PROFESSIONAL HISTORY

Stanley T. Rolfe
Department of Civil & Environmental Engineering
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Present Position

Albert P. Learned Professor of Engineering
Department of Civil, Environmental and Architectural Engineering
University of Kansas
Lawrence, KS 66045-2225

Education

Ph.D., Civil Engineering with Structural Major, University of Illinois, 1962
M.S., Civil Engineering with Structural Major, University of Illinois, 1958
B.S., Civil Engineering, University of Illinois, 1956

Academic and Research Experience

A. P. Learned Professor, Civil & Environmental Engineering Department, University of Kansas, 1998-present

Chairman and A. P. Learned Professor, Civil & Environmental Engineering Department, University of Kansas, 1995-1998

Chairman and A. P. Learned Professor, Civil Engineering Department, University of Kansas, 1986-1995

Chairman and Ross H. Forney Professor, Civil Engineering Department, University of Kansas, 1975-1986

Ross H. Forney Professor, Civil Engineering Department, University of Kansas, 1969-1975

U.S. Steel Applied Research Laboratory, Monroeville, Pennsylvania, Research Technologist, Senior Research Engineer, Section Supervisor, and Division Chief of Mechanical Behavior of Metals Division, 1962-1969

University of Illinois, Research Assistant and Research Associate, 1956-1962

Professional Qualifications

Dr. Stanley T. Rolfe has been involved in a comprehensive experimental and analytical research program in fracture mechanics at the University of Kansas for 35 years. Prior to that time, he was Division Chief of the Material Behavior Division at U.S. Steel's Applied Research Laboratory in Monroeville, Pa. He has an extensive research background and considerable practical experience in the application of fracture mechanics to various fracture and fatigue problems. His research for the Pressure Vessel Research Committee and the American Iron and Steel Institute has focused on elastic-plastic fracture mechanics test development as well as fatigue and fracture control in steel structures. He has published extensively in the fields of fracture control, test development, correlations, CTOD test development, and applications of fracture mechanics.

He has written a textbook on *Fracture and Fatigue Control in Structures* co-authored by John Barsom of U.S. Steel. The Third Edition was published in 1999. He has consulted widely on structural failures in the field of fatigue and fracture control in structures. Recently he worked on a special assignment for the U.S. Coast Guard on Fracture Mechanics Methodology for Fracture Control in Oil Tankers in the Trans Alaskan Pipeline Service (TAPS) trade and currently is a member of the SAC Committee on Connections looking at the improvements in SWMF connections resulting from the 1994 Northridge earthquake.

Professional Recognition and Honors

2007 One of seven national AISC "Top Profs", 2007
2005 ASTM Charles B. Dudley Award, 2005
2005 AISC Lifetime Achievement Award to individuals who have "made a difference"
2004 ASEE Donald E. Marlowe Award
2002 ASTM Fracture Mechanics Medal
2001 ASCE Honorary Member
2001 ASCE Ernest E. Howard Award
1999 University of Kansas – Charles E. Spahr Professorship
1996 Appointed Vice-Chairman of Academic Research Council of the Civil Engineering Research Foundation (CERF)
1989 Appointed as Member of National Advisory Council of the Bridges and Structures Information Center, Pittsburgh, PA
1987 University of Illinois - College of Engineering *Alumni Honor Award for Distinguished Service in Engineering*
1985 Fellow, ASCE
1985 University of Illinois Civil Engineering Alumni Association *Distinguished Alumnus Award*
1985 Winner of the University of Kansas *Irvin E. Youngberg Research Award* in recognition of research achievement in the field of Applied Sciences
1983 Shared ASCE *State-of-the-Art* of Civil Engineering *Award* as a Member of Committee on Fatigue and Fracture Reliability
1982 Elected to Membership in the *National Academy of Engineering*
1980 *Theodore R. Higgins Lectureship Award* by American Institute of Steel Construction, Inc.
1975 *Henry E. Gould Award* for Excellence in Teaching at the Undergraduate Level in the University of Kansas School of Engineering
1974 American Welding Society *Adams Memorial Award* for Engineering Educators
1972 *Henry E. Gould Award* for Excellence in Teaching at the Undergraduate Level in the University of Kansas School of Engineering
1971 American Society for Testing and Materials, *Sam Tour Award* for Distinguished Contribution to Research, Development and Evaluation of Corrosion Testing Methods

