

Publication List

M. R. Mitchell

1. Gong, X-Y, Chwirut, D. J., Mitchell, M. R., Choules, B. D. and Cavanaugh, K. J., Fatigue to Fracture: An Informative, Fast, and Reliable Approach for Assessing Medical Implant Durability, Jol. ASTM Int. 2009, in press
2. Mitchell, M.R., Handbook of Shock and Vibrations, Chapter 33, Metal Properties, A. Piersol, Ed., McGraw-Hill Publishing, 2009 in press
3. Pelton, A.R., Schroeder, V., Mitchell, M.R., Gong, Xiao-Yan, Barney, M. and Robertson, S.W., Fatigue and Durability of Nitinol Stents, Jol. Mechanical Behavior of Biomedical Materials, 2008, pp 153-164.
4. Bunch, Jeffrey, O., and Mitchell, M.R., Residual Stress Effects on Fatigue and Fracture Testing and Incorporation of Results into Design, ASTM STP 1497, Feb., 2007
5. Brian Berg, M.R. Mitchell and James Proft, SMST-2006 Proceedings of the International Conference on Shape Memory and Superelastic Technologies, May 7-11, 2006, Pacific Grove, CA.
6. Pelton, A.R., Duerig, T.W., Berg, B., Hodgson, D., Mertmann, M., Mitchell, M.R., Proft, J., Wu, M., and Yang, J., "Nitinol Medical Devices", Advanced Materials & Processes, Oct., 2005, pp63-65.
7. Mitchell, M.R., "Fatigue Behavior of Bainitic Gear Steels" - Keynote Lecture- SAE Brasil/Fadigua, 2004 Conference, Sao Paulo, Brasil, Oct. 2004.
8. Lasley, C. L., Mitchell, M.R., Dooley, B.A., Bruchman, W.C. and Warner, C. P., "The Corrosion of Nitinol by Exposure to Decontamination Solutions", SMST -2003, Proceedings of the International Conference on Shape Memory and Superelastic Technologies, 5 May-8 May 2003, Asilomar Conference Center, Pacific Grove, CA., Editors: A.R. Pelton and T. Duerig, 2003, pp 375-384.
9. Wright, P.K., Chatterjee, A., Cook, T., Mitchell, M.R., and Rosenberger, A.H., "Defect Behavior in Gamma Titanium Aluminides", ASM, Structural Intermetallics, Third International Symposium, Jackson Hole, Wyoming, April 28-May 2, 2002, ISBN: 0-87339-511-5, Kevin J. Hemker and Dennis M. Dimiduk, Eds., pp. 315-322,
10. Mitchell. M.R., "Fatigue Analysis for Design", Keynote Lecture-SAE Brasil/Fadigua 2000 Conference, Sao Paulo, Brasil, Sept. 2001.
11. Underwood, John H., Macdonald, Bruce D. and Mitchell, Michael R., Fatigue and Fracture Mechanics-28th Volume, ASTM STP 1321, 1997.
12. Mitchell, M.R., "Fundamentals of Modern Fatigue Analysis for Design", ASM Handbook, Fatigue and Fracture, Vol. 19, Chapter 18, 1997.

