Professor Jahan Rasty, Ph.D., PE, MBA

Tenured Full-Professor of Mechanical Engineering
Director of the Materials Performance & Failure Analysis Laboratory
Registered Professional Engineer, State of Texas, Certificate No. 71689.

SPECIALIZATION:

Experimental and Numerical Solid Mechanics with Emphasis:

- Materials, Mechanical Design/Mechanisms, Injury Biomechanics
- Forensic Engineering, Root-Cause Failure Analysis, Manufacturing
- Fatigue & Fracture, Corrosion, Stress Analysis, Metallurgy
- Destructive and Nondestructive Residual Stress Measurement
- Dynamic Events: Impact, Explosives, Metal Forming, Thermal Stress
- Slips, Trips and Falls, Tribology (Analysis of Surface Friction)

EDUCATION:

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

Ph.D., 1987: Department of Mechanical Engineering, **L**ouisiana **S**tate **U**niversity (**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, **L**ouisiana **S**tate **U**niversity (**LSU**).
Thesis Title: "*The Effect of Imperfect Contact Between Adjacent Layers on the Integrity of Multilayer Wrapped Pressure Vessels with Interlayer Gaps*."

PROFESSIONAL AFFILIATIONS:

- The American Society of Mechanical Engineers (**ASME**) – member
- Society for Experimental Mechanics (**SEM**) - member
- American Society of Materials (**ASM** International) – member
- The Society of Automotive Engineers (**SAE** International) – member
- Electronic Device Failure Analysis Society (**EDFAS**) – member
- National Association of Fire Investigators (**NAFI**) - member

PROFESSIONAL CERTIFICATIONS:

2007: Successfully completed the Vetronix/Bosch approved standardized 8-hour ***Crash Data Retrieval (CDR) Technician Certification*** Course, September 9, 2007, North Las Vegas, NV.

2007: Successfully completed the Vetronix/Bosch approved 32-hour Crash Data Retrieval (CDR) Data Analyst Course to qualify for individual ***CDR System Operator Certification***, September 10-13, 2007, North Las Vegas, NV.

ACADEMIC ACHIEVEMENTS AND AWARDS:

2002-05: **The American Society of Mechanical Engineers (ASME) International, Board of Governors** – Served as the 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, **S**ociety of **A**utomotive **E**ngineers,

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: **A**merican **P**ublic **W**orks **A**ssociation (**APWA**) Grant Award,

1984-87: **Kaiser Aluminum** and Chemical Company Fellow in Materials Science,

WORK EXPERIENCE:

1986-Present: **Real-World Forensic Engineering**

President & CEO

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.

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.

TEACHING EXPERIENCE:

2008-Present **Full-Professor**, Department of Mechanical Engineering, Texas Tech University
1993-2008: **Associate Professor,** Department of Mechanical Engineering, Texas Tech University
1988-1993: **Assistant Professor,** Department of Mechanical Engineering, Texas Tech University

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

1) Mechanics of Solids (ME 3464, Mechanics II)
2) Principles of Failure Analysis & Forensic Engineering **(**)**, TTU-ME 4342
3) Mechanical Metallurgy **(**)**, TTU-ME 4343
4) Materials Science, TTU-ME 2311
5) Statics, TTU-ME 2464
6) Measurements & Instrumentation Laboratory – ME 3218
7) Materials and Mechanics Laboratory, TTU-ME 3328
8) Materials in Design (**), TTU-ME 4341
9) Manufacturing Processes **(**)**, TTU-ME 4344
10) Dynamics, TTU-ME 3331
11) Introduction to Machine Design, TTU-ME 3364
12) Machine Component Design, TTU-ME 3365
13) Mechanical Systems Laboratory, TTU-ME 4252
14) Applied Mechanics **(**)**, TTU-ME 4362
15) Senior Design-I, TTU-ME 4370
16) Senior Design-II, TTU-ME 4371
17) Individual Studies, TTU-ME 4331
18) Fracture and Failure Analysis **(**)**, TTU-ME 5342 (graduate)
19) Foundations of Solid Mechanics **(**)**, TTU-ME 5352 (graduate)
20) Plasticity and Viscoelasticity **(**)**, TTU-ME 5353, (graduate)
21) Theory of Thermal Stresses **(**)**, TTU-ME 5344, (graduate)
22) Deformation Mechanics **(**)**, TTU-ME 5331, (graduate)
23) Dislocation Mechanics **(**)**, TTU-ME 5343, (graduate)

PROFESSIONAL DEVELOPMENT COURSES:

2009: Attended a full day workshop and hand-on training course for *"**Safe Operation of Forklifts**",* presented by office of Environmental Health and Safety, Texas Tech University, May 2009, Lubbock, TX.

