

Ellen E. Wright

Ph.D., P.E.

Senior Managing Consultant



Dr. Ellen Wright is a Senior Managing Consultant with Engineering Systems Inc. (ESi) and leads metallurgical and materials investigations across a wide range of industries, including manufacturing; transportation (aviation and aerospace, rail, maritime, and automotive); power generation; chemical processing; gas transmission and storage; medical device; and construction. She is a licensed professional engineer and instructor for the Metallurgical and Materials Professional Engineering Licensing Exam Review Course offered annually nationwide through The Minerals, Metals, and Materials Society (TMS). She also serves on the Board of Directors for the ASM International Failure Analysis Society (FAS), contributing to the advancement of materials engineering and failure analyses.

Dr. Wright specializes in failure analysis and prevention, fractography, and materials characterization. She has extensive experience evaluating failure modes and material degradation mechanisms, including fatigue, fracture, corrosion, wear, creep, distortion, and weld failures. Her investigations span a broad range of products and alloy systems, encompassing both ferrous and nonferrous materials. She has performed a wide range of laboratory and materials testing and is also experienced in field evaluations, documentation, and sampling. She regularly works on multidisciplinary teams to understand complex relationships between processing, design, and performance of components.

Dr. Wright is particularly recognized for her expertise in aluminum alloys. Her doctoral research focused on the mechanical behavior and corrosion performance of aluminum alloy extrusions. She is the author of "Fractography of Aluminum Alloys," published in *ASM Handbook, Volume 12, Fractography, 2024*. She is also well known for her metallurgical and materials work in aviation and is the principal author of "An Overview of Aircraft Accident Investigation and Component Failures," published in *ASM Handbook, Volume 11A, Analysis and Prevention of Component and Equipment Failures*.

Dr. Wright's work integrates rigorous technical analyses with clear, impactful communication, translating complex material findings into actionable insights for clients, legal teams, and industry stakeholders. She provides expert testimony in state and federal court.

Contact Information

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ESi Kansas City

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Areas of Specialization

- Failure Analysis
- Fractography
- Materials Technology, Characterization, & Selection
- Laboratory & Industrial Services
- Aviation Materials
- Manufacturing
- Corrosion
- Materials Joining: Welding, Brazing, & Mechanical Fastening
- Mechanical Properties & Testing

Education

Ph.D., Metallurgical and Materials Engineering, Colorado School of Mines. 2016

B.S., Metallurgical and Materials Engineering (*Magna Cum Laude*), Minor in Biotechnical Engineering and Life Sciences, Colorado School of Mines. 2012

Licenses & Certifications

- State of Illinois P.E. License # 062.071063

Positions Held

Engineering Systems Inc. (ESi)

- Senior Managing Consultant, 2026 – Present
- Senior Consultant, 2022 – 2025
- Senior Staff Consultant, 2018 – 2022
- Staff Consultant, 2016 – 2018

Colorado School of Mines

- Research and Teaching Assistant, Metallurgical and Materials Engineering, 2012 – 2016
- Teaching Assistant, Physics, 2009

Precision Castparts Corporation Small Structures Business Operations (PCC-SSBO)

- Intern, 2011

Advanced Forming Technologies (now a subsidiary of ARC Group Worldwide)

- Intern, 2010

University of Colorado Cardiovascular Institute

- Intern, 2007 – 2008

Continuing Education

- **Macroscale and Microscale Fractography** – ASM International, January 2026
- **Principles of Failure Analysis** – ASM International, February 2021
- **Structural Failure Identification in Aircraft Accident Investigation** – Embry-Riddle Aeronautical University, April 2019
- **Electron Diffraction Methods for Material Analysis** – Colorado State University Central Instrument Facility, May 2015

Professional Affiliations/Honors

ASM International

- Member since 2012

Failure Analysis Society (FAS), an affiliate society of ASM International

• FAS Board of Directors

- Board Member, 2024 – Present
- Emerging Professional Board Member, 2022 – 2023

• FAS Programming Committee

- Fatigue & Fracture Co-Chair in the Failure Analysis Symposium at International Materials, Applications & Technologies Conference (IMAT), October 2025
- Students in Failure Analysis Co-Chair in the Failure Analysis Symposium at IMAT, October 2025
- Joining & Welding Failures Co-Chair in the Failure Analysis Symposium at IMAT, October 2024
- Aviation Co-Chair in the Failure Analysis Symposium at IMAT, October 2023
- Gears, Shafts, & Bearings Co-Chair in the Failure Analysis Symposium at IMAT, September 2022
- Tools & Techniques Co-Chair in the Dr. Michael E. Stevenson Failure Analysis Symposium at IMAT, September 2021
- Failure Analysis & Characterization: Environmentally Assisted Failures Co-Chair at Materials Science and Technology (MS&T) Technical Meeting, October 2019
- Characterization & Methods in Failure Analysis: Tools & Techniques Co-Chair at MS&T, October 2018

ASM International Emerging Professionals Committee (EPC)

- Secretary, 2019 – 2020
- Objective Project Group Leader of EPC Applications, 2018 – 2019
- Subcommittee Chair of EPC Awards, 2017 – 2018

ASM International Nominating Committee

- Member, 2019

The Minerals, Metals, and Materials Society (TMS)

- Member since 2018
- TMS Metallurgical and Materials Engineering Professional Engineer (PE) Licensing Exam Review Course Instructor, 2023 – 2026
- Materials Bowl Champion, 2013

