

## TARUN GOSWAMI

### Primary Affiliations **Joint Associate Professor, BIE and Orthopaedic Surgery**

257 Russ Engineering Center, Department of Biomedical, Industrial, and Human Factors Engineering, Wright State University, 3640 Colonel Glenn Hwy, Dayton, OH 45435-0001, 937-775-5120 and Fax 937-775-7364.

### Education

- D.Sc. Doctor of Science  
Helsinki University of Technology, Mechanical Engineering Department, Laboratory of Engineering Materials, Award year 1999  
Thesis title: High Temperature Fatigue – Dwell Sensitivity and Life Prediction
- M.E. Honors University of Wollongong, Department of Materials Engineering, NSW Australia (1998)  
Thesis title: Creep-fatigue behavior and life prediction
- M.E. Indian Institute of Technology, Roorkee, Department of Mechanical Eng. India (1986)  
Thesis Title – Effect of welding parameters on the heat affected zone mechanical properties of high strength low alloy steels (Flash butt welding process)

### Current Affiliations

- Consultant (from 2005 - Present) DePuy Spine, A Johnson and Johnson Co., Raynham, MA (Wear studies of spine disc implants)
- Business Associate (2006) Orthopaedic Institute of Ohio, Institute for Orthopaedic Surgery, 801 Medical Dr. Suite B, Lima, OH 45340
- Expert (2001-current) Sopheon Teltech Expert Network, <http://experts.intota.com>
- Associate Editor High Temperature Materials and Processes (1995-2004) continue to serve on editorial board
- Guest Editor Journal of Mechanical Behavior of Materials
- Member of Editorial Board Indian Journal of Engineering and Materials Sciences
- Key Reader (2004-Present) Board of Review of Metallurgical and Materials Transactions A
- Consultant (2003-Present) MetoKote Corporation and its network of facilities on Engineering
- Graduate School – Membership 2005-2009 University of Toledo CoE, Bioengineering/Mechanical, Industrial and Manufacturing Eng. Dept, U of Toledo. Co-Principal Investigator on projects
- Contact Dr. Martin A. Abraham, Dean Spine Research Center, Medical University of Ohio, Toledo.

## Past Adjunct and Visiting Affiliations

Chairman (tenured) 2003-2006	Mechanical Engineering Department, Ohio Northern University
Adjunct Faculty (2000-03)	Center for Orthopaedic Research, University of Arkansas for Medical Sciences, Little Rock, AR.
Past Associate Director 2000-2003	Arkansas Center for Energy, Natural Resources and Environmental Studies ( <a href="#">Website</a> ) Arkansas Tech University

## Brief Summary of Teaching

Engineering Analysis ME382	Machine Design Fundamentals ENGR 3413
Mechanics of Materials ENGR 3013	Materials Science GE 243
Machine Component Design ENGR 4423	Manufacturing Processes ENGR 3023, ME 341
Capstone Design groups	Independent research
Experimental Orthopaedics (Graduate level class 2 week's teaching, U-Toledo)	Biomaterials 440/640 Fatigue, fracture and failure

## Professional Memberships, Committees

Gamma Epsilon Chapter of Phi Beta Delta, Honor Society for International Scholars	Member of the E-08 Committee on Fatigue, American Society for Testing Materials
Minerals, Metals and Materials Society, TMS	Member of Structural and Materials Committee, Society of Minerals, Metals and Materials (TMS)
American Society of Mechanical Engineers, ASME	Member of Pressure Vessel and Piping Committee, American Society of Mechanical Engineers
American Society for Testing Materials, ASTM	Member of European Committee on Electronic Equipment, Structural Integrity Society (ESIS)
Member, American Institute of Aeronautics and Astronautics, AIAA	Member of Technical Committee on Environmental embrittlement, ESIS
Member, American Society for Quality, ASQ	
Member of Tire Society and ASEE	

