

CURRICULUM VITAE

WAYNE E. REITZ

EDUCATION

Ph.D., Mechanical Engineering (focus on Metallurgy), **Oregon State University**, 1991

M.S., Metallurgy, **Georgia Institute of Technology**, 1982

B.S., Nuclear Engineering, **Georgia Institute of Technology**, 1976

PUBLICATIONS/ARTICLES/SEMINAR HANDOUTS

“Porcelain Faucet Handle Failure Analysis,” Journal of Failure Analysis and Prevention (JFAP), 16, (1), 49-54. <http://link.springer.com/article/10.1007/s11668-015-0045-2>

“Cervical Stent Failure Analysis,” JFAP, 13, (6), 678-683, 2013.
<http://link.springer.com/article/10.1007/s11668-013-9749-3>

“Failure of Bolt Threads Exposed to Shear Stress,” JFAP, 13, (5), 551-554, 2013.
<http://link.springer.com/article/10.1007/s11668-013-9718-x>

“Assessment of Weld Embrittlement in A516 steel due to multiple repair welds,” JFAP, 11, (6), 618-623, 2011. <http://link.springer.com/article/10.1007/s11668-011-9505-5>

“Failure Analysis—Part II, Case Histories,” Materials Performance (MP), NACE, 47, (1), pp. 72-75, 2008.
<http://www.materialsperformance.com/uploads/documents/Magazine/2008/JAN%202008%20Reitz.pdf>

“The Effects of Cryogenic Treatment on the Thermal Conductivity of GRCo-84,” Materials and Manufacturing Processes (MAMP), 23 (1), 82-91, 2008 (with C.J. Isaak).
<http://link.springer.com/article/10.1007/s11668-011-9505-5>

“Failure Analysis—Part 1, Theory and Engineering,” MP, NACE, 46, (12), pp. 54-59, 2007.
<http://mp.epubxp.com/i/84330-dec-2007/55>

“Failure Analysis – An Introduction,” <http://www.articleonramp.com/Article.cfm?ID=1416> , 1/14/07.

“The Methodology of Metallurgy,” Gear Solutions, pp. 24-33, May 2006.
<http://www.gearsolutions.com/article/detail/5474/the-methodology-of-metallurgy>

“Metallurgy of Stainless Steel Alloys – Welding and Corrosion,” Soc of Manufacturing Eng, Techn. Paper, TP06PUB19, <http://www.sme.org/cgi-bin/get-item.pl?TP06PUB19&2&SME&> , 26 p., 3/8/06.

"Metallurgical Investigation into an Automotive Fire", JFAP, 6, (2), 18-21, 2006. *See link on publication page at www.reitzmetallurgy.com*

“Long-term Benefits of Interacting with Metallurgy Consultants,” Society of Manufacturing Engineers, Techn. Pap. TP05PUB235, <http://www.sme.org/cgi-bin/get-item.pl?TP05PUB235&2&SME&> , 30 p., 11/9/05.

“Failure Analysis of Brass Bolt from Mausoleum,” JFAP, 5, (4), 22-27, 2005. *See link on publication page at www.reitzmetallurgy.com*

“Materials Basics for the Corrosionist,” ASM Metals Handbook, 10th edition, vol. 13A, Corrosion, Materials Park, OH, 980-991, 2003 (with J. Rawers).
http://www.asminternational.org/web/hts/technical-resources/-/journal_content/56/10192/ASMHBA0003711/PUBLICATION

“Power Line Tower Arm Failure Analysis,” Practical Failure Analysis (PFA), 2, (6), 80-84, 2002.

“SO₂ Heat Exchanger Failure,” PFA, 2, (3), 45-49, 2002.

“Laser Shock Peening Solves Many Performance Issues,” Surface Engineering, 18, (1), 1-3, 2002.

“Cryoprocessing of Materials: A Review,” MAMP, 16, (6), 829-840, 2001 (J. Pendray).

"Characterizing Potential Materials for Bio-Applications" JOM, 53, (2), pp. 44-46, 2/01 (with C. Kroetch).

“How to Join Plastics,” Advanced Materials and Processes (AM&P), 158, (3), pp. 49 – 52, 2000 (with R. Oman).

“Laser Surface Treatment,” AM&P, 156, (3), pp. 39-41, 1999.