13. Graham, R.S. and Mitchell, M.R., "Microalloyed Steels in Suspension System Design", Fundamentals and Applications of Microalloying Forging Steels, Edited by Chester J. Van Tyre, George Krauss and David K. Matlock, TMS/AIME, Warrendale, PA, 1996.
14. Bhatnagar, A, Dauskardt, R. and Mitchell, M.R., "Environmental Influences on Fatigue Crack Growth Rate Behavior in Ceramics and their Composites", Int. Journal of Ceramics, 1996.
15. Mitchell, M.R. and Landgraf, R. W., "Advances in Fatigue Lifetime Predictive Techniques-Third Volume", ASTM STP 1294, 1995.
16. Crooks, R. Sedlak, J.S., Szabo, A. and Mitchell, M.R., Microstructure-Cryogenic Fracture Correlations in Weldalite™ Weldments, Aluminum-Lithium Alloys for Aerospace Applications Workshop, 1994 Conference on Advanced Earth-to-Orbit Propulsion Technology, NASA/MSFC, Alabama, May 17-19, 1994.
17. R. H. Dauskardt and M. R. Mitchell, "High Temperature Fatigue-Crack Growth Experiments in Ceramics and Ceramic-Matrix Composites," in Failure of Engineering Materials at High Temperature, Proceedings of the 1994 SEM Spring Conference on Experimental Mechanics, Experimental Techniques, CT, 1994.
18. Mitchell, M.R. and Buck, O., "Cyclic Deformation, Fracture and Nondestructive Evaluation of Advanced Materials-Second Volume", ASTM STP 1184, 1994.
19. Schroeder, Scott A. and Mitchell, M.R., "Fatigue of Electronic Materials", ASTM STP 1153, 1994.
20. Schroeder, S.A., Morris, W.F., Mitchell, M.R., and James, M.R., "A Model for Primary Creep of Sn-37Pb Solder", ASTM STP 1153, 1994.
21. Herbel, T.P., Eckel, A.J., Brockmeyer, J.W. and Mitchell, M.R., " Ceramic Composites Portend Long Turbopump Lives", Aerospace Atlantic, SAE paper #931372, Apr., 1993, SAE Transactions, 1993.
22. Mitchell, M.R. and Landgraf, R.W., "Advances in Fatigue Lifetime Predictive Techniques-Second Volume", ASTM STP 1211, 1993.
23. Mitchell, M.R. and Buck, O., "Cyclic Deformation, Fracture and Nondestructive Evaluation of Advanced Materials", ASTM STP 1157, 1991.
24. Mitchell, M.R. and Landgraf, R.W., "Advances in Fatigue Lifetime Predictive Techniques", ASTM STP 1122, 1991.
25. Morris, W.L., Dadkhah, M.S., James, M.R., Mitchell, M.R. and Schroeder, S.A., "Micromechanics of Fatigue Crack Growth in Ti-aluminide Composites, p 511 in Titanium Aluminide Composites, Ed. P.R. Smith, S.T. Balsone and T. Nicholas, U.S. Air Force Report WL-TR-91-4020 (1991).
26. Bampton, C.C., Rhodes, C.G., Mitchell, M.R., Vassiliou, M.S., and Graves, J.A., "Synthesis of Chromium Silicide by Mechanical Alloying", *Proceedings*, Structural

