

THOMAS NEAL FARRIS

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Education

Ph.D., Theoretical and Applied Mechanics, Northwestern University, 1986.
M.S., Theoretical and Applied Mechanics, Northwestern University, 1984.
B.S., Mechanical Engineering, Rice University, Cum Laude, 1982.

Experience

Professor and Head, School of Aeronautics and Astronautics, Purdue University, 1998-; Professor, 1994-; Associate Professor, 1991-1994; Assistant Professor, 1986-1991. Teach and conduct research in aerospace structures and materials. Administer undergraduate and graduate education and research programs in School of Aeronautics and Astronautics. School consists of 28 faculty and 15 staff members who annually teach approximately 520 undergraduate and 270 graduate students and perform about \$8.5 million in externally funded research.

Sabbatical Visitor, Cambridge University Engineering Department, Fall, 1991. Hosted by Professor K.L. Johnson, plastic deformation and collapse of railway rail corners.

Fellow, Japan Society for the Promotion of Science, Summer, 1991. Hosted by Professor Y. Murakami of Kyushu University.

Research Activities Prof. Farris's research interests are in the area of aerospace structures and materials including tribology, manufacturing processes, and fatigue and fracture supported by research funding totaling more than \$22 million of which TNF's share totals more than \$5 million.

Awards and Professional Activities

- National Science Foundation Presidential Young Investigator Award, 1990
- Japan Society for the Promotion of Science Fellowship, 1991
- ASME Burt L. Newkirk Award, 1992
- NAE Frontiers of Engineering Conference, 1996
- ASME/Boeing Structures and Materials Award for outstanding paper of SDM 1998
- *Journal of Strain Analysis* 2002 P E Publishing Award
- AIAA: Fellow(2009); Associate Editor, *Journal of Aircraft*, 1992-1997; General Chair, Structures, Structural Dynamics and Materials Conference, 2001
- ASME: Fellow(2001); Member of Executive Committee of Applied Mechanics Division, 2002-2007; Associate Editor, *Journal of Tribology*, 1994-2000
- IMECHE: Member of Editorial Board, *Journal of Strain Analysis*, 1998-
- Consultant to Army Science Board, 2005-
- W.A. Gustafson Outstanding Undergraduate Teacher Award, 2008

Administrative Accomplishments

- Neil Armstrong Hall of Engineering
 - Dedicated October 27, 2007,
 - Selected for the 2008 American Institute of Architects, Indiana Chapter, Design Award of Merit.
 - \$57 million state of the art facility for education and research, School alumni and friends contributed a significant portion of the private funds.
- Faculty
 - Faculty head count increased from 21 to 29 including one NAE member
 - A range of national and international recognition of faculty
 - Eleven are fellow of at least one major society
- Students
 - Undergraduate enrollment increased from less than 200 to ~520 students with 55% being out-of-state US residents
 - Graduate enrollment increased from ~130 to ~270 students
 - Student recognition by major society awards
 - Initiated distance education MS program
- Research
 - School external research expenditures approximately doubled in the last five years
 - Initiated two new disciplines at the graduate level to leverage multi-disciplinary opportunities and align graduate program with NRC Aerospace Specializations
- Development
 - Increased annual School development activity from ~\$1 million to ~\$3 million
 - Initiated Purdue Outstanding Aerospace Engineer (OAE) alumni recognition program, OAEs provided the bulk of the School's fundraising for Armstrong Hall and Professorships
 - Established Boeing Distinguished Lectureship
- Climate and Inclusiveness
 - Award BS degrees to more women than any of Purdue's aerospace peers
 - Increased number of female faculty from one to five
 - Cited by Dean during reappointment review for great respect for my work by colleagues and staff as well as the belief that I do an excellent job of communicating with all stakeholders
- The External Review Committee (commissioned by the Dean of Engineering) stated the following in their final report to the Dean in December 2006. "The School of Aeronautics and Astronautics at Purdue University is an outstanding academic department which merits its high national rankings. The quality and productiveness of its faculty, staff and student body is high. Further, there is an important and apparent sense of collegiality and cooperation that speaks well for the administration of the School and the nature of the unit's sense of community."

