Magdalena Daniela Toda

Professor & Chair, Department of Mathematics & Statistics

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U.S. Citizen | Gender: Female | Ethnicity/Race: Mixed

Professional Summary

Professor of mathematics with 25 years of research and teaching experience. Dynamic academic leader with over two decades of experience in higher education, including over nine years of successful departmental leadership. Proven record of excellence in faculty recruitment, strategic program development, shared governance, and external funding. Recognized for inclusive leadership, interdisciplinary research, mentoring excellence, and advancing institutional visibility at national and international levels.

Former NSF Program Director with insight into federal funding, equity initiatives, and research policy.

Recent Academic Appointments

• Chair & Professor, Mathematics & Statistics, Texas Tech University, 10/2023–Present

• NSF Program Director, Applied Mathematics, NSF MPS/DMS, 09/2022–09/2023 (IPA Rotator)

• Chair & Professor, Mathematics & Statistics, Texas Tech University, 04/2016–09/2022

• Interim Chair, Mathematics & Statistics, TTU, 09/2015–02/2016

• Professor, Texas Tech University, 2014–Present

• Director of Undergraduate Studies, TTU, 2010–2015

• Associate Professor (Tenured), TTU, 2008–2014

• Assistant Professor, TTU, 2001–2007 | 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. to M.S. Mathematics, University of Bucharest, 1990–91 (Specialization in Geometry-Algebra, GPA: 9.6/10)

• M.S. Health & Wellness, American College of Healthcare Sciences, 2019

Automatically generated Wikipedia profile:

https://en.wikipedia.org/wiki/Magdalena_Toda

Research & Scholarly Profile

Research interests include:

- Differential geometry, integrable systems, geometric PDEs

- Fluid flows, relativistic geometry, biomembranes and *Protein Geometry (Protein folding, shape, Willmore-Helfrich Energy for Cells and Biomembranes)*

Publications include works in:

- Journal of Mathematical Physics, Nonlinear Analysis, Annali di Matematica Pura ed Applicata, PROTEINS (Structure, Function, and Bioinformatics; Wiley), Annals of Global Analysis and Geometry, IEEE Trans. on Automatic Control, CRC Monographs, AMS Contemporary Mathematics, and many more.

Books:

- CRC Research Monograph (2017/2018)

- Calculus Textbook, Kendall Hunt (2013, 2017/2018)

Major Accomplishments in Leadership

Strategic Growth & Innovation:

- Founded TTU Math Postdoctoral Scholar Program (2016–): Avg. 3 new postdocs/year

- Hired 25 tenure-track faculty and 30+ postdocs since 2015

- Boosted external funding from ~$200K to $2M+ in active awards

- Expanded graduate enrollment from ~90 to ~150 students

- Increased funded Ph.D. students to 120 (Fall 2024)

Curriculum & Program Development:

- Led complete revision of Ph.D., M.S., and Certificate programs

- Founded 4 SCH ***Calculus I, II and 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

- Added instructional hours to core calculus sequence to improve retention

Shared Governance & Institutional Service:

- Oversaw development and implementation of Departmental Bylaws

- Established new standing committees (e.g., Awards, Resource Committee)

- Collaborated with multiple colleges to enhance cross-disciplinary student success

- Revised annual faculty evaluation process with focus on equity and impact

Mathematics Education, Outreach and Engagement:

- Organized 20+ professional meetings including AMS events

- Co-organized biannual Red Raider Mini Symposium

- Elevated departmental reputation nationally and internationally

- Was recognized for ***excellence in leadership*** through 4.5-5/5 annual administrator evaluation scores between 2015 and 2025

- Revised mathematics curriculum at TTU; recreated the actuarial science minor & restructured the CORE Curriculum Courses in Math; recreated the Accelerated B.S. to M.S. Pathway

- Appointed Undergraduate Director Yancy Nunez as TSI Math liaison, representative to the Dana Center at UT Austin, and for collaborations with colleges/community colleges in the South Plains Region (Amarillo College, South Plains Community College, Midland College etc).

- Worked closely with Brock Williams and Yancy Nunez on MATH B.S. and B.A. Curricular improvements (in Curriculog at TTU & OPA/SACSCOC accreditation/reaffirmation stages) as well as REU Programs and STEM Center at TTU.

Selected External Funding by US Federal and Private Foundations

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

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 number 21P740, $179,101, joint PI.