## Reviewer

National Science Foundation research proposals	High Temperature Materials and Processes Journal
Academy of Science of the Czech Republic	International Journal of Fatigue
Fatigue Fracture of Engineering Materials and Structures an International Journal	Reviewer for Mechanical Engineering Design books published by Elsevier Science Publication, Oxford, UK and Butterworth Heinemann Publications
Materials Science and Engineering, An international Journal	Indian Journal of Engineering Materials Sciences
ASTM Journal of Testing and Evaluation	Metallurgical and Materials Transactions (Key Reader)
ASME Summer Annual Meeting	

## Journal Publications

### In Preparation

1. K. Caldwell, and Goswami, T. (2006) Failure analysis of a futon frame, Materials and Design.
2. Goswami, T. and Johnson, T. (2006) Development of a generic wear damage growth model, in preparation, Journal of Orthopaedic Research.

### Papers submitted and/or published

3. Goswami, T. and Alhassan, S. (2006) Hip implant wear rate prediction model – in vivo, submitted to Journal of Orthopaedic Research
4. Alhassan, S. and Goswami, T. (2006) Wear rate model for ultra high molecular weight polyethylene in total joint applications, submitted to Wear.
5. Goswami, T., Alhassan, S. and Popoola, (2006) Wear rate prediction model for knee implant, submitted to Biomedical Research Journal.
6. Goswami, T. (2005) Elevated temperature fatigue design criteria, an Invited paper, International Conference on Pressure Vessels and Piping, Feb. 2006, Chennai, India.
7. Bennett, D. and Goswami, T. (2005) Numerical analysis of blood flow through the heart with and without mechanical heart valves, submitted to Materials and Design.
8. M. Paradise and Goswami, T. (2005) Carbon Nanotubes – Manufacturing Methods and Applications, accepted Materials and Design.
9. Sargeant, A and Goswami, T. (2005) Patho-physiological aspects of hip implants, Paper I, Journal of Surgical and Orthopaedic Advances in press.
10. Sargeant, A. and Goswami, T. (2005) Ion concentrations as a result of hip implants, PaperII Journal of Surgical and Orthopaedic Advances (JSOA) in press.
11. Sargeant, A and Goswami, T. (2005) Patho-physiological aspects of hip implants, Paper I, Orthopaedic Care on-line text-book of JSOA [Chapter](#).
12. Sargeant, A. and Goswami, T. (2005) Ion concentrations as a result of hip implants, PaperII Orthopaedic Care on-line text-book of JSOA [Chapter](#).
13. Toland, J. and Goswami, T. (2004) Generic creep-fatigue life prediction equations, Mechanical Behavior of Materials July issue.
14. Buford, A. and Goswami, T. (2004) Review of wear in metal-on-polyethylene, metal-on-metal and ceramic-on-ceramic articulation, Mechanical Behavior of Materials, July issue.
15. Slonaker, M. and Goswami, T. (2004) Review of wear behavior in ceramic hip implant materials, Mechanical Behavior of Materials, July issue (details will be posted soon).
16. Goswami, T. (2004) Crack growth mechanisms of titanium alloys, submitted to Journal of ASTM International.