2008: Attended a 1½ day workshop on "***Intellectual Property in the 21st Century***", given by Raymond Van Dyke, Esq., an intellectual property attorney from the law firm of Winston & Strawn, LLP, in Washington D.C., April 11-12, 2008, Texas Tech University.

2007: Attended a workshop sponsored by ABAQUS Corporation on "***Computer Aided Modeling and Application of Finite Element Method to Fracture and Failure Analysis***", May 11-12, Dallas, TX.

2006: Attended a workshop sponsored by ABAQUS Corporation on "***Computer Aided Modeling and Application of Finite Element Method to Fracture and Failure Analysis***", May 11-12, Dallas, TX.

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, April 4-5, 1997, Arlington, TX.

1997: Successfully completed a course on ***"Mutil-Scale Modeling of Polycrystal Plasticity"*** at the Institute for Mechanics and Materials Seminar, April 9-11, 1997, San Diego, CA.

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, March15-17, 1984.

ENGINEERING 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 27 research projects (listed below) with a total funding of $7,478,820 (Other non-funded research projects are not listed).

1) Principal-Investigator: "Experimental and Finite Element Characterization of Residual Stresses", Funded by AFOSR/Lockheed Martin/Boeing PCC 02 KY4111 F/A-22 Program, $5,000, 8/6/2007 – 5/31/2007.

2) Principal-Investigator: "Property Characterization of Biodegradable Insulation Material," Funded by MXT Corp., $3,956, 03/13/2006 – 3/13/2007.

3) Principal-Investigator: "Development of Residual Stress Measurement Standards for Machining-Induced Distortion Failures", Funded by Los Alamos National Laboratory, $37,926, 01/15/2006 – 12/31/2006.

4) Principal-Investigator: "Numerical Analysis of High-Cycle Fatigue with Probabilistic Failure." Funded by Alpha Star Corporation, $170,000, 6/1/2005 – 5/31/2006.

5) 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.

6) 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.

7) 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.

8) Principal-Investigator: "Materials Testing System", Instron Corp., $27,320, 5/97.

9) Principal-Investigator: "Hydraulic Power Unit for Cold Expansion of Airplane Fuselage Rivet Holes", Womack Systems. L.C., $925, 10/96.

10) Principal-Investigator: "Improving Machining of Internally Stressed Components Through Model Predictive Control," Funded by the Pittsburgh Supercomputing Center, $8,000 9/96-9/97.

11) Principal-Investigator: "Improving Machining of Internally Stressed Components Through Model Predictive Control," Funded by the Pittsburgh Supercomputing Center, $16,000 9/95-9/96.

12) 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.

13) 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.

14) 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.

15) 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.

16) 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.

17) Co-Investigator: "High-Voltage Space Power Research", Funded by Defense Nuclear Agency (DNA), $250,000, 1/92-1/93.

18) 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.

19) Principal-Investigator: "Composite Materials", Funded by W.G. Composites, $60,000, 12/91.

20) 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.

21) 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.

22) 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.

23) 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.

24) 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.

25) Principal Investigator: "Physical and Numerical Modeling of Metal-Forming Processes", Alcoa Research Foundation, $7,500, 6/89-90.

26) 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.

27) 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.

GRADUATE STUDENT SUPERVISION (Incomplete List)

Student's Name	Degree Earned	Thesis/Dissertation Title
Daniel Stevens (Committee Chair)	M.S.- M.E. In Progress	"A new Apparatus for Measurement of Residual Stresses Utilizing Hole-Drilling Method"
David Upshaw (Committee Chair)	M.S.- M.E. In Progress	"Finite Element Study of Collision Impact"
Mike Tiprigan (Committee Chair)	M.S.- M.E. In Progress	"Experimental Study of Failure in High-Pressure Hoses"
Sharath Neelakanta (Committee Chair)	M.S.- M.E. In Progress	"Experimental Study of Hail Impact Damage on Roofing Materials"
Spandan Archa (Committee Chair)	M.S.- M.E. In Progress	"Analysis of Residual Stresses via Hole-Drilling and Contour Methods"
Raja Gudipati (Committee Chair)	M.S.- M.E. In Progress	"Effect of Acid Cleaning on Fractographic Features in Typical Fracture Surfaces"
Dhananjay Ghatpande (Committee Chair)	M.S.- M.E. In Progress	"Experimental studty of the Energy Absorption Characteristics of Footbal Helmets"
Archis Marathe (Committee Chair)	M.S.- M.E. In Progress	"Failure Analysis of Synthetic Ropes"
Amit Kumar (Committee Chair)	M.S.- M.E. In Progress	
Hutcheson, Stephen (Committee Member)	Ph.D.- CHEE, August 2008	"Evaluation of Viscoelastic Materials: The Study of Nanosphere Embedment into Polymer Surfaces and Rheology of Simple Glass Formers Using a Compliant Rheometer"
Dhorje, Mrugesh (Committee Member)	M.S. – M.E. August 2008	Application of Modified Weibull Failure Theory For Contact Loading
Ramkumar (Committee Chair)	Ph.D. - M.E. Dec. 2007	"High Strain-Rate and High Temperature-Rate Characterization of Material Properties"
Nathan Poerner (Committee Chair)	M.S. – M.E. Dec. 2007	"Round-Robin Study of Residual Stress Measurement Techniques"

