7265 S. Revere Pkwy.
Suite 903
Centennial, CO 80112

# Dustin A. Turnquist, M.S., P.E., CFEI
## SENIOR CONSULTANT

daturnquist@engsys.com

Mr. Turnquist is a metallurgist and mechanical engineer for Engineering Systems Inc (ESi). He has over twenty years of technical experience in engineering investigations and failure analysis, and testing, including managing large, complex multi-disciplinary matters.

Mr. Turnquist's expertise encompasses fatigue and fracture characterization, corrosion analysis and damage assessment of components and systems. He has been a lead engineer/laboratory manager supervising a team of engineers and technicians. Mr. Turnquist participated in investigations involving components from the aerospace, automotive, boat/marine, rail, power generation, medical, mining, plumbing, construction, firearms, recreational products and HVAC industries.

In addition to his background in metallurgy and mechanical engineering he is a Certified Fire and Explosion Investigator and has trained in accident reconstruction at Northwestern University. Mr. Turnquist participates in a wide variety of mechanical systems, motor vehicle, fire, and aircraft accident investigation and reconstruction, as well as product liability investigations.

## Areas of Specializations

Metallurgy and Materials Science
Mechanical Engineering and Mechanical Testing
Materials Selection, Testing, and Processing
Failure Analysis and Fractography
Railcar, Aircraft, and Motor Vehicle Components
Fire Investigation
Mechanical Systems Investigations
Product Failure Investigation/Analysis
Recreational Products

## Education

M.S., Metallurgical & Materials Engineering, Colorado School of Mines, 2003
B.S., Engineering with Mechanical Specialty, Colorado School of Mines, 1997

## Licensed Professional Engineer (P.E.) & Registrations

State of Colorado
State of California
State of Wyoming
State of Texas
CFEI Certified Fire and Explosion Investigator

## Professional Affiliations/Honors

**Journal of Failure Analysis and Prevention**

Editorial Board (2019 – present)
Associate Editor (2015 – 2019)

**ASM International**

Failure Analysis Society Member, 2017 – present
Failure Analysis Society Founding Member, 2017
IMAT Conference – Embrittlement Session Co-Chairperson, 2023
Member Failure Analysis Committee, 2003 – 2017
Immediate Past Chairman of the Failure Analysis Committee, 2013-2014
Chairman of the Failure Analysis Committee, 2012 – 2013
Vice Chairman of the Failure Analysis Committee, 2011 – 2012
Secretary of the Failure Analysis Committee, 2010 – 2011
Member of the Handbook Committee, 2014 – 2018
Technical reviewer for the Journal of Failure Analysis and Prevention
Technical reviewer for the Journal of Materials Engineering and Performance
Nominated to the Inaugural Class of the Emerging Professionals Program
Member of the Emerging Professionals Committee, 2008 – 2009
Curriculum Leader for the Eisenman Materials Camp, 2010 – 2012
Volunteer Mentor at the Eisenman Materials Camp, 2007 – 2012, 2015
Volunteer Mentor at the Materials Explorer Camp at lycée La Fayette, Clermont-Ferrand, France, 2012
MS&T Conference – Metallography in Failure Analysis Co-Chairperson, 2012
MS&T Conference – Fatigue and Fracture Session Co-Chairperson, 2007 – 2010
International Metallographic Society (IMS)
M&M Conference – IMS Conference Co-Chairperson, 2012
M&M Conference – Failure Analysis Session, Co-Chairperson, 2009
National Association of Fire Investigators (NAFI) Member

**ΑΣΜ** – International Professional Honor Society for Materials Science and Engineering
Fellow Member

Recipient of the Dr. Myer Ezrin Best Paper Award at ANTEC 2015 for: “Failure Analysis of a Glass Filled Phenolic Resin Power Steering Pump Pulley,” M.E. Stevenson, M.D. Hayes, D.A. Turnquist, Presented at SPE’s ANTEC 2015, Orlando, FL, March 25, 2015

## Positions Held

**Engineering Systems Inc., Colorado Springs, CO**
Senior Consultant, 2020-Present

**Spectrum Forensics LLC, Englewood, CO**
Principal, 2016 – 2020

**Engineering Systems Inc, Colorado Springs, CO**
Senior Consultant, 2008 – 2016
Staff Consultant, Engineering Systems Inc., 2003 – 2008