17. Goswami, T. (2004) Long crack transition mechanisms in Ti-6Al-4V alloy, submitted to Indian Journal of Engineering and Materials Sciences.
18. Goswami, T. (2004) Pitting – physics and fatigue, submitted to Materials and Design.
19. Sargeant A. and Goswami, T. (2004) Patho-physiological aspects of hip implants, Paper V, Materials and Design in press.
20. Sargeant, A. and Goswami, T. (2004) Ion concentration effects as a result of hip implants, Paper VI, submitted to Materials and Design.
21. Latham, B. and Goswami, T. (2004) Effect of geometrical parameters in the design of hip implants, Paper IV, Materials and Design, Vol. 25, Issue 8, pp. 715-722.
22. Pyburn, E. and Goswami, T. (2004) Comparative finite element analysis of femoral components, Paper III, Materials and Design, Vol. 25, Issue 8, pp. 705-713.
23. Slonaker, M. and Goswami, T. (2004) Review of wear mechanisms in hip implants - Paper II Ceramics, Materials and Design, Vol. 25, Issue 5, pp. 395-405.
24. Buford, A. and Goswami, T. (2004) Review of wear mechanisms in hip implants - Paper I, Materials and Design Vol. 25, Issue 5, pp. 385-393.
25. Slonaker, M. and Goswami, T. (2004) Wear in ceramic hip implants, Journal of Surgical Orthopaedic Advances, Vol. 13, No. 2, pp. 94-105.
26. Goswami, T. (2004) Generic fatigue life prediction – methodology development, Submitted to International Journal of Fatigue (paper accepted working on comments and figures)
27. Goswami, T. (2003) Development of generic creep-fatigue life prediction models, Materials and Design, 25 (4) 277-288.
28. Fotovati, A. and Goswami, T. (2003) Prediction of elevated temperature fatigue crack propagation in Ti-6Al-4V alloy – A Neural Network Approach, Materials and Design Vol. 25, Issue 7, pp. 547-554.
29. Goswami, T. (2003) Dwell sensitivity modeling – a new damage parameter, Materials and Design 25, (3) 191-197.
30. Goswami, T. (2003) Fatigue crack growth behavior of Ti-6Al-4V alloy forging, Materials and Design 24, pp. 423-433.
31. Dvorak, E., McIntyre, E., Kelly, M. and Goswami, T. (2003) Flex testing of natural and butyle rubber, Materials and Design 24 pp. 397-399.
32. Goswami, T. (2003) Development of a generic creep-fatigue life prediction method, TMS, Materials Lifetime Science and Engineering, Edited by P.K. Liaw, R.A. Buchanan, D.L. Klarstrom, R.P. Wei and D.G. Harlow, pp. 43-50.
33. Goswami, T. (2002) Conjoint bending torsion fatigue – fractography, Materials and Design Vol. 23, p. 385.
34. Pyburn, E. and Goswami, T. (2002) Dwell sensitivity behavior and modeling, Mechanical Behavior of Materials Vol. 13, Nos. 5-6, 2002, p 373.

35. Buford, B. Gratton, A. GaddyKurten, D. Suva, L. and Goswami, T. (2002) Failure modes of biomedical implants, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 297.
36. Day, B. and Goswami, T. (2002) Weibull model development for fatigue crack growth, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 283.
37. Guerra, I and Goswami, T. (2002) Statistical modeling of fatigue crack growth, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 315.
38. Lemaster, K. and Goswami, T. (2002) Effect of exposure time on the fatigue crack growth behavior of aircraft skin material, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 363.
39. Clark, J. and Goswami, T. (2002) Life prediction of stainless steels used in nuclear reactors, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 273.
40. Andrasians, A. Anderson, A, Kline, N. and Goswami, T. (2002) Camshaft process studies, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 263.
41. Toland, J. and Goswami, T. (2002) Creep-fatigue life prediction of low alloy steels, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 387.
42. Keeton, B. and Goswami, T. (2002) A window based software for fatigue crack growth data reduction, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 333.
43. Wright, J. and Goswami, T. (2002) Development of a generic life prediction model, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 397.
44. Ledbetter, N. and Goswami, T. (2002) A review of nanotechnology applications, Mechanical Behavior of Materials, Vol. 13, Nos. 5-6, 2002, p 353.
45. Arakere, N. Krohn, J. Goswami, T. and Ramchandran, N. (2002) Fatigue crack growth behavior in a titanium alloy forging, High Temperature Materials and Processes Vol 21, No. 4, pp. 229-236.
46. Goswami, T. and Hanninen, H. (2001) Dwell effects in high temperature fatigue behavior, paper I, Materials and Design, 22, 3, pp. 199-215.
47. Goswami, T. and Hanninen, H. (2001) Dwell effects in high temperature fatigue damage mechanisms Paper II, Materials and Design, 22, 3, pp. 217-236.
48. Goswami, T. (2001) Dwell fatigue, I: damage mechanisms, High Temperature Materials and Processes, 19, 5, pp. 313-331.
49. Ramachandran, N., Arakere, N. and Goswami, T. (2000) Recording elevated temperature fatigue crack growth data by DCPD system, High Temperature Materials and Processes 19, 5, pp. 357-370.
50. Goswami, T. and Hoepfner, D. W. (1999) Transition criteria – from a pit to a crack, Mechanical Behavior of Materials Vol. 5-6 pp 261-278.
51. Goswami, T. (1999) Flange bolt failure analysis, Mechanical Behavior of Materials 10, 4, pp. 205-214.

