

# Magdalena Daniela Toda

Tenured Full Professor, Department of Mathematics & Statistics  
Texas Tech University, Lubbock, TX 79409-1042

## Professional Summary

Professor of mathematics with 25 years of research and teaching experience, a sustained record of scholarly productivity, and a proven history of high-impact departmental leadership and NSF DMS service, grounded in a clear commitment to excellence: setting high standards, building strong teams, and delivering measurable outcomes in research, education, and service. Extensive experience in recruiting and mentoring outstanding faculty, staff, and students distinguished by strong work ethic, high productivity, professionalism, and collegiality.

Demonstrates a firm commitment to equal opportunity and to maintaining an academic environment free from discrimination or preferential treatment based on personal characteristics, including gender, race, ethnicity, national origin, sexual orientation, age, or any other protected status.

Consistently pursues excellence through fair, transparent, and merit-based evaluation processes in which individuals are supported, mentored, and advanced based on the quality of their work, integrity, and contributions.

Skilled in strategic program development, shared governance, and external funding, with a record of strengthening institutional visibility at national and international levels. Former NSF Program Director with deep familiarity with federal funding priorities, peer review, and research policy.

## Appointments

- Research Leave/Travel, granted by Texas Tech University | 07/2025–08/2026
- Chair & Professor, Mathematics & Statistics, Texas Tech University | 10/2023–07/2025
- NSF Program Director, Applied Mathematics, NSF MPS/DMS | 09/2022–10/2023 (IPA Rotator)
- Chair & Professor, Mathematics & Statistics, Texas Tech University | 04/2016–09/2022
- Interim Chair, Mathematics & Statistics, Texas Tech University | 08/2015–03/2016
- Professor, Texas Tech University | 2014–Present
- Director of Undergraduate Studies, Texas Tech University | 2010–2015
- Associate Professor (Tenured), Texas Tech University | 2008–2014

- Assistant Professor, Texas Tech University | 2001–2007
- Assistant Professor, Ball State University | 2000–2001
- Graduate Teaching Assistant, University of Kansas | 1995–2000

## Education

- Ph.D., Mathematics, University of Kansas, 2000 (GPA: 4.0, Summa Cum Laude)
- Ph.D., Mathematics, University Politehnica of Bucharest, Romania (concurrent)
- M.A., Mathematics, University of Kansas, 1997 (GPA: 4.0)
- B.S.–M.S., Mathematics, University of Bucharest, 1990–1991 (Specialization in Geometry-Algebra, GPA: 9.6/10)
- M.S., Health & Wellness, American College of Healthcare Sciences, 2019

## Research Interests

- Differential geometry, integrable systems, geometric PDEs, calculus of variations
- Riemannian and Lorentzian geometric analysis, Willmore energy, CMC, minimal surfaces
- Elastic energies, protein folding, red blood cell, Willmore–Helfrich energy for cells and biomembranes

## Selected Publications & Books

- Journals: Journal of Mathematical Physics, Nonlinear Analysis, Annali di Matematica Pura ed Applicata, AIMS, AIP, AGAG, PROTEINS, IEEE Trans. on Autom. Control, etc.
- Books: CRC Research Monograph (2017/2018), Calculus Textbook, Kendall Hunt (2013, 2017/2018)

## Leadership & Administrative Accomplishments

### Strategic Growth & Innovation

- Founded TTU Math Postdoctoral Scholar Program (avg. 3 new postdocs/year)
- Hired 25 tenure-track faculty and 30+ postdocs (2015–2025)
- Helped increase department’s external funding from ~\$200K to \$10M+ while a chair
- Expanded graduate enrollment from ~90 to ~150; funded Ph.D. students to 120 (Fall 2024)

### Curriculum & Program Development

- Led complete revisions of Ph.D., M.S., and certificate programs
- Led extensive graduate program review studies in 2015 and 2025 (cca. 1000 pp)
- Founded 4-SCH Calculus I–III with Applications Series, including Honors

- Co-created Graduate Minor in Applied Mathematics (2024)
- Developed B.S. in Economics & Mathematics (w/ Dept. of Economics)
- Expanded support for AWM, SIAM, MAA, KME, and Actuarial programs

### **Shared Governance & Institutional Service**

- Developed departmental bylaws and established new standing committees
- Revised faculty evaluation process emphasizing equity and impact
- Collaborated with colleges to enhance cross-disciplinary student success

### **Mathematics Education, Outreach & Engagement**

- Organized 20+ professional meetings, including AMS events
- Co-organized biannual Red Raider Mini Symposium and TGTC (Texas Geometry and Topology Conference – in consortium with 7 R1 universities in TX)
- Oversaw curricular revisions and creation of Accelerated B.S.–M.S. Pathway
- Mentored faculty and undergraduate leadership through ADVANCE and STEM programs

