Joint Math Meetings, Baltimore, MD
<http://nilesjohnson.net/homotopy-special-session-2014.html>
- Judge, FIRST Lego League Regional Tournament** 2012 – 2015
Regional tournament project judge (4 annual tournaments)
- Undergraduate Math Club Talk** October 2012
Visualizing Spheres
University of Kentucky