52. Goswami, T. (1999) Low cycle fatigue – dwell effects and damage mechanisms, International Journal of Fatigue, 21, 1, pp. 55-76.
53. Goswami, T. (1997) Low cycle fatigue life prediction – a new model, International J. Fatigue, 19, 2, pp. 109-115.
54. Goswami, T. (1997) A new model of high temperature low cycle fatigue life prediction-applicability with low alloy steels, Mechanical Behavior of Materials, 8, 2, pp. 91-115.
55. Goswami, T. and Hoepfner, D. W. (1997) A review of pit nucleation and growth mechanisms in structural aluminum alloys, Journal of Mechanical Behavior of Materials 8, 2, pp. 169-196.
56. Goswami, T. (1996) Prediction of low cycle fatigue lives of low alloy steels, Iron and Steel Institute of Japan, ISIJ International, 36, 3, pp. 354-36.
57. Goswami, T. (1996) Dwell effects in isothermal and thermo-mechanical fatigue of advanced materials, ISIJ International 36, 4, pp. 461-466.
58. Goswami, T. and Plumbridge, W. J. (1996) Applicability of new creep-fatigue life prediction models with low alloy steels, I. Mech. E. London, Paper No. L07/C494-095, pp. 175-192.
59. Goswami, T., Halford, G. R. and Hoepfner, D. W. (1996) Dwell sensitive behavior of high temperature materials, High Temperature Materials and Processes, 16, 2, pp. 87-96.
60. Goswami, T. and Hoepfner, D. W. (1996) Corrosion fatigue crack growth behavior in aircraft structural materials," Mechanical Behavior of Materials, 8, 2, pp. 141-167.
61. Goswami, T. (1996) Dwell Sensitivity, Part I Behavior and Modeling, Mechanics of Materials 22, 2, pp. 105-130.
62. Goswami, T. (1996) A new creep-fatigue life prediction model, High Temperature Materials and Processes, 15, 1-2, pp. 91-96.
63. Goswami, T. and Hoepfner, D. W. (1995) Creep-fatigue life prediction of low alloy steels – a new model, Presented in 27th ASTM National Symposium on Fatigue and Fracture Mechanics, Williamsburg, 1995.
64. Goswami, T. and Harrison, G. F. (1995) Gas turbine disk lifing philosophies – a review, International Journal of Turbo and Jet Engines 12, 1, pp. 59-77.
65. Goswami, T. (1995) Creep-fatigue life prediction – A ductility model, High Temperature Materials and Processes, 14, 2, pp. 101-114.
66. Goswami, T. (1995) Damage development under creep-fatigue in a titanium and a superalloy, High Temperature Materials and Processes, 14, 2, pp. 47-55.
67. Goswami, T. (1995) Applicability of modified Diercks equation with NIRM data, High Temperature Materials and Processes, 14, 2, pp. 81-90.
68. Goswami, T. (1995) Compilation of Creep-Fatigue data and trends in the behavior of low alloy steels, High Temperature Materials and Processes, 14, 1, pp. 1-20.

69. Goswami, T. (1995) Creep- Fatigue life prediction – Methods and Trends, High Temperature Materials and Processes 14, 1, pp. 21-34.
70. Goswami, T. (1995) Diercks Equation – Modification and Applicability, High Temperature Materials and Processes, 14, 1, pp. 35-45.
71. Goswami, T. (1993) Hot section turbine disk lifing philosophies, ASME Gas Turbine World Congress, Cincinnati, May 1993, paper no. 93-GT-363.
72. Ghosh, P. K., Gupta, P. C. and Goswami, T. (1989) Effect of upset butt welding parameters on the HAZ mechanical properties of a HSLA steel, Indian welding Journal, 1989.
73. Goswami, T. (1988) Creep-fatigue interactions of gas turbine materials, Defence Science Journal, 38, 4, pp. 467-476.