### **Selected External Funding by US Federal and Private Foundations**

**Total as PI/Co-PI: \$1.3M+ | As Senior/Supporting Personnel: \$7M+**

#### **PI/Co-PI Awards**

- 2018–2025: Applications of Willmore Energy Functionals to Protein Biology, Simons Foundation - Mathematics and Physical Sciences - Collaboration Grants for Mathematicians, ORS A20-0007-001, Simons Award #632274, \$42,000, Sole PI.
- 2022–2023: Intergovernmental Personnel Act (IPA) Program Director, NSF MPS/DMS, Grant #21P740, \$179,100, PI.
- 2014–2018: Nonlinear Couplings for Flows in Fractured Media, National Science Foundation, Division of Mathematical Sciences, NSF-DMS #1412796, ORS A14-0119-001, \$290,000, PI.
- 2014–2017: Faculty for the Future Nothabo Dube, Schlumberger Foundation, ORS A15-0248-001, \$42,000, PI.
- 2013: AWM Travel Grant Recipient, by competition, \$2,700.
- 2009–2013: Analysis of Non-Linear Flows in Heterogeneous Porous Media and Applications, NSF-DMS #0908177, \$226,000, Co-PI.
- 2008–2013: South Plains Mathematics Scholars, STEM, NSF-DUE #0727944, \$571,580, Co-PI (Lead PI: G. B. Williams).

#### **Supporting (Senior Personnel) Roles (totaling about \$10 million)**

- 2021–2022: Participated in the TTU ADVANCE-ADAPT grant, TTU Provost, focusing on chair mentoring and equity issues, under PI Stephanie Jones, \$976,103; 3 years (Sep 1, 2020 – Aug 31,

2023).

- 2009–2010: Summer Program Leader and Instructor, NSF-WTMSMP (summer programs for teachers, part of a grant totaling over \$7 million; PI: Gary Harris).
- 2017–current: Texas Geometry and Topology Conference (TGTC), supporting personnel at TTU, NSF grant share: \$15,000 per event.
- 2006–2009: Multidisciplinary Summer Undergraduate Research Program in Computation and Control of Biological and Biologically Inspired Systems, \$170,707, NSF-REU and Department of Defense (ASSURE Program), Senior Personnel.
- 2001–2003: Project NExT Grant, supported by AMS & TTU Department of Mathematics, \$3,000.

### **Honors & Distinctions**

- AWM Fellow, Class of 2025
- Phenomenal Woman of Texas Tech, Office of the Provost (2022)
- W. Dayawansa Faculty Award for Excellence in Service (2022)
- TTU President’s Award for Excellence in Teaching (2008)
- KME Professor of the Year (2002, 2008)
- University of Kansas Outstanding Teaching Assistant (2000)

### **Strategic Leadership Philosophy: Growth, Excellence, Merit, and Talent**

This leadership philosophy is grounded in a durable and results-oriented principle: academic institutions thrive when they uphold high standards, recruit and support talent, reward excellence, and align decisions with clear priorities, measurable outcomes, and responsible stewardship of public and donor resources. Effective leadership integrates a growth mindset with an execution mindset, combining ambitious vision with disciplined planning and consistent follow-through. Success is achieved through transparent governance, lawful and equitable processes, and demonstrable impact in student success, scholarly achievement, innovation, and public service.

**Merit and excellence as the operating system.** High-performing academic communities are built on merit, talent, and sustained performance. Merit is treated not as an abstract ideal, but as an operational standard implemented through rigorous hiring and promotion criteria, evidence-based evaluation, peer review, and accountability for outcomes. Excellence is advanced by setting clear expectations, investing strategically in people and programs, and measuring progress using concrete indicators, including student retention and completion, research productivity and impact, external funding, curricular quality, placement outcomes, and the overall health of academic culture. These goals require processes that are fair, consistent, and auditable, including transparent searches, mission-aligned annual evaluations, and promotion and tenure reviews that respect disciplinary norms while maintaining institutional coherence.

**Growth through strategic focus and disciplined execution.** Sustainable growth is intentional rather than accidental, achieved through clear priorities, aligned resources, and sustained effort over time. Strategic leadership begins by identifying a limited number of high-impact objectives

and developing realistic implementation plans with defined milestones, ownership, and assessment. Emphasis is placed on investments that compound in value, such as faculty clusters that strengthen research identity, graduate programs that reinforce the talent pipeline, postdoctoral structures that accelerate scholarly output, and curricular pathways that improve student outcomes and workforce readiness. Durable growth is further supported through partnerships across departments, colleges, and external stakeholders, ensuring that academic strengths are connected to societal needs and demonstrated value.

**Stewardship, transparency, and public trust.** Leadership at a public institution requires treating budgets, endowments, and state resources as a public trust. Fiscal responsibility, regulatory compliance, and clarity in resource allocation are foundational expectations. Transparency serves both ethical and strategic purposes: when goals, rules, and rationales are communicated clearly, stakeholders are more likely to engage constructively and support necessary change. Effective stewardship emphasizes early communication, careful documentation, and decision-making processes consistent with institutional policy and governance expectations. Long-term success depends on building sustainable systems rather than relying on ad hoc solutions, including well-defined committee structures, documented procedures, reproducible evaluation practices, and continuous improvement informed by data.

