Nida **Obatake**

Mathematics PhD Student · Texas A&M University

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Education

Doctor of Philosophy, Mathematics — *College Station, Texas*
Texas A&M University – Advisor: Anne Shiu — *2016 - 2021 (expected)*

Master of Science, Mathematics — *San Jose, California*
San José State University – Advisor: Elizabeth Gross — *2013 - 2016*

Bachelor of Science, Mathematics — *Santa Clara, California*
Santa Clara University – Advisor: Frank Farris — *2009 - 2013*

Publications and preprints

7. *Dynamics of ERK regulation in the processive limit*, Carsten Conradi, Nida Obatake, Anne Shiu, and Xiaoxian Tang. In preparation, 2019.
6. *Modeling R-loops with Formal Grammars*, Nataša Jonoska, Nida Obatake, Svetlana Poznanovikj, Candice Price, Manda Riehl, and Mariel Vazquez. In preparation, 2019.
5. *Oscillations and bistability in a model of ERK regulation*, Nida Obatake, Anne Shiu, Xiaoxian Tang, and Angélica Torres. Accepted to *Journal of Mathematical Biology*. Available from `arXiv:1903:02617`, 2019.
4. *On the identification of k-inductively pierced codes using toric ideals*, Molly Hoch, Samuel Muthiah, and Nida Obatake. Submitted to *Journal of Algebra and its Applications* (in revision). Available from `arXiv:1807.02390`, 2019.
3. *Neural ideals and stimulus space visualization*, Elizabeth Gross, Nida Obatake, and Nora Youngs. In Advances in Applied Mathematics, Volume 95, 2018, Pages 65-95, ISSN 0196-8858. Available from ScienceDirect.
2. *Drawing place field diagrams of neural codes using toric ideals*, Nida Obatake. San José State University, ProQuest Dissertations Publishing, 2016. Available from ScholarWorks.
1. *Mathematical origami of a single vertex: regular K-points*, R. Alperin, R. Bommu, M. Gurdine, L. Mattick, N. Obatake, J. Orozco, and J. Schrag. In preparation, 2016.

Honors & Awards

Sep 2019	**Undergraduate Research Mentoring Award**, College of Science	*TAMU*
Jul 2019	**Best poster presentation**, SIAM Conference on Applied Algebraic Geometry	*Bern, Switzerland*
May 2019	**Herman F Heep Scholarship & Achievement** , Academic Excellence Award	*TAMU*
May 2019	**Outstanding TA Award**, Houston A&M Mother's Club	*TAMU*
Apr 2019	**Aggie Leader Scholarship**, Sean M. Golden '01 and Heather Sustman Golden '99 Scholarship Fund	*TAMU*
May 2018	**Certificate of recognition for outstanding service and contributions**, SIAM Student Chapter Award	*SIAM*
2016–2018	**H.B. Curtis Fellow in Mathematics**, Graduate Fellowship	*TAMU*
May 2016	**Franklyn B. Fuller award for exceptional math graduate student**, Mathematics Department Scholarship	*SJSU*
Apr 2015	**Kenneth C. Bradshaw award for outstanding teaching associate**, Mathematics Department Scholarship	*SJSU*
Aug 2014	**Viola Palmer Memorial Scholarship**, Graduate Merit Scholarship	*SJSU*

Grants

Jul 2019	**NSF DMS-1937317**, in support of the Texas Women in Math Symposium 2020 PI: Laura Matusevich, co-PIs: Priyanga Ganesan, Nida Obatake, Aleksandra Sobieska, and Elise Walker	*$8000*
Apr 2019	**College of Science Diversity & Equity Grant**, Texas Women in Math Symposium 2020 with Laura Matusevich, Priyanga Ganesan, Aleksandra Sobieska, and Elise Walker	*$2000*
Mar 2019	**MAA Tensor Women in Mathematics Grant**, Texas Women in Math Symposium 2020 with Laura Matusevich, Priyanga Ganesan, Aleksandra Sobieska, and Elise Walker	*$6000*
Apr 2018	**College of Science Diversity & Equity Grant**, Peer Mentoring Program for Mathematics Graduate Students with Laura Matusevich, Changningphaabi Namoijam, Aleksandra Sobieska, and Elise Walker	*$1960*

Talks

** = invited talk*

SIAM AG 2019; University of Bern, *Sufficient conditions for 1- and 2- Inductively Pierced Codes** — *Jul 10, 2019*

Trieste Algebraic Geometry Summer School; ICTP, *Polyhedral Methods for Chemical Reaction Networks* — *Jul 1, 2019*

AWM Research Symposium; Rice University, *Toric Ideals of Neural Codes** — *Apr 7, 2019*