### Publications/Presentations in Conferences

1. Goswami, T. and Johnson, T. (2005) Modeling wear growth rates in hip implants, abstract submitted to Orthopaedic Research Society Annual meeting March 2006, Chicago.
2. Goswami, T., Goel, V., Biyani, A., Rengachary, S., MCGowan, D., and Serhan, H. (2005) Statistical wear damage prediction model for spinal discs - A conceptual framework, submitted to Spine Arthroplasty Society.
3. Goswami, T., Goel, V., Shaw, M., Biyani, A., Rengachary, S., MCGowan, D., and Serhan, H. (2005) (2005) Wear damage growth rate modeling, submitted to North American Spine Society.
4. Wehrum, K. and T. Goswami, (2005) Biomedical Engineering Society Annual Meeting, Johns Hopkins University, Baltimore, Sept 28-Oct. 2, Spine disc models and wear mechanisms.
5. Goswami, T. (2005) Biomedical Engineering Society Annual Meeting, Baltimore, Wear damage growth rate prediction of hip implants.
6. Ahmed, F. and Goswami, T. (2005) Volumetric wear rates from linear wear, Ohio Northern Research Conference, April 19.
7. Shaw, M. and Goswami, T. (2005) Wear rate trends in hip and knee implants, Ohio Northern Research Conference, April 19.
8. Shamedaur, C. and Goswami, T. (2005) Wear rate data reduction, Ohio Northern Research Conference, April 19.
9. Marquart, A. and Goswami, T. (2005) Finite element analysis of hip implants, Ohio Northern Research Conference, April 19.
10. Marquart, A. and Goswami, T. (2005) Experiential learning experience of a sophomore mechanical engineering student, ASEE regional conference, Ohio Northern University, April 2005.
11. Sargeant, A. and Goswami, T. (2004) A review of pathophysiological aspects of hip implants, Presented at Southeast Workshop on Tissue Engineering and Biomaterials, Jan 29-30, Clemson University, Clemson.
12. Monasky, M. and Goswami, T. (2004) A review of biological aspects of hip implants, Presented at Southeast Workshop on Tissue Engineering and Biomaterials, Jan 29-30, Clemson University, Clemson.
13. Sargeant, A. and Goswami, T. (2004) Physiological aspects of hip implants, presented at Undergraduate Research Conference, Hiedelberg College, OH, Feb. 17.
14. Kotob, A., Switzer, J. and Goswami, T. (2004) Engineering analysis of holiday lighting, part of a course work, presented at Undergraduate Research Conference, Hiedelberg College, OH, Feb. 17.
15. Toland, J. and Goswami, T. (2003) Development of a fatigue equation, Memphis Area Engineering and Sciences Conference, Memphis, May 15, 2003.