**Student success and workforce preparation as core outcomes.** The legitimacy of any academic unit ultimately rests on student outcomes, including knowledge, skills, integrity, and readiness for productive careers and civic engagement. Growth and excellence are advanced by strengthening core instruction, supporting effective teaching, modernizing curricula, and creating coherent pathways that reduce barriers for students while preserving rigor. Priority is given to evidence-based pedagogy, responsible integration of emerging technologies, coherent course sequencing, and a strong foundation in logic and STEM. Advising and mentoring are treated as strategic infrastructure, recognizing that students thrive when expectations are explicit, support systems are reliable, and opportunities are visible.

**Culture: high standards with respect and professional dignity.** A healthy academic culture requires both high expectations and mutual respect. Leadership reinforces professionalism, constructive disagreement, and shared responsibility for outcomes. Freedom of inquiry, viewpoint diversity, and open debate are upheld as essential features of American higher education, alongside civility and focus on institutional mission. Conflict resolution is approached as a core leadership responsibility, with issues addressed promptly, established procedures followed, outcomes documented, and the integrity of evaluative processes protected. Experience demonstrates that morale and productivity increase when standards are meaningful, rules are applied consistently, and excellence is recognized.

**Talent recruitment, development, and retention.** In a competitive academic environment, recruiting and retaining strong faculty, staff, and students is a strategic priority. Talent acquisition is guided by a clear academic vision and supported by structures that enable success, including aligned workloads, mentoring, and professional development. Retention is equally critical: high-performing individuals remain when they have the resources to succeed, transparent pathways for advancement, and confidence that leadership operates fairly and consistently. Emphasis is placed on mentoring early-career faculty, supporting staff development, and providing students with opportunities for research, leadership, and high-impact experiences.

**Leadership centered on clarity, accountability, and collaboration.** This leadership approach is collaborative yet decisive. Input is solicited broadly, evaluated carefully, and followed by decisions grounded in mission, evidence, and policy. Roles and responsibilities are defined clearly, authority is delegated with accountability, and progress is monitored through measurable milestones. Committees are empowered through clear charges and timelines, and administrators are evaluated based on the outcomes they enable. Partnerships across the institution and with external stakeholders are actively cultivated, recognizing that complex initiatives succeed through coordinated effort. At the same time, effective leadership requires the resolve to protect standards, enforce fair process, and make difficult decisions when necessary.

**Alignment with institutional mission and public responsibility.** Leadership is exercised in a manner consistent with the expectations placed on public universities, including lawful operations, responsible stewardship of resources, measurable student success, and a sustained commitment to excellence. Institutional reputation is strengthened by delivering outcomes that stakeholders can readily recognize, such as stronger programs, improved educational and research impact, enhanced visibility, and meaningful service to the broader community. The guiding question throughout is: *What actions most effectively elevate talent and performance, strengthen the institution, and honor the public mission being served?*

In summary, this leadership philosophy emphasizes building a high-performing academic culture grounded in merit, accountability, and excellence; pursuing strategic growth through focused priorities and disciplined execution; and sustaining public trust through stewardship, transparency, and consistent compliance with university and state expectations.

**Graduate Students Supervised (Program Chair or Dissertation Co-Chair; gender indicated for statistical purposes)**

- Stone Fields (m), B.S. to M.S., seeking Ph.D.
- Madusha Dilhani (f), Ph.D., 2021
- Wasim Akram (m), M.S., 2021
- Anthony Gruber (m), Ph.D., 2019
- Pushpi Paranamana (f), Ph.D., 2018
- Thanuja G. Paragoda (f), Ph.D., 2016
- Chalani Prematilake (f), Ph.D., 2016
- Bhagya Athukorallage (m), Ph.D., 2014
- Zeynep Kose (f), Ph.D., 2010
- Alin Tomoiaga (m), M.S., 2006; Ph.D. 2014
- Other Undergraduate and Graduate Students Mentored: 27 domestic and international students, including one McNair Scholar and one Clark Scholar

