

# PAUL VANKOUGHNETT

## PERSONAL DATA

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## EMPLOYMENT

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2021– Visiting Assistant Professor, Texas A&M University  
2018–2021 Golomb Visiting Assistant Professor, Purdue University

## RESEARCH INTERESTS

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Transchromatic stable homotopy theory  
Moduli of formal groups and  $p$ -divisible groups, and applications to homotopy theory  
Obstruction theory for highly structured ring spectra

## EDUCATION

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JUNE 2018 Ph.D. in Mathematics, Northwestern University  
Thesis title: ‘Localizations of  $E$ -theory and transchromatic phenomena  
in stable homotopy theory’  
Advisor: Paul Goerss  
MAY 2012 B.A. with honors in Mathematics, Harvard University

## FELLOWSHIPS

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Spring 2019 MSRI Postdoctoral Fellowship,  
semester program in Derived Algebraic Geometry  
2012–2018 Northwestern University Graduate Fellowship

## PUBLICATIONS

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VanKoughnett, P. ‘Localizations of  $E$ -theory and transchromatic phenomena  
in stable homotopy theory.’  
PhD thesis (2018). Submitted. Available online at  
<https://www.math.purdue.edu/~pvankoug/thesis.pdf>.  
Culver, D., and P. VanKoughnett. ‘On the  $K(1)$ -local homotopy of  $tmf \wedge tmf$ .’  
To appear in *Journal of Homotopy and Related Structures* (2021).  
Available online at <https://arxiv.org/pdf/1908.01904.pdf>.  
Pstrągowski, P., and P. VanKoughnett. ‘Abstract Goerss-Hopkins obstruction theory.’  
To appear in *Advances in Mathematics* (2021).  
Available online at <https://arxiv.org/pdf/1904.08881.pdf>.

## SELECTED TALKS GIVEN

SEPTEMBER 2021	“Localizations of $E$ -theory”, South Central Topology Conference
APRIL 2021	“ $K(1)$ -local $tmf$ cooperations”, Northwestern–UChicago Joint Topology Seminar
NOVEMBER 2020	“Topological modular forms and the $K(2)$ -local sphere”, Ruhr-Universität Bochum Topology seminar (virtual)
OCTOBER 2020	“Topological modular forms and their co-operations”, Texas A& M Topology seminar (virtual)
OCTOBER 2020	“Topological modular forms for number theorists”, UCSD Number Theory seminar (virtual)
AUGUST 2020	“The action of the Morava stabilizer group on the Devinatz-Hopkins ring”, Transatlantic Transchromatic Homotopy Theory conference (virtual)
SEPTEMBER 2019	‘ $K(1)$ -local $tmf$ cooperations’, Strasbourg Conference on Descent and Chromatic Homotopy Theory
JUNE 2019	‘The $K(1)$ -local Adams spectral sequence based on topological modular forms’, Vietnam-USA Joint Mathematical Meeting
MAY 2019	‘A new approach to Goerss-Hopkins obstruction theory’, MSRI Derived Algebraic Geometry Seminar
APRIL 2019	‘More about $E$ -theory’, MSRI Elliptic Cohomology Seminar
OCTOBER 2018	‘A chromatic approach to $tmf$ cooperations’, IU-Purdue-IUPUI Joint Topology Seminar
OCTOBER 2018	‘A chromatic approach to $tmf$ cooperations’, University of Minnesota Topology Seminar
MARCH 2018	‘Localizations of $E$ -theory’, Homotopy Theory Special Session, AMS Sectional Meeting, Ohio State
FEBRUARY 2018	‘Notes on the margins of $E$ -theory’, Notre Dame Topology Seminar
OCTOBER 2017	‘Notes on the margins of $E$ -theory’, University of Chicago Topology Seminar
OCTOBER 2017	‘Notes on the margins of $E$ -theory’, Johns Hopkins Topology Seminar
JUNE 2017	‘Dieudonné theory and transchromatic homotopy theory’, Transatlantic Transchromatic Homotopy Theory Conference, Universität Regensburg
MAY 2017	‘Goerss-Hopkins obstruction theory’, MIT Talbot Workshop
AUGUST 2016	‘The Gross-Hopkins period map’, West Coast Algebraic Topology Summer School, University of Oregon

## SELECTED TEACHING EXPERIENCE

<i>Current</i>	<i>Visiting Assistant Professor, Texas A&amp;M University</i>
AUGUST 2021– 2018–2021	Math 311, Topics in Applied Mathematics I <i>Golomb Visiting Assistant Professor, Purdue University</i>
JANUARY 2020–MAY 2021	Math 351, Elementary Linear Algebra
SEPTEMBER–DECEMBER 2019	Math 303, Partial Differential Equations for Engineering and the Sciences
SEPTEMBER–DECEMBER 2018	Math 266, Ordinary Differential Equations Math 490, independent study on Simplicial Homotopy Theory
<i>2012–2017</i>	<i>Teaching Assistant, Northwestern University</i>
AUGUST 2017	Northwestern Bridge Program
MARCH–JUNE 2017	Math 336, Introduction to the Theory of Numbers Math 368, Introduction to Optimization
MARCH–JUNE 2016	Math 290, MENU Linear Algebra and Multivariable Calculus Math 300, Foundations of Higher Mathematics
DECEMBER–MARCH 2016	Math 230, Differential Calculus of Multivariable Functions

## MENTORSHIP

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SEPTEMBER 2018–MAY 2019	Mentor for Samuel Mercier's bachelor's thesis on simplicial homotopy theory
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## ORGANIZATION

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CURRENT	Co-organizer, Texas A& M Topology Seminar
MARCH–AUGUST 2021	Organizer, Online Stable Homotopy Learning Seminar
MARCH 2018	Co-organizer, Midwest Topology Seminar
FEBRUARY 2016	Co-organizer, Midwest Topology Seminar