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CURRICULUM VITAE

POSITIONS/APPOINTMENTS

04/2016-present	Chairperson, Dep. of Mathematics & Statistics, TTU (via <i>external search</i> with 4 final candidates; renewed 03/2019)
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
1992-1995	Assistant Professor with tenure (by competition and exam), Politehnica University of Bucharest
1991-1992	Preparator (TA), Politehnica University of Bucharest

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

EDUCATION

PhD degrees in Mathematics:

2000: Ph.D. in Mathematics (concentration: Differential Geometry) – University of Kansas;
Dissertation title: Pseudospherical Surfaces via Moving Frames and Loop Groups; GPA: 4.0. Advisor: J. Dorfmeister.

2000: Ph.D. in Mathematics (concentration: Applied Differential Geometry), University Politehnica Bucharest; GPA: 100%. Advisor: C. Udriste.

Master's degrees in Mathematics:

1997: M.A. in Mathematics, University of Kansas; GPA 4.0.

1991: M.S. in Mathematics, University of Bucharest; 5 yr GPA: 9.60/10; State Exam: 10/10; Thesis: 10/10. (*5 year Bachelor's to Master's*).

Other degrees:

2019: M.S. in Health and Wellness, American College of Healthcare Sciences

Total graduate coursework completed:

Mathematical Sciences: > 100 hours; Statistics: 10 hours

Classical Mechanics, Modern Physics: 20 hours

Graduate Anatomy and Physiology I and II, Biology/Life Sciences, Bio-math: 40 hours

Graduate English, French, Italian, Romanian: 40 hours; Spanish: in process.

1984: Valedictorian graduate of the National College Mihai Viteazul Bucharest (formerly a high school). <https://www.cnmv.ro/>

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

Tensor Journal (N.S.)

CRC – Taylor and Francis (research monograph); 2017/2018.

Kendall Hunt (from. Pearson) – Calculus textbook editions 2013, 2017/2018.

HIGHLIGHTED ACHIEVEMENTS AS DEPARTMENT CHAIR

see Administrator Evaluations for 2017-2021, at

<https://www.depts.ttu.edu/irim/surveyresults/administratorevaluation/>

- Helped increase undergraduate enrollment (# of math majors) (in 2019, the department had 458 actively enrolled math majors and 127 declared but not yet enrolled; and a rough estimate of 5,000 active math minors)
- Increased 12-month graduate SCH (+20% in AY 2020-21 versus AY 2015-16)

- Hired proactively: total new faculty members hired since 2015: **17 (seventeen)**
- Established/founded the postdoctoral program at Department of Mathematics and Statistics, Texas Tech University; total new teaching postdoctoral scholars hired: **20 (twenty)** (of whom 12 completed their appointments and left)
- Total number of tenure and promotion cases handled: **18 (eighteen)**
- Rebalanced/redistributed the departmental budget for Mathematics and Statistics
- Helped grow the departmental endowments (scholarship and award funds): our departmental-based endowment in the College of Arts and Sciences come from numerous donors of scholarship endowments, with total market value of over **2M** dollars
- Helped increase the enrollment and quality of our graduate program (120+ graduate students enrolled in Ph.D., Master's and Certificate programs in FY2021; of these, 90 are currently departmentally supported as GPTI/TA/RA)
- Increased number of SCH taught by changing the *3-hour Calculus* to *4-hour Calculus* (as Undergraduate Director in 2010-2011) with TTU administrative approvals in place; consequently, MATH 1351, 1352, 2350 became MATH 1451, 1452, 2450, and the annual number of graduate hours (SCH) grew rapidly, as shown in the table of Fig.1.
- Maintained the enrollment high, with a departmental teaching load well above **81,000 SCH** per year, despite the statewide lowering of the minimum score for AP AB/BC Calculus Credit from **4** to **3**, in 2015-2016 which waived the Calculus I and II requirements for many freshmen.
- Achieved a significant growth in number of doctoral degrees granted by the department. We had produced 105 Ph.D.s over the decade 2011-2021 (10 doctoral degrees granted/year); 65 doctoral degrees in Mathematics and Statistics were granted over the past 5 years at TTU.

