

Nickolas A. Castro

CONTACT INFORMATION

University of Arkansas
Department of Mathematical Sciences
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EMPLOYMENT

Visiting Assistant Professor July 2018 - Present
University of Arkansas, Department of Mathematical Sciences

UC Davis Chancellor's Postdoctoral Fellow August 2016 - July 2018
University of California, Davis, Department of Mathematics

Postdoctoral/Lead Mentor July 2016, July 2017, July 2019
Camp Euclid, High School Mathematics Research Camp

EDUCATION

The University of Georgia, Athens, Georgia USA
Ph.D., Mathematics. May 2016

The University of Georgia, Athens, Georgia USA
Master of Arts, Mathematics. May 2012

California State University Northridge, Northridge, California USA
Bachelor of Arts, Mathematics. December 2008

Pierce College, Woodland Hills, California USA
Associate of Arts, Liberal Arts. June 2006

PUBLICATIONS AND PREPRINTS

1. *Classifying Low-Complexity Relative Trisections*
with Patrick Naylor
In preparation.
2. *Relative Group Trisections*
with Jason Joseph
In preparation.
3. *Camp Euclid: A Research Experience for Youth – in a Virtual Environment*
with Juliette Benitez and David T. Gay.
To appear in AMS Notices, December 2020.
4. *The Relative \mathcal{L} -invariant of a Compact 4-manifold with Boundary*
with Gabriel Islambouli, Maggie Miller, and Maggy Tomova
arXiv:1908.05371, 2019. Submitted, under revision.
5. *Trisections of 4-manifolds via Lefschetz fibrations*
with Burak Ozbagci
Mathematical Research Letters 26(2): 383-420, 2019.
6. *On Dividing a Rectangle*
with Robert Dumitru*, Quinn Perian*, Alexander Nealey*, Mohammed Mannan*, Eddie Beck,
David Gay, Dipen Mehta*, Anish Pandya*, Ejay Cho*, 2018
arXiv:1808.0648
*This paper was the result of a research group from Camp Euclid 2016. * indicates high school co-authors.*
7. *Trisections of 4-manifolds with Boundary*
with David T. Gay and Juanita Pinzón Caicedo,
Proceedings of the National Academy of Sciences Oct 2018, 115 (43) 10861-10868;
DOI: 10.1073/pnas.1717170115

8. *Trisecting Smooth 4–dimensional Cobordisms*
arXiv:1703.05846, 2017.
9. *Diagrams for Relative Trisections*
with David T. Gay and Juanita Pinzón Caicedo
Pacific Journal of Mathematics 294-2 (2018), 275–305. DOI 10.2140/pjm.2018.294.275
10. *Relative Trisections of Smooth 4–manifolds with Boundary*
Ph.D. Thesis, The University of Georgia, 2016

AWARDS AND
FELLOWSHIP

- AIM SQuaRE**, with P. Aceto, M. Miller, J. Park, A. Stipsicz
Fibered ribbon knots and Casson-Gordan exotic 4–spheres 2020-2021
- New Faculty Teaching Commendation**
The University of Arkansas 2018-2019
- The University of Georgia Graduate Student Excellence in Research Award**
Mathematical and Physical Sciences 2017
- The University of California, Davis Chancellor’s Postdoctoral Fellowship**
Mentor: Professor Abigail Thompson 2016 - 2018
- Southern Regional Education Board Dissertation Completion Award**
SREB Doctoral Scholars Program 2015-2016
- VIGRE Research Fellowship**
February 2014 - July 2014, August 2011 - June 2012
- California State University Northridge PUMP Undergraduate Award**
September 2007 - December 2008

UPCOMING TALKS

- TBD* October 2020
Fall Redbud Topology Conference (*Virtual*)
- TBD* December 2020
Centro de Investigación en Matemáticas, GTO, México (*Virtual*)
- Relative group trisections and smooth 4–manifolds with boundary* January 2021
JMM Special Session on 3– and 4–manifolds (*Virtual*)

