

TIMOTHY TRUJILLO - AUGUST 2018

trujillo@shsu.edu
www.shsu.edu/~txt031

EDUCATION

University of Denver

June 2014

Doctor of Philosophy in Mathematics

Advisor: *Natasha Dobrinen*

Dissertation: Topological Ramsey spaces, associated ultrafilters and their applications to the Tukey theory of ultrafilters and Dedekind cuts of nonstandard arithmetic

New Mexico Tech

May 2008

Masters of Mathematics Specialization in Analysis

Advisor: *Bixang Wang*

Thesis: Attractors for nonlinear reaction-diffusion equations in unbounded domains

New Mexico Tech

May 2006

Bachelor of Mathematics Minor in Education

TEACHING EXPERIENCE

Sam Houston State University

August 2017 - Present

Assistant Professor of Mathematics

Huntsville, TX

- Three sections of college mathematics
- One section of calculus 1
- One section of calculus 2

Colorado School of Mines

August 2015 - May 2017

Postdoctoral Teaching Scholar

Mentor: Rebecca Swanson

Golden, CO

- One section of introduction to proofs (flipped classroom)
- One section of calculus 3 for scientist and engineers
- Supervised two independent studies (Fall & Summer 2016) - Introduction to combinatorial set theory (IBL)
- Two sections of calculus 1 for scientist and engineers
- Two sections of calculus 2 for scientist and engineers
- Two sections of linear algebra (flipped classroom)
- One large (120 students) section of differential equations
- Co-advised the 2015 & 2016 Putnam team (2015 team scored in top 10% nationwide)

Texas State University

August 2014 - May 2015

Lecturer

Mentor: Alex White

San Marcos, TX

- Three sections of college algebra
- Two sections of calculus 2
- One section of calculus 2 for the life sciences
- Two section of precalculus

University of Denver

September 2008 - June 2014

Instructor

Denver, CO

- Two sections of calculus 2
- Two sections of calculus 1
- One section of math freshman seminar

University of Denver
Teaching Assistant

September 2008 - June 2014
Denver, CO

- Business calculus (Flipped Class- room)
- Calculus 1, 2 and 3
- Multivariable calculus
- Differential equations
- History of math
- Introduction to proofs
- Abstract algebra
- Topology
- Metric spaces

New Mexico Tech
Instructor

August 2006 - May 2008
Socorro, NM

- One section of calculus 2
- Two sections of college algebra
- One section of trigonometry
- One section of intermediate algebra

Socorro High School
Instructor

August 2006 - May 2008
Socorro, NM

- 9th grade Algebra
- 9th grade Honors Geometry

UNDERGRADUATE RESEARCH SUPERVISION

Publications

- Connor Mattes, Zachary Chaney, Jed Menard and Timothy Trujillo, *Triangular Ramsey numbers*, Accepted for publication in the Electronic Journal of Combinatorial Number Theory (2018) 19 pp.

Presentations

- Connor Mattes and Zachary Chaney, *Triangular Ramsey numbers*, DU Graduate Colloquium, University of Denver, November 2016
- Connor Mattes and Zachary Chaney, *Triangular Ramsey numbers*, Joint meeting of the Rocky Mountain and Intermountain Sections of the MAA, Colorado Mesa University, April 2016
- Connor Mattes *Triangular Ramsey numbers*, AMS Session for contributed papers on undergraduate research, January 2017, JMM Atlanta GA.

RESEARCH EXPERIENCE

Research Interests

- Combinatorial set theory
- Tukey theory of ultrafilters
- Higher dimensional Ramsey theory
- Nonstandard models of arithmetic

Grants

- SHSU Enhanced Research Grant: *Infinite ethics: a non-Archimedean approach*. Grant for \$ 15,000 to cover my summer salary to research infinite ethics and its relation to non-Archimedean number systems such as the hyperreal numbers.

Publications and Preprints

- Natasha Dobrinen, Jose Mijares and Timothy Trujillo, *Topological Ramsey spaces from Fraïssé classes, Ramsey-classification theorems, and initial structures in the Tukey types of p -points*, the Archive for Mathematical Logic issue in honor of James Baumgartner (November 2017) 35 pp.
- Timothy Trujillo, *Selective but not Ramsey*, Topology and its Applications 202 (2016) 8 pp.

