Daniel Reid Irvine - Curriculum Vitae

CURRENT POSITION	Visiting Assistant Professor Georgia Institute of Technology 023 Skiles Building Atlanta, GA 30318	Phone: (251) 272-0696 Office Phone: (812)855-0044 E-mail: dirvine7@gatech.edu Website: `https://dirvine.math.gatech.edu`

EDUCATION

University of Michigan, Ann Arbor, MI. United States — September 2014 – May, 2020
Ph.D. Mathematics — GPA 3.883
Degree conferred May 4, 2020

University of Notre Dame, Notre Dame, IN. United States — August 2010 – May 2014
B.S. Mathematics, summa cum laude — GPA 3.953

AWARDS AND FELLOWSHIPS

NSF Graduate Research Fellowship Honorable Mention 2015 and 2016. Goldwater Scholar 2013.
The Karen Rhea Excellence in Teaching Award. The "Golden Stapler" Teaching Award, 2018.
Rackham Graduate School Outstanding Graduate Student Instructor Award, 2019.
Rackham Graduate School Diversity, Equity, and Inclusion Certificate, 2020.
Mathematical Association of America Project NExT (New Experiences in Teaching) Fellow, 2021
GE Prize for Excellence in Mathematics. George Kolettis Award in Mathematics, 2014.
Inducted into Phi Beta Kappa honor society, 2014.

PUBLICATIONS

ORCID ID `https://orcid.org/0000-0003-2721-5901` gives links to all publications.

- THESIS: Irvine, D. "Symplectic Embeddings of Toric Domains". University of Michigan, 2020.
- Irvine, D. "The stabilized symplectic embedding problem for polydiscs". Preprint, arXiv:1907.13159.
- Aslam, V., Daniel Burns Jr., and Daniel Irvine, "Left-invariant Grauert Tubes on SU(2)," *The Quarterly Journal of Mathematics*, arXiv:1705.03359.
- Adams, C., Orsola Capovilla-Searle, Jesse Freeman, Daniel Irvine, Samantha Petti, Daniel Vitek, and Ashley Weber, "Multi-crossing Number for Knots and the Kauffman Bracket Polynomial," *Mathematical Proceedings of the Cambridge Philosophical Society*, ArXiv:1407.4485.
- Adams, C., Orsola Capovilla-Searle, Jesse Freeman, Daniel Irvine, Samantha Petti, Daniel Vitek, and Ashley Weber, "Bounds on Übercrossing and Petal Numbers for Knots," *Journal of Knot Theory and Its Ramifications*, ArXiv:1311.0526.
- Irvine, D. "Media Highlights: Circular Nim Games". *The College Mathematics Journal*, 2014; 45(3): 232-239.
- My work from a 2012 REU was incorporated into Choi Keon, Cristofaro-Gardiner Daniel, Frenkel David, Hutchings Michael, Ramos Vinicius G. B. "Symplectic Embeddings into Four-Dimensional Concave Toric Domains," *Journ. of Top.* 2014 May 22; 7(4):1054-1076 for which I received an acknowledgement.

SUMMER RESEARCH

- Kylerec 2018: Cotangent bundles and the nearby Lagrangian conjecture.
- SMALL REU 2013: Knot theory group, Williams College.
- UC Berkeley Geometry, Topology, and Operator Algebras RTG Summer Research Program 2012: Contact and symplectic geometry group.

TEACHING EXPERIENCE

Indiana University Bloomington, Department of Mathematics. — Fall 2020 – Spring 2021
Visiting Lecturer: Introduction to Calculus 1 & 2 — Fall 2020 – Spring 2021

- Primary instructor for 3 sections of 50-70 students.
- Class was entirely online, due to the COVID-19 Pandemic.
- Created and graded exams and web homework problems.

University of Michigan, Department of Mathematics. — Fall 2014 – Present
Instructor: Calculus 1 & 2 — Fall 2014 – Winter 2020

- Primary instructor for a section of 18-32 students.
- Lectured and led class in group assignments.
- Graded uniform exams and team homework problems.

Course Coordinator: Calculus 2   Fall 2017
- Organized and led instructors of 43 sections of MATH 116.
- Created course-wide uniform exams and team homework problems.

Coordination Assistant and Teaching Mentor: Introductory Mathematics Program   Fall 2018
- Observed new instructors to provide feedback on best practices.
- Acted as a teaching substitute for any instructor that was unable to teach.
- Proofread all exams for Precalculus, Calculus 1, and Calculus 2.

Instructor: Mathematics for Elementary School Teachers   Fall 2019
- Secondary instructor for two sections, totaling 23 students.
- Led students though an Inquiry-Based Learning approach to the elementary math curriculum.

University of Notre Dame, Department of Mathematics.
TA: Honors Math 1 & 2   Spring 2012 – Spring 2014
- Organized tutorial sessions each week, assisting students with homework and exam questions.
- Created, distributed, and graded weekly quizzes.

SELECTED PRESENTATIONS

Any slides that accompany presentations have been posted on my website, above.
- "Symplectic embeddings and the reduced shape invariant," given at Duke University Geometry/topology seminar, April 12,2021.
- "Low-versus-high-dimensional symplectic topology," invited talk at an AMS special session at Purdue University Sectional Meeting, April, 2020, canceled due to COVID.
- "Stabilized symplectic embeddings," invited talk at an AMS special session at Purdue University Sectional Meeting, April, 2020, canceled due to COVID.
- "The Embedding Problem for Stabilized Polydiscs," given at the FRG Workshop on Symplectic Isotopy and Packing at University of Michigan, May 19, 2019.
- "Exact Lagrangian Plumbings 2," given at Kylerec, May 30, 2018.
- "Rhumb Lines and the Mercator Projection," talk for undergraduate students given at Michigan Math Club.
- "Quantum Formalism and Uncertainty Inequalities," given at Michigan's Symplectic Reading Group, February 23, 2018.
- "Symplectic Embedding Problems," given at Michigan's Student Topology/Geometry Seminar, January 16, 2018.
- "From Symplectic to Contact Geometry," given at Michigan's Student Topology/Geometry Seminar, November 28, 2017.
- "Knot Theory I & II," two talks given for middle school students at the Michigan Math Circle, October 15 and 22, 2015.
- "Symplectic Embeddings of 6-dimensional Polydiscs," given at MAA Mathfest in Portland, OR, August 7, 2014.
- "Applying the Bracket Polynomial to Multi-Crossing Projections," joint presentation with Samantha Nicole Petti at AMS Joint Meetings 2014 in Baltimore, MD.
- "Übercrossing numbers of Knots," given at MAA Mathfest in Hartford, CT, August 1, 2013. For this talk I won an MAA outstanding presentation award.

LEADERSHIP EXPERIENCE

In 2018, I helped organize and lead a new seminar at Michigan, called the Symplectic Reading Group. During the 2017-18 academic year, I served as a student arbitration panelist for the Office of Student Conflict Resolution at the University of Michigan.

Technical Skills   **Programming and Scripting Languages**: C, CSS, HTML, Haskell, LaTex, Mathematica
  Office Skills: Microsoft office suite (Word, Excel, Powerpoint), Adobe publishing suite

References   Academic references or course teaching evaluations are available upon request.