COLLEGE: College of Arts and Sciences

COLLEGE AND DEPARTMENT	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
AERS Aerospace Studies	498	507	392	371	334	331	272	151										
AS Arts and Sciences							5	17	22	42	147	334	217	341	251	388	71	65
ART Art																		
BIOL Biological Sciences	28,078	29,206	30,081	30,101	29,433	29,199	28,239	29,445	31,279	35,096	37,304	37,278	38,904	39,528	40,303	41,416	44,042	46,163
BTEC Biotechnology	68	83	122	158	231	306	283											
CHEM Chemistry and Biochemistry	23,994	26,903	28,100	27,518	27,437	28,040	28,786	30,938	33,698	34,002	34,524	37,163	37,935	38,928	38,996	40,217	42,113	44,183
CMLL Classical Modern Languages & Lit	23,625	30,853	34,040	35,790	34,462	34,056	33,037	34,595	33,426	36,591	38,260	33,685	32,587	31,469	30,818	31,805	31,178	32,681
COMS Communication Studies	14,646	16,597	16,054	16,590	15,858	14,977	14,573	14,549	15,167	16,046	16,601	13,965	6,021					
ECO Economics	26,656	27,744	27,852	26,386	25,887	25,817	24,574	24,765	19,848	20,866	21,518	20,374	18,044	17,798	16,588	15,467	15,023	13,673
ENGL English	36,194	43,074	40,563	42,813	41,762	42,120	41,813	42,844	42,803	40,801	34,788	36,339	35,936	37,612	37,980	40,334	45,755	47,403
ENTX Environmental Toxicology	1,012	1,071	1,030	1,014	890	902	927	1,252	1,300	1,107	1,177	1,176	1,108	974	1,011	966	1,276	1,634
GEOS Geosciences	11,842	11,842	12,385	12,091	13,102	13,397	13,723	14,549	21,270	20,170	19,612	20,694	21,748	21,637	20,067	19,002	18,868	19,337
GST General Studies	409	347	245	216	243	228	333	318	396	645	1,941	2,082	2,191	2,736	2,272	2,228	2,597	897
HESS Health Exercise and Sport Science	16,935	16,105	17,279	18,178	19,176	21,853	23,413	24,079	24,304	25,992	27,922	28,047	30,439					
HIST History	35,101	35,666	34,020	31,704	28,179	30,754	31,573	34,574	35,626	34,378	33,862	34,979	36,449	35,018	33,277	34,701	35,482	35,547
HUM Humanities	30	52	192	97	77	93	21											
KIN Kinesiology and Sport Mgmt														30,346	30,199	30,013	28,121	28,227
LAAS Latin American & Iberian Studies	387	459	366	81	6	3	51											
MATH Mathematics and Statistics	59,684	60,203	59,158	56,642	55,812	58,170	59,464	61,935	65,446	69,590	73,059	78,921	83,729	84,515	81,537	81,968	81,133	81,352
MCOM Mass Communications	18,155	18,886																
MILS Military Science	275	324	256	278	345	335	407	244										
MUSI Music																		
PHAS Physics and Astronomy																23,073	25,859	25,696
PHIL Philosophy	9,175	7,273	8,711	7,234	6,057	6,114	5,604	6,246	7,262	7,517	5,946	5,286	5,479	5,223	5,368	5,075	5,081	5,602
PHYS Physics	13,490	14,771	15,628	15,651	14,928	16,056	17,101	18,929	20,512	19,733	19,984	20,118	22,261	22,717	23,731	23,073		
POLS Political Science	28,547	32,253	31,388	31,361	29,799	31,159	31,443	32,167	30,437	36,347	33,840	34,275	39,168	41,028	38,389	41,566	46,598	46,729
PSYS Psychological Sciences	22,301	22,447	22,392	20,991	21,273	19,387	19,703	20,746	22,484	23,401	23,660	24,990	26,311	27,593	28,516	30,015	29,553	30,946
SASW Sociology, Anthropology & Social Work	17,364	19,016	18,005	17,748	17,319	16,701	17,846	20,701	23,123	23,188	23,572	23,070	27,228	27,224	28,346	27,456	27,610	26,684
TD Theatre and Dance																		
WIS Womens Studies								519	792									
Total	388,466	415,682	398,259	393,013	382,610	389,998	393,191	413,563	429,195	445,512	447,717	452,776	465,755	464,687	457,619	465,690	480,360	486,819

Fig. 1 – College of Arts and Sciences SCH – by department and by year

AWARDED EXTERNAL FUNDING (post tenure; funded **continuously** for 20 years; was involved in grants amounting to over **1.3 million dollars**)

As PI or Co-PI:

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%.