2014-2018
Nonlinear couplings for Flows in Fractured Media, National Science Foundation, Division of Mathematical Sciences, NSF-DMS #1412796, ORS A14-0119-001, total award: $290,000, PI.

2014-2017
Faculty for the Future Nothabo Dube Schlumberger Foundation, total award $42,000. Schlumberger Foundation – ORS A15-0248-001, PI.

2013 AWM Travel Grant Recipient, by competition; total award $2,700.

2009-2013 *Analysis of Non-Linear Flows in Heterogeneous Porous Media and Applications*, National Science Foundation, Division of Mathematical Sciences, NSF-DMS #0908177; total award $226,000, Co-PI.

2008-2013 *South Plains Mathematics Scholars,* STEM, NSF-DUE, #0727944: SCHLR SCI TECH; ENG&MATH, total award $571,580, Co-PI (Lead PI: G. B. Williams)

Supporting (Senior Pers.) Roles in grants (totaling about $10 million):

2021-2022 Participating in the TTU ADVANCE-ADAPT grant of the TTU Provost, worked on chair mentoring and equity issues, under PI Stephanie Jones, and several department chairs $976,103; 3 years (Sep 1, 2020 – Aug 31, 2023).

2009-2010 Summer Program Leader and Instructor in the NSF-WTMSMP (summer programs for teachers as part of a grant of over $7 million; under PI Gary Harris)

2017 – current Texas Geometry and Topology Conference (TGTC). Supporting personnel at TTU, NSF grant share: $15,000 for TTU Mathematics and Statistics (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, paid to work with undergrad student on research projects.

2001-2003 Project NExT Grant – supported by AMS grant & Dept. of Mathematics at TTU, recipient $3,000 total

Select Honors & Distinctions

• AWM Fellow Class of 2025

• NSF Program Director (2022-23) – IPA agreement, selected through national search

• Phenomenal Woman of Texas Tech, Office of the Provost, TTU (2022)

• W. Dayawansa Faculty Award for Excellence in Service (2022)

• TTU Mortar Board Apple Polishing Award (2017)

• Professing Excellence Award (2011)

• TTU President's Award for Excellence in Teaching (2008)

• TTU KME Professor of the Year (2002, 2008)

• University of Kansas Outstanding Teaching Assistant (2000)

• Florence Black Award for Excellence in Teaching (1997)

Students advised

(*Graduate students supervised as Program Chair or Dissertation Co-Chair; gender indicated in parentheses*)

9. Madusha Dilhani (f), Ph.D., sole advisor; defended March 2021, graduated Aug 2021

8. Wasim Akram (m), M.S., sole advisor; defended and graduated Spring 2021

7. Anthony Gruber (m), Ph.D., completed May 2019; main advisor; co-advisor: Dr. Hung Tran

6. Pushpi Paranamana (f), Ph.D., completed Aug 2018, co-advised with Dr. Eugenio Aulisa

5. Thanuja G. Paragoda (f), Ph.D., completed Aug 2016; main advisor; co-advisor Dr. Giorgio Bornia

4. Chalani Prematilake (f), Ph.D., completed Aug 2016; co-advised with Dr. Leif Ellingson

3. Bhagya Athukoralage (m), Ph.D., completed Aug 2014; co-advised w. Dr. Ram Iyer

2. Zeynep Kose (f), Ph.D. 2010; main advisor, supported as RA; co-advised with Dr. Eugenio Aulisa

1. Alin Tomoiaga (m), M.S. 2006, (Ph.D. 2014, Dr. Peter Westfall); co-advised with Peter Westfall

Other students mentored or co-mentored: 25 domestic and international students

Selected Refereed Publications (out of 60 in total)

(Note: the underlined names are current or former PhD graduate students advised; coauthors had equal contributions; impact factors are averages, at the time of publication)

- Y. Li, E. Güler, M.D. Toda. (2024). Family of Right Conoid Hypersurfaces with Light-like Axis in Minkowski Four-Space, *AIMS Mathematics* 9 (7), Cite Score 3.4, IF 2.0, 18732-18745, (Q1 quartile). https://www.aimspress.com/article/doi/10.3934/math.2024911?viewType=HTML

- E. Aulisa, A. Gruber, M. Toda, (2024) Generalized Willmore Energies and Applications, *Geometry, Integrability and Quantization* – special issue, Project Euclid, vol. 29, 2024, 1-10.