Research Sponsors

American Iron and Steel Institute
Pressure Vessel Research Committee
Ship Structure Committee
Federal Highway Administration
National Bureau of Standards
Kansas Department of Transportation

Major Committee Activities and Professional Organizations

Member, Technical Advisory Panel for SAC/FEMA Northridge Earthquake Review Panel

Chairman, Special Committee on Application of Fracture Mechanics to Solution of Cracking in Trans-Alaskan Pipeline Service Tankers, Special Working Group of U. S. Coast Guard and Industry

Lecturer and Consultant, Significance of Cracking in Nuclear Pressure Vessels, Oak Ridge National Laboratories

Chairman, AASHTO Technical Committee T-14, Weathering Steel Study Group

Special Reviewer, Special Committee of the U. S. Coast Guard on Storm Relief of Cargo Tankers

Chairman, American Society of Civil Engineers Technical Committee on Fracture and Structural Fatigue

Member, National Research Council Project Advisory Committee

Member, National Materials Advisory Board Committee on Applications of Fracture Mechanics Analysis Techniques to Marine Systems

Project Investigator, Pressure Vessel Research Committee on Effective Utilization of Yield Strength

Member, American Society of Testing and Materials Committee E-08 on Fracture Testing of Metals

Chairman, National Academy of Sciences - Subcommittee on Metallurgical Studies

Chairman, Pressure Vessel Research Committee on Low Cycle Fatigue

Session Organizer and Chairman at ASCE Annual Meetings and Specialty Conferences - Pittsburgh, San Francisco, St. Louis

Member of Advisory Committee on Closing of Carquinez Straits Bridge, California

Member, National Research Council, Committee on National Cooperative Highway Research Program, Advisory Panel C12-14, Field of Design, Area of Bridges

Member, National Research Council, Committee on Application of Fracture Mechanics Analysis Techniques in High Performance Marine Systems

Member, National Research Council, Committee on Ship Materials, Fabrication and Inspection Advisory Group of the Ship Research Committee

Lecturer, FHWA Short Course on Fracture Resistant Bridge Design

Organizer and Lecturer, National Short Course on Fracture and Fatigue Control in Structures

Past President, Kansas Section, American Society of Civil Engineers

Member, Kansas Engineering Society

Member, American Society of Civil Engineers

Member, American Society for Testing and Materials

Member, American Society of Mechanical Engineers

Member, Transportation Research Board

Member, National Society of Professional Engineers

Member, American Society for Engineering Education

Member, Tau Beta Pi

Member, Chi Epsilon

Registered Professional Engineer - States of Pennsylvania and Kansas

Special Engineering Assignments and Consulting Activities

Industry

Standard Oil of California
Offshore Power Systems
Armco Steel Corporation
Caterpillar Manufacturing
The Boeing Company
Rockwell Manufacturing
Bethlehem Steel Corporation
Failure Analysis Associates
Lucius Pitkin Testing, Inc.
Brown and Root Construction
Burns & McDonnell
American Iron and Steel Institute
Pittsburgh-Des Moines Fabricators
Howard, Needles, Tammen and Bergendoff
Praeger, Kavanagh and Waterbury, P.C.
Kasdorf, Dall, Lewis & Swietlik, P.C.
Madison Gas and Electric Co.
U. S. Steel
Liftech Consultants, Inc.
Sun Shipbuilding and Dry Dock Co.
Downey and Gulley, P.C.
Lincoln Electric

Government Agencies

U. S. Coast Guard
The State of California
Federal Highway Administration
Nuclear Regulatory Commission
California Department of Transportation
U. S. Navy Civil Engineering Laboratory
U. S. Army Construction Engineering Research Laboratory

Selected Publications

Alemdar, F., Kaan, B., Bennett, C., Matamoros, A., Barrett- Gonzalez, R., and Rolfe, S., "Parameters Affection Behavior of CFRP Overlay Elements as Retrofit Measures for Fatigue Vulnerable Steel Bridge Girders," Proceedings of the Fatigue and Fracture in the Infrastructure Conference, Philadelphia, PA, July 26-29, 2009.

