

REAL WORLD FORENSIC ENGINEERING

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Dr. Jahan Rasty, Ph.D., P.E., MBA

CITIZENSHIP: U.S.A.

SPECIALIZATION:

Experimental and Numerical Solid Mechanics with Emphasis in:

- Materials, Mechanical Design/Mechanisms, Thermal Stresses
- Forensic Engineering, Root-Cause Failure Analysis
- Fatigue & Fracture, Corrosion, Stress Analysis, Metallurgy
- Destructive and Nondestructive Residual Stress Measurement

EDUCATION:

MBA, 1999: College of Business Administration, Texas Tech University.

Ph.D., 1987: Department of Mechanical Engineering, Louisiana State University (LSU).

Dissertation Title: "*Experimental and Finite Element Study of Residual Stresses Induced by Non-homogeneous, Large Deformation Manufacturing Processes: Application to Zircaloy-4(R) Nuclear Fuel Cladding and Oxygen-Free High Conductivity (OFHC) Copper Tubes.*"

B.S./M.S. 1981/1984: Department of Mechanical Engineering, Louisiana State University (LSU).

Thesis Title: "*The Effect of Imperfect Contact Between Adjacent Layers on the Integrity of Multilayer Wrapped Pressure Vessels with Interlayer Gaps.*"

LICENSE:

Registered Professional Engineer, State of Texas, Certificate No. 71689.

PROFESSIONAL AFFILIATIONS:

- The American Society of Mechanical Engineers (ASME) – member
- The American Society of Mechanical Engineers(ASME) - Region X Operating Board
- Society for Experimental Mechanics (SEM) - member
- American Society of Metals, Minerals and Materials (ASM International) - member
- Electronic Device Failure Analysis Society (EDFAS) - member
- The Metallurgical Society (TMS) - member
- Texas Faculty Association (TFA) - member

ACADEMIC ACHIEVEMENTS AND AWARDS:

- 2002-05:** The American Society of Mechanical Engineers (ASME) International, Board of Governors – **Regional Secretary**
- 2002:** **The American Society of Mechanical Engineers (ASME) International, Board of Governors** – in recognition for “valued service in advancing the engineering profession as Assistant Vice President for Education (1999-2001) and Vice Chair for Education (1998-1999).”
- 2002:** **Texas Tech American Society of Mechanical Engineers (ASME) Student Chapter Service Award** – in recognition of 13 years of service as the Faculty Advisor for the ASME chapter.
- 2001:** **The American Society of Mechanical Engineers (ASME) International Meritorious Service Award** – in recognition for his efforts in coordinating the Graduate Student Technical Conference (GSTC).
- 1993:** **Halliburton Education Foundation** Award of Excellence for Outstanding Achievement and Professionalism in Education, Research and Service,
- 1992:** **The American Society of Mechanical Engineers (ASME) International** Counsel on Member Affairs Award for outstanding contributions as the Faculty Advisor to the ASME Student Section at Texas Tech,
- 1992:** **Ralph Teetor** award for education/research, Society of Automotive Engineers,
- 1991:** **The American Society of Mechanical Engineers (ASME) International** Board of Governors award for valued services in advancing the engineering profession.
- 1990:** **Halliburton Education Foundation** Award of Excellence for Outstanding Achievement and Professionalism in Education, Research and Service,
- 1989:** **Alcoa Foundation** Grant Award for Excellence in Research,
- 1986:** **American Public Works Association (APWA)** Grant Award,
- 1984-87:** **Kaiser Aluminum** and Chemical Company Fellow in Materials Science,

WORK EXPERIENCE:

1/85-7/85: ETHYL Corp., Baton Rouge, Louisiana.

Project Engineer

Evaluated the stresses and displacements of reactor vessels under operating conditions and recommended modifications in the design of the vessels. Analysis was conducted using the existing theoretical solutions. In addition, ANSYS Finite Element Program was utilized to verify the theoretical results. Due to complex geometry of reactor parts being analyzed, extensive experience in modeling of mechanical parts with complex geometry and boundary conditions was obtained.

1986-Present: Real-World Forensic Engineering

President

Performed engineering analysis and provided expert witness testimony and consulting services in the areas of Forensic Engineering, Mechanical Design, Failure Investigation, Stress Analysis, Materials Characterization/Testing, and Experimental Engineering Analysis for a number of local as well as national corporations.

TEACHING EXPERIENCE:

1988-1993: Assistant Professor, Department of Mechanical Engineering, Texas Tech,

1993-Present: Associate Professor, Department of Mechanical Engineering, Texas Tech.