“Diffusion Bonding of Laser Surface Melted Nickel Alloy Material,” MAMP, 13, (1), 1-14, 1998 (with N. Dahotre).

“Critical Role of Surface Modification in Biomaterials,” JOM, 49, (2), p 44, 1997.

“Review of Surface Engineering to Enhance Diffusion Bonding,” Surf. Mod. Techn. - IX, T.S. Sudarshan, W. Reitz, and J.J. Stiglich, (eds), Cleveland, OH, 10/95, TMS, Phila, PA, pp. 371-380, 1996.

“Environmental Aspects of Coating Removal Techniques,” Advances in Coating Technologies for Corrosion and Wear Resistant Coatings, TMS, Phila, PA, A.R. Srivatsa, C.R. Clayton, and J.K. Hirvonen, (eds), pp. 329-353, 1995.

“Surface Modification Technologies - A Review,” JOM, 46, (7), p. 54, 1994.

“Laser Ablation Technology Development,” MAMP, 9, (3), pp. 395-413, 1994.

“Coating Removal Techniques: Advantages and Disadvantages,” JOM, 46, (7), pp. 55-59, 1994.

“A Review - Laser Ablation and Its Effect on Surface Removal,” 6th Intern. Conference of Surf. Mod., T.S. Sudarshan and J.F. Braza, (eds), Chicago, IL, 11/92, TMS, Phila, PA, pp. 521-538, 1993.

“Effect of Laser Surface Melted Zirconium Alloys on Microstructure and Corrosion Resistance,” J. Mat’l Sci., 27, pp. 2437-2443, 1992.

“Laser Processing of Materials for Nuclear Applications,” 5th Intern. Conf. Surf. Mod., T.S. Sudarshan and J.F. Braza, (eds), Birmingham, England, 9/91, TMS, Phila, PA, pp. 435-450, 1992.

“Surface Corrosion Study of Laser Processed,” NACE, 47, (10), pp. 769-777, 1991.

“Immersion Corrosion Studies of Laser Processed Zr,” J. Mat’l Sci. Ltr., 9, (3), pp. 355-357, 1990.

“Compositional Segregation and Its Affect on Corrosion of Laser Processed Zr-4,” J. Mat’l Sci. Ltr., 9, pp. 1365-1366, 1990.

“Effect of Laser Processing on the Microstructure and Steam Corrosion Resistance of Zr-4,” 4th Intern. Conf. of Surf. Mod., T.S. Sudarshan, D.G. Bhat, and M. Jeandin, (eds), Paris, France, 11/91, TMS, Phila, PA, pp. 349-364, 1990.

“Microstructure and Corrosion of Laser Melted Zr Alloys,” 3rd Intern. Conf. of Surface Modification, T.S. Sudarshan and D.G. Bhat, (eds.), Neuchatel, Switzerland, 8/89, TMS, Phila., PA, pp. 445-460, 1989.

“Laser Processed Zr: Study of Corrosion and Microstructure,” Advances in Laser Science - IV, Proceedings of the 4th Intern. Laser Science Conf., 10/88, J.L. Cole, D.R. Heller, M. Lapp, and W.C. Stwalley, (eds), Atlanta, GA, pp. 391-393, 1988.

LICENSES (CURRENT)

Registered Professional Engineer of Virginia – Metallurgical No. 0402016277 (1986)

Registered Professional Engineer of North Dakota – Metallurgical No. PE-4208 (1998)

Registered Professional Engineer of Oregon – Metallurgical No. 85688 (2011)

AFFILIATIONS

American Academy of Forensic Sciences, AAFS
American Society for Materials, ASM
American Society for Testing and Materials, ASTM
American Welding Society, AWS
National Association of Corrosion Engineers, NACE
National Council for Examining Engineers and Surveyors, NCEES
National Society for Professional Engineers, NSPE
The Minerals, Metals, and Materials Society, TMS

SPECIAL STUDIES

“Advanced Reconstruction Course,” presented by Forensic Accident Reconstructionists of Oregon (FARO), Ridgefield, WA, September 2014, 40 hours.

PRESENTATIONS

“How Metallurgy Helps Solve Engineering Problems,” SAE seminar, Portland chapter, September 2014.

“Metallurgy in the Petroleum Industry,” short course, Marathon Oil Company, Robinson, IL, November 2012, 16 hours.