## Refereed Publications Appeared in Print: over 60

### 2025

- E. Aulisa, M. Toda, S. Fields, E. Güler. *Red blood cells as elastic surfaces: Cassini ovals, Helfrich shape equation, and biophysical regimes*. *Electronic Research Archive (AIMS)*, 34(1), 31–47 (2025). DOI: [10.3934/era.2026002](https://doi.org/10.3934/era.2026002). Q2.
- E. Güler, C. Konaxis, M. Toda. *C.C. Chen's Minimal Surface: From Parametric Form to Algebraic Equation*. *Journal of Geometry and Symmetry in Physics*, 72, 39–57 (2025). DOI: [10.7546/jgsp-72-2025-39-57](https://doi.org/10.7546/jgsp-72-2025-39-57). Q2.
- A. Pigazzini, L. Lussardi, M. Toda, A. DeBenedictis. *Einstein warped-product manifolds and the screened Poisson equation*. *Contemporary Mathematics (AMS Proceedings)*, Vol. 821, 173–179 (2025). DOI: [10.1090/conm/821/16444](https://doi.org/10.1090/conm/821/16444). Q1.
- M. Toda, E. Güler. *Generalized Weierstrass–Enneper representation for minimal surfaces in  $\mathbb{R}^4$* . *AIMS Mathematics*, 10(9), 22406–22420 (2025). DOI: [10.3934/math.2025997](https://doi.org/10.3934/math.2025997). Q1.
- E. Aulisa, S. Fields, M. Toda. *Red Blood Cells as Helfrich Surfaces with Special Topology*. *Romanian Journal of Mathematics and Computer Science*, 15(2), 75–84 (2025). RIGA 2025 Conference Refereed Proceedings.
- R. González, M. Toda, I. M. Mladenov. *On the Shape of the Red Blood Cells*. *Journal of Geometry and Symmetry in Physics*, 72, 1–38 (2025). DOI: [10.7546/jgsp-72-2025-1-38](https://doi.org/10.7546/jgsp-72-2025-1-38), Q2.
- E. Güler, M. Toda, Y. Yaylı. *Differential Geometry and Matrix-Based Generalizations of the Pythagorean Theorem in Space Forms*. *Mathematics*, 13(5), 836 (2025), Q1.

### 2024

- Y. Li, E. Güler, M. D. Toda. *Family of Right Conoid Hypersurfaces with Light-like Axis in Minkowski Four-Space*. *AIMS Mathematics*, 9(7), 18732–18745. Cite Score 3.4, IF 2.0, Q1.
- E. Aulisa, A. Gruber, M. Toda. *Generalized Willmore Energies and Applications*. *Geometry, Integrability and Quantization*, 29, 1–10. Project Euclid, Q2.

### 2023

- A. Gruber, Á. Pámpano, M. Toda. *Instability of closed p-elastic curves in the 2-sphere*. *Analysis and Applications*, 21(6), 1533–1559. Cite Score 3.4, IF 2.0, Q1.
- I. M. Mladenov, V. I. Pulov, V. M. Vassilev, M. Toda. *The Geometry of the Kiepert Trefoil*. *Mathematics*, 3357–3375. IF 2.592, Cite Score 2.9, Q1.

### 2022

- A. Gruber, Á. Pámpano, M. Toda. *On p-Willmore Disks with Boundary Energies*. *Differential Geometry and Its Applications*, 86, 101971, Q1. Elsevier.
- A. Gruber, M. Toda, H. Tran. *Stationary Surfaces with Boundaries*. *Annals of Global Analysis and Geometry (AGAG)*, Springer Nature, SJR 0.8, IF 0.9, Q1.

- A. Gruber, M. Toda, H. Tran. Willmore-Stable Minimal Surfaces. *AIP Proceedings*, ICNAAM 20, Q1.

## 2021

- E. Aulisa, P. Paranamana, M. Toda. Geometric Model of a Surface as a Manifold Immersed in Porous Media. *Journal of Mathematical Physics*, 62(5), IF 1.36, Q1.
- A. Gruber, Á. Pámpano, M. Toda. Regarding the Euler-Plateau Problem with Elastic Modulus. *Annali di Matematica Pura ed Applicata*, 5yr IF 1.29, SJR 1.25, Q1.
- M. Atampalage, B. Athukorallage, M. Toda. The Doubly Connected Minimal Surfaces between Circles in Parallel Planes. *Journal of Geometry and Symmetry in Physics*, 59, 31–45. SNIP 1.0, Q2.

## 2020

- M. Toda, B. Athukorallage. The Mathematics of Secondary Structures in Proteins. *Biophysical Journal*, 118(3), 43. 5yr IF 3.2, Q1.
- E. Aulisa, A. Gruber, M. Toda, H. Tran. New Developments on the p-Willmore Energy of Surfaces. *Geometry, Integrability and Quantization*, 21, 57–65. Project Euclid.

## 2019

- A. Gruber, M. Toda, H. Tran. On the Variation of Curvature Functionals in Space Forms with Application to a Generalized Willmore Energy. *Annals of Global Analysis and Geometry (AGAG)*, 56(1), 147–165. IF 0.99, SJR 1.23, Q1.
- P. Paranamana, E. Aulisa, M. Toda, A. Ibraguimov. Fracture Model Reduction and Optimization for Nonlinear Flows in Porous Media. *Journal of Mathematical Physics*, 60(5), IF 1.5, Q1.

## 2018

- M. Toda, A. Pigazzini. A Note on the Class of Surfaces with Constant Skew Curvature. *Journal of Geometry and Symmetry in Physics*, 46, 51–59. Project Euclid.
- M. Toda (Editor and Contributor). *Willmore Energy and Willmore Conjecture*. CRC Press, Taylor & Francis, Q1, 2018, 2017.