Taught and Developed (**) the Following Undergraduate and Graduate Courses:

- 1) Statics, TTU-ME 2464
- 2) Design Through Failure Analysis (**), TTU-ME 4342
- 3) Mechanical Metallurgy (**), TTU-ME 4343,
- 4) Materials Science, TTU-ME 3311,
- 5) Measurements & Instrumentation Laboratory – ME 3218
- 6) Materials and Mechanics Laboratory, TTU-ME 3328
- 7) Materials in Design (**), TTU-ME 4341,
- 8) Manufacturing Processes (**), TTU-ME 4344,
- 9) Dynamics, TTU-ME 3331,
- 10) Introduction to Machine Design, TTU-ME 3364,
- 11) Machine Component Design, TTU-ME 3365,
- 12) Mechanical Systems Laboratory, TTU-ME 4252,
- 13) Applied Mechanics (**), TTU-ME 4362,
- 14) Senior Design-I, TTU-ME 4370,
- 15) Senior Design-II, TTU-ME 4371,
- 16) Individual Studies, TTU-ME 4331,
- 17) Fracture and Failure Analysis (**), TTU-ME 5342 (graduate)
- 18) Foundations of Solid Mechanics (**), TTU-ME 5352 (graduate),
- 19) Plasticity and Viscoelasticity (**), TTU-ME 5353, (graduate),
- 20) Theory of Thermal Stresses (**), TTU-ME 5344, (graduate),
- 21) Deformation Mechanics (**), TTU-ME 5331, (graduate).
- 22) Dislocation Mechanics (**), TTU-ME 5343, (graduate).

PROFESSIONAL DEVELOPMENT COURSES:

- 2002:** Attended the American Society of Mechanical Engineers (ASME International) Management Training Seminar, August 10, 2002, San Antonio, TX.
- 1997:** Successfully completed a course on "*Interpersonal Skills*" at the ASME Region X Management Training Seminar held on April 4-5, 1997 in Arlington, Texas.
- 1997:** Successfully completed a course on "*Mutil-Scale Modeling of Polycrystal Plasticity*" at the Institute for Mechanics and Materials Seminar held on April 9-11, 1997 in San Diego, California.
- 1993:** Successfully completed a course on "*Teaching Effectiveness*" presented at the National Effective Teaching Institute's workshop held at the University of Illinois at Urbana-Champaign, June 24-26, 1993.
- 1990:** Successfully completed a course on "*Probabilistic Structural Analysis Methods and NESSUS Workshop*" presented by the Southwest Research Institute, San Antonio, Texas, April 16-20, 1990.
- 1989:** Successfully completed a course on "*Integrated Learning System - Improving Engineering Education*," Presented by Dr. K.J. Williamson, and P.K. Hurt, in a teaching effectiveness workshop held at Texas Tech University.
- 1988:** Successfully completed a course on "*Creating Creative Engineers*", presented at the National Effective Teaching Institute's workshop held at North Carolina State University, June 11-13, 1988.
- 1984:** Successfully completed a course on "*Teaching Effectiveness*" presented by Professor James E. Stice, at the Center for Teaching Effectiveness Workshop, held at Louisiana State University, March 15-17, 1984.

RESEARCH & PROJECT MANAGEMENT EXPERIENCE:

1988-Present: Department of Mechanical Engineering , Texas Tech University, Lubbock, TX.

Funded Research:

Served as the PI and/or Co-PI of 23 research projects (listed below) with a total funding of \$7,261,938. (other non-funded research projects are not listed.)

- 1) Principal-Investigator: "Effect of Dietary Lipids on Flexural Strength and Histomorphometry of Osteoporotic Animal Bone Models". Funded by Texas Tech Multidisciplinary Seed Grant Program, \$29,200, 4/01/2002- 8/01/2003.
- 2) Co-Investigator: "Two-year program extension, MURI-II, "Explosive-Driven Power Generation for Directed-Energy Munitions," Funded by Air Force Office of Scientific Research, \$2,000,000, 5/01/2001- 5/01/2003.
- 3) Co-Investigator: "MURI II, Explosive-Driven Power Generation for Directed-Energy Munitions," Funded by Air Force Office of Scientific Research, \$3,000,000, 5/01/98-5/01/2001.
- 4) Principal-Investigator: "Materials Testing System", Instron Corp., \$27,320, 5/97.
- 5) Principal-Investigator: "Hydraulic Power Unit for Cold Expansion of Airplane Fuselage Rivet Holes", Womack Systems. L.C., \$925, 10/96.
- 6) Principal-Investigator: "Improving Machining of Internally Stressed Components Through Model Predictive Control," Funded by the Pittsburgh Supercomputing Center, \$8,000 9/96-9/97.
- 7) Principal-Investigator: "Improving Machining of Internally Stressed Components Through Model Predictive Control," Funded by the Pittsburgh Supercomputing Center, \$16,000 9/95-9/96.
- 8) Principal-Investigator: "Effective Control of Distortion and Residual Stresses Induced by Rapid Quenching" Funded by the Advanced Technology Program (ATP), Texas Higher Education Coordinating Board, \$88,000, 1/96-1/98.
- 9) Principal-Investigator: "Design and Construction of a Scale Model 400-Ton Mechanical Press for Manufacturing Expanded Metal Grating. Funded by EMI Inc., \$1,243, 8/94 - 12/94.
- 10) Principal-Investigator: "Achieving Optimum Material Properties While Minimizing Distortions due to Rapid Quenching," Funded by the Center for Applied Automation and Research (CFAR), \$15,250, 11/93-11/94.
- 11) Co-Investigator: "Effect of Thermal Cycling and Space Conditions on the High Voltage Flash-Over of Dielectrics", Funded by Defense Nuclear Agency (DNA), \$500,000, 1/93-1/94.

