

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

Employment

Assistant Professor Department of Mathematics, The Ohio State University, Newark	August 2012 – present
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

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 Joint with Nick Gurski and Angélica Osorno.	In preparation.
The 2-dimensional stable homotopy hypothesis Joint with Nick Gurski and Angélica Osorno.	In preparation.

Stable Postnikov data of Picard 2-categories

arxiv:1606.07032

Joint with Nick Gurski, Angélica Osorno, and Marc Stephan. To appear in *Algebraic and Geometric Topology*.

Extending homotopy theories from strict maps to lax maps

arxiv:1508.00054

Joint with Nick Gurski and Angélica Osorno. To appear in *Homology, Homotopy and Applications*.

K-theory for 2-categories

arxiv:1503.07824

Joint with Nick Gurski and Angélica Osorno.

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**

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

K-theory for Two-Categories

Topology Seminar, Purdue University

February 2015

Modeling Stable Two-Types

Midwest Topology Seminar, IUPUI

April 2014

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
Topology Seminar, University of Kentucky

October 2012

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** Spring 2016
Ohio State University, Newark
- Algebra and Coordinate Geometry for Teachers** 2015 – 2016
Ohio State University, Newark
- Measurement and Geometry for Teachers** 2014 – 2016
Ohio State University, Newark
- Number and Operations for Teachers** 2014 – 2017
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 http://mathmeetings.net	2010 – present
Academic Affairs Committee Ohio State University, Newark campus	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 http://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
Library Committee Ohio State University, Newark campus	2013 – 2015
Saturday Market Presentation OSU STEAM Factory https://steamfactory.osu.edu/	April 11, 2015
Faculty Representative, Buckeye Visit Day Ohio State University, Newark campus	March 27, 2015
Mathematics for Teachers Committee Ohio State University, all campuses	2013 – 2014
Organizer, K-8 Geometry for Teachers Workshop Ohio State University, all campuses http://nilesjohnson.net/K8-geometry-teachers-workshop.html	August 2014

- 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