- A. Pigazzini, L. Lussardi, M. Toda, (2024) A. DeBenedictis, Einstein Warped-Product Manifolds and the Screened Poisson Equation, Contemporary Mathematics, AMS Proceedings, vol. 818, Editor: B. Suceava, in print.

- A. Gruber, Á. Pámpano, M. Toda. (2023). Instability of closed p-elastic curves in the 2-sphere, *Analysis and Applications* 21 (6), 1533-1159, Cite Score 3.4, IF 2.0 (Q1).

- I.M. Mladenov, V.I. Pulov, V.M. Vassilev, M. Toda. (2023). The Geometry of the Kiepert Trefoil, *Mathematics*, pp. 3357-3375. IF 2.592, Cite Score 2.9 (Q1).

- A. Gruber, Á. Pámpano, M. Toda. (2022). On p-Willmore Disks with Boundary Energies, *Differential Geometry and Its Applications* 86, 101971 (Q1). *Science Direct, Elsevier.*

- A. Gruber, M. Toda, H. Tran. (2022). Stationary Surfaces with Boundaries, *Springer Nature; Annals of Global Analysis and Geometry* (AGAG), SJR 0.8; IF 0.9, (Q1) https://doi.org/10.1007/s10455022-09850-4

- A. Gruber, M. Toda, H. Tran. (2022). Willmore-Stable Minimal Surfaces. *AIP Proceedings, American Institute of Physics Pub*. Q1, ICNAAM 20, (Q1) https://aip.scitation.org/doi/10.1063/5.0081304

- E. Aulisa, P. Paranamana, M. Toda. (2021). Geometric Model of a Surface as a manifold Immersed in Porous Media. *Journal of Mathematical Physics.* (Impact factor 1.36, Q1). **62** (5). https://doi.org/10.1063/1.5109730

- A. Gruber, Á. Pámpano, M. Toda. (2021). Regarding the Euler-Plateau Problem with Elastic Modulus; *Annali di Matematica Pura ed Applicata* (1923 -); (5yr Impact factor: 1.29, SJR 1.25, Q1); published online. doi:10.1007/s10231-021-01079-5

- M. Atampalage, B. Athukorallage, M. Toda. (2021). The Doubly Connected Minimal Surfaces between Circles in Parallel Planes, JGSP, **59**, 31-45 (SNIP 2021: 1.0).

- M. Toda, B. Athukorallage. (2020). The Mathematics of Secondary Structures in Proteins, *Biophysical Journal* **118** (3), 43; (5yr Impact factor: 3.2, Q1; Biophysics Society)

- E. Aulisa, A. Gruber, M. Toda, H. Tran. (2020). New Developments on the p-Willmore Energy of Surfaces. *Project Euclid.; Bulgarian Academy of Sciences*; Geometry, Integrability and Quantization, **21**, 57-65. https://projecteuclid.org/ebooks/pgiq/Proceedings-of-the-Twenty-FirstInternational-Conference-on-Geometry-Integrability/toc/pgiq/1602640821

- A. Gruber, M. Toda, H. Tran. (2019). 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), Jul 2019, 147-165. (2019 Impact factor: 0.99; SJR 1.23, Q1); https://link.springer.com/article/10.1007/s10455-019-09661-0

- P. Paranamana, E. Aulisa, M. Toda, A. Ibraguimov. (2019). Fracture Model Reduction and Optimization for Nonlinear Flows in Porous Media, *Journal of Mathematical Physics*, American Institute of Physics Publishing, **60** (5*)*; (2019 Impact factor 1.5, Q1)
https://aip.scitation.org/doi/10.1063/1.5039743

- M. Toda, A. Pigazzini. (2018). A note on the class of surfaces with constant skew curvature.
Project Euclid Jan 2018. J. of Geom. Sym. in Physics, Dec 2017, **46**, 51-59.
https://projecteuclid.org/euclid.jgsp/1518577293

- M.Toda (editor and contributor). (2018, 2017). Willmore Energy and *Willmore ene, CRC Press, Taylor and Francis Ltd. Research Monographs*:
https://www.crcpress.com/The-Willmore-Conjecture-and-the-WillmoreEnergy/Toda/p/book/9781498744638

- M. Toda, F. Zhang, B. Athukorallage. (2017). Elastic surface model for beta-barrels: geometric, computational, and statistical analysis.
PROTEINS: Structure, Function, and Bioinformatics **86** (1), 35-42. (Impact factor 2.289; SJR 1.29; h-index 169, Q1)
https://onlinelibrary.wiley.com/doi/full/10.1002/prot.25400