16. Adhikari, P. and Goswami, T. (2003) Development of a new fatigue crack growth data characterization parameter ( $\Delta W$ ), Memphis Area Engineering and Sciences Conference, Memphis, May 15, 2003.
17. Buford, A. and Goswami, T. (2003) Overview of metal-on-polyethylene, metal-on-metal, and ceramic hip wear mechanisms, Memphis Area Engineering and Sciences Conference, Memphis, May 15, 2003.
18. Slonaker, M. and Goswami, T. (2003) Wear of Ceramic hip implants, Memphis Area Engineering and Sciences Conference, Memphis, May 15.
19. Slonaker, M. and Goswami, T. (2003) Wear behavior of ceramics used in hip implants, Arkansas Tech Univeristy Senior Honors and Undergraduate Research Symposium, April 21.
20. Buford, A. Blake, L. Ebird, B. Pyburn, E. and Goswami, T. (2003) Effect of design variables on the performance of hip implants, Arkansas Tech Univeristy Senior Honors and Undergraduate Research Symposium, April 21.
21. Toland, J. and Goswami, T. (2003) Development of a fatigue life prediction method, Arkansas Tech Univeristy Senior Honors and Undergraduate Research Symposium, April 21.
22. Adhikari, P. and Goswami, T. (2003) A new fatigue crack growth data correlation method, Arkansas Tech Univeristy Senior Honors and Undergraduate Research Symposium, April 21.
23. Toland, J. and Goswami, T. (2003) Development of a generic fatigue life prediction model, 87<sup>th</sup> Annual *Academy of Science*, [First place award](#), in the Undergraduate Engineering Category.
24. Adhikari, P. and Goswami, T. (2003) A new parameter (DW) for fatigue crack growth rate analysis, 87<sup>th</sup> Annual *Arkansas Academy of Science*, [Second place award](#).
25. Buford, A. Allison, R. and Goswami, T. (2003) Influence of biological factors in the design of hip implants, 87<sup>th</sup> Annual *Arkansas Academy of Science*, [Third place award](#).
26. Slonaker, M. and Goswami, T. (2003) Wear of ceramics, Poster for the 87<sup>th</sup> Annual *Arkansas Academy of Science* Conference, University of Arkansas, Fayetteville, April 4-5.
27. Goswami, T. Gelles, D. and Jones R. (2003) Elevated temperature failure mechanisms of Ti-6Al-4V alloy, TMS Conference in Materials Prognosis: Integrating Damage-State Awareness and Mechanism-Based Prediction, San Diego, March 2-6.
28. Toland, J. and Goswami, T. (2002) Creep Fatigue Life Prediction of Cr-Mo Steel, Undergraduate Research Conference, Arkansas Tech University (Tech URC), Russellville, April.
29. Clark, J. and Goswami, T. (2002) Creep Fatigue Life Prediction of Stainless Steels, Tech URC.
30. Wright, J. Tom and Goswami, T. (2002) Development of a Generic Fatigue Equation to Predict Low Cycle Fatigue Behavior, Tech URC.
31. Pyburn, E. and Goswami, T. (2002) Dwell Sensitivity Behavior of High Temperature Materials, Tech URC.
32. Lemasters, K. and Goswami, T. (2002) Aging Aircraft Fatigue Behavior, Tech URC.

33. Anderson, A. Malek, A. Kline, N. and Goswami, T. (2002) Camshaft Process Standardization, Tech URC.
34. Keeton, B. and Goswami, T. (2002) Development of Computer Software to Predict Fatigue Crack Growth, Tech URC.
35. Guerra, I. and Goswami, T. (2002) Statistical Modeling of Fatigue Crack Growth Behavior, Tech URC.
36. Ledbetter, N. and Goswami, T. (2002) Nanotechnology - Conceptual Modeling, Tech URC.
37. B. Buford, A Gratton, and Goswami, T. (2002) Fatigue of Biomedical Implant Materials, Tech URC.
38. Lemasters, K. and Goswami, T. (2002) Fatigue Crack Growth Behavior in Aged Aircraft Parts, Arkansas Undergraduate Research Conference (AURC), Arkadelphia.
39. Anderson, A., Malek, A., Kline, N. and Goswami, T. (2002) Time Study of a camshaft Process, AURC.
40. Keeton, B. and Goswami, T. (2002) A Windows Based Program to Predict Fatigue Crack Growth, AURC.
41. Guerra, I. and Goswami, T. (2002) Modeling of Fatigue Crack Growth, AURC.
42. Ledbetter, N. and Goswami, T. (2002) Review of Nanotechnology Science and Manufacturing, AURC.
43. Buford, B. Gratton, A. Gaddy-Kurten, D. Suva, L. and Goswami, T. (2002) Fatigue Issues in Biomedical Implants, AURC.
44. Toland, J. and Goswami, T. (2002) Fatigue Life Prediction model for Cr-Mo Steel, AURC.
45. Clark, J. and Goswami, T. (2002) Fatigue Life Prediction model for Stainless Steels, AURC.
46. Wright, J.Tom, and Goswami, T. (2002) Development of a Multivariate Fatigue Equation, AURC.
47. Pyburn, E. and Goswami, T. (2002) Modeling Dwell Sensitivity Behavior of high temperature materials, AURC.
48. Toland, J. and Goswami, T. (2002) Creep Fatigue Life Prediction of Cr-Mo Steel, Arkansas Space Grant Consortium Conference, Jonesboro, Arkansas State University.
49. Clark, J. and Goswami, T. (2002) Creep Fatigue Life Prediction of Stainless Steels, Arkansas Space Grant Consortium, Jonesboro, Arkansas State University.
50. Buford, A. Geratton, A. Suva, L. and Goswami, T. (2002) Fatigue of Biomaterials, Memphis Area Engineering and Science Conference, Christian Brothers University, Memphis.
51. Goswami, T., Krohn, J., and Hanninen, H. (2002) Dwell time effects on fatigue life and damage mechanisms, European Congress on Fracture, Cracow, Poland EMAS Vol I/III p. 615.