Vipin Palande (Committee Chair)	M.S. – M.E. May 2009	"3-D Finite Element Analysis of residual Stress in Cold Expanded Holes"
Gautam Kumar (Committee Chair)	M.S.- M.E May 2005	"Failure Analysis of an Engine Bearing Cap".
Xiabin Le (Committee Chair)	Ph.D. – M.E.	"Experimental and Finite Element Analysis of Explosive Loading in MFCGs"
Nripendue Dutta (Committee Chair)	Ph.D. – M.E.	"Experimental and Finite Element Analysis of Elasto-Palstic Boundary in Cold Expanded Holes"
Ali Raja (Committee Chair)	M.S.- M.E.	"Experimental Study of Bending Fracture Stress of Rat Bones Subjected to Different Diets"

PROFESSIONAL SERVICES:

2006-2007 **10th World Conference on Integrated Design & Process Technology,** May 27- June 1, 2007, Antalya, Turkey, Member of program committee, served as session organizer and reviewer.

2005: **National Science Foundation Grant Review Panel**
Served as a reviewer for NSF's Division of Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs covering the topics of Manufacturing and Machine Design.

2001-Present: **Secretary - ASME Great International Region X**
Responsibilities included serving on ASME-Region X Operating Board and assisting the VP with the operation of region X activities.

1998-2001: **Assistant VP for Education – ASME Great International Region X**
Responsibilities included serving on ASME-Region X Operating Board covering more than 50 universities in 4 states and two countries, organization of the annual ASME Regional Student Conference (RSC), Graduate Student Technical Conference (GSTC), Design Contest, as well as organization of the annual Regional Student Leadership Seminar (RSLS) for training of incoming ASME student officers.

1991-Present: **ASM/TMS Student Chapter Faculty Adviser,**
Department of Mechanical Engineering, Texas Tech University.
Founded the first joint student chapter of the American Society of Materials and The Metallurgical Society (**ASM/TMS**) at Texas Tech University.

1989-2002: **ASME Student Chapter Faculty Adviser,**
Department of Mechanical Engineering, Texas Tech University.
Provided support and guidance to the local student chapter of the American Society of Engineers.

1998: **Society for Experimental Mechanics (SEM) Session Chairman,**
Served as the chairman for a session on "Application of Numerical Modeling to the Analysis of Residual Stresses" at the SEM's 1998 Spring Conference, June 2-4, 1998, Houston, Texas.

1997: **National Science Foundation Advisory Panel**
Served as an NSF advisory panelist for the Individual Investigator Award (IIA) proposals in the Mechanics and Materials program in the Division of Civil and Mechanical System, June 9 and 10, 1997.

1995-1996: **Soc. for Design and Process Sci. (SDPS) Conference Symposium Developer,**
Served as the "Materials" Symposium Chairman. Organized the "Materials" symposium at the SDPS's Second World Conference on Integrated Design & Process, held December 1-4, 1996, Austin, Texas.

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.

SCIENTIFIC PUBLICATIONS:

1. Jahan Rasty and Archis Marathe, "Effect of Material Composition and Failure Mode on Treatment of Corroded Fracture Surfaces for Optimal Fractography," Accepted for presentation at the ASME International Mechanical Engineering Congress & Exhibition, November 12-18, 2010, Vancouver, British Columbia.

2. Dutta, N., and Rasty, J., "Prediction of Elastic-plastic Boundary around Cold-expanded Holes Using Elastic Strain Measurement", J. of Materials Engineering Technology (accepted).