“Bolting Seminar,” short course, Central Boiler, Greenbush, MN, August 2011, 8 hours.

“Metallurgy 101”, short course, DMI Industries, West Fargo, ND, May 2008, 12 hours.

“Surface Engineering,” invited short course at 4th Symposium for Surface Engineering, Puerto Ordaz, Venezuela, 10 Nov 2006.

“Surface Engineering: Successes and Failures,” invited paper at 4th Symposium for Surface Engineering, Puerto Ordaz, Venezuela, 9 Nov 2006.

“Metallurgy: Welding and Performance,” short course for RFA-MEC, Eden Prairie, MN, 3/10/06.

“Benefits of Metallurgical Failure Analysis,” presentation to North Dakota National Society of Professional Engineers, Fargo-Moorhead Engineers Club, 9/27/05.

“Met 101,” short course presented to American Crystal Sugar Corp., 6/14-23/05

“Exploiting Lasers, Grain Boundary Orientations, and Liquid Nitrogen Quenching,” presented at NASA Glenn, Cleveland, OH, 4/25/01.

W. Reitz, "Metallurgical Laser Processing for Reduced Surface Wear of Dies, Molds, and Machines," presented at International Tire Exhibition and Conference, Akron, OH, 9/11-14/00.

"Benefits of Laser Surface Processing, Grain Boundary Manipulation for Enhanced Bonding, and Cryoprocessing," presented at NASA Langley, Norfolk, VA, 4/17/00.

EXPERIENCE

2015 – Present: Adjunct Professor, University of Portland, Physics Department – Teach Physics laboratories to engineering students.

2011 – Present: Senior Engineer, Talbott Associates, Inc. – Expert witness and consulting forensic engineer with five other registered professional engineers. Expertise provided in metallurgical and mechanical engineering as related to product liability, failure analysis, and material evaluation.

2000 – 2011: Owner / Principal, Reitz Consulting - Perform metallurgical evaluations, mechanical testing, failure analysis, and forensic metallurgy to solve industrial problems, insurance claims and to provide expert opinions. Serve as expert witness. Develop material performance criteria and selection. Provide engineering services for entrepreneurs to bring products to market. Perform materials characterization: corrosion, wear, structural analysis, SEM / EDS. Perform Finite Element Analysis (FEA) to confirm stress-related assumptions in analyzing failures and in design of components or fixtures. Use statistical software packages to analyze data and model trends and performance. Conduct specialty short courses in Metallurgy and courses tailored to each particular company on all materials-related issues.

2004 – 2011: Adjunct Professor, North Dakota State University, Mechanical Engineering Department - Taught materials and mechanical courses. Advise senior capstone projects. Mentor and academically advise students.

2004 – 2005: Sr. Research Scientist, Center for Nanoscale Science and Engineering - Provide metallurgical expertise regarding metallurgy, sample preparation, and evaluation of bulk materials and thin films. Established and maintain metallurgy laboratory.

1997 – 2004: Assistant Professor, NDSU, Mechanical Engineering Department - Taught materials courses. Performed research in materials related to surface engineering: corrosion, wear, surface modification.

1991 – 1997: Principal Engineer, Babcock and Wilcox - Provided technical support in materials and manufacturing. Studied manufacture and performance (corrosion, microstructure, diffusion bonding) of zirconium and nickel alloys. Studied surface modification techniques. Performed failure analysis.

- 1991 - 1991: Assigned as Senior Engineer to Kaiser Engineers, Oakland, CA - Assisted in the design of underground waste storage tanks located in Hanford, WA.
- 1985 – 1991: Resident Engineer, Babcock and Wilcox – Onsite customer representative for material suppliers in Oregon and Utah. Responsible for material performance. Customer representative at Teledyne Wah Chang, Albany, OR and traveled 1 week per month to competitor's facility, Western Zirconium, Ogden, UT. Resolved technical issues concerning process manufacturing deviations. Examined microstructure and determined resulting affects on corrosion performance.
- 1980 – 1985: Engineer III, Babcock & Wilcox - Interface with companies that provide metals and machining and testing. Solved technical problems as they arose within B&W and problems that developed at the vendor that was pertinent to our material or services. Performed experiments characterizing materials at various process steps, e.g., extrusion and hot rolling. Utilized statistical software package, SAS, to analyze large data bases.