

Curriculum Vitae

Daniel Rodman
Mathematics Department
Taylor University
236 West Reade Ave.
Upland, IN 46989
daniel_rodman@taylor.edu

Education

- PhD, Mathematics, University of Iowa, 2017
- Certificate in College Teaching, University of Iowa, 2017
- MS, Mathematics, University of Iowa, 2014
- BA, Mathematics, Taylor University, 2012

Employment

- 2017-present: Assistant Professor of Mathematics, Taylor University

Teaching

Teaching Experience as a Graduate Student at The University of Iowa

- Fall 2012: Teaching Assistant, Calculus and Matrix Algebra for Business
- Spring 2013: Instructor, College Algebra with ALEKS
- Fall 2013: Instructor, College Algebra with ALEKS
- Spring 2014: Helper, Math for the Biological Sciences (precalculus for bio track students)
- Fall 2014: Teaching Assistant, Engineering Math II (vector calculus)
- Spring 2015: Teaching Assistant, Engineering Math II (vector calculus)
- Fall 2015: Teaching Assistant, Engineering Math I (calculus I)
- Spring 2016: Teaching Assistant, Engineering Math II (vector calculus)
- Fall 2016: Instructor, Elementary Functions (algebra and trigonometry)
- Fall 2016: Substitute Lecturer for a week in Math for Business (a 450 student lecture)

Teaching Experience at Taylor University

- Fall 2017: Instructor, Calculus III and Justifications in Math
- J-term 2018: Instructor, Investigations in Math
- Spring 2018: Instructor, Calculus I and Calculus III

Research

Dissertation

Title: An Infinite Family of Links with Critical Bridge Spheres

Abstract: A closed, orientable, splitting surface in an oriented 3-manifold is a topologically minimal surface of index n if its associated disk complex is $(n - 2)$ -connected but not $(n - 1)$ -connected. A critical surface is a topologically minimal surface of index 2. In this thesis, we use an equivalent combinatorial definition of critical surfaces to construct the first known critical bridge spheres for nontrivial links.

Publication

“An Infinite Family of Links with Critical Bridge Spheres”

(accepted for publication in *Algebr. Geom. Topol.*, but not yet published)

arxiv.org/abs/1602.05512

Seminar Presentations at The University of Iowa (grad school)

- “Markov’s Theorem,” Topology Seminar, November 20, 2014
- “Compressing Disks Are Sums of Caps,” Topology Seminar, February 24, 2015
- “The Torus Decomposition of 3-Manifolds,” Topology Reading Seminar, September 3, 2015
- “Modifying Surgery Instructions,” Topology Reading Seminar, November 19, 2015
- “The Existence of Morse Functions,” Student Topology Seminar, February 23, 2016
- “An Informal Introduction to Low-Dimensional Manifolds,” Undergraduate Research Seminar, April 14, 2016
- “Elliptic 3-Manifolds,” Topology Reading Seminar, April 26, 2016
- “Generating the Mapping Class Group,” Topology Reading Seminar, September 20, 2016
- “An Informal Introduction to Low-Dimensional Manifolds,” Undergraduate Math Club, November 14, 2016

Professional Presentations

- “Critical Bridge Spheres,” AMS Sectional Meetings, University of St. Thomas, October 28, 2016
- “Critical Bridge Spheres / 3-Dimensional Manifolds,” Science Seminar, Taylor University, November 20, 2017

Research Interests

- Knot theory
- Low-dimensional topology
- Critical surfaces
- Topologically minimal surfaces
- Bridge surfaces

Community Involvement

- Member of Upland Community Church
- Sunday morning children’s ministry
- Leading Taylor University’s Math Team (Fall 2017-present)

Professional Membership

- Member of the Mathematical Association of America