2015-2017

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**; 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)

2003-2010

Integrable systems, harmonic maps and Weierstrass representation, **\$60,000**
Central European Science Foundation, acc. 1461-44-B329, Sole **PI**.

2006

University of Durham Conference Travel Grant, **\$5,000**, August 2006

2005

The Geometry of Backlund Transformations – Texas Tech REF (Research Enhancement Fund) **\$2,500**, Sole **PI**.

2002-2003

The Joy of Thinking, **\$5,000** – AMS Tensor SUMMA; Co-PI (PI: Jerry Dwyer)

Supporting roles in grants:

2021 Participating in the TTU ADVANCE grant of the TTU Provost.

2017 - 2020

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

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)
- 1990** Florence Black Award for Excellence in Teaching (monetary)
- 1995** George Soros Foundation - Young Career Grant (monetary, for travel)

STUDENTS ADVISED – gender indicated in parenthesis

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

10. Yunting Gao (f), sole advisor; advising prior to Ph.D. preliminary exam
9. Madusha Dilhani (f), Ph.D., sole advisor; defended March 2021, graduating Aug 2021
8. Anthony Gruber (m), Ph.D., completed May 2019; main advisor; co-advisor: Dr. Hung Tran
7. Pushpi Paranamana (f), Ph.D., completed Aug 2018, co-advised with Dr. Eugenio Aulisa
6. Thanuja Gamage Paragoda (f), Ph.D., compl. Aug 2016; main advisor; co-advisor Dr. Giorgio Bornia
5. Chalani Prematilake (f), Ph.D., completed Aug 2016; co-advised with Dr. Leif Ellingson
4. Bhagya Athukoralage (m), Ph.D., completed Aug 2014; co-advised w. Dr. Ram Iyer
3. Zeynep Kose (f), Ph.D. 2010; main advisor; co-advised w. Dr. Eugenio Aulisa, supported w. funding
2. Alin Tomoiaga (m), M.S. 2006, (PhD 2014, Dr. Peter Westfall); co-advised with Peter Westfall
1. Casey Hume (m), M.S., 2003; co-advised with Dr. G.B. Williams

SELECTED REFEREED PUBLICATIONS

(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)

Under review:

- i). A. Gruber, Á. Pámpano, M. Toda. (2021). On p-Willmore Disks with Boundary Energies
- ii). M. Atampalage, B. Athukorallage, M. Toda. (2021). The Doubly Connected Minimal Surfaces between Circles in Parallel Planes
- iii). A. Gruber, M. Toda, H. Tran (2020). Stationary Surfaces with Boundaries

Peer Refereed Publications - appeared:

1. 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). **62** (5). <https://doi.org/10.1063/1.5109730>
2. 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: 1.11, SJR 1.25/Q1); published online. [doi:10.1007/s10231-021-01079-5](https://doi.org/10.1007/s10231-021-01079-5)
3. M. Toda, B. Athukorallage. (2020). The Mathematics of Secondary Structures in Proteins,

Biophysical Journal **118** (3), 43; (5yr Impact factor: 3.2; Biophysics Society)

4. A. Gruber, M. Toda, H. Tran. (2020). Willmore-Stable Minimal Surfaces. *AIP Proceedings, American Institute of Physics*. ICNAAM 2020, 6.
5. 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>
6. 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>
7. 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)
<https://aip.scitation.org/doi/10.1063/1.5039743>
8. 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>
9. 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>
10. 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)
<https://onlinelibrary.wiley.com/doi/full/10.1002/prot.25400>
11. M. Toda. (2017). On a duality property of isothermic surfaces, *JPGT*, **20** (1), 85-91.
12. 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. Geometry, Integrability and Quantization*, **17**: 133-142 (2016)
<https://doi.org/10.7546/giq-17-2016-133-142>
13. 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.