3. Xiaobin Le and Jahan Rasty, "A probabilistic Approach to Determination of Component Dimensions under Fatigue Loading," Proceedings of ASME 2009 International Design Engineering Technical Conferences, IDETC, August 30-September 2, 2009, San Diego, CA.

4. Rasty J., Le, X., Palande, V., "Does Hail Damage Constitute Material Failure? An Experimental and Finite Element Study of Hail-Induced Damage in Metallic Roofing Materials", Journal of Engineering Failure Analysis (accepted).

5. Baydogan, M., Cimenoglu, E., Kayali, S.,and Rasty, J., "Improved Resistance to Stress-Corrosion Cracking Failures via Optimized Retrogression and Re-Aging of 7075-T6 Aluminum Sheets, Journal of Metallurgical Transactions A, Volume 39, Number 10, October, 2008, pp. 2470-2476.

6. Nathan Poerner, Jahan Rasty and Mike Steinzig, "Round Robin Study of Residual Stress Measurement Techniques," 3rd International Residual Stress Summit, October 2-4, 2007, Oak Ridge National Laboratory, Oak Ridge, TN.

7. Nathan Poerner, and Jahan Rasty, "Effect of Cutting Method on Residual Stress Measurement via Slitting Technique," Society for Experimental Mechanics (SEM) Annual Conference, June 3-6, 2007, Springfield, Massachusetts.

8. Shen, C.L, Yeh, J.K., Rasty, J., Chyu, M.C., Dunn, D.M., Li, Y., Watkins, B.A., "Improvement of Bone Quality in Gonad-Intact Middle-Aged Male Rats by Long-Chain n-3 Polyunsaturated Fatty Acid", J. of Calcification Tissue International, Vol. 80, April 2007, , pp 286-293.

9. Rasty, J., Le X.., Baydogan, M., and Cardenas-Garcia, J.F., "Measurement of Residual Stresses in Nuclear-grade ZR-4(R) Tubes: Effect of Heat Treatment," Journal of Experimental Mechanics, Vol.47, Issue 2, Apr. 2007, pp. 185-199.

10. R. Srinivasan,, and J. Rasty, "Prediction and Measurement of Residual Stresses in Extruded and Drawn Rods and Tubes," The Minerals, Metals & Materials Society (TMS) 2007 Annual Meeting & Exhibition, February 25 – March 1, 2007, Orlando, Florida.

11. Yanzhang Ma, Jianjun Liu, Chun-Xiao Gao, Allen White, W. N. Mei, and Jahan Rasty, "High-pressure X-ray diffraction study of the giant dielectric constant material CaCu3Ti4O12: evidence of stiff grain surface", Applied Physics Letters, Vol. 88, 191903, May 2006.

12. 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," British Journal of Nutrition, Vol. 95, No. 3, March 2006, pp. 462-468.

13. J. Rasty, and X. Le, "Does Hail Damage Constitute Material Failure? An Experimental and Finite Element Study of Hail-induced Damage in Metallic Roofing Materials," 2nd International Conference on Engineering Failure Analysis (ICEFA-II), September 13-15, 2006, Toronto, Canada.

14. J. Rasty, A. Ertas, and R. Couvillion, Editors, "Proceedings of the 4th Joint ASME/SDPS International Graduate Student Technical Conference", April 7-8, 2006, Fayetteville, Arkansas.

15. J. Rasty, and H. Sari-Sarraf, "Application of X-Ray Tomography, Light and Scanning Electron Microscopy to Failure Analysis of a Fill-Valve Coupling Nut," 2nd International Conference on Engineering Failure Analysis (ICEFA-II), September 13-15, 2006, Toronto, Canada.

16. Murat Baydoğan, Hüseyin Çimenoğlu, E. Sabri Kayalı, and Jahan Rasty, "Effect of Retrogression and Re-aging Treatment on Stress Corrosion Cracking Resistance of 7075 Aluminum Alloy", Proceedings of the 135th TMS (The Minerals, Metals & Materials Society) Conference, March 12-16, 2006, San Antonio, TX.

17. Yanzhang Ma, Jianjun Liu, Chun-Xiao Gao, Allen White, W. N. Mei, and Jahan Rasty, "High-pressure X-ray diffraction study of the giant dielectric constant material CaCu3Ti4O12: evidence of stiff grain surface", 2006 American Physical Society (APS) March Meeting, March 13–17, 2006; Baltimore, MD.

18. J. Rasty, M. Baydogan, K. Ramkumar, I. Rivero, and J.F. Cardenas-Garcia, "Measurement of Residual Stresses in Nuclear-Grade Zircaloy–4(R) Tubes – Effect of Heat Treatment," 2nd Residual Stress Summit, Vancouver, Canada, August 10-12, 2005.

