

Newark Campus  
Department of Mathematics  
The Ohio State University  
niles@math.osu.edu  
<http://nilesjohnson.net>

---

## Employment

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

## Education

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

## Honors and Awards

<b>Scholarly Accomplishment Award</b> Newark Campus, Tenure-track category.	March 2018
<b>Teaching Excellence Award</b> Newark Campus, Tenure-track category.	March 2016
<b>Service Award</b> 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.
- 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** 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** March 2013  
Topology Seminar, University of Minnesota
- Visualizing Seven-Manifolds** November 2012  
Colloquium, University of Rochester
- 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  
Ohio State University, Newark

**Measurement and Geometry for Teachers** 2014 – 2018  
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** Spring 2012  
University of Georgia (graduate course)

**Multivariable Calculus** Fall 2011  
University of Georgia

**Geometry for Elementary School Teachers** Spring 2011

University of Georgia

**Point Set Topology** Fall 2010  
University of Georgia

**Intermediate Calculus** 2007 – 2009  
University of Chicago and University of Georgia

**Graduate Student Assistant Abroad** Spring 2009  
*Spring Quarter in Paris* Mathematics Program, France  
Assisted students in upper-level undergraduate coursework during nine-week intensive mathematics program.

## Service 2012–Present

**Site Administrator, MathMeetings.net** 2010 – present  
<http://mathmeetings.net>

**Academic Affairs Committee** 2017 – 2019  
Ohio State University, Newark campus

**Presenter, Blowing Off STEAM** January 9, 2018  
“Confessions of a Mathematician”  
Thirty One West

**Presenter, Franklinton Friday** December 8, 2017  
“Snowflake Symmetry”  
OSU STEAM Factory

**Presenter, Ms. Cline’s 2nd grade class** December 15, 2017  
“Snowflake Symmetry”  
Garfield Elementary School

**Secretary, Faculty Assembly** 2015 – 2016  
Ohio State University, Newark campus

**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