Service as External Evaluator and Advisory Boards

- ABET visitor to 6 universities
- External Evaluator for University of British Columbia Mechanical Engineering Department
- External Evaluator for University at Buffalo Mechanical and Aerospace Engineering Department
- Rice University Mechanical Engineering and Materials Science Advisory Board

NRC Panels

- NRC/NMAB Committee on SBIR Research to Support Aging Aircraft, 1999-2000
- Decadal Survey of Civil Aeronautics Panel C: Structures and Materials, 2006
- Planning Committee for NMAB Workshop on Materials State Awareness, 2007

Courses Taught

1. A&AE 204 Aeromechanics II---Mechanics of Materials (3 credits, taught 17 times to an average of 51 students)
2. A&AE 352 Structural Analysis I (3 credits, taught 13 times to an average of 50 students)
3. A&AE 553 Elasticity in Aerospace Engineering (3 credits, taught 4 times to an average of 25 students)
4. A&AE 558 Finite Element Methods in Aerospace Structures (3 credits, taught 6 times to an average of 30 students)
5. A&AE 559 Mechanics of Friction and Wear (3 credits, taught 14 times to an average of 15 students)
6. A&AE 652 Theory of Plates and Shells (3 credits, taught 4 times to an average of 10 students)

Teaching Award

2008 W.A. Gustafson Outstanding Undergraduate Teacher Award:

- Presented annually to an Outstanding Teacher in the Purdue University School of Aeronautics and Astronautics, selected by the juniors and seniors of the student body for excellence in teaching

Course Evaluation Summary

The scores below are on a 5.0 base with 5 as the highest and 1 as the lowest

SEM	COURSE TITLE	COURSE #	ENROLL.	Course EVAL SCORE	Prof EVAL SCORE	AVG* SCHOOL Course SCORE	AVG* SCHOOL Prof SCORE
F01	Elasticity	553	18	4.2	4.3	4.3	4.5
S02	Aeromechanics II	204	39	4.1	4.6	4.2	4.5
F02	Structural Analysis I	352	82	3.9	4.2	3.9	4.2
S03	Mech of Friction and Wear	559	16	4.7	4.9	4.3	4.4
F03	Aeromechanics II	204	57	4.3	4.8	4.1	4.1
F04	Structural Analysis I	352	93	3.8	4.0	3.8	3.9
S05	Mech of Friction and Wear	559	16	4.7	4.9	4.2	4.3
F05	Aeromechanics II	204	38	4.2	4.4	4.0	4.0
F06	Aeromechanics II	204	62	4.1	4.7	3.9	4.0
S07	Mech of Friction and Wear	559	10	4.1	4.6	4.3	4.4
F07	Finite Elements	558	42	4.2	4.7	4.2	4.4
S08	Aeromechanics II	204	117	4.2	4.7	4.0	4.2
F08	Aeromechanics II	204	62	4.3	4.9	4.0	4.2
F08	Finite Elements	558	32	4.3	4.8	4.2	4.3

*Average School Score refers to the average score in the School of Aeronautics and Astronautics for the *level of course* (i.e., 200s, 300s, 600s) during the *semester offered*.

Graduate Thesis Supervision

Ph.D. Theses

1. Kim Billy Blair, May 1992, Vice President for R&D, Xenith, LLC, Boston.
2. Minzhu Liu, August 1992, Ford Automatic Transmission, Livonia, MI.
3. Shi-Yew (Sy) Chen, December 1993, NIST, Gaithersburg, MD.
4. Scott Hucker, August 1994, GM Powertrain Div., Pontiac, MI.
5. Yen-Meng (Neil) Chen, December 1994 (IE), Ceramics Manufacturing, Republic of China..
6. Yongqing Ju, May 1997, Gillette, Boston, MA.
7. Lisa Hill, August 1997, Project Engineer, Northrop Grumman, El Segundo, CA.
8. Matt Szolwinski, August 1998, Section Manager, Military Engines, GE Transportation, Cincinnati, OH (**ASME Marshall Petersen Award, 2000**).
9. Shih-Hsiang Chang, December 1998, Assistant Professor, Far East College, Republic of China.
10. Pam McVeigh, August 1999, Manager, ISS Structural Integrity, Boeing, Houston, TX.
11. Ganapathy Harish, August 2000, Owner, IQCAIS, Madras, India (**Best Paper SDM**).

