

GUADALUPE INÉS TERÁN (LOZANO)

Curriculum Vitae

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Citizenship:

US (Argentina native)

EDUCATION

- THE UNIVERSITY OF ARIZONA, Tucson, AZ.
PhD in Mathematics, June 2004.
Dissertation title: *Poisson geometry of the Ablowitz–Ladik equations*.
Dissertation supervisor: Nicholas M. Ercolani.
GPA: 4.00/4.00.
- THE UNIVERSITY OF ARIZONA, Tucson, AZ.
MS in Mathematics.
Thesis Title: *Symplectic Geometry of Euclidean Polygons*.
GPA: 4.00/4.00.
- WHITWORTH COLLEGE, Spokane, WA.
BS in Mathematics.
GPA: 3.90/4.00 – Summa Cum Laude graduate.

RESEARCH INTERESTS

- Transnational and Borderline Studies in Mathematics Education.
- Cognitive issues in Undergraduates' understanding of Differential and Integral Calculus.
- Poisson Geometry of Integrable Systems limits.
- Symplectic geometry of polygon spaces.

PUBLICATIONS

- *Students' Mathematical Achievement and General Knowledge in a Multicultural Mathematics Course* (w/ D. Winter). Preprint (2006).
- *A bi-Hamiltonian structure for the integrable, discrete non-linear Schrödinger system* (w/ N. Ercolani). *Physica D* 218 (2006), no. 2, 105–121.
- *Poisson geometry of the Ablowitz–Ladik Equations*. PhD dissertation. University of Arizona (2004).
- *The Geometry of Polygons in \mathbb{R}^5 and Quaternions* (w/ P. Foth). *Geometriae Dedicata* 105 (2004), 209–229.
- *A Dynamic Software Visualization Tool for Calculus Instruction at the College-entry Level*. Proceedings of the Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (22nd, Tucson, Arizona, USA, October 2000). Volume 2, p 703.

EMPLOYMENT

- **CEMELA Postdoctoral Researcher**, 2007–present. CEMELA (Center for the Mathematics Education of Latinos/as) is a Center for Learning and Teaching supported by NSF grant ESI-0424983.

- **La Meta Postdoctoral Fellow**, 2007–present: design and facilitate Professional Development opportunities for in-service middle-school teachers. The La Meta grant is funded by federal funds through the New Mexico Public Education Department.
- **Post-Doctoral Fellow**, University of New Mexico, Department of Mathematics and Statistics, 2007–present.
- **Post-Doctoral Assistant Professor**, University of Michigan, Department of Mathematics, 2004–2007.
- **VIGRE Research Associate**, University of Arizona, Department of Mathematics, 2000–2003.
- **Teaching Associate/Assistant; Summer Session Instructor**, University of Arizona, Department of Mathematics, 1997–2004.
- **Summer Camp Counselor**, Arizona Summer Mathematics Program for Gifted Junior High School Students, 1998–1999: mentored junior high school students during a two-week math camp.
- **Undergraduate Teaching Assistant**, Whitworth College, Department of Philosophy, 1996: led weekly discussions and exam preparation sessions for upper division undergraduate philosophy of science course.

CONSULTING

- *Houghton Mifflin Publishing*: reviewed a first edition pre-calculus text (2007).
- *Faculty Associates for Multicultural Teaching Innovations (FAMI) Grant* (funded by the Center for Research on Learning and Teaching–CRLT, University of Michigan): authored a series of precalculus activities and lesson plans (10 pages each) based upon current multicultural issues of socio-economical relevance (2005).
- *John Wiley & Sons, Inc.*: designed problems for and co-revised the third edition of the textbook *Calculus* by Hughes-Hallett, Gleason, et al. (2000).

TEACHING EXPERIENCE

MULTI-SECTION COURSES DIRECTED (coordinated and supervised instructors; wrote uniform exams):

- Data, Functions and Graphs (Precalculus), Winter 2005, 2007.
- Calculus I (Differential), Winter 2006.
- Calculus II (Integral), Fall 2005.