- M. Toda. (2017). On a duality property of isothermic surfaces, *PJGT*, **20** (1),
https://www.researchgate.net/publication/316770427_On_a_duality_property_of_isother mic_surfaces 85-91

- B. Athukorallage, E. Aulisa, G. Bornia, T. Paragoda Gamage, M. Toda. (2016). New advances in the study of generalized Willmore surfaces and flow. *Project Euclid; Bulgarian Academy of Sciences.*

- M.Toda. (2016). A systematic analysis on the therapeutic benefits of probiotics; grad student paper. *Int. Journal of Nutrition and Dietetics,* **4** (2), 161-168.

- B. Athukorallage, G.Bornia, T. Paragoda Gamage, M. Toda (2015). Willmore-type energies and Willmore-type surfaces in space forms. *PJGT*, **18** (2), 93-108. (based on
https://thanujaparagoda.files.wordpress.com/2016/11/phd-dissertation1.pdf)

- B. Athukorallage, T. Paragoda Gamage, M. Toda (2014). Roulettes of conics, Delaunay surfaces and applications. *Surveys in Mathem. M.S.*, **4** (1), 1-23.

- E. Aulisa, M.Toda, Z. Kose. (2013). Constructing isothermal curvature line coordinates on surfaces which admit them. *Central European Journal of Mathematics (CEJM)/ Open Mathematics*, **11**(11), 1982-1993. (2013 Impact factor 0.836, Q1.)
https://www.degruyter.com/view/j/math.2013.11.issue-11/s11533-013-0289-6/s11533013-0289-6.pdf

- M. Toda (2013). Forchheimer-type equations in conjunction with constant mean curvature graphs, *AIP Proceedings. American Institute of Physics*, **1558** (2013), no.1, 887, pp 5. http://dx.doi.org/10.1063/1.4825639

- M.Toda, B. Athukoralage (2013), Geometry of biological membranes and Willmore energy
AIP Proceedings. American Institute of Physics, **1558** (2013), no.1, 887, pp 5;
http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.4825638

- M.Toda, G. Bornia (2013), Preface of the "Symposium on Geometric Methods for
Integrable Systems and PDE with Applications to Engineering, Biology and Medicine", *AIP Proceedings. American Institute of Physics*, **1558** (2013), no. 1, 869, pp 4;
http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.4825634

- M. Toda (2012). Weingarten surfaces with moving frames—a tribute to S. S. Chern and C. L. Terng—and a duality result. *Editor: Y. Matsushita, Osaka, JP Journal of Geometry and Topology,* **12** (3), 263–289; see also:
http://arxiv.org/abs/1302.5395

- E. Aulisa, A. Ibragimov, M. Toda (2011). Geometric Methods in the Analysis of Nonlinear Flows in Porous Media - *Contemporary Mathematics - Proceedings of the AMS,* Spectral Theory and Geometric Analysis, in honor of M. Shubin; editor: Leonid Friedlander, **535**, (2011), no.1, 27-42.
http://www.ams.org/books/conm/535/ See also
http://arxiv.org/abs/1302.5983

- W. Rossman, M. Toda (2011). Corresponding constant mean curvature surfaces in hyperbolic and Euclidean 3-spaces. *Pacific Journal - Appl. Math.* **3** (2011), no. 1-2, 37–43. http://arxiv.org/pdf/1005.2744v1.pdf

- E. Aulisa, Z. Kose, M. Toda (2011). Solving Bonnet Problems to construct families of surfaces, *BJGA,* **16** (2011), no. 2, 70-81, http://www.mathem.pub.ro/bjga/v16n2/B16-2- ko.pdf (ISI: 0.806.)