12. Long Jin, August 2001, Armillaire Technologies, Inc
13. Yun Chen, August 2001, AutoDesk.
14. Pakalapati Rajeev, December 2001, Diamond Innovations, Technology Manager, Grinding Products and Coatings (**PE Publishing Award**).
15. Sridhar Kompella, August 2002 (IE), Diamond Innovations, Director, Mesh Technology.
16. Murthy N. Haradanahalli, August 2004, Assistant Professor, IIT Madras.
17. John F. Matlik, December 2004, Rolls-Royce Corporation (**Best Student Paper, SDM**).
18. Bence Bartha, May 2005, United Space Alliance (**Best Student Paper, ASTM**).
19. Guofeng Gao, August 2005, Research Engineer, Cooper Tire and Rubber.
20. Ihab Hanna, May 2006, GM Powertrain.
21. Shyama Kumari, May 2007, Pratt & Whitney.
22. Matthew C. Gean, August 2008, [nanoPrecision Products, Inc.](#)

M.S. Theses

1. Robert Samuel, December 1988 (IE), Cummins Engine, Columbus, IN.
2. Shi-Yew (Sy) Chen, August 1989, obtained Ph.D. with TNF.
3. Yen-Meng (Neil) Chen, Dec 1990, obtained Ph.D. with Profs. Chandrasekar and Farris.
4. Scott Hucker, December 1990, obtained Ph.D. with TNF.
5. Lisa Hill, August 1992, obtained Ph.D with TNF.
6. James Mann, May 1994, CEO, M4 Sciences Corp, West Lafayette, IN.
7. Lisa Sack, May 1994, Rockwell, Houston, TX.
8. Steve Slijepcevic, May 1995, Allied Signal, South Bend, IN.
9. Bruce Varney, May 1995, Rolls-Royce, Indianapolis, IN.
10. Matt Szolwinski, August 1995, obtained Ph.D. with TNF.
11. Pamela McVeigh, December 1995, obtained Ph.D. with TNF.
12. Tony Dunlap, Dec 1995, Eng. Supervisor, Adv Mfg Eng., Daimler Chrysler Tech Center.
13. Ganapathy Harish, August 1996, obtained Ph.D. with TNF.
14. Pakalapati Rajeev, August 1997, obtained Ph.D. with TNF.
15. Jeffrey Bougher, May 1998, Manager, Operations Strategy & Decision Support, Timken.
16. William Reimann, August 1998, Black Diamond Sporting Goods Manufacturer.
17. Sridhar Kompella, August 1998, obtained Ph.D with Profs. Chandrasekar and Farris.
18. Srinivasan Ganesh, August 1999(IE), Manufacturing Engineer, Cummins, India.
19. Christopher Tieche, December 1999, Ph.D. at Northwestern.

20. Bence Bartha, May 2000, obtained Ph.D. with TNF.
21. Murthy N. Haradanahalli, December 2000, obtained Ph.D. with TNF.
22. John F. Matlik, May 2001, obtained Ph.D. with TNF.
23. Eddie Perez-Ruberte, August 2001, Honeywell.
24. Matt Gean, May 2004, obtained Ph.D. with TNF.
25. Shyama Kumari, August 2004, obtained Ph.D. with TNF.
26. George Mseis, May 2006, in Ph.D. program at UC Berkeley.

Ph.D. Theses in Progress

1. Srinivasan Sreeram, "Fretting Fatigue of Aluminum," passed prelim Spring 2007.
2. Narayan Sundaram, "Mechanics of Doubly-Connected Contacts," passed prelim Spring 2007.
3. Mark Boas, "Effect of Surface Treatment on Fretting Fatigue," began program Fall 2003, on leave at the Naval Research Lab.

M.S. Theses in Progress

1. Nathan Tate, "Fretting Fatigue Crack Propagation in Nickel-Based Superalloys, began program August 2007.
2. Lucas Robinson, "Fatigue of Gears," began program January 2008.

External Examiner

- Daniele Dini, PhD entitled "Studies in Fretting Fatigue with Particular Application to Almost Compete Contacts," University of Oxford, July 2004.
- Young Suk Kim, PhD entitled "A Draw-Bend Friction Test Applied to Measurement and Modeling of Anisotropic Friction on Sheet Metal," McMaster University, November 2008.

Visitors

- Prof. T. Sakagami, Osaka University, Spring and Summer, 1997.
- Prof. I.G. Goryacheva, Russian Academy of Sciences, Fall 1998, Fall 1999, Fall 2000, Fall 2001.
- Dr. M. Okane, Toyama University, 1999-2000 Academic Year.
- Jon Madariaga, PhD Candidate, University of Mondragon, 2007

Patents

1. S. Chandrasekar, W.D. Compton, T.N. Farris, and K.P. Trumble, "Methods of Forming Nano-Crystalline Structures and Product Formed Thereof," U.S. Patent 6,706,324B2, issued March 16, 2004, Licensed.