- Applications of Mechanical Alloying, Froes, F.H. and deBarbadillo, J.J., *ASM* 275–282, 1990.
27. Vassiliou, M.S., Mitchell, M.R. and Rhodes, C.G., "Interactions in Shock-Wave Consolidated Titanium Aluminide Reinforced with SiC", *AIIME, Met. Trans.*, 1990.
 28. Cox, B.N., Dadkhah, M.S., Inman, R.V., Mitchell, M.R., Morris, W.L., and Schroeder, S.A., "Micromechanics of Fatigue in Woven and Stitched Composites," in *Proc. Advanced Composites Technology Conf.*, Seattle, Washington, Oct.-Nov. 1990, ed. J. A. Davis, Jr. and H. L. Bohon (NASA Conf. Publ. 3104, 1990).
 29. Pardee, W.J., Mitchell, M.R., Gupta, A., Montgomery, F., and Sheehan, J., "Effect of Carbonization Kinetics on In-Process Mechanical Properties", *Proceedings, ASM-TMS Symposium on Intelligent Processing of Materials*, Indianapolis, IN, October 2–6, 1989.
 30. Vassiliou, M.S., Rhodes, C.G., Mitchell, M.R., and Graves, J., "Metastable Microstructures in Dynamically Consolidated Titanium Aluminide", *Scripta Met.* **V23**, 1791–1794, 1989.
 31. Goldberg, I.B., Mitchell, M.R., Murphy, A.R., Goldfarb, R., and Loughran, R., "Magnetic Susceptibility of IN 718, 625 and 600 at Cryogenic Temperatures — Application to Cryogenic Materials", *International Cryogenic Materials. Conference*, July 24–28, 1989.
 32. Crooks, R. and Mitchell, M.R., "The Fracture of 2090 Plate in Bending Fatigue", *Proceedings, Fifth International Al-Li Conference*, Williamsburg, VA, 1989.
 33. Rice, R. C., Leis, B. N., Nelson, D. V., Berns, H. D., Lingenfelter, D. and Mitchell, M. R. , *Society of Automotive Engineers, Inc., Fatigue Design Handbook AE-10. Second Edition*, 1988
 34. Stephens, R.I., Berus, H.D., Chernenkoff, R.A., Indig, R.L., Koh, S.K., Lingenfelter, D.J., Mitchell, M.R., Testin, R.A., and Wigant, C.C., "Low Cycle Fatigue of A356–T6 Cast Aluminum Alloy", *SAE, P-760*, R.I. Stephens, ed., *Society of Automotive Engineers, Warrendale, PA*, 1–28, 1988.
 35. Mahoney, M.W., Kendig, M., Murphy, A.R., Mitchell, M.R., and Ghosh, A.K., "Properties of High-Strength Superplastic PM and PM/MMC Aluminum Alloys", *Proceedings, International Conference on PM Aerospace Materials.*, Luzern, Switzerland, November 2–4, 1987, 33.1–33.14.
 36. Mitchell, M.R. and Murphy, A.R., "Fatigue Behavior of Vertical Axis Wind Turbine Airfoils with Two Weld Configurations", *Sandia National Labs, Contract No. 47-4155*, Albuquerque, NM 87185, September 1986.
 37. Tittmann, B.R., Mitchell, M.R., Abdel-Gawad, M., and Bulau, J., "Enhanced Casting by the Use of Ultrasonics", *Review of Progress on Quantitative Nondestructive Evaluation*, 5, D.O. Thompson and D. Chimenti, eds. Plenum Press, NY, 1986.
 38. Rumble, J., Mitchell, M.R. and Northrup, R.T., "Computerized Materials Data", *Proceedings, Workshop for the Ground Vehicle Industry*, Columbus, OH, April 4, 1984; *Society of Automobile Engineering*, September 1985.

39. Rhodes, C.G., Mitchell, M.R. and Chesnutt, J.C., "Fracture and Fracture Characteristics in Titanium Alloy", ONR report N00014-79-C-0567, June 1982.
40. Mitchell, M.R., "Determination of Strain Controlled Fatigue Properties for 12 Ti 6242 Alloys", AFWAL/MLLS Report, Contract No. F33601-81-MS530, September 1982.
41. Mitchell, M.R., Meyer, M.E. and Nguyen, N.Q., "Fatigue Considerations in Use of Aluminum Alloys", SAE Fatigue Conference and Exposition—1982, SP-109, Dearborn, MI, April 14–16, 1982.
42. Mitchell, M.R., "Study of Near-Threshold-Fatigue Crack Propagation in Pipeline Steels in High Pressure Environments", NASA Report 166295, November 1981.
43. Chesnutt, J.C., Paton, N.E. and Mitchell, M.R., "Fatigue Crack Initiation and Propagation in Ti-6Al and Ti-6Al-4V", Fifth International Conference on Fracture, Cannes, France, March 29–April 3, 1981.
44. Mitchell, M.R., "A Unified Predictive Technique for the Fatigue Resistance of Cast Ferrous-Based Metals and High Hardness Wrought Steels, Fatigue Resistance Testing and Forecasting", Society of Automotive Engineers SP-448, Sept. 10, 1979, 31–66.
45. Gnanamuthu, D.S., Shaw, C.B., Jr., Lawrence, W.E. and Mitchell, M.R., "Laser Transformation Hardening", American Institute of Physics Conference *Proceedings*, 1979.
46. Mitchell, M.R., "Fundamentals of Modern Fatigue Analysis for Design", ASM Symposium, *Fatigue and Microstructure*, St. Louis, MO, October 14–15, 1978.
47. Socie, D.F., Mitchell, M.R. and Caulfield, E.M., "Fundamentals of Modern Fatigue Analysis", University of Illinois, College of Engineering, Urbana, IL, Fracture Control Program Report No. 26, May 1977.
48. Mitchell, M.R., "Material Characterization of SAE 950XK; Monotonic and Stress-Strain Behavior and Strain-Life Response", University of Illinois, College of Engineering, Urbana, IL, Fracture Control Program Report No. 25, February 1977.
49. Mitchell, M.R., "A Unified Predictive Technique for the Fatigue Resistance of Cast Ferrous-Based Metals and High Hardness Wrought Steels", Ph.D. Thesis, TAM Department, University of Illinois, Urbana, IL, 1976.
50. Mitchell, M.R., "Review of the Mechanical Properties of Cast Steels with Emphasis on Fatigue Behavior and the Influence of Microdiscontinuities", ASME, *Journal of Engineering Materials and Technology*, 99, October 1977, 329–343.
51. Mitchell, M.R., and Wetzel, R.M., "Cumulative Fatigue Damage Analysis of a Light Truck Frame", *J. of Testing and Evaluation*, (JTEVA), 3[6], 1976, 427–434.
52. Mitchell, M.R., "Effects of Graphite Morphology, Matrix Hardness, and Structure on the Fatigue Resistance of Gray Cast Iron", SAE Report No. 750198, February 24, 1975; *AFS Cast Metals Research Journal*, 1976.