- E. Aulisa, A. Ibragimov, M. Toda (2010). Geometric Framework for Modeling NonLinear Flows in Porous Media, and Its Applications in Engineering *Nonlinear Analysis: Real World Applications,* **11** (2010), 3,, 1734-1751. Impact factor: 2.8, Q1; http://www.sciencedirect.com/science/article/pii/S1468121809001709 http://arxiv.org/abs/1302.5461

- R. Holsapple, R. Iyer, M. Toda (2008). On an Optical Inertial Navigation System - II, *IEEE Transactions on Automatic Control*, ISSN: 0018-9286, **53** (2008), no. 8, 18641875, Impact factor: **7**, Q1. http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=4631514

- R. Paige, P. Seshaiyer, M. Toda (2007). Student Misconceptions Caused by Misuse of Technology, *International Journal for Technology in Mathematics Education* (former *International Journal of Computer Algebra, I.F. 1.0, United Kingdom*), **14** (2007), pp 10. https://www.researchgate.net/publication/235712755_Student_Misconceptions_Caused_by_Misuse_of_Technology

- M. Toda (2005). Initial Value Problems of the Sine-Gordon Equation and Geometric Solutions, *Annals of Global Analysis and Geometry*, **27** (2005), no.3, 257-271. http://arxiv.org/abs/math/0307270 (Kluwer; SJR: 1.23).

- M. Toda (2005), Immersions of Constant Mean Curvature Surfaces in Hyperbolic Space, *Differential Geometry – Dynamical Systems*, **7** (2005), no.1, 111-126.

- J. Inoguchi, M. Toda (2004), Timelike Minimal Surfaces via Loop Groups *Acta Applicandae Mathematicae,* **83** (2004), no. 1-2, 313-355. Impact factor: 0.899, SJR 0.75, Q2. https://link.springer.com/article/10.1023/B:ACAP.0000039015.45368.f6

- J. Dorfmeister, J. Inoguchi, M. Toda (2002). Weierstrass-type Representation of Timelike Surfaces with Constant Mean Curvature in Minkowski 3-Space, Differential Geometry and Integrable Systems, *Contemporary Mathematics - Proceedings of AMS*, **308** (2002), 77-100. http://arxiv.org/abs/math/0307273

- M. Toda (2002). Weierstrass-type Representation of Weakly Regular Pseudospherical Surfaces in Euclidean Space, *BJGA*, **7** (2) (2002), pp 87-136. http://arxiv.org/abs/math/0307272 (ISI impact factor: 0.806)

- M. Toda (2000). *Pseudospherical surfaces via moving frames and loop groups. Thesis* (Ph.D.)–*Repositories of University of Kansas*. 2000. 114 pp. ISBN: 978-0599- 99054-8, *ProQuest LLC*

- M. Toda, C. Udriste (1999). C., Optimal Approximations on Riemannian Manifolds, *BJGA,* **4** (1999), no.1, 135-144. http://www.emis.de/journals/BJGA/v04n1/B04-1-TODA.pdf (ISI impact factor: 0.806; SJR: 0.4)

- J. Dorfmeister, F. Pedit, M. Toda (1998), Minimal Surfaces via Loop Groups, *GANG Amherst Preprints*: http://www.gang.umass.edu/preprint/documents/ *BJGA,* 2 (1), 25-40. (ISI impact factor: 0.806; SJR 0.4)

- M. Sandru, M. Toda (1996), Topological Aspects in Elementary Geometry, *TENSOR, (N.S.), Japan,* **5**7 (1996) , no.1, 80-83. Global Imp. Factor: 1.0. https://www.worldcat.org/title/tensor/oclc/1767294

- M. Toda, C. Udriste (1994), Influence of the Evolution Riemannian Metrics on the Volume, *Proceedings of 23rd European Conference on Geometry and Topology - Babes-Bolyai University*, 1993, 194- 202.

- M. Toda, C. Udriste (1993). Volume Dependence on the Riemannian Metric, *Proceedings of the International Workshop on Differential Geometry and Applications, 1993*, *Sci. Bull. PUB Ser. A, Applied Math Series,* **55** (1993), no. 3-4, 285-298

- M. Toda (1991). A Family of Riemannian and Naturally Reductive Homogeneous Spaces: A Classification, *Scientific Bulletin PUB*, **53** (1991), no. 3-4, 329-335.

Textbooks

- Smith, K., Strauss, M., Toda, M. (**2017**), Kendall Hunt (Ed.), *Calculus* (7th ed., pp. 1160). Kendall Hunt Publishing, July 2017. **ISBN:** 9781524916817

- Smith, K., Strauss, M., Toda, M. (**2013**), Kendall Hunt (Ed.), *Calculus Special Edition* (7th ed., Special Edition Ch 1-5 – for Rutgers University). Kendall Hunt Publishing Company. ISBN: 9781524917708

- Smith, K., Strauss, M., Toda, M. (**2013**), Kendall Hunt (Ed.), *Calculus Special Edition* (7th ed., Special Edition Ch 5-8, 11, 12, 14 – for Rutgers University). Kendall Hunt Publishing Company. **ISBN:** 9781524917708