Kaan, B., Barrett, R., Bennett, C., Matamoros, A., and Rolfe, S., "Fatigue Enhancements of Welded Cover Plates Using Carbon-Fiber Composistes", 2008, SEI/ASCEj Structures Congress, Vancouver, Canada, April 2008.

Vilhauer, B., Bennett, C., Matamoros, A., and Rolfe, S., (2007) "Fatigue Behavior of Welded Connections Enhanced with UIT and Bolting," Final Report to the Kansas Department of Transportation, Project KTRAN, KU-07-1, March 2008.

Anderson, B., Rolfe, S., Matamoros, A., Bennett, C., and Bonnetti, S., "Post Retrofit Analysis of the Tuttle Creek Bridge Br. No. 16-81-2.24", Structural Engineering and Engineering Materials SM Report No. 88, January 2007.

Marshall, N., Ramirez, G., Roddis, K., Rolfe, S., and Matamoros, A., "Field Instrumentation and Analysis of the Tuttle Creek Bridge BR. No. 16-81-24," SM

Report No. 79, University of Kansas Center for Research, Inc., Lawrence, Kansas, April 2005.

Rolfe, S. T., and Thomas, F. M., “Ethics Across the Curriculum, ASEE, 2007

Barsom, J. M. and Rolfe, S. T. “Fracture and Fatigue Control in Structures - Applications of Fracture Mechanics,” Third Edition, ASTM, 1999.

Rolfe, S., “Fracture Mechanics Testing for Structural Steels,” *Cement, Concrete, and Aggregates*, CCAGDP, Vol. 19, No. 2, Dec. 1997, pp. 92-102.

W. H. Munse and S. T. Rolfe, “Fatigue, Brittle Fracture, and Lamellar Tearing,” Chapter in *Structural Engineering Handbook*, McGraw-Hill, 1997.

Jeff Smith and Stan Rolfe, "The Significance of Crack Depth (a) and Crack Depth to Width Ratio (a/W) with Respect to the Behavior of Very Large Specimens," PVP Division, ASME, *Journal of Pressure Vessel Technology*, Vol. 119, Aug. 1997, pp. 279-287.

S. P. Groesgen, S. L. McCabe, and S. R. Rolfe, “Evaluation of Fatigue Performance of Welding Access Holes in Bridge Girders,” accepted by ASCE *Journal of Bridge Engineering*, to be published.

Jeffrey A. Smith and Stanley T. Rolfe, “An Analytical Investigation of the Effect of Crack Depth (a) and Crack Depth to Width (a/W) Ratio on the Fracture Toughness of A533-B Steel”, Fatigue and Fracture Mechanics 27th National Symposium on Fracture Mechanics, ASTM STP 1296, 1997, pp. 175-200.

S. T. Rolfe, "What the Structural Engineer Should Know about Fracture Mechanics," *Proceedings*, National Steel Construction Conference, San Antonio, TX, May 17-19, 1995, pp. 24-1 to 24-18.

J. A. Smith and S. T. Rolfe, "The Effect of Crack Depth (a) and Crack Depth to Width Ratio (a/W) on the Fracture Toughness of A533-B Steel," *Journal of Pressure Vessel Technology*, May 1994.

S. T. Rolfe, K. T. Hays, and A. E. Henn, "Fracture Mechanics Methodology for Fracture Control in VLCC's," SNAME Ship Structures Symposium ‘93, November 16-17, 1993, Arlington, VA.

S. T. Rolfe, "Fitness for Service -- Common Sense Engineering," Special Symposium on *The Art and Science of Structural Engineering* honoring William J. Hall, University of Illinois, April 25-27, 1993.

R. D. Whorley and S. T. Rolfe, "The Significance of the a/W Ratio on Fracture Toughness of A-36 Steel," *Welding Research Council Bulletin No. 375*, September 1992.