14. B. Athukorallage, G. Bornia, T. Paragoda Gamage, M. Toda (2015). Willmore-type energies and Willmore-type surfaces in space forms. *JPGT*, **18** (2), 93-108.
(based on *PhD thesis of T. Paragoda*, pp 34-46 from:
<https://thanujaparagoda.files.wordpress.com/2016/11/phd-dissertation1.pdf>)
15. B. Athukorallage, T. Paragoda Gamage, M. Toda (2014). Roulettes of conics, Delaunay surfaces and applications. *Surveys in Mathem. M.S.*, **4** (1), 1-23.
16. E. Aulisa, M. Toda, Z. Kose. (2013). Constructing isothermal curvature line coordinates on surfaces which admit them. *Central European Journal of Mathematics (CEJM)*, **11**(11), 1982-1993.
<https://www.degruyter.com/view/j/math.2013.11.issue-11/s11533-013-0289-6/s11533-013-0289-6.pdf>
(now *Open Mathematics*, Impact factor: 0.836.)
<https://www.degruyter.com/view/j/math>
17. 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>
18. 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>
19. 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>
20. 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; JPGT*, **12** (3), 263–289; see also: <http://arxiv.org/abs/1302.5395>
21. 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>
22. 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>

23. 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.)

24. 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), no. 3, 1734-1751. <http://www.sciencedirect.com/science/article/pii/S1468121809001709> (see also <http://arxiv.org/abs/1302.5461>)
(Global impact factor 2.72, SJR 1.81)

25. 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. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=4631514>
(Global impact factor 2.779)

26. 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

27. 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).

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

29. 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 0.7. <https://link.springer.com/article/10.1023/B:ACAP.0000039015.45368.f6>

30. 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>

31. 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)

32. 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

33. 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)
34. 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)
<http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=DBB030F4B6B380B50981A59714DCA9D5?doi=10.1.1.35.728&rep=rep1&type=pdf>
35. 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>
36. 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*, Cluj-Napoca, 1993, 194- 202.
37. M. Toda, C. Udriste (1993). Volume Dependence on the Riemannian Metric, *Proceedings of the International Workshop on Differential Geometry and Applications, 1993, Politehn. Univ. Bucharest Sci. Bull. Ser. A, Applied Math Series*, **55** (1993), no. 3-4, 285-298
38. M. Toda (1991). A Family of Riemannian and Naturally Reductive Homogeneous Spaces: A Classification, *Polytech. Inst. Bucharest Scientific Bulletin*, **53** (1991), no. 3-4, 329-335.

Textbooks

39. Smith, K., Strauss, M., Toda, M. (2017), Kendall Hunt (Ed.), *Calculus* (7th ed., pp. 1160). Kendall Hunt Publishing, July 2017. **ISBN**: 9781524916817
40. 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
41. 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
42. Smith, K., Strauss, M., Toda, M. (2013), Kendall Hunt (Ed.), *Calculus* (6th ed., pp. 1160). Kendall Hunt Publishing, July 18, 2013. **ISBN-10**: 1465208887
43. 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

44. 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
45. Smith, K., Strauss, M., Toda, M. (2013), *Student Solutions Manual for Calculus 6th Edition, by Smith, Strauss and Toda*. E-Book format. Kendall Hunt.
46. 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.

GRADUATE STUDENTS DIRECTED (RESEARCH)

Madusha Dilhani Atampalage, Dissertation Committee Chair, Mathematics & Statistics (2019-)

Anthony Gruber, Dissertation Committee Chair, Mathematics & Statistics. (2016 - 2019).

Pushpi Paranamana, Dissertation Committee Co-Chair. (2016 - May 2018).

Hongwei Wang, Dissertation Committee Member. (2016 - December 2017).

Hongwei Wang, Qualifying Exam Committee Member. (2016).

Thanuja Paragoda, Dissertation Committee Chair. (2011 - August 2016).

Prematilake Chalani, Dissertation Committee Co-Chair. (2011 - August 2016).

Thanuka Hansameenu Wijenayaka, Dissertation Committee Member. (April 2016).

Chalani Prematilake, Qualifying Exam Committee Member. (2015).

Thanuja Paragoda, Qualifying Exam Committee Member. (2015).

Thanuja Paragoda, Doctoral Advisory Committee Chair. (2010 - 2015).

