

## Paul Gustafson

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(979)774-9184

## Work Experience

**Texas A&M University** 2013 - Present  
PhD Candidate, Department of Mathematics

**Knowledge Based Systems, Inc.** 2008 - 2012  
Programmer Analyst

## Education

**Texas A&M University** 2013 - Present  
Doctor of Philosophy in Mathematics May 2018 (Expected)

Field of study: Mapping class group representations from TQFTs

Advisor: Eric Rowell

**Texas A&M University** 2012-2013  
Bachelor of Science in Mathematics 2013

**Princeton University** 2007 - 2011

## Research Interests

Topological quantum computation, 3-manifold and link invariants, topological quantum field theories, fusion categories, mapping class groups, quantum groups, type theory

## Publications and Preprints

P. Bruillard, P. Gustafson, J. Plavnik, E. C. Rowell, Categorical Dimension as a Quantum Statistic and Applications, submitted.

P. Gustafson, Finiteness for Mapping Class Group Representations from Twisted Dijkgraaf-Witten Theory, arXiv:1610.06069, submitted.

R. Fernandes, B. Li, K. Vadakkeveedu, A. Verma, P. Gustafson, et al. Agent-based analysis of trustworthiness in wireless sensor networks, *Proc. SPIE* **8407**, Multisensor, Multisource Information Fusion: Architectures, Algorithms, and Applications 2012, 84070W (May 1, 2012); doi:10.1117/12.920781.

P. Gustafson, N. Savir, E. Spears. A Characterization of Refinable Rational Functions, *Am. J. Undergrad. Res.* **5** (3): 11-20 (Nov. 11, 2006).

## Conference Presentations

AMS Special Session on Tensor Categories: Bridging Algebra, Topology, and Physics, U. C. Riverside, CA, November 2017.

AMS Special Session on Invariants of Links and 3-Manifolds, U. North Texas, Denton, TX, September 2017.

AMS Special Session on Fusion Categories and Topological Phases of Matter, Salt Lake City, UT, April 2016.

## **Teaching Experience** (Texas A&M University)

### **Mentor**

REU on Mathematics of Topological Quantum Computation Summer 2017

### **Instructor of Record**

Mathematical Concepts – Calculus (M131) Spring 2017

### **Teaching Assistant**

Engineering Mathematics II (M152) Fall 2015

Engineering Mathematics I (M151) Spring 2016, Fall 2017

### **Grader**

Algebraic Topology I (M643) Fall 2016

### **Counselor**

SMaRT High School Math Camp Summer 2009, Summer 2010

## **Programming Languages**

Java, Haskell, Python, C, Agda, Coq, MATLAB, NetLogo