T. J. Theiss, D. K. Shum, and S. T. Rolfe, "Experimental and Analytical Investigation of the Shallow-Flaw Effect in Reactor Pressure Vessels," prepared for U.S. Nuclear Regulatory Commission, under Contract No. DE-AC05-840R21400, July 1992.

D. K. M. Shum, T. J. Theiss, and S. T. Rolfe, "Application of J-Q Fracture Methodology to the Analysis of Pressurized-Thermal-Shock in Reactor Pressure Vessels," presented at the 24th

ASTM National Symposium on Fracture Mechanics, June 30-July 2, 1992, Gatlinburg, TN, ASTM STP 1207, 24th National Symposium, 1994.

T. J. Theiss, D. K. M. Shum, and S. T. Rolfe, "Interim Results from the HSST Shallow-Crack Fracture Toughness Program," presented at the 24th ASTM National Symposium on Fracture Mechanics, June 30-July 2, 1992, Gatlinburg, TN, ASTM STP 1207, 24th National Symposium, 1994.

S. T. Rolfe, "The Behavior of Shallow Flaws in Reactor Pressure Vessels," prepared for U.S. Nuclear Regulatory Commission, Contract No. DE-AC05-840R21400, November 1991.

W. A. Sorem, R. H. Dodds, and S. T. Rolfe, "An Analytical Comparison of Short Crack and Deep Crack CTOD Fracture Specimens of A-36 Steel," ASTM, 1991.

S. T. Rolfe and J. A. Smith, "The Effect of Crack Depth to Specimen Width Ratio on the Elastic Plastic Fracture Toughness of a High-Strength Low-Strain Hardening Steel," *Welding Research Council Bulletin No. 358*, November 1990.

S. T. Rolfe, "Fitness for Service," Keynote Paper, 6th Annual North American Welding Research Conference, published in Conference Proceedings, October 1990.

S. T. Rolfe, W. A. Sorem, and R. H. Dodds, "An Analytical Comparison of Short Crack and Deep Crack CTOD Fracture Specimens of an A-36 Steel,"; "The Effects of Crack Depth on Elastic-Plastic CTOD Fracture Toughness," and "A Comparison of the J-Integral and CTOD Parameters for Short Crack Specimen Testing," Welding Research Council Bulletin No. 351, February 1990. "Effects of Crack Depth . . .," also published by *International Journal of Fracture*, No. 47, 1991, pp 105-126. "A Comparison of the J-Integral. . .," also published by American Society for Testing and Materials, ASTM STP 1114, pp 19-41, 1991.

W. A. Sorem, R. H. Dodds, Jr., and S. T. Rolfe, "The Effect of Crack Depth on Elastic-Plastic Fracture Toughness in Bend-Bar Specimens," Report on Research for David Taylor Research Center, Pressure Vessel Research Committee of the Welding Research Council, AISI, SL Report 89-1, October 1989.

S. T. Rolfe, W. A. Sorem, and G. W. Wellman, "Fracture Control in the Transition-Temperature Region for Structural Steels," *Journal of Constructional Steel Research*, 13, 1989, pp 171-195.

J. M. Barsom and S. T. Rolfe, "Fracture Mechanics in Failure Analysis," ASTM *STP 945*, 1988.

P. J. Konkol, A. K. Shoemaker, S. T. Rolfe, E. J. Imhof, and D. E. Sonon, "Fracture Toughness and Weldability Tests for Submerged-Arc-Welded Joints," Federal Highway Administration Report No. FHWA/RD-87/020, March 1987.

W. A. Sorem, R. H. Dodds, and S. T. Rolfe, "An Analytical and Experimental Comparison of Rectangular and Square CTOD Fracture Specimens of A-36 Steel," presented to 3rd International Symposium on Nonlinear Fracture Mechanics, October, 1986, published in ASTM *STP 995*, 1989.

W. A. Sorem and S. T. Rolfe, "Fracture Toughness of A-36 Steel Meeting the AASHTO Fracture Control Plan Requirements," presented to the ASCE Structures Congress 86, New Orleans, LA, September 1986.