- Smith, K., Strauss, M., Toda, M. (**2013**), Kendall Hunt (Ed.), *Calculus* (6th ed., pp. 1160). Kendall Hunt Publishing, July 18, 2013. **ISBN-10:** 1465208887

- Smith, K., Strauss, M., Toda, M. (**2013**), Kendall Hunt (Ed.), *Calculus Special Edition* (6th ed., Special Edition Ch 1-5 – for Rutgers University). Kendall Hunt Publishing Company. ISBN-10: 146522923X

- Smith, K., Strauss, M., Toda, M. (**2013**), Kendall Hunt (Ed.), *Calculus Special Edition* (6th ed., Special Edition Ch 5-8, 11, 12, 14 – for Rutgers University). Kendall Hunt Publishing Company. **ISBN-10:** 146524079B

- Smith, K., Strauss, M., Toda, M. (**2013**), *Student Solutions Manual for Calculus 6th Edition, by Smith, Strauss and Toda*. E-Book format. Kendall Hunt.

- Smith, K., Strauss, M., Toda, M. (**2013**), *Instructor's Solutions Manual for Calculus 6th Edition, by Smith, Strauss and Toda*. E-Book format. Kendall Hunt.

Technical reports, and other publications: 10.

INVITED PRESENTATIONS - since tenure

(2010- :
plenary talks, as well as invited talks delivered as presenter, are underlined**)**

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, National Science Foundation, MPS/DMS Colloquium, April 2023.

Toda, M., Generalized Willmore energies and elastic surfaces with applications to Biophysics, Carnot Room, University of Strasbourg, France, Tue Jul 18-22, 2022; deliv. Jul 19, 15:00-15:30 (3 pm-3:30 pm), INDICO conference.

Toda, M., Elastic energies and applications (title changed; delivered online via Zoom), May 29-Jun 2 2022, UCV: https://cis01.central.ucv.ro/ICAMNM/?Programme

Toda, M., Math for Innovation Colloq, Dec 6, 2021 – hosted by Dr. Yasumoto, Kyushu University

Toda, M., p-Willmore Energies, University of Kansas, AWM-SIAM Lecture, Apr 13, 2021

Toda, M., Elastic Energies and Surfaces, Clemson University, Colloquium Talk, Sep 19, 2019

Toda, M., Plenary Talk in the XXIst "Geometry, Integrability and Quantization Conference", June 3-9, 2019, "p-Willmore Energies" Bulgarian Academy of Science, Institute of Biophysics, Varna, Bulgaria.

Paranamana, P. (Presenter), Aulisa, E., Ibraguimov, A., **Toda, M.**, SIAM Conference on Analysis of Partial Differential Equations, "Fracture Modeling and Optimization for Nonlinear Flows in Coupled Fracture Porous Media," Baltimore, Maryland. (December 12, 2017).

Paranamana, P. (Presenter), Aulisa, E., Ibraguimov, A., **Toda, M.**, Texas Applied Mathematics and Engineering Symposium, "Fracture Model Reduction and Optimization for Nonlinear Flows in Porous media," Austin TX, (September 22, 2017).

Paranamana, P. (Presenter), Aulisa, E., Ibraguimov, A., **Toda, M.**, Texas Applied Mathematics and Engineering Symposium, "Hypersurface Model of the Fracture for Nonlinear Fluid Flows," Austin TX, (September 22, 2017).

Toda, M., AMS Conf Special Session on Analysis and PDE in Geom., "Boundary Value Problems for Generalized Willmore Equations (25 min)," Denton Texas. (September 9, 2017).

Toda, M., Zhang, F., AMS Conf Special Session Special Session on Differential Geometry of Smooth and Discrete Surfaces in Euclidean and Lorentz Spaces, "Beta Barrels as Elastic Surfaces (50 min lecture)," Denton Texas. (September 9, 2017).

Paranamana, P. (Presenter), Aulisa, E., Ibraguimov, A., **Toda, M.,** AMS Sectional Conference,, "Fracture Model Reduction and Optimization for Nonlinear Flows in Porous media," Denton TX, (September 9, 2017).

Paranamana, P. (Presenter), Aulisa, E., Ibraguimov, A., **Toda, M.**, SIAM Annual Meeting, "Hypersurface Model of the Fracture for Nonlinear Fluid Flows." (July 11, 2017).