## 2017

- M. Toda, F. Zhang, B. Athukorallage. Elastic Surface Model for Beta-Barrels: Geometric, Computational, and Statistical Analysis. *PROTEINS: Structure, Function, and Bioinformatics*, 86(1), 35–42. IF 2.289, SJR 1.29, Q1.
- M. Toda. On a Duality Property of Isothermic Surfaces. *PJGT*, 20(1), 85–91.

## 2016

- B. Athukorallage, E. Aulisa, G. Bornia, T. Paragoda Gamage, M. Toda. New advances in the study of generalized Willmore surfaces and flow. Proceedings of the Seventeenth International

Conference on Geometry, Integrability and Quantization, 2015 (pp. 133–142). *Project Euclid - Avangard Prima, Bulgarian Academy of Sciences*.

- M. Toda. A systematic analysis on the therapeutic benefits of probiotics; grad student paper. *International Journal of Nutrition and Dietetics*, 4(2), 161–168.

## 2015

- B. Athukorallage, G. Bornia, T. Paragoda Gamage, M. Toda. Willmore-type energies and Willmore-type surfaces in space forms. *PJGT*, 18(2), 93–108.

## 2014

- B. Athukorallage, T. Paragoda Gamage, M. Toda. Roulettes of conics, Delaunay surfaces and applications. *Surveys in Mathematics M.S.*, 4(1), 1–23.

## 2013

- E. Aulisa, M. Toda, Z. Kose. Constructing isothermal curvature line coordinates on surfaces which admit them. *Central European Journal of Mathematics (CEJM)/Open Mathematics*, 11(11), 1982–1993. IF 0.836, Q1.
- M. Toda. Forchheimer-type equations in conjunction with constant mean curvature graphs. *AIP Proceedings*, 1558, 887, pp. 5; American Institute of Physics, HIF.
- M. Toda, B. Athukorallage. Geometry of biological membranes and Willmore energy. *AIP Proceedings*, 1558, 887, pp. 5; American Institute of Physics, HIF.
- M. Toda, G. Bornia. Preface of the “Symposium on Geometric Methods for Integrable Systems and PDE with Applications to Engineering, Biology and Medicine”. *AIP Proceedings*, 1558, 869, pp. 4; American Institute of Physics, HIF.

## 2012

- M. Toda. Weingarten surfaces with moving frames—a tribute to S. S. Chern and C. L. Terng—and a duality result. *JP Journal of Geometry and Topology - Osaka*, 12(3), 263–289.

## 2011

- E. Aulisa, A. Ibragimov, M. Toda. Geometric Methods in the Analysis of Nonlinear Flows in Porous Media. *Contemporary Mathematics - AMS Proceedings*, 535, 27–42, Q1.
- W. Rossman, M. Toda. Corresponding constant mean curvature surfaces in hyperbolic and Euclidean 3-spaces. *Pacific Journal of Applied Mathematics*, 3(1–2), 37–43.
- E. Aulisa, Z. Kose, M. Toda. Solving Bonnet Problems to construct families of surfaces. *BJGA*, 16(2), 70–81.

## 2010

- E. Aulisa, A. Ibragimov, M. Toda. Geometric Framework for Modeling Nonlinear Flows in Porous Media, and Its Applications in Engineering. *Nonlinear Analysis: Real World Applications*, 11(3), 1734–1751. IF 2.8, Q1.

## 2008

- R. Holsapple, R. Iyer, M. Toda. On an Optical Inertial Navigation System - II. *IEEE Transactions on Automatic Control*, 53(8), 1864–1875. IF 7.0, Q1.

## 2007

- R. Paige, P. Seshaiyer, M. Toda. Student Misconceptions Caused by Misuse of Technology. *International Journal for Technology in Mathematics Education*, 14, 10. IF 1.0.

## 2005

- M. Toda. Initial Value Problems of the Sine-Gordon Equation and Geometric Solutions. *Annals of Global Analysis and Geometry*, 27(3), 257–271.
- M. Toda. Immersions of Constant Mean Curvature Surfaces in Hyperbolic Space. *Differential Geometry – Dynamical Systems*, 7(1), 111–126.

## 2004

- J. Inoguchi, M. Toda. Timelike Minimal Surfaces via Loop Groups. *Acta Applicandae Mathematicae*, 83(1–2), 313–355. IF 0.899, SJR 0.75, Q2.

## 2002

- J. Dorfmeister, J. Inoguchi, M. Toda. Weierstrass-type Representation of Timelike Surfaces with Constant Mean Curvature in Minkowski 3-Space. *Contemporary Mathematics - AMS Proceedings*, 308, 77–100, Q1.
- M. Toda. Weierstrass-type Representation of Weakly Regular Pseudospherical Surfaces in Euclidean Space. *BJGA*, 7(2), 87–136. ISI IF 0.806.