G. W. Wellman, W. A. Sorem, R. H. Dodds, and S. T. Rolfe, "Specimen Thickness Effects for Elastic- Plastic Toughness of A-36 Steel," presented at the Eighteenth National Symposium on Fracture Mechanics, Boulder, CO, June 25-27, 1985, published in ASTM *STP 945*, 1988.

G. W. Wellman and S. T. Rolfe, "Three Dimensional Elastic-Plastic Finite Element Analysis of Three-Point Bend Specimen," Fracture Mechanics: Sixteenth Symposium, ASTM *STP 868*, 1985, pp 214-237.

G. W. Wellman and S. T. Rolfe, "Engineering Aspects of CTOD Fracture Toughness Testing," *Elastic-Plastic Fracture Toughness Test Methods: The Users Experience*, ASTM *STP 856*, 1985, pp 230-262.

G. W. Wellman, S. T. Rolfe, and R. H. Dodds, "Failure Prediction of Notched Pressure Vessels Using the CTOD Approach," submitted to ASME, at Pressure Vessel and Piping Conference, June 17-21, 1984, San Antonio, TX, published in *Welding Research Council Bulletin No. 299*, November 1984.

N. Willems, J. Easley, and S. T. Rolfe, *Strength of Materials*, textbook published by McGraw-Hill, 1981.

J. M. Barsom, J. W. Fisher, K. H. Frank, G. R. Irwin, R. Roberts, and S. T. Rolfe, "Fracture control Considerations for Steel Bridges," prepared for AISI for presentation at Regional AASHTO Meeting, Spring 1980.

S. T. Rolfe, "Structural Integrity in Merchant Ships," *Journal of Engineering Materials and Technology*, Vol. 102, January 1980, pp 15-19.

H. I. McHenry and S. T. Rolfe, "Fracture Control Practices for Metal Structures," sponsored by David Taylor Naval Ship Research and Development Center, Annapolis, MD 21402, January 1980.

S. T. Rolfe, "Background and Development of AASHTO Fracture Control Plan," prepared for 1979 Research Review Conference Federally Coordinated Program of Highway Research and Development, Williamsburg, VA, December 3-7, 1979.

S. T. Rolfe, "Structural Integrity in the Marine Industry," Structural Integrity Technology, presented at The Conference on Structural Integrity Technology, Washington, D.C., May 9-11, 1979, sponsored by The Materials Division, ASME, pp. 83-88.

R. A. May, A. Stuber, and S. T. Rolfe, "Effective Utilization of High Yield Strength Steel in Fatigue," Welding Research Council Bulletin No. 243, November 1978.

L. I. Knab, W. H. Munse, and S. T. Rolfe, "Fatigue/Fracture Criteria - Temporary Steel Bridges," presented at ASCE Convention and Exposition, Chicago, IL, October 16-20, 1978.

S. T. Rolfe and J. M. Barsom, *Fracture and Fatigue Control in Structures - Applications of Fracture Mechanics*, textbook published by Prentice-Hall, 1977, revised 1987.

S. T. Rolfe, "Fracture and Fatigue Control in Steel Structures," *Engineering Journal*, American Institute of Steel Construction, 1977.

R. Roberts, J. M. Barsom, J. Fisher, and S. T. Rolfe, "Fracture Mechanics for Bridge Design," prepared for Federal Highway Administration, U.S. Dept. of Transportation, July 1977.

L. I. Knab, W. H. Munse, A. H-S Ang, S. T. Rolfe, W. W. Sanders, Jr., H. A. Elleby, and T. V. Galambos, "Design Criteria for Theater of Operations Steel Highway Bridges," Vol. II and Appendices A-1, Technical Report M-195, U.S. Army Construction Engineering Research Laboratory, January 1977.

L. I. Knab, W. H. Munse, A. H-S Ang, S. T. Rolfe, W. W. Sanders, Jr., H. A. Elleby, and T. V. Galambos, "Design Criteria for Theater of Operations Steel Highway Bridges," Vol. I, Technical Report M-195, U.S. Army Construction Engineering Research Laboratory, January 1977.