Chalani Prematilake, Doctoral Advisory Committee Co-Chair. (2010 - 2015).

Bhagya Athukorallage, Doctoral Advisory Committee Chair. (2014).

Chalani Prematilake, Qualifying Exam Committee Member, Mathematics & Statistics. (November 2014).

Gunatilake Janitha, Doctoral Advisory Committee Member. (January 2013 - May 2014).

Bhagya Athukorallage, Dissertation Committee Chair, Mathematics & Statistics. (April 2012 - May 2014).

Thanuja Paragoda, Master's Thesis Committee Chair, Mathematics & Statistics. (August 2011 - May 2014).

Bhagya Athukorallage, Master's Thesis Committee Chair, "Mathematical Modeling for a Contact Lens and Tear Layer at Equilibrium." (November 2012).

Bhagya Athukorallage, Qualifying Exam Committee Member. (November 2012).

Nadeeka De-Silva, Dissertation Defense Committee Member. (May 2, 2012).

Jea-Pil Cho, Dissertation Defense Committee Member. (March 30, 2012).

Ronald Anderson, Master's Thesis Committee Member, "A Model of the Lateral Geniculate Complex of the Turtle Visual System: Noise Suppression and Target Motion Detection [MS Thesis]," Mathematics & Statistics. (December 2011).

Yasemen Emine Kaya, Dissertation Committee Member, Mathematics & Statistics. (May 2010 - December 2011).

Chalani Prematilake, Master's Thesis Committee Member, "Applications of Spatial Autocorrelation," Mathematics & Statistics. (June 2010 - June 2011).

Nadeeka De-Silva, Qualifying Exam Committee Member. (April 11, 2011).

Zeynep Kose, Dissertation Committee Chair, "Geometric and Numerical Methods for Bonnet Problems and Surface Construction," Mathematics & Statistics. (September 2007 - December 2010).

Emine Kaya, Doctoral Advisory Committee Member, Mathematics & Statistics. (November 2010).

Janitha Gunatilake, Master's Thesis Committee Member, Mathematics & Statistics. (October 2010).

Jea-Pil Cho, Master's Thesis Committee Member, Mathematics & Statistics. (July 2010).

Emine Kaya, Master's Thesis Committee Member, Mathematics & Statistics. (June 2010).

Dahwei Chang, Master's Thesis Committee Member, Mathematics & Statistics. (2009).

Kendall Gillies, Master's Thesis Committee Member. (2009).

Simion Alin Tomoiaga, Master's Thesis Committee Chair, "Clinical Trials Simulations," Mathematics &

Statistics. (January 2005 - November 2006).

Aaron Bailey, Master's Thesis Committee Member. (2004).

Kiyomi Kaskela, Master's Thesis Committee Member. (2004).

Theresa Busse, Master's Thesis Committee Member. (2004).

Casey Hume, Master's Thesis Committee Chair, "Quadrilateral Circle Patterns," Mathematics & Statistics. (September 2001 - June 2003).

UNDERGRADUATE STUDENTS DIRECTED (RESEARCH and OUTREACH)

Yu Jung (Victoria) Nam, Undergraduate Mathematics Major, 2018

Matthew Smith, URF Honors College Research Fellow, 2012-13

Carmen Gogu, Center of Undergraduate Research Conference, April 2012

Xiaoxiao Jiang , TLTC Programs, Texas Tech University, 2008-09

Ellen Durant, REU-NSF Program, Texas Tech University, Summer 2007

Richmond Tarrant, REU-NSF Program, Texas Tech University, Summer 2007

Robin Krenz, Honors College, Undergraduate Research Fellow, 2007-08

INVITED PRESENTATIONS

(2010-2019:

plenary talks, as well as co-authored invited talks delivered as presenter are underlined)

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., Borna, 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., Borna, 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).

Invited talks given as author and presenter before tenure:

2008 An up-scaling algorithm for non-Darcy flows in porous media, Invited talk, Special Session 19, Multiscale Numerical Methods for PDEs, 7th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, joint work with E. Aulisa and A. Ibragimov, May 2008.

