

Jodin Morey

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Curriculum Vitae

Areas of Interest

My interests are in Dynamical Systems and mathematical physics. Specifically, I conduct research in the full two-body problem (gravitational orbits), and black holes gravitational waves. I am seeking a position as a lecturer and researcher. I also have interest in developing specialized mathematics curriculum for undergraduates. In particular, my goal is to use technology to make mathematics easier to learn, and more relevant to the students' lives. See my Teaching Philosophy and Research Statement for more detail.

Education

- **Ph.D. in Mathematics**, University of Minnesota; Twin Cities Expected: Spring 2022
Dissertation: *Stability of Relative Equilibria for Orbiting Dumbbells in a Planar System*
Advisor: Richard Moeckel
- **MS in Mathematics**, University of Minnesota; Twin Cities Spring 2020
- **Minnesota Teaching License**, Mathematics (grades 5 – 12) June 2015
- **BA in Mathematics Teaching**, Metropolitan State University; St. Paul, MN Spring 2015
Summa Cum Laude. Urban Teaching Program
- **BFA in Music**, University of Minnesota, Morris; Morris Spring 1998

Publications

- *Stability of Relative Equilibria for Orbiting Dumbbells in a Planar System* (Expected) May 2022
University of Minnesota, Dissertation
- *Scalar perturbations of a single-horizon regular black hole* (with Green, Daghigh, Kunstatter) November 2020
Physical Review D 102, 104040 (2020). DOI: [10.1103/PhysRevD.102.104040](https://doi.org/10.1103/PhysRevD.102.104040) (3 citations)
- *Significance of black hole quasinormal modes: A closer look* (with Green, Daghigh) May 2020
Physical Review D 101, 104009 (2020). DOI: [10.1103/physrevd.101.104009](https://doi.org/10.1103/physrevd.101.104009) (5 citations)
- *The Consequence of Using a Quantum Two-State Magnetic Field in a Stern-Gerlach Experiment* August 2016
(with Green, Daghigh, West). Preprint: [arXiv:1608.01638v1](https://arxiv.org/abs/1608.01638v1) [quant-ph] (2 citations)
- Environmental sustainability [curriculum for college algebra and pre-calculus](#) Summer 2014
Developed through an NSF funded project, *Engaging Mathematics*
- *Mathematics Comprehension Strategy Log* Spring 2014
[Undergraduate compilation of mathematics education strategies](#)

Teaching Related Experiences

- University of Minnesota, Twin Cities Fall 2016 – Current
TA Instructor for Calculus I/ II, Linear Algebra and Differential Equations
Average student rating of my performance over 24 classes: 5.5 out of 6
- Substitute Teaching; Bloomington Public Schools; Bloomington, MN 2015 – 2016
Substituted for 7-12th grade math classes
- Kennedy High School, Bloomington, MN January – April, 2015
Student teacher for Algebra 2 and College Algebra
- Valley View Middle School, Bloomington, MN January – May, 2014
Teaching assistant for seventh grade math

Teaching Related Experiences (continued)

- Washburn High School; Minneapolis, MN September 2011 – December 2013
Volunteered as teaching assistant for Geometry and Calculus
- Green Central Middle School; Minneapolis, MN February – May 2013
After School Program (ACES). Volunteer tutoring of students in mathematics
- Participated in Minnesota chapter of the National Association for Multicultural Education's fall conference, Patrick Henry High School Fall 2011
- Volunteer tutoring clients with mental illness in mathematics toward their GED 2006 – 2014

Colloquium, Seminar, and Conference Talks

- Joint Mathematics Meetings Seattle: Contributed Paper (Planned) January 2022
Talk title: *Stability of Relative Equilibria for Orbiting Dumbbells in a Planar System*
- Dynamical Systems Seminar, University of Minnesota, Minneapolis, MN TBD 2021
Talk title: *Stability of Relative Equilibria for Orbiting Dumbbells in a Planar System*
- Dynamical Systems Seminar, University of Minnesota, Minneapolis, MN April 2020
Talk title: *Relative Equilibria of Dumbbells Orbiting in a Planar Newtonian Gravitational system*
- Joint Mathematics Meetings San Antonio: Contributed Paper January 2015
Talk title: *Undergraduate Sustainability Experiences in the Mathematics Classroom*

Grants, Honors, and Awards

- National Science Foundation Summer funding through my advisor's research grant 2019 – 2020
- Certification for "Outstanding Teaching and Dedication to Helping Students Learn" 2016 – 2020
University of Minnesota, Center for Educational Innovation's "Thank a Teacher" program
Received six recognitions. Comment from a recent award: "You were an excellent TA before the [pandemic] transition; you were always enthusiastic and willing to help people out. You did wonders when transitioning to online as you quickly switched your office hours to online as well as our discussion sessions. You also made your pdf files available to us students. Thank you."
- Outstanding Student Award, College of Arts and Sciences Spring 2015
Awarded to only one graduating senior
- Funding to attend Minnesota Council of Teachers of Mathematics. Duluth, MN May 2015
- Academic Achievement Scholarship, Metropolitan State University, MN May 2013

Other Experiences/Accomplishments

- Invited Panelist for Women in Mathematics' "Oral Exam Panel" Fall 2020
- Served as peer mentor for two incoming math graduate students, University of Minnesota Fall 2018
- Class project. Developed a mathematical model and ran simulations of electoral ranked-choice voting using Mathematica. Gave presentation of my findings Fall 2013
- Invited to and participated in a Roundtable Discussion with St. Paul Mayor Chris Coleman for the 2013 "State of the City" at Metropolitan State University Spring 2013
- Developed and presented mathematical curriculum to college classrooms 2012 – 2014
(spherical geometry, angle of elevation).
- Developed web application "RadioChimp." A service to send audio e-mail messages, to podcast their own radio show, and embed audio messages into webpages 2008 – 2013
- Developed website with MP3 automation for a nonprofit's "Sunday Talks" using Perl, PHP, JavaScript, RSS, HTML 2008 – 2012
- Developed first web-based reservation system in MN for a limousine company 1998
(which I founded and co-owned).
- Composer/Musical Director, Danny Boy Productions (television animation) 1995 – 1997