- 12) Co-Investigator: "Design and Manufacturing of Multi-Layered Spherical Pressure Vessels Using the Integral Hydro-Bulge Forming Method", Funded by College of Engineering, Texas Tech University, State Line Item Research Program, \$23,500, 9/92-9/93.
- 13) Co-Investigator: "High-Voltage Space Power Research", Funded by Defense Nuclear Agency (DNA), \$250,000, 1/92-1/93.
- 14) Co-Investigator: "Effect of Thermal Cycling and Space Conditions on the High Voltage Flash-Over of Dielectrics", Funded by Defense Nuclear Agency (DNA), \$460,000, 1/92-1/93.
- 15) Principal-Investigator: "Composite Materials", Funded by W.G. Composites, \$60,000, 12/91.
- 16) Co-Investigator: "Effect of Thermal Cycling and Space Conditions on the High Voltage Flash-Over of Dielectrics", Funded by Defense Nuclear Agency (DNA), \$500,000, 1/91-1/92.
- 17) Principal Investigator: "Experimental Measurement of Residual Stresses Due to Non-uniform Cooling Following Heat Treatment Operation", Funded by Alcoa Technical Center, \$10,000, 1/91-1/93.
- 18) Principal Investigator: "Ultrasonic-Based Measurement of Residual Stresses Induced by Large Deformation Manufacturing Processes", Funded by Engineering Foundation, a Department of Engineering Trustees Inc., \$20,000, 9/90-9/91.
- 19) Principal Investigator: "Equipment for Ultrasonic-Based Measurement of Residual Stresses Induced by Large Deformation Manufacturing Processes", Funded by Texas Tech University, \$24,000, 6/91-6/92.
- 20) Co-Investigator: "Avionics Integrity: Finite Element Analysis of LRUs and PCBs Subjected to Vibration and/or Thermal Environments", Funded by General Dynamics/FW, \$100,000, 1/90-1/91.
- 21) Principal Investigator: "Physical and Numerical Modeling of Metal-Forming Processes", Alcoa Research Foundation, \$7,500, 6/89-90.
- 22) Co-Investigator: "An Automated Video-Optical Diffractometry Technique for Measurement of Strain on Curved Surfaces", Funded by the Advanced Technology Program (ATP), Texas Higher Education Coordinating Board, \$114,000, 6/88-9/90.
- 23) Co-Investigator: "Development of a Beam Pump Intelligent Well Controller: Measurement of Position, Displacement and Induced Forces", Funded by Teledyne Merla Inc., \$7,000, 1/89-1/90.

- 1995-1996:** **ASME Conference Symposium Developer,**
Served as the U.S. Symposium Chairman. Organized the "Manufacturing" symposium at the ASME's Third European joint conference on Engineering Systems Design and Analysis (ESDA), held July 1-4, 1996, Montpellier, France.
- 1993-1994:** **ASME Conference Session Developer,**
Served as a session developer. Organized and developed a session in "Plasticity" at the ASME's Second European joint conference on Engineering Systems Design and Analysis (ESDA), held July 4-7, 1994, London, England.
- 1992-1994:** **Society for Experimental Mechanics, Residual stress Committee.**
Served on the SEM Residual Stress Committee and helped with the organization of conference sessions, publications, and workshops.
- 1993:** **Society for Experimental Mechanics Conference Session Developer,**
Organized and chaired a sponsored session on the "Application of Numerical Methods to the Analysis of Residual Stresses," for the 50th Annual Spring Conference of the Society for Experimental Mechanics, June 5-12, 1993, Dearborn, Michigan.
- 1992:** **ASME Conference Session Developer,**
Served as a session developer. Organized, developed and chaired a session in "Plasticity" at the ASME's first European joint conference on Engineering Systems Design and Analysis (ESDA), June 29-July 4, 1992, Istanbul, Turkey.
- 1988-1989:** **SAE Project Faculty Co-Adviser,**
Department of Mechanical Engineering, Texas Tech University.
Assisted in the organizing of the SAE National Walking Machine Decathlon Contest, held at Texas Tech in April, 1989. This is an annual robotics competition aimed at promoting interdisciplinary cooperation among undergraduate engineering students from ME, CE, EE, and CS Departments.
- 1991-1997:** Adopt-a-Classroom Project. Assisted local high schools with engineering-related design projects and competitions that help promote the field of engineering.
- 1991-1993:** Member of the Board of Directors of Lubbock Tennis Association (LTA).
- 1989-1990:** Volunteer judge at the "**Math Count**" competition among local schools.

