

Magdalena Daniela Toda

Curriculum Vitae

Professor

Department of Mathematics and Statistics

Texas Tech University, Lubbock TX 79409-1042

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Work Phone: (806) 834-7944

US Citizen

Gender: Female

Ethnicity and Race: mixed

Spoken Languages: English, Romanian, Italian, Spanish, French

CURRICULUM VITAE

RECENT RELEVANT APPOINTMENTS and EDUCATION

- 09/2022 – 09/2023 Program Director for the Applied Mathematics Program of NSF-DMS
(by IPA agreement for rotators, on leave from TTU)
- 04/2016-09/2022 Chairperson, Department of Mathematics & Statistics, TTU
(*through external search with 4 final candidates;
renewed 03/2019; renewed 07/2022 for another 3 years*)
- 09/2015-02/2016 Interim Chairperson, Dep. of Mathematics & Statistics, TTU
- 2014-present Professor, Texas Tech University
- 2010-2015 Departmental Director of Undergraduate Studies, TTU Math
- 2008-2014 Associate Professor with Tenure, Texas Tech University
- 2001-2007 Assistant Professor, tenure-track, Texas Tech University
- 2000-2001 Assistant Professor, tenure-track, Ball State University
- 1995-2000 Graduate Student, Teaching Assistant, University of Kansas
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- 2000 Ph.D. degree in Mathematics, University of Kansas, GPA 4.0; Summa Cum Laude
- 1997 Master's degree in Mathematics, University of Kansas, GPA 4.0
- 1990/91 Master's in Mathematics (equiv. of an accelerated BS to MS; *Diploma de Licenta*)
with additional Specialization Certificate in Geometry-Algebra, Uni. Bucharest
GPA 9.6/10; 10/10 Final; Cumulative: Summa Cum Laude
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- Other fields
- 2019 *Master of Science in Health and Wellness, ACHS; DEAC accred., US DoEd rec.*

RESEARCH AREAS: *differential geometry; applied geometric PDE; integrable systems; applications to fluid flows; geometry of proteins; Riemannian and Lorentzian geometry (relativistic math physics).*

Scholarly reputation

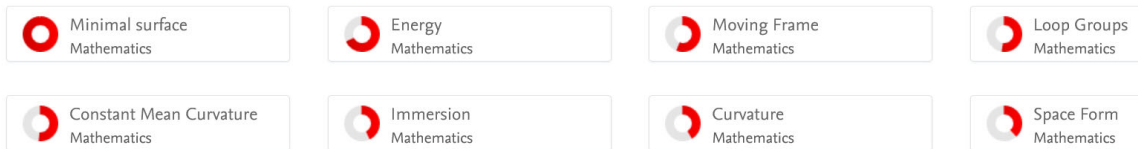
*Published in reputable journals and refereed proceedings, including but not limited to:
Journal of Mathematical Physics (AIP)*

Nonlinear Analysis: Real World Applications
 Annali di Matematica Pura ed Applicata (1923-)
 PROTEINS: Structure, Function, and Bioinformatics (Wiley)
 Annals of Global Analysis and Geometry (Springer)
 Contemporary Mathematics (AMS proceedings series)
 Acta Applicandae Mathematicae
 AIP Proceedings
 CRC Press Research Monographs
 Central European Journal of Mathematics (Open Mathematics – De Gruyter)
 IEEE Transactions on Automatic Control
 Mathematics
 Tensor Journal (N.S.)
 CRC – Taylor and Francis (research monograph); 2017/2018.
 Kendall Hunt (from. Pearson) – Calculus textbook editions 2013, 2017/2018.

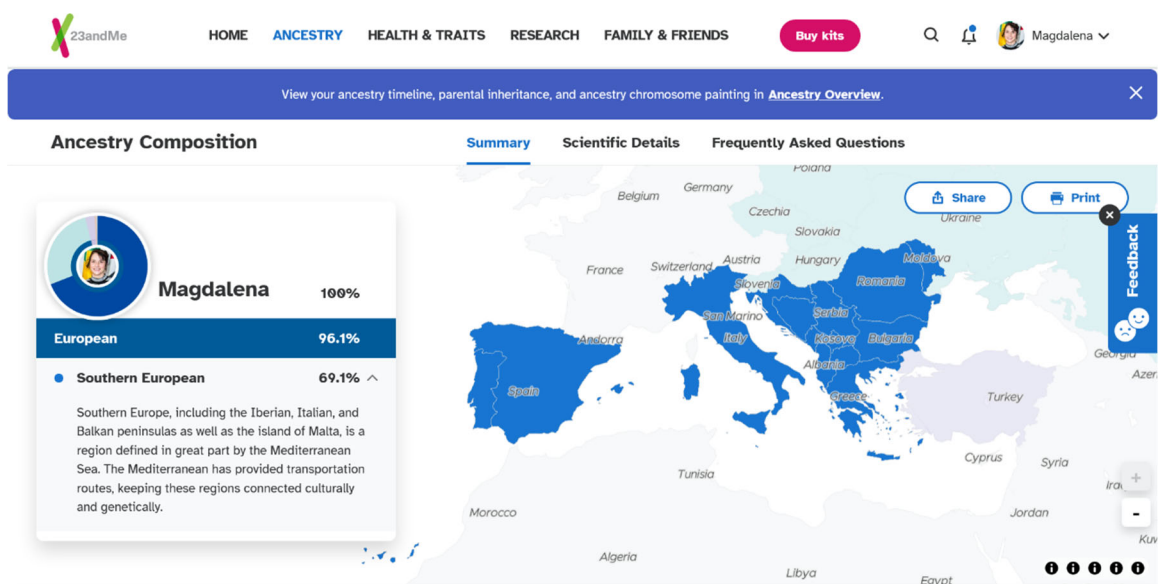
Academic Fingerprint

Fingerprint

Dive into the research topics where Magdalena Toda is active. These topic labels come from the works of this person. Together they form a unique fingerprint.