53. Mitchell, M.R., "Material Characterization of Normalized and Tempered, 0.2 w/o C Cast Steel", University of Illinois, College of Engineering, Urbana, IL, Fracture Control Program Report No. 18, October 1975.
 54. Dittmer, D.F. and Mitchell, M.R., "Material Characterization of Cast 8630 Steel; Monotonic and Cyclic Stress-Strain Behavior and Strain-Life Response", University of Illinois, College of Engineering, Urbana, IL, Fracture Control Program Report No. 13, October 1974.
 55. Dittmer, D.F. and Mitchell, M.R., "Material Characterization of USS-Ti; Monotonic and Cyclic Stress-Strain Behavior and Strain-Life Response", University of Illinois, College of Engineering, Urbana, IL, Fracture Control Program Report No. 12, July 1974.
 56. Mitchell, M.R. and Morrow, JoDean, "Additional Fatigue Data, Crack Propagation Results and Damage Analysis for HY-80, HY-130, 10 Ni Steels and 621-8 Ti", prepared for Naval Ship R&D Center, Bethesda, MD, February 1974.
 57. Landgraf, R.W., Mitchell, M.R. and LaPointe, N.L., *Materials Databook*, "Monotonic and Cyclic Stress-Strain Properties of Engineering Materials", Ford Motor Company, Scientific Research Staff, Special Publication, 1972.
 58. Feltner, C.E. and Mitchell, M.R., "Basic Research on Cyclic Deformation and Fracture Behavior of Materials", *Manual on Low Cyclic Fatigue Testing*, ASTM STP 465, ASTM, 1969.
 59. Mitchell, M.R., "Cyclic Deformation and Fracture Behavior of Gray Cast Iron", M.S. thesis, Wayne State University, Metallurgy Department, Detroit, MI, December 1969.
 60. Mitchell, M.R. and Feltner, C.E., "Direct Measurement and Control of Inelastic Strain", Ford Motor Company, Report No. 68-36, Scientific Research, April 26, 1968.
-

61. Several Intracompany Workshop Proceedings for Rockwell Science Center Including:

1. Rockwell International Fatigue Symposium-1982, FS-1, January 7, 1982, "Basics of Low Cycle Fatigue", Prof. JoDean Morrow; "Microstructural Effects on Crack Initiation in Aluminum and Steels", Dr. R.W. Landgraf; "Microstructural Effects on Crack Initiation in Titanium Alloys", Prof. J.C. Williams, M.R. Mitchell and R.P. Jewett, Rockwell International, eds. August 1984.
2. Rockwell International Fatigue Symposium-1982, FS-2, February 11, 1982, "Basics of Fatigue Propagation", Dr. J.P. Gallagher; "Fatigue of Notched Components/Crack Initiation and Propagation Approaches", Prof. D.V. Nelson, M.R. Mitchell and R.P. Jewett, Rockwell International, eds. October 1984.
3. Rockwell International Fatigue Symposium-1982, FS-3, March 11, 1982, "Creep/Fatigue Interaction; Frequency Modified Approach", Dr. Lou Coffin; "Creep/Fatigue Interaction; Strain Range Partitioning", Prof. S.S. Manson; "Creep/Fatigue Interaction; Damage Rate Equation", Dr. Saurin Majumdar, M.R. Mitchell and R.P. Jewett, Rockwell International, eds. November 1984.