## 2000

- M. Toda. Pseudospherical surfaces via moving frames and loop groups. Ph.D. Thesis, University of Kansas, 114 pp. ISBN 978-0599-99054-8.

## 1999

- M. Toda, C. Udriste. Optimal Approximations on Riemannian Manifolds. *BJGA*, 4(1), 135–144. ISI IF 0.806, SJR 0.4.

## 1998

- J. Dorfmeister, F. Pedit, M. Toda. Minimal Surfaces via Loop Groups. *BJGA*, 2(1), 25–40. ISI IF 0.806, SJR 0.4.

## 1996

- M. Sandru, M. Toda. Topological Aspects in Elementary Geometry. *TENSOR (N.S.)*, 57(1), 80–83. Global IF 1.0.

## 1994

- M. Toda, C. Udriste. Influence of the Evolution Riemannian Metrics on the Volume. *Proceedings of the 23rd European Conference on Geometry and Topology*, 194–202.

## 1993

- M. Toda, C. Udriste. Volume Dependence on the Riemannian Metric. *Scientific Bulletin PUB, Series A, Applied Mathematics*, 55(3–4), 285–298.

## 1991

- M. Toda. A Family of Riemannian and Naturally Reductive Homogeneous Spaces: A Classification. *Scientific Bulletin PUB*, 53(3–4), 329–335.

## Textbooks

- Smith, K., Strauss, M., Toda, M. (2017). *Calculus* (7th ed., pp. 1160). Kendall Hunt Publishing. ISBN: 9781524916817
- Smith, K., Strauss, M., Toda, M. (2013). *Calculus Special Edition* (7th ed., Ch. 1–5, for Rutgers University). Kendall Hunt Publishing. ISBN: 9781524917708
- Smith, K., Strauss, M., Toda, M. (2013). *Calculus Special Edition* (7th ed., Ch. 5–8, 11, 12, 14, for Rutgers University). Kendall Hunt Publishing. ISBN: 9781524917708
- Smith, K., Strauss, M., Toda, M. (2013). *Calculus* (6th ed., pp. 1160). Kendall Hunt Publishing. ISBN-10: 1465208887
- Smith, K., Strauss, M., Toda, M. (2013). *Calculus Special Edition* (6th ed., Ch. 1–5, for Rutgers University). Kendall Hunt Publishing. ISBN-10: 146522923X
- Smith, K., Strauss, M., Toda, M. (2013). *Calculus Special Edition* (6th ed., Ch. 5–8, 11, 12, 14, for Rutgers University). Kendall Hunt Publishing. ISBN-10: 146524079B
- Smith, K., Strauss, M., Toda, M. (2013). *Student Solutions Manual for Calculus* (6th ed.). E-book. Kendall Hunt
- Smith, K., Strauss, M., Toda, M. (2013). *Instructor's Solutions Manual for Calculus* (6th ed.). E-book. Kendall Hunt

## Peer Reviewed Technical Reports and Proprietary Reports: total of 12.

## Manuscripts Submitted / Under Review

- M. Toda, E. Güler. *On Scherk-Type Minimal Immersions in  $\mathbb{R}^4$  Constructed by the Generalized Weierstrass–Enneper Representation*. *Journal of Geometry and Physics* (submitted).
- A. Pigazzini, M. Toda. *Local Topological Constraints on Berry Curvature in Spin–Orbit Coupled Bose–Einstein Condensates*. *Journal of Geometric Analysis* (submitted).
- E. Güler, M. Toda. *Explicit Constructions of Bour-Type Minimal Surfaces in  $\mathbb{R}^4$  via the Generalized Weierstrass–Enneper Representation*. *Results in Mathematics* (submitted).