BOOK/EDITORIAL PUBLICATIONS:

- 1) J. Rasty, A. Ertas, and R. Couvillion, Editors, "Proceedings of the Third Joint ASME/SDPS International Graduate Student Technical Conference", March 31- April 2, 2005, Lubbock, TX
- 2) J. Rasty, A. Ertas, and R. Couvillion, Editors, "Proceedings of the Second Joint ASME/SDPS International Graduate Student Technical Conference", March 25-27, 2004, Longview, TX
- 3) J. Rasty, R. Couvillion, and A. Ertas, Editors, "Proceedings of the First Joint ASME/SDPS International Graduate Student Technical Conference", March 28-29, 2003, Houston, TX
- 4) Bellet, M., Rasty, J., Editors, "Volume 3: Composite Materials, Manufacturing, Fatigue, and Fracture," ASME Engineering Systems Design and Analysis, ASME Publishing, 1996.
- 5) East, I.I., Veniali, F., Rasty, J., Gransberg, D.D., Ertas, A., Editors, "Integrated Design and Process Technology," Society for Design and Process Science Publishing, 1996.
- 6) Rasty, J., Book Section: "Residual (Internal) Stress Considerations in Design," The Engineering Design Process, A. Ertas, and J.C. Jones, John Wiley & Sons Publishing, 1993.

JOURNAL PUBLICATIONS

- 7) Chwan-Li Shen, James K. Yeh, Jahan Rasty, Yong Li, and Bruce A. Watkins, "Protective effect of dietary long chain n-3 PUFA on bone loss in intact middle-aged male rats," submitted to British Journal of Nutrition (June 2005).
- 8) Barry J. Henry, MD, Mike Kenison, BS, Catherine McVay, PhD, Rial Rolfe, PhD, Suzanne Graham, MD, Jahan Rasty, PhD, James Slauterbeck, MD, Eugene J. Dabezies, MD, "The Effect of Local Hematoma Blocks on Early Fracture Healing," Feature Article in the Journal of Orthopedics, Vol. 25, No. 11, November 2002, pp. 1259-1262.
- 9) Dutta, N., and Rasty, J., "Strain Measurements in Elastic Field for Locating Elastic-Plastic Boundary Around Cold-Expanded Holes," Journal of Engineering Materials and Technology (JEMT), Accepted for publication.
- 10) Sofuoglu, H., Rasty, J., "Flow Behavior of Plasticine used in Physical Modeling of Metal Forming Processes," Journal of Tribology International, Vol. 33, Issue 8, October 2000, pp. 523-529.
- 11) Sofuoglu, H., Rasty, J., "On the Measurement of Friction Coefficient Utilizing the Ring Compression Test" Journal of Tribology International, Vol. 32, Issue 6, January 2000, pp. 327-335.
- 12) Rasty, J., Kolarik, W., and Chen, B.M., "Designing Surface Mounted Components for High Reliability," Journal of Energy Resources Technology, Vol. 116, No. 3, September 1994, pp. 232-239.

- 13) Rasty, J., and Tamhane, P., "Application of the Finite Element Method to the Quasi-Static Thermoelastic Analysis of Prestress in Multilayer Pressure Vessels," ASME Transactions, Journal of Pressure Vessel Technology, Vol. 116, No. 3, August 1994, pp. 254-260.
- 14) Hashemi, J., Rasty, J., Li, S., and Tseng, A.A., "Integral Hydro-Bulge Forming of Single and Multi-Layered Spherical Pressure Vessels," ASME Transactions, Journal of Pressure Vessel Technology, Vol. 115, No. 3, August 1993, pp. 249-255.
- 15) Sofuoglu, H., Rasty, J., "3-D Simulation of the Extrusion Process Utilizing the Physical Modeling Technique," Journal of Energy Sources Technology. Vol. 115, No. 1, March 1993, pp. 32-40.
- 16) Rasty, J. and Chapman, D., "Isothermal and Thermomechanical Finite-Element Analysis of the Tube Drawing Process Utilizing a Fixed, Tapered Plug," Journal of Materials Engineering and Performance, Vol. 1, No.4, August 1992, pp. 547-554.
- 17) Rasty, J. and Sabbaghian, M., "The Effect of Imperfect Contact between Adjacent Layers on the Integrity of Multilayered Wrapped Vessels," Journal of Pressure Vessel Technology, Transactions of the ASME, Vol. 110, No. 3, August 1988, pp. 247-254.