S. T. Rolfe and W. J. Hall, "Application of Fracture Mechanics Analysis Techniques in High Performance Marine Systems," Report of the Committee on Application of Fracture Mechanics Analysis Techniques to Marine Systems, National Materials Advisory Board, Publication NAMB-327, Washington, D.C., 1976.

Hiroshi Maenaka and S. T. Rolfe, "Crack-Opening Displacement Testing of ABS-B Ship Hull Steel," University of Kansas Center for Research, Inc., July 1976.

S. T. Rolfe, "Fracture Mechanics and the AASHTO Material Toughness Requirements for Bridge Steels," Canadian Structural Engineering Conference, LeChateau Champlain du Canada, Montreal, February 1976.

S. T. Rolfe and W. J. Hall, "Fracture Mechanics, Fracture Criteria and Fracture Control in Structures," Structural and Geotechnical Symposium honoring Dr. N. M. Newmark, University of Illinois, October 1975.

S. T. Rolfe, "Fracture Mechanics, Fracture Criteria and Fracture Control for Welded Steel Ship Hulls," presented at the Ship Structure Symposium, Washington, D.C., October 1975, Society of Naval Architects and Marine Engineers.

S. T. Rolfe, D. M. Rhea, and B. O. Kuzmanovic, "Fracture-Control Guidelines for Welded Steel Ship Hulls," Final Report on Project SR-202, Ship Structure Committee Report SSC-244, "Fracture Criteria," Dept. of the Navy, U.S. Coast Guard Headquarters, Washington, D.C., 1974.

S. T. Rolfe, "The New AASHTO Material Toughness Requirements," Specialty Conference on Metal Bridges, ASCE Committee on Metals, Structural Division, St. Louis, MO, November 1974, published by ASCE.

S. T. Rolfe, "Use of Fracture Mechanics in Design," *International Metallurgical Reviews*, September 1974.

C. P. Royer and S. T. Rolfe, "Effect of Strain-Hardening Exponent and Strain Concentrations on the Bursting Behavior of Pressure Vessels," presented at the Pressure Vessels and Piping Conference with Nuclear Engineering and Materials Division, Miami Beach, FL, July 1974, published in the *ASME Journal of Engineering Materials and Technology*, Vol. 96, Series H, No. 4, October 1974.

S. T. Rolfe, "Fracture-Control Guidelines for Welded Steel Ship Hulls," Proceedings of the Japan-U.S. Seminar, 1973, Tokyo, published by University of Tokyo Press.

S. T. Rolfe, "Fracture Mechanics as Related to Structural Grade Steels," Semi-Annual Seminar on Materials Research, *Fatigue and Fracture of Structural Steels*, Lehigh University, November 1973.

C. P. Royer, S. T. Rolfe, and J. T. Easley, "Effect of Strain Hardening on Bursting Behavior of Pressure Vessels," ASME Second International Conference on Pressure Vessel Technology, San Antonio, TX, October 1973.

S. T. Rolfe, "Designing to Prevent Brittle Fractures in Bridges," Specialty Conference on Safety and Reliability of Metal Structures, ASCE Committee on Metals, Pittsburgh, PA, November 1972, published by ASCE.

S. T. Rolfe, "Fracture Mechanics in Bridge Design," *Civil Engineering ASCE*, August 1972, pp 37-41.

S. T. Rolfe and G. R. Egan, "Designing to Prevent Fracture in Tall Buildings," Lehigh University, Bethlehem, PA, August 1972, ASCE-IABSE International Conference Preprints, Reports Vol. 11-18.

J. M. Barsom, E. J. Imhof, and S. T. Rolfe, "Fatigue-Crack Propagation in High Yield-Strength Steels," *Engineering Fracture Mechanics*, Pergamon Press, New York, Vol. 2, No. 4, June 1971, p. 301-317.

A. K. Shoemaker and S. T. Rolfe, "The Static and Dynamic Low-Temperature Crack-Toughness Performance of Seven Structural Steels," *Engineering Fracture Mechanics*, Vol. 2, No. 4, June 1971, p. 319.