- M. Toda, E. Güler. *Catalan-Type Minimal Surfaces in  $\mathbb{R}^4$* . *Manuscripta Mathematica* (submitted).
- E. Güler, M. Toda. *Richmond-Type Minimal Surfaces in  $\mathbb{R}^4$* . *Mathematische Annalen* (submitted).
- E. Güler, M. Toda. *Minimal Surfaces and the Generalized Weierstrass–Enneper Representation Formula in  $\mathbb{R}^n$* . *Annals of Global Analysis and Geometry* (submitted).
- M. Toda, E. Güler. *C.C. Chen-Type Minimal Surfaces in  $\mathbb{R}^4$  via the Generalized Weierstrass–Enneper Representation Formula*. *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas* (submitted).
- M. Toda, E. Güler. *Construction of Helicoid–Catenoid-Type Minimal Surfaces in  $\mathbb{R}^4$  Using the Generalized Weierstrass–Enneper Representation Formula*. *Rendiconti del Circolo Matematico di Palermo, Series 2* (submitted).
- M. Toda, E. Güler. *Möbius-Type Minimal Surface Families in  $\mathbb{R}^4$  via the Generalized Weierstrass–Enneper Representation*. *Mathematica Slovaca* (submitted).
- M. Toda, E. Güler. *Holomorphic Data and Minimal Surfaces in  $\mathbb{R}^5$ : A Generalized Weierstrass–Enneper Representation*. *Carpathian Journal of Mathematics* (submitted).
- E. Güler, M. Toda. *Higher-Order Henneberg-Type Minimal Surfaces via the Generalized Weierstrass–Enneper Representation in  $\mathbb{R}^4$* . *Mediterranean Journal of Mathematics* (submitted).
- E. Güler, M. Toda. *Generalized Weierstrass–Enneper Representations for Maximal Surfaces in  $\mathbb{R}_1^4$  and  $\mathbb{R}_2^4$* . *Turkish Journal of Mathematics* (submitted).
- M. Toda, M. D. C. Atampalage, E. Güler. *Minimal Surfaces in  $\mathbb{H}^3(-1)$  via Willmore Geometry, Gauss Maps, Meromorphic Potentials, and Algorithmic Constructions*. *Open Mathematics* (submitted).
- E. Güler, M. Toda. *Generalized Representation Formula for Timelike Minimal Surfaces in  $\mathbb{R}_1^4$* . *Results in Mathematics* (submitted).
- M. Toda, E. Güler, M. D. C. Atampalage. *A Weierstrass–Kenmotsu Type Representation for CMC  $0 \leq H < 1$  in  $\mathbb{H}^3(-1)$  via Adjusted Gauss Maps and Iwasawa Splitting*. *Differential Geometry and its Applications* (submitted).
- M. Toda, A. Pigazzini. *Cohomological Calibration and Curvature Constraints on Product Manifolds: A Topological Lower Bound*. *Differential Geometry and its Applications* (submitted).

### **Selected Invited Presentations (past 7 years only)**

- Toda, M., Generalized Willmore Surfaces, Geometric Flows and Applications for Biophysics, RIGA 2025, May 2025 (Bucharest)
- Toda, M., p-Willmore energy and applications, Generalized Willmore Surfaces and Biophysical Applications, XXIV International Conference on Geometry, Integrability, Quantization, Bulgarian Academy of Sciences, Varna, 2024
- Toda, M., Elastic Energies, Geometric Flows and Applications, NSF MPS/DMS Colloquium, April 2023
- Toda, M., Generalized Willmore energies and elastic surfaces with applications to Biophysics, University of Strasbourg, France, July 2022

- Toda, M., Elastic energies and applications, delivered online via Zoom, May–June 2022, UCV
- Toda, M., Math for Innovation Colloquium, Kyushu University, Dec 6, 2021
- Toda, M., p-Willmore Energies, University of Kansas, AWM-SIAM Lecture, Apr 13, 2021
- Toda, M., Elastic Energies and Surfaces, Clemson University, Colloquium, Sep 19, 2019
- Toda, M., p-Willmore Energies, 21st Geometry, Integrability and Quantization Conference, Varna, Bulgaria, June 2019

### **Engaged Research and Outreach Talks (Selected)**

- Emmy Noether: Who Was She? – Emmy Noether Day, 2010–2020
- Colloquium, CMC Surfaces, Willmore Surfaces, and Integrable Systems, Texas Tech University, Sep 2013
- Colloquium, Integrable Systems in Geometry, Texas Tech University, Sep 2007
- REU-NSF Lectures, What Every Professional Mathematician Should Know & Minimal Surfaces, June 2007
- Emmy Noether High-School Day Workshops/Lectures: 2003–2005

### **Academic Service**

#### **Departmental/College/University**

- Department Chair, Mathematics & Statistics, 2015–2025
- Director of Undergraduate Studies, 2010–2015
- Member, Executive Committee, 2010–2025
- Chair, Undergraduate Committee, 2010–2015
- Chair, Organizing Committee, Emmy Noether High-School Mathematics Day, 2006–2019, 2021–2022
- Member, Strategic Planning Committee, 2012, 2016–2020
- Member, Travel Expenditures Committee, 2013, 2018–2020
- Member, Hiring Search Strategy Committee, 2007–2009, 2012, 2020
- Member, Hiring Search Committee, 2016–2022
- REU Program Coordinator, June 2007

#### **University (other)**

- Member, CAN Board (Chairs Advancement Network), 2024, 2025
- Member, TTU ADVANCE Chair Mentoring Group, 2021–2022
- Organizer, Emmy Noether High-School Days, 2003–2022
- Faculty Senate Member, 2006–2010

## **National Professional Service and Scholarly Activities**

### **Leadership Service**

- Program Director, Applied Mathematics, National Science Foundation (NSF), Division of Mathematical Sciences (MPS/DMS), Fall 2022 – Fall 2023
- NSF Panelist and Reviewer, continuous service since 2010

### **Editorial Service**

- Associate Editor, Journal of Nonlinear Mathematical Physics (Springer), Q2 journal, 2019–2022, and 2026–current.
- Guest Editor, Special Issue on Differential Geometry and Related Integrable Systems, 2021–2022
- Editor, Research Monograph Series, CRC Press (Taylor & Francis)