COURSES TAUGHT (assumed full responsibilities for the class):

- Math for Elementary and Middle School Teachers, Winter 2007, Fall 2007.
- Principles of Analysis, Winter 2006.
- Calculus II (Integral), Fall 2005, Summer 2001.
- Data, Functions and Graphs (Precalculus), Fall 2004, Spring 2005.
- Math for Business Decisions (Introduction to applied probability), Spring 2004.
- Calculus III (Multivariable), Fall 2000.
- Calculus I (Differential), Fall 1999.
- Business Calculus (Applied differential calculus), Spring, Summer 1999.
- College Algebra, Fall, Spring 1998.
- Introduction to College Algebra, Fall 1997.

COURSES TEAM-TAUGHT:

- Math for Central-American Elementary School Teachers (taught in Spanish), Summer 2003.
- Introduction to Ordinary Differential Equations, Spring 2002.

OTHER:

- Ran mentoring/help sessions for students in the Graduate Research Tutorials on *Mathematics Education* and *The Geometry of Polygons*, University of Arizona, 2000, 2002.

- Led PhD qualifying exam preparation sessions for first-year graduate students studying for the Geometry-Topology qualifier, Summer 1999.

SERVICE

- **Reviewer.** Math Reviews, 2004–present.
- **Referee.** Journal Mathematics and Computers in Simulation, 2008.
- **Minisymposium co-organizer.** (Semiclassical and Continuum Limits). SIAM Conference on Nonlinear Waves and Coherent Structures. University of Washington, Seattle, WA, 2006.
- **Invited panelist.** Office of undergraduate admissions and College of Literature, Science and Arts (LSA), University of Michigan: spoke on behalf of LSA to promote the Mathematics Department to admitted freshmen and their parents, 2006.
- **Freshman-Sophomore Program Committee member.** Department of Mathematics, University of Michigan: trained, evaluated and mentored new instructors of multi-section calculus and precalculus courses, 2004, 2005.
- **Grad student recruiter.** Society for the Advancement of Chicanos and Native American in Science (SACNAS) annual conference: evaluated undergraduate research, mentored and recruited prospective students of the College of Literature, Science and Arts, University of Michigan, 2004, 2005.
- **TA representative (elected).** Mathematics Undergraduate Committee, University of Arizona, Tucson, AZ, 2000–2002.
- **Co-founder, organizer.** Mathematics Education Research Colloquium, University of Arizona, 2001.
- **Grad Student Representative (elected).** Mathematics Graduate Committee, University of Arizona, Tucson, AZ, 1999–2000.
- **Co-founder, organizer.** First and Second Annual Mathematics Graduate Day Mini-Conference, University of Arizona, 1999–2000.
- **Organizer.** Grad Student Math Colloquium, University of Arizona, 1998–1999.

TALKS

CONTRIBUTED TALKS: CONFERENCES

- *Using Mathematics Classroom Observation Protocols*
Working Group on Transnational and Borderland Research Studies in Mathematics Education, PME-NA Twenty-ninth Annual Conference - Lake Tahoe, NV, October 2007.
- *Poisson Geometry of the Ablowitz–Ladik Equations - poster presentation.*
South East Geometry Conference - Charleston, SC, March 2003.
- *Influence of Dynamic Software Visualization Tools on the Development of Undergraduate's Concept Image of Derivative Function.*
SIGMAA-RUME Fifth Annual Conference - Chicago, IL, September 2000.
- *A Dynamic Software Visualization Tool for Calculus Instruction at the College-entry Level - poster presentation.*
PME-NA Twenty-second Annual Conference - Tucson, AZ, October 2000.