2007 Geometrical Framework for Modeling Non-Linear Flows in Porous Media, and Its Applications in Engineering, Invited Talk, SIAM-NSF Conference on Mathematics for Industry in Philadelphia: Challenges and Frontiers (MI07), Sec. on Numerical Analysis, Numerical PDE and Clustering, joint work with E. Aulisa and A. Ibragimov, Oct 9-11, 2007

2006 CMC surfaces in hyperbolic space, Invited seminar talk, London Math Symposium, University of Durham, Conference on Geometric Methods on Integrable Systems, Aug 11-22, 2006.

2005 Harmonic maps into Lie groups, Invited talk, AMS Central Sectional Meeting #1006, Lubbock, Apr 8-10, 2005.

2004 Lorentz surfaces and the wave equation, 50 minute Plenary Talk as Early Career Speaker, Texas Topology and Geometry Conference, NSF, TCU - UTA, Dallas Fort Worth, Feb 28, 2004.

2003 Immersions of arbitrary constant mean curvature in hyperbolic space, Invited talk, International Conference on Differential Geometry and Its Applications and Sixth German- Romanian Seminar, Babes-Bolyai University, Cluj-Napoca, Sep 1-6, 2003.

2003 Constant mean curvature surfaces in hyperbolic space, Invited talk, Southeast Geometry Conference, Charleston, South Carolina, March 30, 2003.

2002 Constructing constant mean curvature surfaces in the hyperbolic space, Invited talk, Discrete, Computational and Combinatorial Geometry Conference – Satellite of the International Congress of Mathematicians - ICM, Beijing University, Beijing, August 13-19, 2002.

2001 Constant mean curvature surfaces in Minkowski 3-Space, Invited seminar talk, Northern Illinois University, April 20, 2001.

2001 Timelike surfaces of constant mean curvature and their corresponding PDEs, Invited talk, AMS Meeting, Lawrence, Kansas, March 30-31, 2001.

2000 Pseudospherical surfaces via moving frames, Department of Mathematics and Statistics, Texas

Tech University, February 11, 2000, Colloquium talk.

2000 Pseudospherical surfaces via moving frames, Department of Mathematical Sciences, Ball State University, February 4, 2000, colloquium talk.

2000 Hyperbolic surfaces, 30 min Invited talk, Special Session of Complex Hyperbolic Geometry, AMS Joint Meeting, Jan 18-22, 2000.

1997 Minimal surfaces with loop groups, Invited talk, Special Session of Differential Geometry, AMS Meeting, University of Wisconsin Milwaukee, Oct 24-25, 1997.

1994 Geometric optimization methods, Invited talk, 3rd International Conference on Differential Geometry of the TENSOR Society, Japan, Athens University, Greece, August 1994.

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

<http://www.math.ttu.edu/~enoether/>

- Member of the Strategic Planning Committee, 2012
- Member of the Travel Expenditures Committee, 2013
- Member of the Hiring Search Strategy Committee, 2007; 2008; 2009; 2012
- Member of the Hiring Search Committee, 2016-2019
- Served as REU Program Coordinator, June 11-25, 2007, (with E. Aulisa, P. Seshaiyer)

B. University Service

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

C. Professional service

Recent AMS Special Sessions Organized

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)

- SIAM Meeting Special Session (2013)
- Mini-symposium: 11th International Conference Num Ann and Appl Math (2013)

Referee and Reviewer

- Referee for 10 professional journals over the past 10 years, including but not limited to:
 - Journal of Mathematical Analysis and its Applications
 - Communications in Analysis and Geometry (CAG)
 - Rocky Mountain J.
 - Proceedings of the AMS
 - Differential Geometry and Its Applications,
- Reviewer of scientific articles for Mathematical Reviews and Zentralblatt
- Reviewer of scientific textbooks for:
Springer-Verlag NY, W.H.Freeman and Company Publishers, Mathematical Reviews AMS
- **Editorial appointments:**
- Editor for NOVA Publishers – Scientific Journals – special issue, Applied Mathematics.
- Editor for a monograph with CRC – Taylor and Francis
- Additional work with editors, between 2010-2013:
for Wiley and sons, Cengage, Pearson, Jones and Bartlett – reviewing textbooks and research works

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- American Mathematical Society (AMS)
- Mathematical Association of America (MAA)
- Association for Women in Mathematics (AWM)
- Project NEXt (New Experiences in Teaching) - lifetime