### **Recent Special Sessions Organized – AMS Meetings**

- San Antonio, TX (In-Person), September 14–15, 2024; Co-organizers: A. Pampano, B. Suceava
- El Paso, TX (In-Person), September 17–20, 2022; Co-organizers: H. Tran, A. Pampano, S. McKeown
- El Paso, TX (Virtual), September 11–13, 2020; Co-organizer: H. Tran
- Denton, TX, September 9–10, 2017 – Special Session on Integrable Systems and Applications; Co-organizers: B. Feng, A. Ibragimov, M. Toda
- Lubbock, TX, April 11–13, 2014 – Special Session on Differential Geometry and Integrable PDEs with Applications to Cell Biology and Mechanics; Co-organizers: A. Ibragimov, G. Bornia
- Tucson, AZ, October 26–28, 2012 – Special Session on Geometric Methods in Mechanical and Dynamical Systems; Co-organizers: A. Ibragimov, V. Putkaradze

### **Other Conferences and Events Organized / Co-Organized**

- Texas Geometry and Topology Conference (TGTC), Local Organizer, Texas Tech University; NSF-sponsored in partnership with UT Austin, Rice, Texas A&M, UH, UTD, UTA, TTU, TCU. TTU editions organized in 2002, 2005, 2008, 2011, 2014, 2017, 2020, 2024
- Red Raider Mini symposium, NSF-sponsored, Texas Tech University; organized in 2009, 2013, 2023
- AMS Sectional Meetings, Local Organizer, Lubbock, TX; hosted in 2005, 2013
- SIAM Special Session, 2013
- International Conference on Numerical Analysis and Applied Mathematics (ICNAAM), Mini symposium Organizer, 2013, 2019

## **Expanded Leadership & Administrative Accomplishments**

Served as Department Chair for a decade, providing comprehensive oversight of academic planning, faculty hiring, curriculum modernization, instructional quality, and program review processes.

Managed an annual departmental budget of approximately \$10 million, allocating resources to support strategic research growth, graduate education, and faculty development.

Supervised over 200 employees, including tenured and tenure-track faculty, instructors, staff, and graduate teaching assistants, ensuring operational stability and academic excellence.

Led transformative initiatives across undergraduate and graduate programs, including redesigning core course sequences, expanding upper-division offerings, and strengthening interdisciplinary tracks.

Emphasized transparent governance practices, data-informed decision-making, and collaborative engagement with college and university administrators.

## **NSF Program Director (Applied Mathematics, DMS/MPS)**

Served as NSF Program Director (2022–2023), coordinating, organizing, and co-leading multiple expert review panels evaluating a large number of proposals in applied mathematics, mathematical biology, computational science, and engineering.

Oversaw review portfolios representing a combined budget exceeding \$40 million, ensuring fairness, compliance, and high standards of intellectual merit and broader impacts.

Collaborated across multiple NSF divisions—including MPS, BIO, ENG, and CISE—to strengthen the integration of mathematical research with interdisciplinary scientific priorities.

Contributed to shaping national research directions by providing guidance to PIs, institutions, and early-career investigators.

## **Interdisciplinary Research & Center Collaborations**

Collaborated with multiple research centers and institutes at Texas Tech University, including the TTU Climate Center.

Interdisciplinary projects span mathematical modeling, biophysics, computational PDEs, integrable systems, and biomedical applications.

Established partnerships with faculty across Engineering, Physics, Chemistry, Biological Sciences, Computer Science, and the TTU Health Sciences Center.

## **Media Visibility & Public Engagement**

Collaborative vision and interdisciplinary approach were featured in the 2024 Texas Tech University news article “Diet, Diabetes, Dementia, and Differential Equations,” highlighting the application of advanced mathematics to problems in public health and biomedical sciences: <https://www.ttu.edu/now/posts/2024/03/diet-diabetes-dementia-and-differential-equations.php>

Actively participates in community outreach, seminars, and public-facing events promoting the role

of mathematics in addressing real-world challenges.

### **Institutional Advancement, Strategic Development & Academic Innovation**

Expanded external research activity in the department through targeted mentoring, proposal development support, and collaborative faculty teams, while managing departmental budgets of over \$10 million/year and overseeing substantial endowments supporting professorships, student scholarships, and laboratories.

Strengthened graduate recruitment, resulting in increased Ph.D. enrollment and postdoctoral training opportunities.

Modernized undergraduate pathways and created new interdisciplinary courses and certificates aligned with workforce and research needs.

Cultivated relationships with donors whose generosity to TTU and the Department of Mathematics and Statistics has been outstanding, supporting faculty and students. Established a personal endowment at TTU under the name “*Magdalena Toda Mathematics Scholarship – Undergraduate and Graduate Level*,” designed to grow over time and support talented students in need.