AWM Research Symposium; Rice University, *Hopf bifurcations in the ERK Network** — *Apr 6, 2019*

AMS Spring Southeastern Sectional Meeting; Auburn University, *Oscillations in the ERK Network** — *Mar 16, 2019*

Graduate Student Seminar; Texas A&M University, *Oscillations in the ERK Network* — *Mar 7, 2019*

TAMU-AMS GIGEM 2019; Texas A&M University, *Amoebas!** — *Feb 16, 2019*

Graduate Student Seminar; Texas A&M University, *Chemical Reaction Networks* — *Sep 13, 2018*

ICMS 2018; Notre Dame University, *The capacity for Hopf bifurcations in the fully distributive dual-site phosphorylation network* — *Jul 24, 2018*

Joint Mathematics Meeting (JMM), *Place field diagrams of neural codes* — *Jan 12, 2018*

AMS Fall Central Sectional Meeting, *Place field diagrams of convex neural codes** — *Sep 9, 2017*

SIAM Conference on Applied Algebraic Geometry, *Toric Ideals of Neural Codes** — *Aug 1, 2017*

Graduate Student Seminar; Texas A&M University, *Rat GPS* — *Nov 10, 2016*

Texas Women in Math Symposium, *Drawing place field diagrams of neural codes using toric ideals* — *Nov 5, 2016*

Student Working Seminar in Algebraic Geometry; Texas A&M University, *Differential Forms and Manifolds, Integration, Stoke's Theorem* — *Nov 1, 2016*

Geometry Seminar; Texas A&M University, *Drawing place field diagrams of neural codes using toric ideals** — *Sep 26, 2016*

Master's thesis defense; San Jose State University, *Drawing place field diagrams of neural codes* — *May 17, 2016*

Colloquium; San Jose State University, *Algebraic methods for realizing neural codes** — *May 4, 2016*

Colloquium; Santa Clara University, *Algebraic methods for realizing neural codes** — *Apr 26, 2016*

AMS Fall Western Sectional Meeting, *Toric ideals of neural codes* — *Oct 25, 2015*

Posters

SIAM Conference on Applied Algebraic Geometry; University of Bern, *A constructive algorithm for a positive solution to a system of polynomial inequalities* — *Jul 9, 2019*

Southwest Local Algebra Meeting; University of Texas at El Paso, *Hopf bifurcations in chemical reaction networks* — *Feb 23, 2019*

TWIMS; University of Houston, *Hopf bifurcations in the fully distributive dual-site phosphorylation network* — *Nov 17, 2018*

CBMS, Applications of Polynomial Systems; Texas Christian University, *The capacity for Hopf bifurcations in the fully distributive dual-site phosphorylation network* — *Jun 4, 2018*

College of Science Student Research Day; San Jose State University, *Drawing Place Field Diagrams of Neural Codes using Toric Ideals* — *May 6, 2016*

MAA Golden Section Meeting; UC Davis, *Toric ideals of neural codes* — *Feb 27, 2016*

Biology and Math in the Bay Area (BaMBA); San Jose State University, *Toric ideals of neural codes* — *Oct 17, 2015*

Mentoring

Mathematics REU

Texas A&M University

Graduate Student Research Mentor for 2 undergraduate students — *Summer 2019*

- Supervised research projects on mixed volume of chemical reaction networks and identifiability in linear compartment models.

Directing Reading Program in the Texas A&M University math department

Texas A&M University

Graduate Student Mentor for 1 undergraduate student — *Spring 2019*

- Led a reading course on applied algebraic topology and neural codes.

Mathematics REU

Texas A&M University

Graduate Student Research Mentor for 3 undergraduate students — *Summer 2017*

- Supervised research projects on toric ideals of neural codes and identifiability in linear compartment models.

Experience

Mathematics Department — *Texas A&M University*

Graduate Teaching Assistant — *Aug 2016 - present*

- **Instructor of record**
  - Mathematics for Business and the Social Sciences (Math 140) – 65 students per semester — *Fall 2018, Fall 2019*
- Recitation and Python lab instructor
  - Engineering Calculus 1 (Math 151) — *Spring 2019*
- Recitation instructor
  - Calculus 1 for Biological Sciences (Math 147) — *Fall 2017, Spring 2018*
  - Engineering Calculus 2 (Math 152) — *Fall 2016*
- Grader
  - Applied Algebra (Math 433) — *Spring 2017*
- Help session instructor
  - Linear Algebra — *Fall 2016*

Mathematics Department — *San José State University*

Teaching Associate — *Aug 2014 - May 2016*

- **Instructor of record**
  - College Algebra (Math 8) – 30-40 students per section — *Fall 2014 (1 section), Spring 2015 (1 section), Fall 2015 (2 sections), Spring 2016 (1 section)*
- Workshop Facilitator
  - Led workshop for Developmental Math (Math 6B) — *Spring 2016*
  - Led workshop for Multivariable Calculus (Math 32) — *Fall 2014, Spring 2015*

Kumon Math and Reading Center — *Multiple locations*

Assistant Instructor — *2008-2014*

- Activities included grading, recording, and assisting K-12 students with math and reading worksheets.