Paranamana, P. (Presenter), Aulisa, E., Ibraguimov, A., **Toda, M**., West Texas Applied Math Graduate Minisymposium, "Fracture Model Reduction and Optimization for Nonlinear Flows in Porous media," Texas Tech University, Lubbock, TX. (April 28, 2017).

Paranamana, P. (Presenter), Aulisa, E., Ibraguimov, A., **Toda, M**., AMS Meeting - Charleston SC, March 9-12, 2017, "Fracture Model Reduction and Optimization for Nonlinear Flows in Porous Media.," AMS - Abstract 1126-51-45 / March 11. (March 11, 2017).

Toda, M. (Presenter), Aulisa, E., AMS Meeting - Charleston SC, March 9-12, 2017, "Generalized bending energies and protein folding (25 min)," AMS - SS 10A - Special Session on Geometry and Symmetry in Integrable Systems. (March 11, 2017).

Toda, M., Aulisa, E., Bornia, G., Paragoda Gamage, T. (Presenter), Joint Math Meeting, "Willmore energy and generalized Willmore energy," AMS, SIAM, MAA, AWM, Seattle. (January 6, 2016).

Toda, M., Paragoda Gamage, T., Bornia, G., Joint Math Meeting - AMS Spec. Session on Geometry and Differential Geometry, "Willmore-type energies and Willmore-type surfaces in space forms," AMS (1116-53-980), Seattle. (January 6, 2016).

Ibraguimov, A., Aulisa, E., Hoang, L., **Toda, M**., Bloshanskaya, L., Colloquium Talk, "Some problem in non-linear problem in porous media," Azerbaijan Academy of Science, Baku, Azerbaijan. (June 24, 2015).

Toda, M., Plenary Talk in the XVIIth "Geometry, Integrability and Quantization Conference", June 410, 2015, "New advances in the study of Generalized Willmore surface," Bulgarian Academy of Science, Institute of Biophysics, Varna, Bulgaria. (50 min; June 8, 2015).

Toda, M., The 9th IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena April 1-4, 2015, "Generalized Willmore Surfaces, Flow and Applications," University of Georgia Athens and the National Science Foundation, University of Georgia UGA Conference Center. (April 2, 2015).

Toda, M. (Presenter), Athukorallage, B., JMM (Joint Math. Meeting) San Antonio, "Generalized Willmore Surfaces and Applications," AMS Special Session on Differential Geometry with Differential Forms, (invited short talk, 25 min). (January 12, 2015).

Toda, M., Paragoda Gamage, T. (Presenter), Topology Student Workshop, "Student Talk: Constant Mean Curvature Surfaces of Revolution versus Willmore Surfaces of Revolution: A Comparative Study with Physical Applications (30 min talk)," NSF, Georgia Tech University, June 2014. (June 10, 2014).

Toda, M. (Presenter), Plenary Talk in the XVIth "Geometry, Integrability and Quantization Conference", June 5-12, 2014, "Geometric Models for Secondary Structures in Proteins," Bulgarian Academy of Sciences, Institute of Biophysics, Varna, Bulgaria. (June 8, 2014).

Toda, M. (Presenter), ICNAAM 2013, "Forchheimer type equations in conjunction with constant mean curvature graphs," (supported by AWM-NSF and SIAM), Rhodes, Greece. (September 23, 2013).

Toda, M. (Presenter), Athukorallage, B., ICNAAM 2013, "Geometry of biological membranes and Willmore Energy. Constant mean curvature surfaces as models of beta sheets," (supported by AWMNSF and SIAM), Rhodes, Greece, Sep 21-28, 2013. (September 23, 2013).

Toda, M., Promotion Colloquium Talk, Department of Mathematics and Statistics, Texas Tech

University, "On a few results in surface theory, and their real-world applications." (September 17, 2013).

Toda, M., SIAM Conference on Mathematical and Computational Issues in Geosciences, University of Padova, June 17-20, 2013, "Geometric PDE models for secondary structure in proteins," SIAM (USA), Padova, Italy. (June 18, 2013).

Toda, M. (Project Leader), Smith, M. (Presenter & Author), 2013 Undergraduate Research Conference April 22-25, "Mathematics and acoustics: a study of noise reduction devices," Texas Tech University and Honors College URF, TTU Campus. (April 23, 2013).