J. M. Barsom and S. T. Rolfe, "K_{Ic} Transition-Temperature Behavior of A517-F Steel," *Engineering Fracture Mechanics*, Vol. 2, No. 4, June 1971, p. 341.

J. M. Barsom and S. T. Rolfe, "Correlations between K_{Ic} and Charpy V-Notch Test Result in the Transition Temperature Range," *Impact Testing of Metals*, ASTM *STP 466*, American Society of Testing and Materials, 1970, pp 281-302.

S. T. Rolfe, "Fracture Criteria for Selection of Structural Steels," ASM Conference on Fracture Control for Metal Structures, Philadelphia and Chicago, 1970.

S. T. Rolfe and S. R. Novak, "Slow Bend K_{Ic} Testing of Medium-Strength Steels," *Review of Developments in Plane Strain Fracture Toughness Testing*, ASTM *STP 463*, American Society of Testing and Materials, 1970, pp 124-159.

S. R. Novak and S. T. Rolfe, "Comparison of Fracture Mechanics and Nominal-Stress Analyses in Stress-Corrosion Testing," *Corrosion*, Vol. 26, No. 4, April 1970, pp 121-130.

S. T. Rolfe, "Fracture Mechanics as Applied to Failure Analysis of Bridges," presented at Proceedings 15th Structural Engineering Conference, University of Kansas, April 1970.

J. M. Barsom and S. T. Rolfe, "Fatigue and Burst Analysis of HY-140(T) Steel Pressure Vessels," *ASME Journal of Engineering for Industry*, February 1970.

Discussion of "The Influence of Crack Length and Thickness in Plane-Strain Fracture-Toughness Tests," by M. H. Jones and W. F. Brown, Jr., presented by S. T. Rolfe and S. R. Novak.

Discussion of "Prevention of Catastrophic Brittle Fracture of Heavy-Wall Pressure Vessels," by W. B. Bedesem and J. S. Clarke, presented by S. T. Rolfe.

Discussion of "Application of Fracture Mechanics Technology to Medium-Strength Steels," by Wessel and Clark, presented by S. T. Rolfe.

A. K. Shoemaker and S. T. Rolfe, "Static and Dynamic Low Temperature K_{Ic} Behavior of Steels," *ASME Journal of Basic Engineering*, September 1969.

S. R. Novak and S. T. Rolfe, "Modified WOL Specifications for K_{Iscc} Environmental Testing," *Journal of Metals*, Vol. 4, No. 3, September 1969, pp 701-728.

A. K. Shoemaker and S. T. Rolfe, "The Static and Dynamic Low-Temperature Crack-Toughness Performance of Seven Structural Steels," Presented at the Third National Symposium on Fracture Mechanics, Lehigh University, Bethlehem, PA, August 1969.

J. M. Barsom and S. T. Rolfe, "K_{Ic} Transition-Temperature Behavior of A517-F Steel," presented at Third National Symposium on Fracture Mechanics, Lehigh University, Bethlehem, PA, August 1969.

S. T. Rolfe, J. M. Barsom, and Maxwell Gensamer, "Fracture-Toughness Requirements for Steels," presented to the First Annual Offshore Technology Conference, Houston, TX, May 18-21, 1969.

S. T. Rolfe, A. K. Shoemaker, and J. M. Barsom, "Developing Toughness Criteria for Bridge Steels," presented at American Association of State Highway Officials (AASHO), Spring meetings, April through May, 1969.

G. M. Sinclair and S. T. Rolfe, "Analytical Procedure for Relating Subcritical Crack Growth to Inspection Requirements," submitted to ASME for presentation at the Metals Engineering Division Conference on "Environmental Effects in Failure of Engineering Materials," Washington, D.C., March 31-April 2, 1969.

S. T. Rolfe, R. P. Haak, and J. H. Gross, "Effect of State-of-Stress, and Yield Criterion on the Bauschinger Effect," *Journal of Basic Engineering*, September 1968.

T. L. Boblenz, J. M. Fisher, S. T. Rolfe, and J. H. Gross, "Reversed-Axial-Load Testing of High-Strength Steels," ASTM Annual Convention, June 27 through July 1, 1966, *STP 419*.