2. S. Chandrasekar, W.D. Compton, T.N. Farris and K.P. Trumble, "Method of Forming Nano-Crystalline Structures and Product Formed Thereof," U. S. Patent, 7,294,165B2, issued November 13, 2007, Licensed.
3. S. Chandrasekar, W.D. Compton, T.N. Farris and K.P. Trumble, "Method of Forming Nano-Crystalline Structures," European Patent No. 1347852 issued August 15, 2007, Licensed.

Published Work

a. Books

1. *Small Business Innovation Research to Support Aging Aircraft: Priority Technical Areas and Process Improvements*, NRC Committee, National Academy Press, 2001.

b. Journal Articles

1. Farris, T.N. and Keer, L.M., "Williams' Blister Test Analyzed as an Interface Crack Problem," *International Journal of Fracture*, **27**(2), pp 91-103 (1985).
2. Keer, L.M., Farris, T.N., and Lee, J.C., "Knoop and Vickers Indentation in Ceramics Analyzed as a Three-Dimensional Fracture," *Journal of the American Ceramic Society*, **69**(5), pp 392-396 (1986).
3. Keer, L.M. and Farris, T.N., "Effects of Finite Thickness and Tangential Loading on Development of Zones of Microslip in Fretting," *ASLE Transactions*, **30**(2), pp 203-210 (1987).
4. Lee, J.C., Farris, T.N., and Keer, L.M., "Stress Intensity Factors for Cracks of Arbitrary Shape Near an Interfacial Boundary," *Engineering Fracture Mechanics*, **27**(1), pp 27-41 (1987).
5. Farris, T.N., Keer, L.M., and Steele, R.K., "The Effect of Service Loading on Shell Growth in Rails," *Journal of the Mechanics and Physics of Solids*, **35**(6), pp 677-700 (1987).
6. Hanson, M.T., Keer, L.M., and Farris, T.N., "Energy Dissipation in Non-Hertzian Fretting Contact," *STLE Tribology Transactions*, **32**(2), pp 147-154 (1989).
7. Farris, T.N. and Doyle, J.F., "Wave Propagation in a Split Timoshenko Beam," *Journal of Sound and Vibration*, **130**(1), pp 137-147 (1989).
8. Sun, C.T. and Farris, T.N., "On the Completeness of The Westergaard Stress Functions," *International Journal of Fracture*, **40**(1), pp 73-77 (1989).
9. Farris, T.N. and Chandrasekar, S., "On the Characterization and Control of Surface Finishing Damage in Ceramics," *Journal of Mechanical Working Technology*, **20**, pp 69-78 (1989).
10. Samuel, R., Chandrasekar, S., Farris, T.N., and Licht, R.H., "The Effect of Residual Stresses on the Fracture of Ground Ceramics," *Journal of the American Ceramic Society*, **72**(10), pp 1960-1966 (1989).
11. Farris, T.N., Keer, L.M., and Steele, R.K., "Life Prediction for Unstable Shell Growth in Rails," *ASME Journal of Engineering for Industry*, **112**(2), pp 175-180 (1990).