- Timothy Trujillo, *Ramsey for \mathcal{R}_1 ultrafilter mappings and their Dedekind cuts*, Mathematical Logic Quarterly 61 (2015) 10 pp.
- Timothy Trujillo and Bixiang Wang, *Continuity of strong solutions of the reaction-diffusion equation in initial data*, Nonlinear Analysis TMA 69 (2008) 7 pp.
- John Brandt, Geraint Jones, David McComas, Martin Snow, Timothy Trujillo, Amanda Burghard, *Observations of cometary plasma tails and the heliosphere near solar maximum*, Proceedings of Asteroids, Comets, Meteors - ACM (2002) 7 pp.
- Timothy Trujillo, *Hypersaturated numbers in ultra-Ramsey theory*, under review (2016) 31 pp.
- Timothy Trujillo, *Parametrizing by the Ellentuck space*, under review (2018) 14 pp.

Invited Talks, Lectures and Presentations

- *Hypersaturated numbers in ultra-Ramsey theory* BLAST 2018, University of Denver, Denver CO, August 2018
- (Invited) *Hypersaturated numbers in ultra-Ramsey theory* RaTLoCC 2018: Ramsey Theory in Logic, Combinatorics and Complexity, Bertinoro Italy, July 2018
- (Invited) *Hypersaturated numbers in ultra-Ramsey theory* JMM 2018, San Diego CA, January 2018
- (Invited) *Higher-dimensional Ramsey theory* SFA Colloquium, Nacogdoches TX, April 2018
- *Triangular Ramsey numbers: an undergraduate research project* MathFest 2017, Chicago IL, August 2017
- *A nonstandard proof of the Nash-Williams' theorem* 6th European Set Theory Conference, Budapest Hungary, July 2017
- (Invited) *Parametrizing by the Ellentuck space* Fields Institute, Toronto Canada, March, 2017
- (Invited) *Topological Ramsey theory* CU Boulder Colloquium, Boulder CO, February 2017
- w/ Kelley Tatangelo *Implementing a team-based partially-flipped approach to linear algebra*, JMM 2017 - Innovative and effective ways to teach linear algebra, Atlanta GA, January 2017
- *Parametrizing by the Ellentuck space*, JMM 2017 - ASL Contributed Paper Session, Atlanta GA, January 2017
- (Invited) *Parametrizing by the Ellentuck space*, AMS special session on set theory of the continuum, University of Denver, October 2016
- *From alpha-Ramsey theory to abstract ultra-Ramsey theory*, SetTop 2016, University of Novi Sad, Serbia, June 2016
- *Ramsey theory via functional extensions*, Front Range Logic Saturday, University of Denver, May 2016
- *Alpha-Ramsey theory*, Joint meeting of the Rocky Mountain and Intermountain Sections of the MAA, Colorado Mesa University, April 2016
- *Higher dimensional Ramsey theory*, AMS departmental colloquia, Colorado School of Mines, October 2015
- *Higher dimensional Ramsey theory*, discrete math seminar, Texas State University, February 2015
- *Products of topological Ramsey spaces*, BLAST 2014, New Mexico State University, January 2015

- *Basic Tukey reductions for selective and Ramsey filters on general topological Ramsey spaces*, BEST 2014, University of California, June 2014
- (Invited) *Topological Ramsey spaces, associated ultrafilters, and their applications to the Tukey theory of ultrafilters and Dedekind cuts of nonstandard arithmetic*, Sesquicentennial Ramsey theory conference, University of Denver, May 2014
- *Selective but not Ramsey for \mathcal{R}_1* , BLAST 2013, Chapman University, August 2013
- *A Ramsey classification theorem with an application to the Tukey theory of ultrafilters*, BEST 2013, University of Nevada Las Vegas, June 2013
- *A new Ramsey classification theorem with an application to the Tukey theory of ultrafilters*, ASL North American Annual Meeting, University of Waterloo, May 2013
- (Invited) *Selective and Ramsey ultrafilters for \mathcal{R}_1 and their Dedekind cuts*, AMS special session on set theory and Boolean algebras, University of Colorado Boulder, April 2013
- *Selective and Ramsey for \mathcal{R}_1 ultrafilters and their Dedekind cuts*, Boulder Logic Seminar, University of Denver, April 2013
- *Several lectures in the graduate colloquium, algebra and logic seminar, and analysis and dynamics seminar at the University of Denver.*

