ERIC R. WEISHAUPT, Ph.D., P.E.
PRINCIPAL

erweishaupt@bruchengineering.com

Dr. Eric R. Weishaupt is a Principal at Bruch Engineering, with over fifteen years of experience conducting complex failure investigations. Dr. Weishaupt specializes in the study of mechanical behavior of materials in relation to structure and properties. His technical interests include fatigue and fracture, corrosion, environmental degradation of materials, laboratory testing, fractography, materials characterization, inspections, engineering data analysis, instrumented testing of components and systems, spot-welded joint durability, and the performance of copper alloys.

Prior to joining ESi, Dr. Weishaupt worked as a metallurgist. Throughout his career, he has conducted failure analyses including the automotive, rail, plumbing, heavy trucking, industrial and consumer products, sports equipment, recreational products, and medical device industries. Dr. Weishaupt has worked with manufacturers directly in the areas of materials selection, corrosion performance, design, quality assurance, and mechanical testing of products.

Areas of Specialization

Engineering Failure Analysis
Corrosion
Fatigue Durability of Structures
Ferrous/Non-Ferrous Metallurgy
Materials Characterization
Mechanical Testing
Welded Joint Durability

Education

Ph.D., Engineering Science and Mechanics, University of Alabama, Tuscaloosa, AL, 2012
M.S., Engineering Science and Mechanics, University of Alabama, Tuscaloosa, AL, 2010
B.S., Materials Science and Engineering with Biomedical and Biomaterials Options, Michigan State University, East Lansing, MI, 2005

Licensed Professional Engineer (P.E.)

State of Michigan ..... License No. 6201061687
State of Ohio ..... License No. 87491

Professional Affiliations/Honors

University of Alabama Aerospace Engineering and Mechanics Department

Department Fellow, 2023

W. Edward Lear Endowed Graduate Fellowship

Fellowship Recipient, 2010

Department of Aerospace Engineering and Mechanics Outstanding Teaching by a Ph.D. Student

Award recipient, 2009, 2010, and 2011

College of Engineering Outstanding Teaching by a PhD Student

Award recipient, 2009

Engineering Sciences Department, Metals and Materials Engineers

Employee of the Year, 2006

Michigan State University Materials Science Department Service Award

Award recipient, 2005

ASM Atlanta

Membership Treasurer, 2007
Membership Chair, 2006

Michigan State University Chapter of Material Advantage

President, 2004-2005

Positions Held

Bruch Engineering, Canton, MI

Principal, June 2025 to Present

Engineering Systems Inc., Ann Arbor, MI

Regional Vice President, 2021 to 2025
Manager of Michigan Operations, 2017 to 2021
Senior Managing Consultant, 2021 to Present
Senior Consultant, 2017 to 2020
Staff Consultant, Sr. Staff Consultant, 2011 to 2016

University of Alabama, Tuscaloosa, AL

Graduate Teaching Assistant, 2007-2011

Metals and Materials Engineers, Suwanee, GA

Metallurgist, 2005-2007

Continued Education

Applied Vehicle Dynamics Course
Autobahn Country Club, Joliet, IL, 2018

Human Factors in Traffic Crash Reconstruction
Institute of Police Technology and Management, University of North Florida, Ft. Myers, 2017

Essential Concepts of Bearing Technology
American Bearing Manufacturers Association, Oak Brook, IL, 2016

Traffic Crash Reconstruction I
Northwestern University Center for Public Safety, Ann Arbor, MI, 2015

Crash Data Retrieval (CDR) Technician Level 1
Collision Safety Institute, Ft. Myers, FL, 2014

Courses Taught

University of Alabama
Introduction to Mechanics of Materials Laboratory, August 2007 – August 2009
Statics, 2009 – 2010
Mechanics of Materials, 2011

Classroom Teaching Experience
TMS Metallurgical and Materials Engineering Professional Engineer (PE) Licensing Exam Review Course, The Minerals, Metals & Materials Society, Pittsburgh, PA, 2019-2021