INVITED TALKS

- Future Directions of Relative Trisections* July 2020
Geometry/Topology Grad. Student and Postdoc. Seminar (*Virtual*)
- Lefschetz Fibrations and Trisections* October 2018
Topology Seminar, Oklahoma State University
- Complicated Monodromies and Trisections* April 2018
AMS Spring Eastern Sectional Meeting, Northeastern University
- Relative Trisections and Bounding Open Book Decompositions* April 2018
Rebdu Topology Conference, Oklahoma State University
- Relative Trisections and Lefschetz Fibrations* November 2017
Topology Seminar, Brigham Young University
- Interactions Between 3– and 4–manifolds via Trisections* November 2017
Topology Seminar, University of California, Santa Barbara

<i>Relative Trisections and Fibered Knots</i> Topology Seminar, The University of Georgia	October 2017
<i>Relative Trisection Diagrams</i> Algebra/Topology Seminar, The University of Alabama	February 2017
<i>Trisections of Smooth 4-manifolds</i> Department Colloquium, California State University Northridge	December 2016
<i>Trisections of Smooth 4-manifolds with Boundary</i> ECSTATIC 2, Imperial College London	June 2016
<i>Gluing and Stabilizing Relative Trisections</i> AMS Spring Southeastern Sectional Meeting, The University of Georgia	March 2016
<i>Relative Trisection Diagrams of Smooth 4-manifolds with Boundary</i> Topology Seminar, Georgia Institute of Technology	November 2015
<i>Topology in Dimensions Zero Through Four</i> General Audience Colloquium, Wofford College	November 2015
<i>Trisecting 4-manifolds With Boundary</i> Topology Seminar, University of Texas Austin	November 2014

JOURNAL
REFEREE

Geometry & Topology • Algebraic & Geometric Topology

TEACHING
EXPERIENCE

University of Arkansas

- *Calculus 1* (Remote instruction via Zoom) Fall 2020
- *Applied Linear Algebra* (Remote instruction via Zoom) Summer 2020
- *Calculus 2* (Partial Remote instruction) Spring 2020
- *Calculus 1* Spring 2019, Fall 2019
- *Applied Linear Algebra* Summer 2019
- *Survey of Calculus* Summer 2018, Fall 2018

The University of Georgia

Instructor of Record

- *Calculus 1* Spring 2011, Fall 2014, Spring 2015, Fall 2015
- *Precalculus* Fall 2010, Fall 2013

Recitation Instructor

- *Topology Qualifying Exam Problem Session* Summer 2013, 2014
- *Calculus* Fall 2009, Spring 2010

Writing Intensive Program TA

- *For courses designed for future math educators* Fall 2012, Spring 2013

**Outreach and
Volunteering**

<i>University of Georgia Mentor Program</i> Alumni mentor for current students at the University of Georgia	Fall 2020 - current
<i>Camp Euclid: Research Summer camp for High Schoolers</i> Lead mentor, Postdoctoral Mentor	2016, 2017, 2019, 2020
<i>American Mathematics Competition 8, 10, & 12.</i> University of Arkansas Team Leader	2019-2020
<i>Math Olympiad for Elementary and Middle School</i> Person in Charge of Olympiad, Lead Mentor for Math Club	2019-2020
<i>Women's Empowerment</i> Mathematics Instructor, Resident Manager Program Pre-Training	January 2018
<i>COSMOS UC Davis</i> Mathematics Cluster Teacher Fellow (Knots, Links and the Topology of Spaces)	July 2017
<i>Women's Empowerment</i> Graphic design for "The Get a Job Kit", www.thegetajobkit.com .	July 2017
<i>Summer PUMP Program, California State University, Los Angeles</i> Inspirational Speaker	July 2016
<i>Underrepresented Students in Topology and Algebra Research Symposium</i> Mentor Panelist	April 2016
<i>The University of Georgia High School Math Camp</i> Program Director	Summer 2014
<i>Volunteer for Math Counts program at UGA</i>	Fall 2013