Dr. Frank Farris — *Santa Clara University*

Student Editor — *Jun–Aug 2013*

- Read and helped edit the manuscript “Creating Symmetry: The artful Mathematics of Wallpaper Patterns” written by Dr. Frank Farris.

Mathematics Department — *Santa Clara University*

Grader — *2011-2013*

- Graded assignments for Vector Calculus (Calc 3), Discrete Math, and Business Calculus.

Service

Mathematics Department — *Texas A&M University*

Student Chapter Officer — *Fall 2016 - Spring 2019*

- American Mathematical Society (AMS) TAMU Graduate Student Chapter
  - President — *2018–2019*
  - Secretary — *2017–2018*
- Association for Women in Mathematics (AWM) TAMU Graduate Student Chapter
  - Vice President — *2017–2019*
  - Secretary/Webmaster — *2016–2017*
- Society for Industrial and Applied Math (SIAM) TAMU Graduate Student Chapter
  - Vice President — *2018–2019*
  - Liaison Officer — *2017–2018*

Outreach

Oct 2018	**Volunteer: activity on geometry and symmetry**, Boonville Days	*Brazos Valley Museum of Natural History*
Apr 2018	**Panelist**, Department Review - Discussion on the Mathematics Graduate Program	*Texas A&M University*
Feb 2018	**Panelist**, Graduate school in mathematics informational session	*St. Edwards University*
Feb 2018	**Moderator**, CombinaTexas	*Texas A&M University*
2016–2018	**Volunteer**, Math Circle	*Texas A&M University*
Feb 2018	**Volunteer: math art room**, Math & Stats Fair	*Texas A&M University*
Feb 2018	**Organizer: math art room**, STEMfest	*Texas A&M University*
Mar 2017	**Volunteer**, Math & Stats Fair	*Texas A&M University*
Feb 2017	**Co-organizer: math art room**, STEMfest	*Texas A&M University*
2013	**Teen Workshop Leader**, Santa Maria Urban Ministry	*San Jose, CA*

Events Organized

2019	**Minisymposium on "Algebraic, geometric, and combinatorial methods in mathematical biology"**, SIAM TX-LA 2nd Annual Meeting, Southern Methodist University	*Nov 1–3, 2019*
2017–2019	**Industrial and Applied Mathematics Seminar**, Texas A&M University	*bi-weekly*
2019	**TAMU-AMS Gathering in Graduate Expository Mathematics (GIGEM)**, Texas A&M University	*February 16, 2019*
2018–2019	**Peer Mentoring Program group meeting**, Texas A&M University	*monthly*
2017–2019	**Women in Math Mentoring Lunch**, Texas A&M University	*monthly*
2018	**TAMU-AMS Gathering in Graduate Expository Mathematics (GIGEM)**, Texas A&M University	*March 4, 2018*

Memberships

- Association for Women in Mathematics (AWM)
- American Mathematical Society (AMS)
- Society for Industrial and Applied Mathematics (SIAM)
- The EDGE Program - Enhancing Diversity in Graduate Eduation (2016 cohort)
- Mathematical Association of America (MAA)
- Pi Mu Epsilon (ΠME) Math Honor Society

Travel Awards

Jun 2019	**Graduate Student Research and Presentation Travel Award**, Texas A&M University Office of Graduate and Professional Studies for SIAM AG 2019	
Jun 2019	**SIAM Grant**, for Collaborative Workshop for Women in Math Bio	
Mar 2019	**SIAM Student Travel Grant**, for SIAM AG 2019	
Apr 2019	**AWM Student Travel Grant**, for AWM Research Symposium 2019	*declined*
Feb 2019	**Conference Travel Grant**, for SLAM 2019	
Nov 2018	**Conference Travel Grant**, for TWIMS 2018	
Jul 2018	**Conference Travel Grant**, for ICMS 2018	
Jun 2018	**Conference Travel Grant**, for CBMS conference on Applications for Polynomial Systems	
Jan 2018	**EDGE Travel Grant**, for JMM 2018 EDGE for Women session	
Sep 2017	**AMS Student Travel Grant**, for AMS Denton	
Jun 2016	**EDGE grant**, for EDGE 2016 workshop	
Oct 2015	**Conference Travel Grant**, for AMS Fall Western Sectional Meeting	