12. Doyle, J.F. and Farris, T.N., "A Spectrally Formulated Finite Element for Flexural Wave Propagation in Beams," *International Journal of Analytical and Experimental Modal Analysis*, **5**(2), pp 99-107 (1990).
13. Chandrasekar, S., Farris, T.N., and Bhushan, B., "Grinding Temperatures for Magnetic Ceramics and Steel," *ASME Journal of Tribology*, **112**(3), pp 535-541 (1990).
14. Farris, T.N., and Chandrasekar, S., "High Speed Sliding Indentation of Ceramics: Thermal Effects," *Journal of Materials Science*, **25**(9), pp 4047-4053 (1990).
15. Doyle, J.F. and Farris, T.N., "A Spectrally Formulated Element for Wave Propagation in 3-D Frames," *International Journal of Analytical and Experimental Modal Analysis*, **5**(4), pp 223-237 (1990).
16. Chen, S.Y., Farris, T.N., and Chandrasekar, S., "Sliding Microindentation Fracture of Brittle Materials," *STLE Tribology Transactions*, **34**(2), pp 161-168 (1991).
17. Chandrasekar, S., Farris, T.N., Shaw, M.C., and Bhushan, B., "Surface Finishing Processes for Magnetic Recording Head Ceramics," *ASME Advances in Information Storage Systems*, **1**, pp 353-373 (1991).
18. Farris, T.N. and Doyle, J.F., "A GLOBAL/LOCAL Approach to Lengthwise Cracked Beams: Static Analysis," *International Journal of Fracture*, **50**, pp 131-141 (1991).
19. Farris, T.N., "Mechanics of Fretting Fatigue Tests of Contacting Dissimilar Elastic Bodies," *STLE Tribology Transactions*, **35**(2), pp 346-352 (1992).
20. Hebbar, R., Chandrasekar, S. and Farris, T.N., "Ceramic Grinding Temperatures," *Journal of the American Ceramic Society*, **75**(10), pp 2742-48 (1992).
21. Farris, T.N., and Doyle, J.F., "A GLOBAL/LOCAL Approach to Lengthwise Cracked Beams: Dynamic Analysis," *International Journal of Fracture*, **60**(2), pp 147-156 (1993).
22. Chauhan, R., Ahn, Y., Chandrasekar, S., and Farris, T.N., "Role of Indentation Fracture in Free Abrasive Machining of Ceramics," *Wear*, **162-164**, Part A, pp 246-257 (1993).
23. Hucker, S.A. and Farris, T.N., "Modified Crack Closure Method Using Boundary Elements," *Engineering Fracture Mechanics*, **46**(5), pp 763-772 (1993).
24. Liu, M. and Farris, T.N., "Three Dimensional Infinite Boundary Elements for Contact Problems," *International Journal for Numerical Methods in Engineering*, **36**(19), pp 3381-3398 (1993).
25. Farris, T.N. and Liu, M., "Boundary Element Crack Closure Calculation of Three Dimensional Stress Intensity Factors," *International Journal of Fracture*, **60**(1), pp 33-47 (1993).
26. Su, S.G. and Farris, T.N., "Generalized Characteristic Method of Elastodynamics," *International Journal of Solids and Structures*, **31**(1), pp 109-126 (1994).
27. Chen, S.Y. and Farris, T.N., "Boundary Element Crack Closure Calculation of Axisymmetric Stress Intensity Factors," *Computers and Structures*, **50**(4), pp 491-497 (1994).
28. Farris, T.N. and Chandrasekar, S., "Wear Mechanisms in Ceramic Machining," *Applied Mechanics Reviews*, **47**(6), Part 2, S204-208, (1994).