CONFERENCE PUBLICATIONS & PRESENTATIONS:

- 18) K.V. Ramkumar, and J. Rasty, "Effect of Combined Corrosion and Residual Stress on Fatigue Failure", proceedings of the 2004 Society for Experimental Mechanics (SEM) X International Congress, June 7-10, 2004, Costa Mesa, California.
- 19) J.F. Cardenas-Garcia, and J. Rasty, "The Indentation Test Revisited: Obtaining Poisson's Ratio", proceedings of the 2004 Society for Experimental Mechanics (SEM) X International Congress, June 7-10, 2004, Costa Mesa, California.
- 20) Chawn-Le Shen, Dale M. Dunn, James, K. Yeh, Bruce A. Watkins, Yong Li, Ali Raja, and Jahan Rasty, "Dietary n-3 Polyunsaturated Fatty Acids Prevent Aging-induced Bone Loss in Male Rats." To be presented at the Experimental Biology Conference, Washington D.C., April 2004.
- 21) David Hemmert, John Mankowski, Jahan Rasty, Andreas Neuber, Xiaobin Le, James Dickens, and Magne Kristiansen, "Conductivity Measurements of Explosively Shocked Aluminum and OFHC Copper Used for Armature Material in a Magnetic Flux Compression Generator," Presented at the Pulsed Power Conference, Dallas, Texas, June 16-18, 2003.
- 22) Jahan Rasty and Xiaobin Le, James Dickens, Andreas Neuber, and Magne Kristiansen, "Design Criteria for Prevention of Armature Turn-Skipping in Helical Magnetic Flux Compression Generators," Presented at the Pulsed Power Conference, Dallas, Texas, June 16-18, 2003.
- 23) Rasty, J., Le, X., Neuber, A., Dickens, J., Kristiansen, M. "Microstructural Evolution of the Armature Material Subjected to Explosive Shock-Loading in Magnetic Flux Compression Generators," Proceedings of the Ninth International Conference on Megagauss Magnetic Field Generation and Related Topics, Moscow-St. Petersburg, Russia, July 7-14, 2002, pp. 197-201.

- 24) Rasty, J., Le, X., Neuber, A., Dickens, J., Kristiansen, M. "Effect of Scaling on Armature Expansion Angle in Magnetic Flux Compression Generators," Proceedings of the Ninth International Conference on Megagauss Magnetic Field Generation and Related Topics, Moscow-St. Petersburg, Russia, July 7-14, 2002, pp. 191-196.
- 25) Rasty, J., Le, X., "Failure Analysis of the Rear Axles in a Sports Utility Vehicle (SUV)," Symposium on Failure Analysis and Prevention, 2001 ASME International Mechanical Engineering Congress & Exposition, New York, NY, November 11-16, 2001.
- 26) Rasty, J., Le, X., Neuber, A., Dickens, J., and Kristiansen, M." Experimental and Numerical Investigation of the Armature/Stator Contact in Magnetic Flux Compression Generators," Proceedings of the 28th IEEE International Conference on Plasma Science, Las Vegas, Nevada, June 17-22, 2001
- 27) Le, X., Rasty, J., Neuber, A., Dickens, J., and Kristiansen, M." Calculation of Air Temperature and Pressure History During the Operation of a Flux Compression Generator," Proceedings of the 28th IEEE International Conference on Plasma Science, Las Vegas, Nevada, June 17-22, 2001
- 28) Hemmert, D., Rasty, J., Le, X., Neuber, A., Dickens, J., and Kristiansen, M." Conductivity Measurements of MFCG Armature Material Under Shock and High Strain Rates Utilizing a Split-Hopkinson Pressure Bar Apparatus," Proceedings of the 28th IEEE International Conference on Plasma Science, Las Vegas, Nevada, June 17-22, 2001.
- 29) Neuber, A., Dickens, J., Giesselmann, M., Freeman, B., Rasty, J., Le, X., Krompholz, H., and Kristiansen, M." Fundamental Studies of a Simple Helical Magnetic Flux Compression Generator ," Proceedings of the 27th IEEE International Conference on Plasma Science, New Orleans, LA, June 4-7, 2000.
- 30) Rasty, J., Le, X., Neuber, A., Zhang, J., Dickens, J., "Measurement of Dynamic Electrical Conductivity of MFCG Armature Material under Conditions of Shock and High Strain Rate Loading," Proceedings of the 12th IEEE International Pulsed Power Conference, June 27-30, 1999, Monterey, CA, pp. 708-711.
- 31) Dutta, N., Rasty, J., "Determination of Elastic-plastic Boundary around Cold-expanded Holes Using Elastic Strain," Proceedings of the 1999 Society for Experimental Mechanics (SEM) Spring Conference, June 7-9, 1999, Cincinnati, Ohio.
- 32) Dutta, N., Rasty, J., and Rassaian, M., "Evolution of Internal Stresses in Co-Drawing Bimetallic Rods," Proceedings of the 1998 Society for Experimental Mechanics (SEM) Spring Conference, June 1-3, 1998, Houston, Texas.
- 33) Dutta, N., Rasty, J., and Rassaian, M. "Finite Element Analysis of Elastic-Plastic Zone Around Cold-Expanded Holes," Post-Conference Proceedings of the 1997 Society for Experimental Mechanics (SEM) Spring Conference, June 2-5, 1997, Bellevue, Washington, pp. 108-115.
- 34) Rasty, J., Dutta, N., Dehghani, M., and Rassaian, M. "Finite Element Analysis of Residual Stresses and Interface Shear Strength in Co-Drawing of Tubular Components," proceedings of the 1997 Society for Experimental Mechanics (SEM) Spring Conference, June 2-5, 1997, Bellevue, Washington.