Ancestry and Heritage Fingerprint



HIGHLIGHTED ACHIEVEMENTS AS DEPARTMENT CHAIR

(please see Administrator Evaluations for 2017-2021, at the public website <https://www.depts.ttu.edu/irim/surveyresults/administratorevaluation/>)

External funding (since tenure; over **1.3** million dollars as sole PI, lead PI or Co-PI; in addition, as senior or supporting personnel in external grants adding up to over **7** million dollars)

2019-2024

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**.

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**, **Co-PI**; share: 25%.

2014-2017

Faculty for the Future Nothabo Dube Schlumberger Foundation, total award **\$42,000**. Schlumberger Foundation – ORS A15-0248-001, Sole **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**; share: 25%.

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; one of 3 Co-PIs)

Supporting Roles in grants (totaling over \$7 million):

2021-2022 Participating in the TTU ADVANCE-ADAPT grant of the TTU Provost, working 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 \$6 million; under PI Gary Harris)
<https://today.ttu.edu/posts/2008/09/texas-tech-receives-nsf-grant-for-math-project>

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

SELECTED HONORS, AWARDS and DISTINCTIONS

- 2022** “Phenomenal Woman of Texas Tech University” – by Division of Diversity, Equity and Inclusion
- 2022** W. Dayawansa Faculty Award for Excellence in Service of TTU Mathematics & Statistics
- 2017** TTU Mortar Board Apple Polishing Award
- 2016** Selected as Department Chair (after External Search - 4 finalists)
- 2015** Named Interim Department Chair
- 2011** Professing Excellence Award at Texas Tech University (one of 10 recipients at TTU), LEARNing TTU (Leadership, Education, Academics, Recruitment, & eNgagement) and University Housing.
- 2008** President’s Award for Excellence in Teaching at Texas Tech University
- 2008** Professor of the Year at Texas Tech University (Math Dept KME)
- 2002** Professor of the Year at Texas Tech University (Math Dept KME)
- 2000** Outstanding Teaching Assistant of the University of Kansas (monetary)
- 1997** Florence Black Award for Excellence in Teaching (monetary)
- 1995** George Soros Foundation - Young Career Grant (monetary, for travel)

STUDENTS ADVISED since tenure – gender indicated in parenthesis.

(Graduate Students directed as Program and Dissertation Chair or Co-Chair)

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

SELECTED REFEREED - PEER REVIEWED - PUBLICATIONS (51)

(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)

- A. Gruber, Á. Pámpano, M. Toda. (2022). On p-Willmore Disks with Boundary Energies, under review. <https://arxiv.org/abs/2110.14778>
- 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/s10455-022-09850-4>
- A. Gruber, M. Toda, H. Tran. (2022). Willmore-Stable Minimal Surfaces. *AIP Proceedings, American Institute of Physics Pub.* Q1, ICNAAM 20, <https://aip.scitation.org/doi/10.1063/5.0081304>
- V. Pulov, M. Toda, V. Vassilev, I. Mladenov. (2022). Geometry of the Kiepert Trefoil, accepted, published online. *Mathematics. Special Issue on Differential Geometry and Integrable Systems*. IF 2.59. <https://www.mdpi.com/2227-7390/10/18/3357>
- 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](https://doi.org/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-First-International-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). *The Willmore conjecture and the Willmore energy*, CRC Press, Taylor and Francis Ltd. *Research Monographs*: <https://www.crcpress.com/The-Willmore-Conjecture-and-the-Willmore-Energy/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_isothermic_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/s11533-013-0289-6.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, Japan; 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 Non-linear 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 Non-Linear 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, 1864-1875, **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.pdf, *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*, **57** (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., 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)

<https://indico.in2p3.fr/event/23498/attachments/71979/102681/tuesday.pdf>

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 4-10, 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 AWM-NSF 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)

Geometry Seminar

Applied Mathematics Seminar

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

- **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 underrepresented categories 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**)

C. Professional service

Editorial Service:

Associate Editor of Journal of Nonlinear Mathematical Physics, by Springer: quartile Q2 in 2020
<https://www.springer.com/journal/44198>

Editor of Special Issue: Differential Geometry and Related Integrable Systems, Mathematics, Quartile Q1, 2021-2022.

Editor of Research Monograph – CRC Taylor and Francis; highly ranked.

Recent AMS Special Sessions Organized

Sep 17-20, AMS El Paso Meeting – in person, co-organized with H. Tran, A. Pampano, S. McKeown

Sep 11-13, 2020, AMS El Paso Meeting – converted to virtual, co-organized with H. Tran

Sep 9-10, 2017, meeting #1131 (Denton Meeting), Special Session on Integrable Systems and Applications (B. Feng, A. Ibragimov, M. Toda).

Apr 11-13, 2014, meeting #1100 (Lubbock Meeting), Special Session on Recent Advancements in Differential Geometry and Integrable PDEs, and their applications to cell biology and mechanical systems (w. A. Ibragimov, G. Bornia).

Oct 26-28, 2012, meeting #1085 (Tucson Meeting), Geometrical Methods in Mechanical and Dynamical Systems (w. A. Ibragimov and V. Putkaradze).

Other meetings/ events organized

- TGTC Texas Geometry and Topology Conference (4 editions, 2002, 2005, 2008, 2011, 2014, 2017, 2020)
- Red Raider Mini-symposium (2009, 2013)
- AMS Sectional Meetings in Lubbock TX (2005, 2013)
- SIAM Meeting Special Session (2013)
- Mini-symposium: 11th International Con. ICNAAM 2013