

R. MIRSHAMS, PhD
Materials Failure Analyst
Professional Engineer (PE)



EDUCATION

Ph. D., Department of Industrial Metallurgy, School of Engineering, University of Birmingham, United Kingdom, 1980.

Engineering Expertise:

- Materials Failure Analysis, Welding Failure Analysis, and Materials Selection/Design.
- Fracture Mechanics, Fatigue, Creep, and Corrosion Risk Assessments.
- Manufacturing Processes (Forging, Rolling, Welding, Casting, Machining, Forming)
- Fatigue Cracks and Stress Raiser Analysis, Impact Failures, Torsion Analysis, Failure Prevention, and Engineering Solutions.
- Materials Specifications.

PROFESSIONAL EXPERIENCE AND EMPLOYMENT HISTORY

2001 - Present, Licensed Professional Engineer (P.E.).

Employment History

2000 - Present: Tenured Full Professor, Department of Engineering Technology, Mechanical Engineering Technology, UNT, Denton, Texas.

2010 - Present: Courtesy Joint Appointment, Department of Mechanical and Energy Engineering, UNT, Denton Texas.

1987 – 2000: Assistant, Associate, and Full Professor (Tenured), Department of Mechanical Engineering, SUBR, Baton Rouge, Louisiana, and collaboration with LSU-Department of Mechanical Engineering.

Industry:

1982 – 1984: Project Director: IRITEC Company, Engineering and Research Consulting Co.

1980-1982: Technical Director, Rolling Mill and Steel Production Company.

Consulting and Professional Services (1984-present):

1. **Consulting and Expert Witness**, Several failure analysis cases in the area of defects in materials, corrosion (galvanic and SCC), materials selection, and manufacturing processes.
2. **Exova**, Consulting, Welding Failure Analysis, Materials Selection, and Fracture Mechanics.
3. **Zodiac Seat US (Zodiac Aerospace)**, Gainesville, Texas, on Al-Li alloys. Materials selection, stainless steel, powder coating..
4. **ABET**, Baltimore, Maryland, Engineering and Technology Education Accreditation Evaluator (PEV).
5. **OK, International Inc.**, Garden Grove, California, on process design of magnetic materials.

6. **Lockheed Martin Manned Space Systems**, New Orleans, Louisiana, on Al-Li alloys and FSW process.
7. **IMEX/S.E.A. Diamond Tools USA, Inc.**, Elberton, Georgia, on superabrasive diamond processing and performance.
8. **Kollmorgen Corporation, Multiwire Division**, New York, on multiwire manufacturing.
9. **Pacific Northwest Laboratory**, Richland, Washington, on fracture toughness of zircaloy.
10. **Adjunct Professor**, Mechanical Engineering Department, LSU, Baton Rouge, Louisiana.
11. **Adjunct Professor**, Hofstra University, Department of Physics, Hempstead, New York.
12. **Member of Editorial Review Board:** Materials and Metallurgical Transactions, a TMS publication.
13. **Reviewer for the following Journals**, Journal of Materials Research (MRS), Journal of Advanced Materials, ASEE and ASME annual conferences.
14. **Summer 1988 and 1989**, Fellowship, Oak Ridge National Laboratory (Martin Marietta Energy Systems, Inc.).

PROFESSIONAL SOCIETIES MEMBERSHIPS

National Association of Corrosion Engineers (NACE)
 The Minerals, Metals & Materials Society (TMS)
 American Society of Mechanical Engineers (ASME)
 American Society for Engineering Education (ASEE)

SELECTED PUBLICATIONS

1. "Fatigue Failure Analysis Case Studies," *Journal of failure Analysis and Prevention*, 2015, DOI 10.1007/s11668-015-0044-3.
2. "Experimental Analysis and Computational Modeling of Pile-Up Formation in Nanoindentation," *Mex. J. Mat. Sci. Eng.* (2014).
3. "Review of Biomechanical Studies of Arteries and Their Effect on Stent Implant Performance," *International Journal of Cardiology*, 2014.
4. "Effect of Pile-Up on Nanoindentation Measurements of Polycrystalline Bulk Metals," *Advance Materials Research*, Vol. 853, (2014).
5. "Characterization of Grooves in Scratch Resistance Testing," *Polymer Engineering and Science*, (2008).
6. "Mechanical Properties of D2 and A2 Tool Steels Evaluated using Nanoindentation," 2013 ECTC Proceedings ASME Early Career Technical Conference, Tulsa, Oklahoma. 2013.
7. "Failure analysis of an elbow tube fitting," *Engineering Failure Analysis*, vol. 10, (2003).
8. "R-Curve Characterization of the Fracture Toughening of Nanocrystalline Nickel Thin Sheets," *Journal of Materials Science and Engineering A*, Vol. 315/1-2, (Sept. 2001).
9. "Creep Behavior of Nanocrystalline Nickel at 290 and 373 K," *Journal of Materials Science and Engineering A*, Vol. 1, 1, (2001).
10. "Grit Distribution in Superabrasive Diamond Sawing," *Int. Journal of Advanced Manufacturing Systems*, (1998).

CONTACT INFORMATION

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