29. Liu, M. and Farris, T.N., "Effect of Three Dimensional Near Surface Defects on Rolling and Sliding Contact Fatigue," *ASME Journal of Tribology*, **116**(4), pp 841-849, (1994).
30. Mann, J.B., Farris, T.N., and Chandrasekar, S., "Effects of Friction on Contact of Transverse Ground Surfaces," *ASME Journal of Tribology*, **116**(3), pp 430-438, (1994).
31. Kurtz, R.D., Farris, T.N., and Sun, C.T., "The Numerical Solution of Cauchy Singular Integral Equations with Application to Fracture," *International Journal of Fracture*, **66**(2), pp 139-154 (1994).
32. Chen, S.Y., Farris, T.N., and Chandrasekar, S., "Contact Mechanics of Hertzian Cone Cracking," *International Journal of Solids and Structures; Special Topics in the Theory of Elasticity: A Volume in Honor of Professor John Dundurs*, **32**(3/4), pp 329-340 (1995).
33. Hill, L.R. and Farris, T.N., "Spectral Boundary Element Method for Transient Heat Conduction," *International Journal of Numerical Methods in Heat & Fluid Flow*, **5**(9), pp 813-827 (1995).
34. Doyle, J.F. and Farris, T.N., "Structural Mechanics Modeling of the Impact of a Double Cantilever Beam," *International Journal of Fracture*, **76**, pp 311-326 (1996).
35. Ahn, Y., Chandrasekar, S., and Farris, T.N., "Determination of Surface Residual Stresses in Machined Ceramics using Indentation Fracture," *ASME Journal of Manufacturing Science and Engineering*, **118**(4), pp 483-489 (1996).
36. Madhavan, V., Farris, T.N., Chandrasekar, S., and Craig, L., "FEM Comparison of Ball and Roller Bullgears," *STLE Tribology Transactions*, **39**(2), pp 286-295 (1996).
37. Farris, T.N., "Effect of Overlapping Wheel Passages on Residual Stress in Rail Corners," *Wear*, **191**(1-2), pp 226-236 (1996).
38. Ju, Y. and Farris, T.N., "Spectral Analysis of Two-Dimensional Contact Problems," *ASME Journal of Tribology*, **118**(2), pp 320-328 (1996).
39. Blair, K.B., Krousgrill, C.M., and Farris, T.N., "Non-linear Dynamic Response of Shallow Arches to Harmonic Forcing," *Journal of Sound and Vibration*, **194**(3), pp 355-367 (1996).
40. Szolwinski, M.P. and Farris, T.N., "Mechanics of Fretting Fatigue Crack Formation," *Wear*, **198**, pp 93-107 (1996).
41. Ju, Y. and Farris, T.N., "FFT Thermoelastic Solutions for Moving Heat Sources," *ASME Journal of Tribology*, **119**(1), pp 156-162 (1997).
42. Chandrasekar, S. and Farris, T.N., "Machining and Surface Finishing of Brittle Solids," *SADHANA-Academy Proceedings in Engineering Sciences*, **22**, Part 3, pp 473-481 (1997).
43. Bulsara, V.H., Ahn, Y., Chandrasekar, S., and Farris, T.N., "Polishing and Lapping Temperatures," *ASME Journal of Tribology*, **119**(1), pp 163-170 (1997).
44. McVeigh, P.A. and Farris, T.N. "Finite Element Analysis of Fretting Stresses," *ASME Journal of Tribology*, **119**(4), pp 797-801 (1997)
45. Blair, K.B., Krousgrill, C.M., and Farris, T.N., "Harmonic Balance and Continuation Techniques in the Dynamic Analysis of Duffing's Equation," *Journal of Sound and Vibration*, **202**(5), pp 717-731 (1997).

46. Chang, S.H., Balasubramhanya, S., Chandrasekar, S., Farris, T.N., and Hashimoto, F., "Forces and Specific Energy in Superfinishing of Hardened Steel," *Annals of the CIRP*, **46**(1), pp 257-260 (1997).
47. Hill, L.R. and Farris, T.N., "Three-Dimensional Piezoelectric Boundary Element Method," *AIAA Journal*, **36**(1), pp 102-108 (1998).
48. Bulsara, V.H., Chandrasekar, S., and Farris, T.N., "Mechanics of Polishing," *ASME Journal of Applied Mechanics*, **65**(2), pp 410-416 (1998).
49. Harish, G. and Farris, T.N., "Shell Modeling of Fretting in Riveted Lapjoints," *AIAA Journal*, **6**(6), pp 1087-1093 (1998).
50. Ahn, Y., Farris, T.N., and Chandrasekar, S., "Sliding Microindentation Fracture of Brittle Materials: Role of Elastic Stress Fields," *Mechanics of Materials*, **29**(3-4), pp 143-152 (1998).
51. Szolwinski, M.P. and Farris, T.N., "Observation, Analysis and Prediction of Fretting Fatigue in 2024-T351 Aluminum Alloy," *Wear*, **221**(1), pp 24-36 (1998).
52. Ju, Y., Farris, T.N., and Chandrasekar, S., "Theoretical Analysis of Heat Partition and Temperatures in Grinding," *ASME Journal of Tribology*, **120**(4), pp 789-794 (1998).
53. Hill, L.R. and Farris, T.N., "Piezoelectric Boundary Element Crack Closure Calculation of 3D Strain Energy Release Rates," *Journal of Intelligent Material Systems and Structures*, **9**(4), (1998).
54. Szolwinski, M.P., Harish, G., Farris T.N., and Sakagami, T., "In-Situ Measurement of Near-Surface Fretting Contact Temperatures in an Aluminum Alloy," *ASME Journal of Tribology*, **121**(1), pp 11-19 (color plots p 340) (1999).
55. Szolwinski, M.P., Matlik, J.F., and Farris, T.N., "Effects of HCF Loading on Fretting Fatigue Crack Nucleation," *International Journal of Fatigue*, **21**, pp 671-677 (1999).
56. McVeigh, P.A., Harish, G., Farris, T.N. and Szolwinski, M.P., "Modeling Contact Conditions in Nominally-Flat Contacts for Application to Fretting Fatigue of Turbine Engine Components," *International Journal of Fatigue*, **21**, pp S157-165 (1999).
57. Szolwinski, M.P., Harish, G., McVeigh, P.A. and Farris, T.N., "Experimental Study of Fretting Crack Nucleation in Aerospace Alloys with Emphasis on Life Prediction," *ASTM STP 1367, Fretting Fatigue: Current Technologies and Practices*, D.W. Hoepfner, V. Chandrasekaran and C.B. Elliot, Eds, pp 267-281 (2000).
58. Harish, G., Szolwinski, M.P., Farris, T.N. and Sakagami, T., "Evaluation of Fretting Stresses Through Full-Field Temperature Measurements," *ASTM STP 1367, Fretting Fatigue: Current Technologies and Practices*, D.W. Hoepfner, V. Chandrasekaran and C.B. Elliot, Eds, pp 423-435 (2000).
59. Farris, T.N., Szolwinski, M.P. and Harish, G., "Fretting in Aerospace Structures and Materials," *ASTM STP 1367, Fretting Fatigue: Current Technologies and Practices*, D.W. Hoepfner, V. Chandrasekaran and C.B. Elliot, Eds pp 523-537 (2000).
60. Chang, S-H., Farris, T.N., and Chandrasekar, S., "Contact Mechanics of Superfinishing," *ASME Journal of Tribology*, **122**, #2, pp 388-393 (2000).