Toda, M. (Project Leader) Gogu, C. (Presenter & Author), Undergraduate Research Conference at Texas Tech University, "Mathematical Models for Protein Structures," Center for Undergraduate Research TTU. (April 17, 2012).

Ibraguimov, A., Aulisa, E., Hoang, L., **Toda, M**., Bloshanskaya, L., SIAM Conference on Analysis of Partial Differential Equations, "Stability of the Generalized Forchheimer Flow in Porous Media," SIAM, San Diego, CA, November 14-17, 2011. (November 15, 2011).

Toda, M., PRISM Lectures, "The Geometry of the DNA: Energy-Minimizing Molecular
Configurations," PRISM NSF-Sponsored Program, PI Brock Williams, Texas Tech University. (August 3, 2011).

Kose, Z. (Presenter), **Toda, M**., Aulisa, E., The International Conference of Differential Geometry and Dynamical Systems (DGDS-2010), "Bonnet problems via Cartan moving frames," University Politehnica of Bucharest, Bucharest, Romania. (August 25, 2010).

ENGAGED RESEARCH AND OUTREACH TALKS GIVEN (selected)

Emmy Noether: Who was she? – Emmy Noether Day, 2010-2020

Colloquium Talk – CMC Surfaces, Willmore surfaces and Integrable Systems and applications to protein biology, Texas Tech University, Sep 2013 – tenure and promotion candidate

Colloquium Talk – Integrable Systems in Geometry, Texas Tech University, Sep 2007 – tenure and promotion candidate

REU-NSF (Research Experiences for Undergraduates) Lectures:

What every professional mathematician should know - June 2007

Minimal surfaces - June 2007

Emmy Noether High-School Day Workshops/Lectures: 2003, 2004, 2005

ACADEMIC SERVICE

A. Departmental

- Department Chair, Dept. Of Mathematics and Statistics, 2016- present (Interim Fall '15)
- Director of Undergraduate Studies, Dept. of Mathematics and Statistics, 2010-15
- Member of the Executive Committee, Mathematics and Statistics - Texas Tech Univ. (2010- present)
- Chair of the Undergraduate Committee, Mathematics and Statistics - Texas Tech Univ.(2010-15)
- Chair of the Organizing Committee for the **Emmy Noether High-School Mathematics Day**, Texas Tech University, organized Editions: 2006, 2007,

2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2021, 2022
http://www.math.ttu.edu/~enoether/

- Member of the Strategic Planning Committee, 2012, 2016-2020
- Member of the Travel Expenditures Committee, 2013, 2018-2020
- Member of the Hiring Search Strategy Committee, 2007; 2008; 2009; 2012, 2020
- Member of the Hiring Search Committee, 2016-2022
- Served as REU Program Coordinator, June 11-25, 2007, (with E. Aulisa, P. Seshaiyer)

B. **University Service**

2024 Member of CAN Board (***Chairs Advancement Network***, at Texas Tech University)

2021 – 2022 Member of TTU ADVANCE Chair Mentoring Group **(funded by an NSF Award)**

2003 – 2022 Organizer of the Emmy Noether High School Days
(major outreach and recruitment event supporting students in STEM)

https://www.math.ttu.edu/~enoether/

- Member of the Faculty Senate at Texas Tech University (**2006-2010**) and Senate Committee C
- Member of Graduate Scholarship Committee – TTU Graduate School (**2012**) Member of the Family Care Committee (**2006-2010**)

National Professional Service and Scholarly Activities

National Professional Service

Program Director, Applied Mathematics, National Science Foundation (NSF), Division of Mathematical Sciences (MPS/DMS)
Fall 2022 – Fall 2023

NSF Panelist and Expert Reviewer, continuous service since 2010

Editorial Service

Associate Editor, Journal of Nonlinear Mathematical Physics (Springer), a peer-reviewed Q2 journal (2019–2022); link to journal: https://www.springer.com/journal/44198

Guest Editor, Special Issue on Differential Geometry and Related Integrable Systems, Mathematics (Q1 journal), 2021–2022

Editor, Research Monograph Series, CRC Press (Taylor & Francis), a highly ranked academic publisher

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

  Sponsored by NSF in partnership with UT Austin, Rice, Texas A&M, UH, UTD, UTA, TTU, TCU
  Organized TTU editions in: 2002, 2005, 2008, 2011, 2014, 2017, 2020, 2024

- Red Raider Minisymposium, 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), Minisymposium Organizer 2013, 2019