52. Goswami, T. (2000) Creep-fatigue life prediction of pressure vessel steels, Invited paper for International Symposium for Materials Ageing and Life Management, ISOMALM.
53. Goswami, T. (2000) Evaluation of Mechanical Properties of Materials - Laboratory and full scale testing, Workshop Book for ISOMALM 2000.
54. Goswami, T. and Diercks, D.R. (1999) Low cycle fatigue life prediction of pressure vessel steels, EUROMAT Congress, Munich, Germany, September 27-30.
55. Goswami, T. (1996) A review of life prediction methods, TMS Symposium on Creep-Fatigue and Environmental Interactions, Anaheim, CA.
56. Goswami, T. and Hoepfner, D. W. (1995) Modeling corrosion effects on structural integrity," an invited paper in Air Force III Aging Aircraft Conference, Wright Patterson Air Force Base, September, 1995.
57. Goswami, T., and Hoepfner, D. W. (1995) Pitting corrosion fatigue in aircraft structural materials, ASME Winter Annual Meeting, Structural Integrity in Aging Aircraft, Ed. C. I. Chang and C. T. Sun, ASME, AD Vol. 47, pp. 129-139.
58. Goswami, T. (1995) Aging Mechanisms - an overview, Joint Applied Mechanics and ASME Materials Summer Meeting, Los Angeles.
59. Goswami, T. and Hoepfner, D. W. (1995) Corrosion fatigue crack growth behavior in structural materials, International Committee in Aeronautical Fatigue, Melbourne, EMAS Publications London, pp. 127-135.
60. Hoepfner, D. W. and Goswami, T. (1994) Effect of test parameters in the corrosion fatigue crack growth behavior in aircraft structural materials, United States Air Force, Structural Integrity Program Conference, WL-TR-96-4030, pp. 489-508.
61. Hoepfner, D. W. and Goswami, T. (1993) Pitting corrosion fatigue of aircraft materials: a review, United States Air Force, Structural Integrity Program Conference, WL-TR-94-407, Ed. T. Cooper, pp. 219-232.
62. Goswami, T. (1992) A life prediction model for the high temperature low cycle fatigue of IMI 829 and MAR M 002, TMS Annual Meeting, San Diego.
63. Goswami, T. (1991) Constitutive modelling of creep-fatigue, International Conference on Mechanical Behavior of Materials (ICM6) Kyoto, Japan Vol. 4, pp. 283-285.
64. Goswami, T. and Plumbridge, W. J. (1991) Disc initiation life – a few assumptions, International Conference on Mechanical Behavior of Materials, Kyoto, Japan, Vol. 4, pp. 349-351.
65. Goswami, T. (1991) Life Analysis of a gas turbine fan disc, International Conference on Mechanical Behaviour of Materials, Kyoto, Japan, Vol. 2, pp. 59-65.
66. Goswami, T. and Plumbridge, W. J. (1991) Life prediction-thermal fatigue from Isothermal data, International Conference on Mechanical Behaviour of Materials, Kyoto, Japan, Vol. 2, pp. 85-92.
67. Goswami, T. and Vasudevan, P. (1990) Damage tolerant design of a gas turbine fan disc, International Conference on Structural Testing Analysis and Design, Tata McGraw-Hill Publishing Co., pp. 1157-1161.