4. Rockwell International Fatigue Symposium—1982, *FS-4*, April 7, 1982, “Fatigue Crack Propagation of Superalloys”, Dr. Steve Antolovich, M.R. Mitchell and R.P. Jewett, Rockwell International, eds. January 1985.
 5. Rockwell International Fatigue Symposium—1982, *FS-5*, May 13, 1982, “Corrosion/Fatigue Interactions”, Prof. Regis Pelloux; “Environment Effects on Fatigue Crack Propagation”, Prof. Rob Ritchie, M.R. Mitchell and R.P. Jewett, Rockwell International, eds. March 1985.
-

62. Several, rather extensive, Intracompany reports containing priority information for Rockwell International Science Center on contract to Rockwell Automotive Operations, Troy, Mich.

63. “Fatigue Lifetime Predictions for Coil Springs and Torsion Bars”,

64. Phase 1, Sept., 1992

65. Phase 2, Sept., 1993

66. Phase 3. Sept., 1994

67. “Fatigue Lifetime Predictive Techniques for Multiaxial Fatigue of Stabilizer Bars”,

68. Phase 1 Sept., 1995

69. “Fatigue Life Prediction Methods for Aluminum Alloys for Heavy Truck Applications”

70. Phase 1, November 1, 1977

71. Phase 2, February 1, 1978

72. Phase 2, June 15, 1978

73. Several, extensive, Intracompany reports for Ford Motor Company, Scientific Research Staff, containing priority information are listed below.

74. “Characterization of the Mechanical Properties of Fo Mo Co ‘A’ Cast Iron”—Mitchell, M.R. and Feltner, C. E. 1969.

75. “Notch Fatigue of Ford Motor Company ‘A’ Type Gray Cast Iron”—Mitchell, M.R. and Feltner, C.E. 1969.

76. “Mechanical and Material Properties of the Unicast Hub and Rotor Disc Brake”,—LaPointe, N.R., Mitchell, M.R. and Feltner, C.E. 1970.

77. “Effect of Mean Stress and Mean Strain on the Fatigue Behavior of Gray Cast Iron”,—Mitchell, M.R. and Feltner, C.E. 1970.

78. “1971 Torino Rear Suspension Silent Bloc Design Upper Link Fatigue Life Based on Road Loads”, Mitchell, M.R. for *Car Engineering*, 1971.

79. “Mechanical Properties of SAE-32510 Ferritic Malleable Iron”, Mitchell, M.R. for *Transmission and Chassis*, 1971.

80. “The Fatigue Resistance of SAE-5160 Steel Used in the Heavy Truck Cab Hanger Bracket”, Mitchell, M.R. for *Heavy Truck Engineering*, 1971.

81. "Monotonic and Cyclic Stress-Strain Properties and Strain-Life Behavior of LM 4M (British) and UNI-3051 (Italian) Aluminum Alloys Used for the 1971 Pinto Steering Gear Housing", Mitchell, M.R. for *Transmission and Chassis*, 1971.
82. "The Applicability of Predictive Techniques in Describing the Fatigue Behavior of Hot-Restruck Powder Metals", Mitchell, M.R. for *Manufacturing Development*, 1971.
83. "Material Characterization of SAE-306 Cast Aluminum Used in the C-6 Automatic Transmission Housing", Mitchell, M.R. for *Transmission and Chassis*, 1971.
84. Primary Author on Several National and International Standards for ASTM and ISO including:
85. ASTM E 606-92 Standard Practice for Conducting Strain-Controlled Fatigue Testing of Materials in Vol. 3.01
86. ASTM E466-96 Standard Practice for Conducting Force-Controlled Constant Amplitude Axial Fatigue Tests of Metallic Materials in Vol. 3.01
87. ISO TC164/SC5, ISO 12106 - Methodology for Strain-Controlled Fatigue Testing of Metallic Materials. 1996.
88. ISO TC164/SC5, ISO 1099 - Methodology for Force-Controlled Fatigue Testing of Metallic Materials, 2005.