S. T. Rolfe, S. R. Novak, and J. H. Gross, "Stress Corrosion Testing of Ultraservice Steels Using Fatigue Cracked Specimens," ASTM Annual convention, June 27 through July 1, 1966.

J. H. Gross, R. D. Manning, L. F. Porter, A. M. Rathbone, and S. T. Rolfe, "Steels for Hydrospace Pressure Hulls," *ASM Metals Engineering Quarterly*, August 1965.

S. T. Rolfe, R. P. Haak, and J. H. Gross, "Structural Suitability of a High Toughness Allow Plate Weldment with a Minimum Yield Strength of 140 ksi," *Welding Journal Research Supplement*, January 1965, and *ASM Metals Engineering Quarterly*, February 1965.

S. T. Rolfe, "How to Design for Notch Toughness," *Product Engineering*, December 21, 1964.

S. T. Rolfe, Discussion of "Effects of Cold Straining on Structural Steel Sheets," *ASCE Structural Division Journal*, October 1963.

S. T. Rolfe and W. H. Munse, "Fatigue Crack Propagation in Notched Mild Steel," *Welding Journal Research Supplement*, June 1963.

S. T. Rolfe and W. H. Munse, "Crack Propagation in Low-Cycle Fatigue of Mild Steel," Ship Structure Committee Report No. 143, May 1, 1963.

S. T. Rolfe, W. J. Hall, F. W. Bartom, and N. M. Newmark, "Brittle-Fracture Propagation in Wide Steel Plates," Ship Structure Committee Report No. 131, October 3, 1961.

S. T. Rolfe and W. J. Hall, "Strain Field Associated With Brittle-Fracture Propagation in Wide Steel Plates," *Experimental Mechanics*, September 1961.

S. T. Rolfe, T. M. Lynam, and W. J. Hall, "Studies of the Strain Distribution in Wide Plates During Brittle-Fracture Propagation," Ship Structure Committee Report No. 118, December 30, 1959.

S. T. Rolfe, W. J. Hall, and N. M. Newmark, "Brittle-Fracture Tests of Steel Plates Containing Residual Compressive Strain," *Welding Journal Research Supplement*, April 1959.

Courses Taught

CE 191 (2) Introduction to Civil Engineering
CE 311 (3) Strength of Materials
CE 310 (4,5) Strength of Materials with Laboratory
CE 461 (3,4) Structural Analysis
CE 499 (1) Senior Seminar -- Professional Practice
CE 767 (3) Introduction to Fracture Mechanics
CE 913 (3) Advanced Fracture Mechanics
CE 890 Special Problems
CE 899 Masters Thesis
CE 999 PhD Thesis

Students Advised

Masters Students (Name, Date, Thesis Title)

James W. Peck, 1970, Application of Fracture Mechanics Theory to Fracture Behavior of a High-Strength Aluminum

David M. Rhea, 1973, Fracture Control Guidelines For Welded Steel Ship Hulls

Charles P. Royer, 1973, Effect of Strain Hardening on Bursting Behavior of Pressure Vessels

Rodney A. May, 1977, Effective Utilization of High-Yield Strength Steels in Fatigue

Ronald C. Blom, 1980, Temperature Effects on Elastic-Plastic Fracture Mechanics Parameters (COD and J_I) for an A517 Steel

Gary L. Golubski, 1984, Crack Tip Opening Displacement Test Results For A572 and A533 Steels

Fabian J. Orth, 1989, The Effect of Temperature and Loading Rate on Fractographic Features of an A36 Steel in the Lower Shelf and Lower Transition Regions

William A. Sorem, 1989, Fracture Toughness of an A36 Steel Meeting the AASHTO Fracture Control Plan Requirements

Jeffrey A. Smith, 1989, The Effect of Crack Depth to Width Ratio on the Elastic-Plastic Fracture Toughness of a High-Strength Low-Strain Hardening Steel

Robert A. Whorley, 1991, The Significance of the a/W Ratio on the Fracture Toughness of A-36 Steel

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