68. Goswami, T. (1990) Fatigue testing of a gas turbine fan disc, International Fatigue Series, Fatigue 90, Honolulu, Vol. 4, pp. 2221-2226.
69. Goswami, T. and Vasudevan, P. (1990) Mission analysis of a gas turbine cold and hot section components, International Conference on Structural Testing Analysis and Design, Tata McGraw-Hill Publishing Co., pp. 1162-1168.
70. Goswami, T. (1989) Discretization of an engine mission profile in terms of 0-max-0 Equivalent cycles, Australian Aeronautical Conference, pp. 295-298.
71. Goswami, T. (1989) Modelling of Creep – Plasticity, Australian Aeronautical Conference, Melbourne, pp. 201-205.

### Research Proposals

1. Design and development of a total ankle joint model, Submitted to NSF 2006.
2. Optimization of Zimmer Hip Implants, \$20,000 (Submitted Jan 2006)
3. Coating characterization HA and CaP coats for implant usage, \$20,000 (Submitted Jan 2006)
4. Cell culture via HA and CaP coats \$20,000 (Submitted Jan 2006)
5. Wear model development for hip implants, Zimmer Inc. \$20,000
6. Long term wear rate model development, \$35,200 (jointly with U-Toledo) DePuy Spine, funded
7. Development of a functional electrical stimulation system, NCIIA, \$20,000 E-Team
8. Wear and oxidation studies of ultra high molecular weight poly-ethylene and wear damage model, white paper submitted and testing program finalized with Zimmer.
9. Development of wear growth model in artificial disc implants, in collaboration with Bioengineering department, U-Toledo and Ohio Northern University. White paper submitted to 4 industry partners.
10. Development of wear damage growth rate models for hip implants, white paper submitted to four implant companies.
11. Development of a prognostic system for gas turbine engine disk material, full proposal submitted to DARPA for \$2.6M, March 2003.
12. Blast resistance material development, pre-proposal submitted to DARPA.
13. Elevated temperature fatigue crack growth mechanisms in Ti-6Al-4V alloy, submitted to DARPA.
14. Stochastic modeling of pitting corrosion in aircraft structural materials, submitted to DARPA.
15. Evaluation of coatings for military engine application, submitted to Army Research Office, BAA.
16. Durability of ceramic coatings for military aircraft engines, submitted to State Committee Members, EPSCoR
17. Durability of aluminide bondcoats, submitted to DARPA
18. Oxidation behavior of three physical vapor deposited bondcoats, in preparation to submit to Air Force Office of Scientific Research.
19. Durability of Electron Beam Physical Vapor Deposited Bondcoats, Submitted to Department of Energy, June 22, 2001.
20. Porosity control in aluminum alloy extrusions, Submitted to Naval Research Laboratory, short-listed for funding.
21. Stochastic modeling of pitting corrosion in aluminum, Submitted to Naval Research Laboratory, short-listed for funding.
22. Acquisition of a servohydraulic material testing machine, submitted to National Science Foundation, Proposal No. 0116541.
23. Development of a Rubber Research Center, Proposal submitted to Goodyear Tech Center.
24. Development of a Rubber Research Center, Submitted to Smithers Scientific, OH.
25. Proposal for a laboratory development submitted to Firestone Trust Fund.
26. Durability evaluation of Laser and EB-PVD deposited bond coats, Submitted from Arkansas Tech University to AGTSR-DOE, July 2000.

27. Submitted a proposal to National Science Foundation on the Research and Instrumentation Proposal to procure a Universal Testing Machine. Nov. 2000.
28. Statistical modeling of corrosion, pre-proposal submitted to Office of Naval Research, 2000.