- Student Grant recipient, 2013

Colorado School of Mines

- Poate Fellowship, 2012 – 2013
- Clark B. Carpenter Award recipient, 2012
- President's Scholarship recipient, 2008 – 2012

Sigma Kappa

- Highest Academic Honors Award recipient, 2008 – 2012

Publications

"Fractography of Aluminum Alloys," **E.E. Wright**, *ASM Handbook*, Volume 12, *Fractography*, 2024,
doi:10.31399/asm.hb.v12.a0007025

"An Overview of Aircraft Accident Investigation and Component Failures," **E.E. Wright**, S.F. Uchneat, *ASM Handbook*, Volume 11A, *Analysis and Prevention of Component and Equipment Failures*, 2021,
doi:10.31399/asm.hb.v11A.a0006821

"The Influence of Microstrain Evolution by Tensile Straining on Localized Corrosion of Al-Li Alloys 2099 and 2196," **E.E. Wright**, M.J. Kaufman, G.R. Weber, *Metallurgical and Materials Transactions A*, 2019,
doi:10.1007/s11661-019-05565-7

Presentations

"From Fracture to Finding: A Visual Journey Through Aviation Mishaps," **E.E. Wright**, presented at the Failure Analysis Society Summit on Fatigue & Fracture, January 2026

"Understanding and Interpreting Mixed-Mode Fractures," **E.E. Wright**, presented at the 2025 IMAT Conference, Detroit, MI, October 2025

"Investigation of Ladder Weld Fractures...and More!" **E.E. Wright**, E.H. Knox, presented at the 2024 IMAT Conference, Cleveland, OH, October 2, 2024

"Be Careful Walking the Dog: An Orthopedic Leg Brace Failure," D.E. Alexander, R.J. Cooley, **E.E. Wright**, presented at the 2024 IMAT Conference, Cleveland, OH, October 3, 2024

"Metallurgical Analyses of Hail Damaged Roof Samples," **E.E. Wright**, R.P. Baron, J.D. Hassebrock, presented at the 2023 IMAT Conference, Detroit, MI, October 16, 2023

"Conquering Can Conundrums: Getting to the Bottom of Beverage Can Failures," E.A. Burns, **E.E. Wright**, J.P. Sommer, presented at the 2023 IMAT Conference, Detroit, MI, October 17, 2023

"Fracture Appearances and Failure Modes in Aluminum Alloys," **E.E. Wright**, R.J. Parrington, D.E. Alexander, presented at the 2022 IMAT Conference, New Orleans, LA, September 12, 2022

- “Looks Can Be Deceiving: Investigating Assembly Issues and Their Role in a Gas Range Explosion,” D.E. Alexander, **E.E. Wright**, E.A. Burns, presented at the 2022 IMAT Conference, New Orleans, LA, September 12, 2022
- “How Laboratory Analysis and Metallurgy Assist in Some Common Insurance Claims,” Greater Kansas City Claims Association, Kansas City, KS, 2022
- “Sampling Corrosion Residues to Aid in Failure Investigations,” **E.E. Wright**, D.E. Alexander, B.M. May, M.A. Hineman, presented at the 2021 IMAT Conference, St. Louis, MO, September 15, 2021
- “When Cleaning Makes a Mess: Case Studies Involving Cleaning Agents,” **E.E. Wright**, M.A. Hineman, K.G. Cline, D.E. Alexander, B.M. May, presented at the 2019 MS&T Technical Meeting, Portland, OR, October 1, 2019
- “The Little Plane That Could: Failure Analysis of a Robust Turbine Engine,” D.E. Alexander, R.P. Baron, M.A. Lewis, C.M. Smith, P.D. Umberger, **E.E. Wright**, presented at the 2019 MS&T Technical Meeting, Portland, OR, September 30, 2019
- “Investigation of a Compressor Turbine Blade Failure Involving the Fir Tree Attachment Condition,” **E.E. Wright**, G.J. Novak, R.P. Baron, D.L. Ahearn, D.E. Alexander, presented at 2018 MS&T Technical Meeting, Columbus, OH, October 15, 2018
- “Microscale Corrosion Investigation of Strained Al-Li Alloys by In-situ Atomic Force Microscopy”, **E.E. Wright**, M.J. Kaufman, G.R. Weber, presented at 2017 MS&T Technical Meeting, Pittsburgh, PA, October 11, 2017
- “Effects of Stretch Forming on Microstructure and Corrosion of Al-Cu-Li Alloys”, **E.E. Wright**, M.J. Kaufman, G.R. Weber, presented at 2016 TMS Annual Meeting and Exhibition, Nashville, TN, February 17, 2016
- “Effects of Stretch Forming on Properties of Al-Li Alloys 2099 and 2196”, **E.E. Wright**, presented at ASM International Puget Sound Chapter Meeting, Seattle, WA, October 13, 2015
- “Effects of Strain Variations on Aging Response and Corrosion Properties of Third Generation Al-Li Alloys”, **E.E. Wright**, M.J. Kaufman, G.R. Weber, presented at 2015 MS&T Technical Meeting, Columbus, OH, October 5, 2015
- “Effects of Stretch Forming on Aging and Corrosion of Third Generation Al-Li Alloys”, **E.E. Wright**, M.J. Kaufman, presented at 2015 TMS Annual Meeting and Exhibition, Orlando, FL, March 18, 2015