Publications/Presentations

"Failure Analysis of Dryer Impeller: When Car Washes Attack" **E.R. Weishaupt** and J.L. McDougall presented at International Materials Applications & Technologies ASM's Annual Meeting – IMAT, Cleveland, OH, September/October 2024

"Catastrophic Failure of a Brush Cutter Blade" D.K. Carabell, D.B. Brickman and **E.R. Weishaupt**
Presented at International Materials Applications & Technologies ASM's Annual Meeting – IMAT, Cleveland, OH, September/October 2024

"Fractography of Copper Alloys," **E.R. Weishaupt,** ASM Handbook, Fractography, Volume 12, (2024)

"Overview of Embrittlement Mechanisms that Result in Intergranular Fracture," **E.R. Weishaupt,** presented at International Materials Applications & Technologies Conference and Expositions – IMAT, Detroit, MI, October 2023

“Failure Investigation of a Marine Propulsion System,” **E.R. Weishaupt**, E.L. Solomon, J.L. McDougall presented at Fatigue & Fracture I, IMAT & TSSE Forum, New Orleans, LA, September 2022

“Intergranular Fracture,” **E.R. Weishaupt,** ASM Handbook, Failure Analysis Prevention, Volume 11, (2021)

“Basics of Corrosion and Fracture Mechanics,” **E.R. Weishaupt,** presented at 16th Global Congress for Process Safety, LPS Tutorials in Process Safety I – Connecting Mechanical Integrity to Consequences, 2020 AIChe Spring Meeting, August 2020.

“Failure Analysis Techniques for Potable Water Components,” **E.R. Weishaupt**, E.L. Solomon, presented at Failure Analysis & Characterization – Microanalysis, Microscopy, and Metallography in Failure Analysis, MS&T 2019, Portland, OR, October 2019

“Products Failure Analysis and Reliability,” **E.R. Weishaupt,** E.L. Solomon, S.P. Capser, presented at ESi Open House, Ann Arbor, MI, September 2019

“Avoiding Mischaracterization of Metallographic and Fractographic Features of Copper Alloys Used in Potable Water Systems,” **E.R. Weishaupt,** presented at the Characterization & Methods in Failure Analysis – Tools & Techniques I, MS&T 2018, Columbus, OH, October 2018

“Overload Fracture of Cast Aluminum Wheel”, **E.R. Weishaupt**, M.E. Stevenson and J.K. Sprague, Journal of Failure Analysis and Prevention, Volume 14(6), (December 2014)

Evaluating Design Elements in Corrosion Failure Investigations. Michael E Stevenson, M.T. Kenner, **E.R. Weishaupt**, M.L. Hanks, J.L. McDougall, M.D. Hayes, R.P. Baron, J.A. Wilkinson. MS&T 2013

Effect of Weld Schedule Variation on The Weldability and Durability of AHSS Spot Weld Joints, **E.R. Weishaupt**. Ph.D., University of Alabama, 2012

“Corrosion Failure of a Yellow Brass Tubing in Radiator Application”, **E.R. Weishaupt,** M.E. Stevenson, J.L. McDougall, D.A. Turnquist, Journal of Failure Analysis and Prevention 12(3), pp 242-247 (2012)

“A Microstructure and Microhardness Characterization of a Friction Plug Weld in Friction Stir Welded 2195 Al-Li”, D.F. Metz, **E.R. Weishaupt,** M.E. Barkey and B.S. Fairbee, Journal of Engineering Materials and Technology 134(2), (April 2012)

“Failure Analysis of a Temporary Power Line Anchor”, M.E. Stevenson, M.E. Barkey, J.L. McDougall and **E.R. Weishaupt**, Journal of Failure Analysis and Prevention 8(3), (June 2008)

“Failure Analysis of Steel Bearing Plates”, E.E. Vernon, M.E. Stevenson and **E.R. Weishaupt,** Journal of Failure Analysis and Prevention 5(6), (December 2005)

“Weld Related Derailment of a Passenger Train,” **E.R. Weishaupt**, presented at the Failure Analysis Symposium, MS&T 2006, Cincinnati, OH, October 2006