- 35) Rasty, J. and Sofuoglu, H., " On the Measurement of Friction Coefficient Utilizing the Ring Compression Test: Part II - Effect of Deformation Speed, Strain Rate and Barreling," Proceedings of the 1996 ASME European Joint Conference on Engineering Systems Design and Analysis (ESDA), Symposium on Manufacturing, July 1-4, 1996, Montpellier, France, PD-Vol. 75, pp. 189-197.
- 36) Rasty, J., H. Shin, "The Effect of Machining Operations on Changes in Curvature and Redistribution of Residual Stresses," Proceedings of the 1995 ASME/Winter Annual Meeting - Symposium on Recent Advances in Structural Mechanics, November 12-17, 1995, San Francisco, CA, PVP-Vol. 321/NE-Vol.18, pp. 65-78.
- 37) Sofuoglu, H., and Rasty, J. " On the Measurement of Friction Coefficient Utilizing the Ring Compression Test: Part I - Effect of Material Properties," Proceedings of the 1994 ASME European Joint Conference on Engineering Systems Design and Analysis (ESDA), Symposium on Design: Analysis, Synthesis, and Applications, July 4-7, 1994, London, England, PD - Vol. 64-8.1, pp. 55-62.
- 38) Rasty, J. "Application of the Sach's Boring-out and Finite Element Techniques to the Measurement of Residual Stresses In Oxygen-free High Conductivity Copper Tubes," First International Conference on Processing Materials for Properties, November 7-10, 1993, Honolulu, Hawaii.
- 39) Rasty, J. "Application of FEM to the Analysis of Tube Drawing Process: I) Effect of Temper on Drawing and Residual Stresses," Proceedings of the Society for Experimental Mechanics, 1993 Spring Conference, June 6-11, 1993, Dearborn, Michigan, pp. 233-247.
- 40) Rasty, J., Hunter, D., and Roy, G. "Application of ABAQUS and ADINA Finite Element Codes to the Analysis of Residual Stresses Induced by Rapid Quenching," Proceedings of the Society for Experimental Mechanics, 1993 Spring Conference, June 6-11, 1993, Dearborn, Michigan, pp. 205-213.
- 41) Rasty, J., Hashemi, J., Hunter D.E. and Dehghani, M., "Finite Element and Experimental Analysis of Stresses due to Quenching Process," Proceedings of the 1992 ASME/Winter Annual Meeting - Symposium on Computational Methods in Materials Processing, November 8-13, 1992, Anaheim, California, MD-Vol. 39 / PED-Vol.61, pp. 195-202.
- 42) Jiang, W., Dehghani, M., and Rasty, J. "An Investigation of Hydroforming of Sheet Metals with Varying Blankholding Loads," Proceedings of the 1992 ASME/Winter Annual Meeting - Symposium on Computational Methods in Materials Processing, November 8-13, 1992, Anaheim, California, MD-Vol. 39 / PED-Vol.61, pp. 87-96.
- 43) Hashemi, J., Rasty, J., and Tseng, A.A. "Application of the Integrated Hydro-Bulge Forming Process to the Manufacturing of Multilayered Spherical Pressure Vessels," Proceedings of the 1992 ASME/Winter Annual Meeting - Symposium on Recent Advances in Structural Mechanics, November 8-13, 1992, Anaheim, CA, PVP-Vol. 248 / NE-Vol.10, pp.73-79.
- 44) Sofuoglu, H., and Rasty, J., "Three Dimensional Physical Modeling of Extrusion Process," ASME European Joint Conference on Engineering Systems Design and Analysis, ESDA, June 29-July 3, 1992, Istanbul, Turkey. ASME - PD - Vol. 47-1, pp. 377-386