19. P. Worsey, J. Baired, and J. Rasty, Book Section: "Mechanical Aspects," Explosively Driven Pulsed Power – Helical Magnetic Flux Compression Generators, Springer Publishing, 2005, pp. 53-125.

20. 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

21. 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.

22. 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.

23. 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.

24. 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." Presented at the Experimental Biology Conference, Washington D.C., April 2004.

25. 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.

26. 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.

27. 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.

28. 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.

29. 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.

30. 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.

31. 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.

32. 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.

33. 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.

34. 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.

35. Sofuoglu, H., Gedikli, H., Rasty, J., "Determination of Friction Coefficient by Employing the Ring Compression Test," ASME Transactions - Journal of Engineering Materials and Technology (JEMT), Vol. 123, issue 3, July 2001, pp. 338-348.

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INVITED LECTURES:

1) "Principles of Failure Analysis and Solid Mechanics", Raytheon Corporation, October 4-5, 2007, Garland, Texas.

2) "Mechanics of Materials & Failure Analysis", Raytheon Corporation, October 13-14, 2006, Dallas, Texas.

3) “Foundations of Engineering Principles: Statics, Dynamics, Materials, Solid Mechanics”, Raytheon Corporation, October 14-15, 2005, Dallas, Texas

4) “Principles of Forensic Engineering”, 2005 Caprock Crime Scene Investigators (CSI) Camp. The Institute for the Development and Enrichment of Advanced Learners (IDEAL), June 30, 2005, Lubbock, TX.

5) “Principles of Forensic Engineering”, 2005 Caprock Crime Scene Investigators (CSI) Camp. The Institute for the Development and Enrichment of Advanced Learners (IDEAL), June 30, 2005, Lubbock, TX.

6) “Foundations of Engineering Principles: Statics, Dynamics, Materials, Solid Mechanics”, Raytheon Corporation, October 15-16, 2004, Dallas, Texas.

7) “Foundations of Engineering Principles: Statics, Materials, Solid Mechanics”, Raytheon Corporation, October 16-18, 2003, Dallas, Texas.

8) “Engineering Principles: Statics, Materials, Solid Mechanics”, Raytheon Corporation, October 17-19, 2002, Dallas, Texas.

9) "Materials Mechanics & Failure Analysis", Raytheon Corporation, October 11-13, 2001, Dallas, Texas.

10) "Design Through Failure Analysis", Raytheon Corporation, March, 20-22, 2000, Dallas, TX.

11) "Design Through Failure Analysis", Raytheon Corporation, March, 17-19, 1999, Dallas, TX.

12) "Failure Analysis Techniques", Raytheon Corporation, Nov. 7-8, 1998 Dallas, Texas.

13) "Design Through Failure Analysis", Texas Instruments, April 13-15, 1998, Dallas, Texas.

14) "Design Through Failure Analysis", Texas Instruments, Sep. 7-8, Oct. 10-11, Nov. 6-7, and Dec. 10-12, 1997, Dallas, Texas.

15) "Materials Research Issues in Aerospace Industry," Lockheed Martin Corporation, Oct. 11, 1996, Forth Worth Texas.

16) "Measurement of Residual Stresses Induced by Non-uniform Cooling of Aluminum Blocks," Alcoa Technical Center, August 21-22, 1991, Alcoa Center, Pennsylvania.

17) "Finite Element Analysis of Avionics Microelectronics Subjected to Thermal and Vibrational Environments," General Dynamics, December 11, 1990, Fort Worth, Texas.

18) "Effect of Friction on the Physical Modeling of Metal Forming Processes," ASME Winter Annual Meeting, November 25-30, 1990, Dallas, Texas.

19) "Finite Element Analysis of Avionics Microelectronics Subjected to Thermal and Vibrational Environments," General Dynamics, September 24, 1990, Fort Worth, Texas.

20) "Residual Stress Analysis via Experimental, Physical Modeling and Finite Element Techniques," Alcoa Technical Center, June 17-18, 1990, Alcoa Center, Pennsylvania.

21) "Current Research Activities in Residual Stress Analysis and Experimental Mechanics at Texas Tech University," Alcoa Technical Center, May 9-10, 1989, Alcoa Center, Pennsylvania.

22) "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.

23) "Effective Computer Modeling and Experimental Measurement of Residual Stresses," Shell Oil Company, Westhallow Research Center, August 14-15, 1987, Houston, Texas.

24) "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.