Member of Organizing Committee

- Front Range Logic Saturdays 2 at Colorado School of Mines September 2016
- Front Range Logic Saturdays 1 at University of Denver May 2016
- Sesquicentennial Conference on Infinitary Ramsey Theory at University of Denver May 2014
- MIG 5 and 6 at University of Denver 2012 & 2013
- University of Denver Graduate Colloquium Fall 2012, Fall 2013 & Winter 2014
- University of Denver Student-Only Seminar 2011-2012

Conference and Workshop Attendance

- *RaTLoCC 2018: Ramsey Theory in Logic, Combinatorics and Complexity*, July 2018 in Bertinoro, Italy
- *MAA 2018 TX Conference*, April 2018 at El Centro College, Dallas, Texas
- *Texas Undergraduate Mathematics Conference* October 2017 at University of the Incarnate Word in San Antonio, Texas
- *MathFest 2017 & 2018* August 2017 in Chicago, Illinois, August 2018 in Denver, Colorado
- *6th European set theory conference* July 2017 at Hungarian Academy of Science, Budapest, Hungary
- *AMS special session on set theory of the continuum* October 2016 at University of Denver, Denver, Colorado
- *Front range logic Saturdays 1 & 2* May 2016 at University of Denver & September 2016 at Colorado School of Mines, Golden Colorado
- *SetTop 2016(Set Theory and Topology)* June 2016 at University of Novi Sad, Serbia

- *9th Young Set Theory Workshop* June 2016 at University of Copenhagen, Denmark
- *Joint meeting of the Rocky Mountain and Intermountain Sections of the MAA* Colorado Mesa University, April 2016
- *Joint mathematics meeting* 2018 in San Diego, 2017 in Atlanta, 2016 in Seattle & 2014 in Baltimore
- *BLAST* (**B**oolean algebras, **L**attices universal **A**lgebra, **S**et theory, point-free **T**opology) 2018 at University of Denver, 2015 at New Mexico State University, 2013 at Chapman University, 2011 at University of Kansas, 2010 at University of Colorado Boulder, & 2009 at New Mexico State University
- *Workshop - Ultrafilter space methods in Infinite Ramsey Theory led by Slawomir Solecki* November 22, 2014 at the University of Illinois at Chicago
- *BEST* (**B**oise **E**xtravaganza in **S**et **T**heory) 2014 at University of California Riverside, 2013 at University of Nevada Las Vegas, & 2010 at Boise State University
- *MIG 4, 5 & 6* (**M**aximally **I**nformal **G**athering of logicians in Denver/Boulder) 2011, 2012 & 2013 at University of Denver
- *Association for Symbolic Logic North American Annual Meeting* 2014 at University of Colorado - Boulder, Boulder, Colorado & 2013 at University of Waterloo, Waterloo, Canada
- *AMS special session on set theory and Boolean algebras* 2013 at University of Colorado - Boulder, Boulder, Colorado
- *Workshop on forcing axioms and their applications* 2013 at Fields Institute at University of Toronto, Toronto, Canada
- *15th Latin American Symposium on Mathematical Logic - Travel grant provided by association for symbolic logic* 2012 at Universidad de los Andes & Universidad Nacional de Colombia, Bogota, Colombia

AWARDS, HONORS AND PROFESSIONAL MEMBERSHIPS

- 2017-2018 - Texas Section NeXT fellow (MAA - Texas section)
- 2017 Project NeXT fellow (MAA)
- Member of the Mathematical Association of America (MAA)
- Member of the Association for Symbolic Logic (ASL)
- Reviewer for the Mathematical Reviews (AMS)
- Outstanding Service to Students - 2016 Colorado State Mathematics Awards for co-supervising the 2016 Colorado School of Mines Putnam team.
- Organized and judged the 2015 & 2016 Colorado School of Mines Math Challenge
- Second Place award for excellence in Mathematics Section of the general paper competition for graduate and advanced undergraduate students at the 95th annual meeting of the AAAS Pacific Division, University of California - Riverside, Riverside, California (2014)
- First Place award for excellence in Mathematics Section of the general paper competition for graduate and advanced undergraduate students at the 94th annual meeting of the AAAS Pacific Division, University of Nevada, Las Vegas, Nevada (2013)

- 2013 University of Denver Department of Mathematics GTA Teaching Excellence Award
- Nominated by University of Denver department of mathematics chair for the 2nd annual 2013 NSM Graduate Student Research Award
- 2012 & 2013 Judge at Math Counts Colorado State Competition
- 2009 Bill Dorn Lecturer at University of Denver