

Kelly Spendlove

PHD CANDIDATE · RUTGERS UNIVERSITY

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Education

Rutgers University

PH.D. CANDIDATE IN MATHEMATICS

New Brunswick, NJ

Aug 2013-Present

Montana State University

M.S. + B.S. IN MATHEMATICS

- highest honors

Bozeman, MT

Aug 2007 - May 2013

Honors & Awards

HONORS

- 2014 **NSF Graduate Research Fellowship**, Rutgers University
- 2013 **GAANN Fellowship**, BioMaPS, Rutgers University
- 2013 **NSF East Asia and Pacific Summer Institutes (EAPSI) Fellowship**, Kyoto University
- 2012 **Meritorius Graduate Fellowship**, Montana State University

AWARDS

- 2017 **NSF Graduate Research Opportunities Worldwide (GROW)**, Vrije Universiteit (VU) Amsterdam
- 2013 **Bill Stannard Award for Excellence in Graduate Student Professional Presentations**, Department of Mathematical Sciences, Montana State University

Publications

HOMOLOGICAL PHASES OF MATTER

- with U Bauer, M Kahle, and R MacPherson
- In preparation (2019)

COMPUTATIONAL CONNECTION MATRIX THEORY WITH APPLICATIONS TO TRANSVERSALITY MODELS

- with S Harker, K Mischaikow, and R Vandervorst
- In preparation (2019)

DISCRETE MORSE THEORY FOR COMPUTING CONNECTION MATRICES

- with S Harker and K Mischaikow
- In preparation (2019)

★ A COMPUTATIONAL FRAMEWORK FOR CONNECTION MATRIX THEORY

- with S Harker and K Mischaikow
- Under review, arXiv:1810.04552 [math.AT] (2018)

★ ON THE EFFICACY OF STATE SPACE RECONSTRUCTION METHODS IN DETERMINING CAUSALITY

- with B Cummins and T Gedeon
- SIAM Journal on Applied Dynamical Systems 14 (1), 335-381 (2015)

★ PREDICTING HIGH-CODIMENSION CRITICAL TRANSITIONS IN DYNAMICAL SYSTEMS USING ACTIVE LEARNING

- with J. Berwald and T. Gedeon
- Mathematical and Computer Modelling of Dynamical Systems 19 (6), 557-574 (2013)

Recent Talks

Computational Connection Matrix Theory

ICMC SUMMER MEETING ON DIFFERENTIAL EQUATIONS 2019

ICMC, Sao Carlos

Feb 2019

Computational Connection Matrix Theory

KYOTO WORKSHOP ON APPLIED TOPOLOGY 2019

Kyoto University

Jan 2019

Morse, Conley, and Computation

UPENN APPLIED TOPOLOGY SEMINAR

UPenn

Nov 2018

Morse, Conley, and Computation

IAS-PENN-RUTGERS WORKSHOP: IDENTIFYING ORDER IN COMPLEX SYSTEMS

Rutgers University

Nov 2018

Computational Connection Matrix Theory

AMS SECTIONAL MEETING

Newark DE

Sep 2018

A Computational Framework for Connection Matrices

ALGEBRAIC TOPOLOGY IN DYNAMICS AND DATA

Bozeman MT

Jul 2018

A Computational Framework for Connection Matrices

ALGEBRAIC TOPOLOGY: METHODS, COMPUTATION, AND SCIENCE (ATMCS 8)

IST Austria

Jun 2018

A Computational Framework for Connection Matrices

DYNAMICS, TOPOLOGY AND COMPUTATIONS

Bedlewo Poland

Jun 2018

Computing Connection Matrices

APPLIED ALGEBRAIC TOPOLOGY CONFERENCE

Hokkaido Japan

Aug 2017

Toward a Computational Homology Theory of Dynamics

MBI VISITOR SERIES SEMINAR

The Ohio State University

Dec 2016

Teaching

Fall 2018	TA for Calculus I for the Mathematical and Physical Sciences , Rutgers University
Spr 2018	TA for Calculus II , VU University Amsterdam
Spr 2018	TA for Linear Algebra for Business Analytics , VU University Amsterdam
Fall 2017	TA for Differential Equations for Engineering and Physics , Rutgers University
Summer 2017	Instructor for Introduction to Abstract Algebra , Rutgers University
Fall 2012	Instructor for College Algebra , Montana State University

Research Visits

2018	VU Amsterdam , GROW Fellow, (R. Vandervorst)
Fall 2016	Mathematical Biosciences Institute (MBI), The Ohio State University , Long Term Visitor, (Emphasis Semester on Analysis of Complex Data in Biological Systems)
Summer 2015	INRIA Geometrica, École Polytechnique , (F Chazal)
Summer 2013	Kyoto University , EAPSI Fellow (H Kokubu)
Summer 2012	The College of William & Mary , (S Day)

Misc. Honors & Awards

HONORS

2011-2012	Hughes Scholar Research & Outreach Fellowship , Howard Hughes Medical Institute, Montana State University
2011	IDEA Networks of Biomedical Research Excellence Fellowship , Applied Algorithms Laboratory, Montana State University

AWARDS

2016	NSF-CBMS Conference Travel Award , UT Austin
2015	NSF Data Science Workshop Travel Award , University of Washington
2014	IMA Travel Award , Institute for Mathematics and its Applications, University of Minnesota
2012	Outstanding Graduating Senior with Distinction , Department of Mathematical Sciences, Montana State University

Service and Outreach

2018-Present **Organizer for Directed Reading Program**, Rutgers University
Fall 2017 **Mentor for Directed Reading Program**, Directed undergraduate in combinatorial Hodge theory project
Feb 2013 ***'How to Be Successful in a Math Course'***, Organized popular workshop at Montana State University for
Oct 2012 incoming first-year students concerning how to prepare for college math courses