INVITED TALKS: ANALYSIS

- *Hydrodynamic Poisson brackets and Whitham equations for completely integrable systems: an overview.*
Integrable Systems Working group. University of Michigan, Ann Arbor, MI, March 2006.
- *A Riemann-Hilbert approach to the continuum limit of the Ablowitz–Ladik equations: initial calculations.* (w/Jeffery DiFranco.)
Integrable Systems Working group. University of Michigan, Ann Arbor, MI, September 2005.
- *Ablowitz–Ladik hierarchy of integrable flows and orthogonal polynomials on the unit circle (w/Jeffery DiFranco.)*
Integrable Systems Working group. University of Michigan, Ann Arbor, MI, February 2005.

INVITED TALKS: GEOMETRY (Selected)

- *Poisson geometry of polygons and linkages - Parts I and II.*
Geometry Seminar, and Geometry Working Group. University of Michigan, Ann Arbor, MI, March 2005.

- *Poisson Geometry of the Ablowitz–Ladik Equations.*
New faculty capsule talks. University of Michigan, Ann Arbor, MI, September 2004.
- *Integrable Dynamics of Geodesic Linkages on the 2-sphere, Parts I and II.*
Graduate Geometry Seminar. University of Arizona, Tucson, AZ, March 2002.
- *Uniqueness of Moment Maps: A Neat Application of Lie Algebra Cohomology.*
Graduate Student Mathematics Colloquium. University of Arizona, Tucson, AZ, October 2000.
- *Symplectic Structure of Euclidean Polygons, Parts I and II.*
Graduate Geometry Seminar. University of Arizona, Tucson, AZ, April, May 2000.
- *Morse Theory and Applications to Hamiltonian Dynamics, Parts I and II.*
Graduate Student Mathematics Colloquium. University of Arizona, Tucson, AZ, September 1999.
- *The Geometry of Linkages.*
First Annual Mathematics Graduate Day Mini-Conference. University of Arizona, Tucson, AZ, April 1999.

INVITED TALKS: MATHEMATICS EDUCATION

- *Mathematical Knowledge and Mathematical Analysis: Vignettes of Mexican Classrooms.*
CEMELA Seminar. University of New Mexico, Albuquerque, NM, March 2008.
- *A Guide to Mathematics Education Research for Instructors: What, How, Why?* (w/J. Smith),
Mathematics Education Research Colloquium. University of Arizona, Tucson, AZ, January 2001.
- *On Students' Understanding of Functions, Derivatives, and Derivative Functions: What the Research Says and What We Can Do About It.*
Mathematics Instruction Colloquium. University of Arizona, Tucson, AZ, November 2000.

INVITED TALKS: UNDEGRADUATE AUDIENCES

- *Surfaces, Lattices and Metrics: Some Examples.*
14th Annual Mathematics Graduate Student Recruiting Workshop, March 2000.

OUTREACH

- Designed and coordinated five NSF-sponsored workshops in which teams of grads and undergrads introduced elementary school students, their teachers and parents to the mathematics of games and puzzles. The workshops were part of the *Girls in the SYSTEM* NSF-funded project (Professor M. Civil, primary investigator), Tucson, AZ, 2003.
- Co-organized and ran two NSF-supported workshops for high-school students: *Take that, Euclid! Explorations in Hyperbolic Geometry* and *Einstein's Way Cool Notion of Motion*, University of Arizona, 1998, 2000.
- Judged grad and undergrad research in math and science at the *10th Annual Student Showcase*, University of Arizona, 2002.
- Judged elementary school projects in math and science at the *Southern Arizona Regional Science and Engineering Fair*, Tucson, AZ, 2000.

HONORS

- College of Science Outstanding Graduate Teaching Assistant Award, University of Arizona, 2003.
- Department of Mathematics Graduate Teaching Award, University of Arizona, 2000, 2002.
- NSF VIGRE Graduate Fellowship, 2000–2003.
- Whitworth College International Student Grant, 1994–1996.

PROFESSIONAL MEMBERSHIPS

- American Mathematical Society.
- Mathematical Association of America.
- Society for the Advancement of Chicanos and Native American in Science (SACNAS).

OTHER SKILLS

- Fluent in Spanish.
- Computer Languages: C/C++, Pascal, HTML, Mathematica.