- 45) Rasty, J., Hashemi, J., Hunter, D., and Roy, G., "Quenching-Induced Residual Stresses in Forged 7150-Aluminum Blocks," Proceedings of the Society for Experimental Mechanics, Spring Conference, June 8-11, 1992, Las Vegas, Nevada. pp. 756-765
- 46) Rasty, J. and Farahaninia, K., "Internal Stress Distributions Resulting From Cold Drawing of Aluminum Tubes," Proceedings of the Society for Experimental Mechanics, Spring Conference, June 8-11, 1992, Las Vegas, Nevada. pp. 1793-1801.
- 47) Rasty, J., Kolarik, W., and Chen, B., "Designing Surface Mounted Components for High Reliability," Proceedings of the 1992 ASME Energy-Sources Technology Conference, Dynamics and Vibrations Symposium, January 26-29, 1992, Houston, Texas, ASME-PD-Vol. 44, pp. 41-52.
- 48) Kolarik, W., Rasty, J., Chen, B., and Kim, Y., "Electronics/Avionics Integrity: Definition, Measurement and Improvement," Proceedings of the 1992 Annual Reliability & Maintainability Conference, January, 1992, Las Vegas, Nevada, pp. 460-467.
- 49) Rasty, J. and Pushkar, T., "Application of the Finite Element Method to the Quasi-Static Thermoelastic Analysis of Prestress in Multilayer Pressure Vessels," Proceedings of the 1991 ASME/Winter Annual Meeting - Pressure Vessel and Piping Symposium, December 1-6, 1991, Atlanta, Georgia. ASME-PVP-Vol. 225 / NE-Vol. 7, pp. 95-102.
- 50) Rasty, J. and Chapman, D., "Effect of Process Variables on the Tube Drawing Process and Product Integrity," Proceedings of the 1991 ASME/Winter Annual Meeting, December 1-6, 1991, Atlanta, Georgia, ASME-PVP-Vol. 225 / NE-Vol. 7, pp. 81-94.
- 51) Rasty, J. and Hartley, C. S., "Effect of Various Degrees of Cold Working on the Residual Stress Patterns of Drawn OFHC Copper Tubes," Proceedings of the Society for Experimental Mechanics, Spring Conference, June 9-13, 1991, Milwaukee, Wisconsin, pp. 392-404.
- 52) Rasty, J., Husband, M., Eggleston, E., and McCrea, A., "Experimental Measurement of Residual Stresses Induced by Nonuniform Cooling of Aluminum Blocks," Sixty-Seventh Annual Southwestern and Rocky Mountain Division Symposium, SWARM, May 15-18, 1991, Lubbock, Texas.
- 53) Rasty, J., Alcouffe, D., and Handy, S., "Effect of Friction on Physical Modeling of Extrusion Process," Sixty-Seventh Annual Southwestern and Rocky Mountain Division Symposium, SWARM, May 15-18, 1991, Lubbock, Texas.
- 54) Rasty, J. and Hartley, C. S., "A Parametric Study of the Tube Drawing Process Utilizing the Finite Element Method," Proceedings of the 1990 Pacific Conference on Manufacturing, December 17-21, 1990, Sydney and Melbourne, Australia, pp. 243-254.
- 55) Rasty, J. and Sofuoglu, H., "On the Validity of Using PLASTICINE in Physical Modeling of Metalworking Processes," Proceedings of the Society for Experimental Mechanics, Spring Conference, June 3-6, 1990, Albuquerque, New Mexico, pp. 638-640.
- 56) Rasty, J. and Sofuoglu, H., "Flow Characteristics of Various Types of PLASTICINE Used in the Physical Modeling Technique," Proceedings of the Society for Experimental Mechanics, Spring Conference, June 3-6, 1990, Albuquerque, New Mexico, pp. 34-43.

