

## Curriculum Vitae

Thomas Garrity

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### EDUCATION

- Brown University Ph.D., 1986.
  - Thesis: On Ample Vector Bundles and Negative Curvature
  - Advisor: William Fulton
- University of Texas, B.A. in Philosophy with Highest Honors, 1981
- University of Texas, B.S. in Mathematics with Highest Honors, 1981

### Professional Appointments

- 2012-2013: Visiting Scholar, University of Michigan
- 2005-Present: William R. Kenan Jr. Professor of Mathematics
- 2005-Present: Co-Director of Williams College Project for Effective Teaching
- 2006-2008 and 2009-2010: Chair, Department of Mathematics and Statistics, Williams College
- 2000-2005: Professor of Mathematics, Williams College
- 2000-2001: Visiting Professor, University of Michigan
- 1995-2000: Associate Professor, Williams College
- 1992-1993: Visiting Assistant Professor, University of Washington
- 1989-1995: Assistant Professor, Williams College
- 1986-1989: G.C. Evans Instructor, Rice University

### Awards and Honors

- Professor of the Year, Williams College College Council, 2004
- Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching, Mathematical Association of America, 2004
- Nicolas Salgo Outstanding Teacher Award, Rice University, 1989
- National Science Foundation Graduate Fellowship, 1981-1984

### Papers

1. On Computing the Intersection of a Pair of Algebraic Surfaces (with J. Warren), *Computer Aided Geometric Design*, (1989), Vol. 6, pp. 137-154.
2. Factoring Rational Polynomials Over the Complexes (with C. Bajaj, J. Canny and J. Warren), *Proc. 1989 Intl. Symp. Symbolic Algebraic Comput.*, ACM (1989), pp. 81-90.
3. Geometric Continuity (with J. Warren), *Computer Aided Geometric Design*, (1991), Vol. 8, pp. 51-66.

4. Factoring Rational Polynomials Over the Complex Numbers (with C. Bajaj, J. Canny and J. Warren), *SIAM J. of Computation*, (1993) v. 22, n. 2, pp. 318 - 342.
5. Invariants of Vector-Valued Bilinear and Sesquilinear Forms (with R. Mizner), *Linear Algebra and its Applications*, (1995), v. 218, pp. 225-237.
6. The Equivalence Problem for Higher-Codimensional CR Structures (with R. Mizner), *Pacific J. of Math.*, (1997), v. 177, no. 2, pp. 211-235.
7. Vector-Valued Forms and CR Geometry (with R. Mizner), *Advanced Studies in Pure Mathematics*, (1997), vol. 25: CR-Geometry and Overdetermined Systems, pp.110-121.
8. Intersection Forms and the Adjunction Formula for Four-manifolds via CR Geometry (with M. Chkhenkeli), (1999), preprint available at: <http://xxx.lanl.gov/abs/math.DG/9904007>.
9. Global Structures on CR-Manifolds via Nash Blow-ups, *Michigan Journal of Mathematics*, (2001), Vol. 48, pp. 281-294.
10. On periodic sequences for algebraic numbers, *J. of Number Theory*, (2001), Vol. 88, pp. 86-103.
11. *All the Math You Missed: But Need to Know for Graduate School*, Cambridge University Press, January 2002, 347 pages plus xvii.
12. Texts in Algebraic and Differential Geometry, chapter in *Using the Mathematics Literature*, edited by Kristine Fowler, Marcel Dekker, 2004.
13. On Relations of Invariants for Vector-Valued Forms (with Z. Grossman), *Electronic Journal of Linear Algebra*, (2004), Vol. 11, pp. 24-40.
14. A Two-Dimensional Minkowski  $\chi(x)$  Function (with O. Beaver), *Journal of Number Theory*, (2004), Vol. 107 no. 1, 105–134.
15. A Dual Approach to Triangle Sequences: A Multidimensional Continued Fraction Algorithm (with S. Assaf, L. Chen, T. Cheslack-Postava, B. Cooper, A. Diesl, M. Lepinski and A. Schuyler), *Integers*, (2005), Vol. 5 no. 1, A8, 39 pp.
16. Review of John Adam's *Mathematics in Nature: Modeling Patterns in the Natural World*, *Mathematical Intelligencer*, (2005); Vol. 27 (2), p. 81.
17. THE GREAT Pi/e DEBATE (DVD), (with C. Adams and E. Burger), MAA, 2007.
18. Teaching Tips, with Frank Morgan, [www.ams.org/profession](http://www.ams.org/profession), (as of Sept. 2008)
19. UNITED STATES OF MATH PRESIDENTIAL DEBATE (DVD), (with C. Adams and E. Burger), MAA, 2009.
20. On a Thermodynamic Classification of Real Numbers, *Journal of Number Theory*, 2010, Vol. 130, Issue 7, pp. 1537-1559.
21. Using Mathematical Maturity to Shape our Teaching, our Careers and our Departments, *Notices of the American Mathematical Society*, December 2011, pp.1592-1593.
22. DERIVATIVE VERSUS INTEGRAL; THE FINAL SMACKDOWN (DVD), (with C. Adams and A. Falk), MAA, 2012.
23. *Algebraic Geometry: A Problem Solving Approach* (with R. Belshoff, L. Boos, R. Brown, J. Douilhet, C. Lienert, D. Murphy, J. Navarra-Madsen, P. Poitevin, S. Robinson, B. Synder, C. Werner), American Mathematical Society, to appear.
24. A thermodynamic classification of pairs of real numbers via the Triangle Multi-dimensional continued fraction, submitted. Available at <http://arxiv.org/pdf/1205.5663.pdf>

25. A Stern Tri-atomic sequence (Pascal with Memory with Triangles) for a Multi-dimensional Continued Fraction Algorithm, available at <http://arxiv.org/pdf/1206.6685.pdf>
26. A Generalized Family of Multidimensional Continued Fractions: TRIP Maps (with Krishna Dasaratha, Laure Flapan, Chansoo Lee, Cornelia Mihaila, Nicholas Neumann-Chun, Sarah Peluse Matt Stoffregen), available at <http://arxiv.org/pdf/1206.7077.pdf>
27. Cubic Irrationals and Periodicity via a Family of Multi-dimensional Continued Fraction Algorithms (with Krishna Dasaratha, Laure Flapan, Chansoo Lee, Cornelia Mihaila, Nicholas Neumann-Chun, Sarah Peluse Matt Stoffregen), available at <http://arxiv.org/pdf/1208.4244.pdf>
28. *Electricity and Magnetism for Mathematicians: A Path to Yang-Mills*, submitted.
29. TRIP-Pell Equations (with Michael Baiocchi, Krishna Dasaratha, Laure Flapan, Chansoo Lee, Cornelia Mihaila, Nicholas Neumann-Chun, Sarah Peluse Matt Stoffregen), in preparation.

### **Current Professional Service**

1. MAA Textbooks Editorial Board
2. Steering Committee: Park City Mathematics Institute