61. Szolwinski, M.P. and Farris, T.N., "Linking Riveting Process Parameters to the Fatigue Performance of Riveted Aircraft Structures," *AIAA Journal of Aircraft*, **37**(1), pp 130-137 (2000).
62. Madhavan, V., Chandrasekar, S. and Farris, T.N., "Machining as a Wedge Indentation," *ASME Journal of Applied Mechanics*, **67**(1), pp 128-139 (2000).
63. Farris, T.N., Harish, G., Tiece, C., Sakagami, T., Szolwinski, M.P., "Experimental Tools for Characterizing Fretting Contacts," *JSME International Journal Series A-Mechanics and Material Engineering*, **43**(4), pp 374-383 (2000).
64. Goryacheva, I.G., Rajeev, P.T. and Farris, T.N., "Wear in Partial Slip Contact," *ASME Journal of Tribology*, **123**(4), pp 848-856 (2001).
65. Ackroyd, B., Akcan, S., Chhabra, P., Krishnamurthy, K., Madhavan, V., Chandrasekar, S., Compton, W.D., and Farris, T.N., "Exploration of Contact Conditions in Machining," *Proceedings of the I MECH E, Journal Part B, Engineering Manufacture*, **215**(B4), pp 493-507 (2001).
66. Kompella, S., Farris, T.N., and Chandrasekar, S., "Techniques for Rapid Characterization of Grinding Wheel-Workpiece Combinations," *Proceedings of the I MECH E Journal, Part B, Engineering Manufacture*, **215**(B10), pp 1385-1395 (2001).
67. Madhavan, V., Chandrasekar, S. and Farris, T.N., "Direct Observations of the Chip-Tool Interface in the Low Speed Cutting of Pure Metals," *ASME Journal of Tribology*, **124**(3), pp 617-626 (2002).
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h. Publications in Commercial Magazines

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i. Book Reviews

1. *Principles of Abrasive Machining*, MC Shaw, Reviewed by S. Chandrasekar and T.N. Farris, *Applied Mechanics Reviews*, **50**(12, Part 1), p B121, December 1997

Invited Presentations

1. "Contact Loading Fracture in Rails," Michigan State University, Department of Metallurgy, Mechanics and Materials Science, May 1987.
2. "The Body Force Method Applied to 3-Dimensional Crack Problems," Purdue Geomechanics Seminar, October 1988.
3. "Wave Propagation in Cracked Beams," Arizona State University, Department of Mechanical and Aerospace Engineering, February 1989.