- 57) Rasty, J. and Hartley, C. S., "Determination of Residual Stresses in Drawn OFHC Copper Tubes Using Electrochemical Machining (ECM)," Proceedings of the Society for Experimental Mechanics, Spring Conference, May 28-June 1, 1989, Cambridge, Massachusetts, pp. 893-900.
- 58) Rasty, J. and Cardenas-Garcia, J. F., "Development of a Walking Machine - A Tool for Promoting Interdisciplinary Cooperation Among Undergraduate Engineering Students," Proceedings of the ASEE Gulf-Southwest Conference, April 2-4, 1989, Lubbock, Texas, pp. 324-331.
- 59) Cardenas-Garcia, J. F., and Rasty, J., "An Automated Video Optical Diffractometry Technique for Measurement of Strain on Curved Surfaces," Texas Research Seminars Conference, April 24-25, 1989, Dallas, Texas.
- 60) Cardenas-Garcia, J. F., Rasty, J. and Moulder, J. C., "NDE Applications of an Optical Technique for Noncontact Measurement of In-Plane Strains," Proceedings of Review of Progress in Quantitative NDE, University of California, San Diego, La Jolla, California, August 1-5, 1988, pp. 768-779.
- 61) Rasty, J. and Hartley C. S., "Experimental Measurement of Residual Stresses in Nuclear-Fuel Cladding," Proceedings of the Society for Experimental Mechanics, Spring Conference, June 19-23, 1986, New Orleans, Louisiana, pp. 254-263.
- 62) Rasty, J. and Sabbaghian, M., "The Effect of Imperfect Contact Between Adjacent Layers on the Integrity of Multilayer Wrapped Vessels," Proceedings of the 1985 ASME/Pressure Vessels and Piping Conference, New Orleans, Louisiana, June 23-26, 1985, PVP-Vol. 98-8, pp. 167-176.

INVITED LECTURES:

- 1) "Principles of Forensic Engineering and Failure Analysis", 2005 Caprock Crime Scene Investigators (CSI) Camp. The Institute for the Development and Enrichment of Advanced Learners (IDEAL), June 30, 2005, Lubbock, TX.
- 2) "Foundations of Engineering Principles: Statics, Dynamics, Materials, Solid Mechanics", Raytheon Corporation, October 15-16, 2004, Dallas, Texas
- 3) "Foundations of Engineering Principles: Statics, Materials, Solid Mechanics", Raytheon Corporation, October 16-18, 2003, Dallas, Texas
- 4) "Engineering Principles: Statics, Materials, Solid Mechanics", Raytheon Corporation, October 17-19, 2002, Dallas, Texas.
- 5) "Materials Mechanics & Failure Analysis", Raytheon Corporation, October 11-13, 2001, Dallas, Texas.
- 6) "Design Through Failure Analysis", Raytheon Corporation, March, 20-22, 2000, Dallas, Tx.
- 7) "Design Through Failure Analysis", Raytheon Corporation, March, 17-19, 1999, Dallas, Tx.
- 8) "Failure Analysis Techniques", Raytheon Corporation, Nov. 7-8, 1998 Dallas, Texas.

- 9) "Design Through Failure Analysis", Texas Instruments, April 13-15, 1998, Dallas, Texas.
- 10) "Design Through Failure Analysis", Texas Instruments, Sep. 7-8, Oct. 10-11, Nov. 6-7, and Dec. 10-12, 1997, Dallas, Texas.
- 11) "Materials Research Issues in Aerospace Industry," Lockheed Martin Corporation, Oct. 11, 1996, Forth Worth Texas.
- 12) "Measurement of Residual Stresses Induced by Nonuniform Cooling of Aluminum Blocks," Alcoa Technical Center, August 21-22, 1991, Alcoa Center, Pennsylvania.
- 13) "Finite Element Analysis of Avionics Microelectronics Subjected to Thermal and Vibrational Environments," General Dynamics, December 11, 1990, Fort Worth, Texas.
- 14) "Effect of Friction on the Physical Modeling of Metal Forming Processes," ASME Winter Annual Meeting, November 25-30, 1990, Dallas, Texas.
- 15) "Finite Element Analysis of Avionics Microelectronics Subjected to Thermal and Vibrational Environments," General Dynamics, September 24, 1990, Fort Worth, Texas.
- 16) "Residual Stress Analysis via Experimental, Physical Modeling and Finite Element Techniques," Alcoa Technical Center, June 17-18, 1990, Alcoa Center, Pennsylvania.
- 17) "Current Research Activities in Residual Stress Analysis and Experimental Mechanics at Texas Tech University," Alcoa Technical Center, May 9-10, 1989, Alcoa Center, Pennsylvania.
- 18) "Analytical and Experimental Measurement of Residual Stresses in Nuclear Fuel Cladding," Pratt & Whitney Research and Development Center, United Technologies, July 11-12, 1987, West Palm Beach, Florida.
- 19) "Effective Computer Modeling and Experimental Measurement of Residual Stresses," Shell Oil Company, Westhallow Research Center, August 14-15, 1987, Houston, Texas.
- 20) "On the Applicability of the Finite Element Methods to the Simulation of Metal Forming Processes," Inland Steel Inc., Research & Development Division, November 17-18, 1987, West Chicago, Indiana.

REFERENCES:

Available upon request.