4. "Cylindrical Cracking of Composites," Alcoa Technical Center, Pittsburgh, PA, November 1990.
5. "Some Mathematical Issues in Fracture," University of Maryland, Institute for Physical Science and Technology, February 1991.
6. "Ceramic Machining," Kyushu University, Fukuoka, Japan, June 1991.
7. "Applications of Fracture Mechanics in Ceramic Machining," Nagoya University, Nagoya, Japan, July 1991.
8. "Applications of Fracture Mechanics in Tribology," Meeting of Japan Society of Materials Science Fracture Mechanics subcommittee on Tribology, Kyoto, Japan, July 1991.
9. "Surface Finishing Processes for Ceramics," Nippon Steel, Chiba, Japan, August 1991.
10. "Surface Finishing Processes for Magnetic Recording Head Ceramics," Alps Electric Company, Niigata, Japan, August 1991.
11. "Mechanics of Fine Finishing Processes for Ceramics," Cambridge University Engineering Department, October 1991.
12. "A GLOBAL/LOCAL Approach to Wave Propagation in Cracked Beams," Oxford University Engineering Department, October 1991.
13. "Mechanics of Fine Finishing of Ceramics," Northwestern University Mechanics Colloquia, March 1992.
14. "Purdue Grinding Research," Norton Company, September 1993.
15. "The Nature of Ground Surfaces," Workshop on the Mechanics and Materials Science of Contact: Issues and Opportunities, Vanderbilt University, July 1994.
16. "Thermal Aspects of Grinding," Purdue University Materials Engineering Seminar, January 1995.
17. "Fretting Fatigue of Aging Aircraft," EUROMECH Fretting Symposium, Oxford, March 1996.
18. "Thermal Aspects of Grinding," University of Kentucky Mechanical Engineering Colloquium, May 1997.
19. "Manufacturing of Precision Mechanical Components: Global/Local Mechanics of Grinding," University of Texas Manufacturing 2002 Lecture Series, Feb 1998.
20. "Mechanics of Fretting Fatigue," University of Texas Solids, Structures and Materials Seminar, Feb 1998.
21. "Fretting Fatigue of Aerospace Structures," United Technologies Research Center, April 1999.
22. "Experimental Tools for Characterizing Fretting Contacts," Keynote Lecture at Int. Conf. on Advanced Technology in Experimental Mechanics, Ube, Japan, July 1999.
23. "Observing and Modeling Fretting Fatigue in Lap Joints," Invited paper at JSME Annual Meeting, Tokyo, July 1999.
24. "Fretting Fatigue of Aerospace Structures," Osaka University, July 1999.

25. "Fretting Fatigue of Aerospace Structures," Georgia Tech, April 2000.
26. "Temperature Measurements in Fretting," Toyama University, May 2001.
27. "Fretting Fatigue of Aircraft Engines," University of Michigan, November 2001.
28. "Heat Partition and Temperatures in Grinding," Michigan Tech, December 2001.
29. "Mechanics of Fretting Fatigue," Oxford University Engineering Department, January 2003.
30. "Fretting Fatigue of Lapjoints," National Research Council, Ottawa, Canada, July 2003.
31. "Fretting Fatigue of Aerospace Structures," University of Florida, October 2003.
32. "Fretting Fatigue," GE GRC Advanced Mechanical Technologies Seminar Series, Albany, NY, June 2004.
33. "Fretting Fatigue of Aerospace Structures," Northwestern University, January 2005
34. "Fretting Fatigue of Aerospace Structures," University of Illinois, February 2005.
35. "Fretting Fatigue of Aerospace Structures," Korean Advanced Institute of Science and Technology, Seoul, December 2005
36. "Fretting Fatigue of Aerospace Structures," Rice University, February 2006.
37. "Fretting Fatigue of Aerospace Structures," Iowa State University, March 2007.

Reviewer for the following journals:

Acta Materialia; AIAA Journal; AIAA Journal of Aircraft; AIAA Journal of Propulsion and Power; ASCE Journal of Engineering Mechanics; ASME Advances in Information Storage Systems; ASME Journal of Applied Mechanics; ASME Journal of Engineering Materials and Technology; ASME Journal of Manufacturing Science and Engineering; ASME Journal of Tribology; ASTM Special Technical Publication; Composites Science and Technology; Engineering Analysis with Boundary Elements; Engineering Fracture Mechanics; International Journal of Fracture; International Journal of Modeling and Simulation; International Journal for Numerical Methods in Engineering; International Journal of Solids and Structures; Journal of Elasticity; Journal of Machining Science and Technology; Journal of Sound and Vibration; Journal of the American Ceramic Society; Journal of the Mechanics and Physics of Solids; Mathematics & Mechanics of Solids; SEM Experimental Mechanics; STLE Tribology Transactions; Structural Engineering and Mechanics; and Wear.