**Materials Research and Engineering, Inc.**
Lead Engineer/Lab Mgr., 2001 – 2003

**Colorado School of Mines**
Research Assistant, 1998 – 1999
Teaching Assistant, 1997 – 1998

## Continued Education

Aircraft Propeller Accident Investigation Course
Hartzel Propeller, ESi Atlanta, 2024
Interflam 2019
Royal Holloway College, Egham, UK, 2019
International Symposium on Fire Investigation Science & Technology
NAFI, Hyattsville, MD, 2014
Practical Fractography
ASM International/IMR Test Labs, Lansing, NY, 2012
Practical Fracture Mechanics
ASM International/IMR Test Labs, Lansing, NY, 2012
National Fire, Arson & Explosion Training Program
NAFI, Boston, MA, 2010
Failure Analysis and Artifact Preservation Through Metallography
M&M 2008, Albuquerque, NM, 2008
Traffic Accident Reconstruction
Northwestern University, Evanston, IL, 2007
Wear and Corrosion of Materials
ASM International, Materials Park, OH, 2005
Basic Corrosion Course
NACE International, Houston, TX, 2004

## Publications/Presentations

Turnquist, D.A., “Review of Factors Leading to the Catastrophic Failure of a Wheel Assembly”, IMAT Conference, Fasteners Session, Detroit, MI, October 19, 2023.

Turnquist, D.A., “CT as a Part of Routine Failure Investigations”, IMAT Conference, Tools & Techniques Session, Detroit, October 18, 2023.

Turnquist, D.A., "Aircraft Fan Cowling Failure Analysis”, IMAT Conference, Aviation Session, Detroit, MI, October 16, 2023.

INVITED – Cornelissen, B.E. and Turnquist, D.A., “Modular Hip System Failure Analysis: Investigative Techniques and Findings,” ASM Rocky Mountain Chapter Meeting, Golden, CO, October 4, 2018.

INVITED - Turnquist, D.A., “Finding the Root Cause: Failure Analysis vs. Failure Investigation,” ASM Rocky Mountain Chapter Meeting, Golden, CO, November 3, 2016.

“Failure Analysis of a Glass Filled Phenolic Resin Power Steering Pump Pulley,” M.E.Stevenson, M.D. Hayes, D.A. Turnquist, Journal of Failure Analysis and Prevention, October 2014.

Contributor to: Wulpi, D.J., “Understanding How Components Fail,” Third Edition, Ed. B. Miller, ASM International, Materials Park, OH, 2013.

Bajzek, Thomas J., Turnquist, Dustin A., Granica, Robert A., “Engineering/Science in Fire Cause Investigation,” Colorado Defense Lawyers Association Continuing Legal Education Seminar, Colorado Springs, CO, November 2, 2012.

Weishaupt, E.R., Stevenson, M.E., McDougal, J.L., Turnquist, D.A, “Case Study: Corrosion Failure of Yellow Brass Tubing in Radiator Application,” Journal of Failure Analysis and Prevention, Volume 12, Issue 3, ASM International, June 2012.

Turnquist, D.A., Stevenson, M.E., “Role of Metallography in Failure Investigations,” Proceedings of Microscopy and Microanalysis 2011, Vol. 17, Supplement 2, Cambridge University Press, Cambridge, U.K., 2011.

Turnquist, D.A. and Norfleet, D.M., “Investigation of Wheel Bolt Failures,” Materials Science and Technologies Conference, Fatigue and Fracture Session in the Failure Analysis Symposium, Houston, TX, October 21, 2010.

Turnquist, D.A., “Now What,” Materials Science and Technologies 2010 Conference, Emerging Professionals Symposium, Houston TX, October 20, 2010.

Turnquist, D.A., “Metallurgy in Products Liability,” CNA Insurance Company, Lone Tree, CO, August 19, 2010.

Turnquist, D.A. and Winn, R.C., “Metallurgy and Mechanical in Product Liability,” Colorado Defense Lawyers Association Continuing Legal Education Seminar, Denver, CO, April 7, 2010.

Turnquist, D.A., “Introduction to Metallurgy”, Presented to the law firm of Montgomery, Kolodny, Amatuzio & Dusbabek, LLP, February 2009.

Stevenson, M.E., Hayes, M.D, McDougal, J.L., Weishaupt, E.R., Turnquist, D.A., “Failure Analysis of a Tree Pruner Saw Blade Anchor Screw,” Proceedings of Microscopy and

Microanalysis 2008, Vol. 14, Supplement 2, Cambridge University Press, Cambridge, U.K., 2008.

Butler, R., Winn, R., Morris, S., Slane, J., Turnquist D., and Wooddell, M., “Using GPS-based Data Acquisition to Evaluate Vehicle and Driver Performance,” AIAA-2008-1146, Reno, NV, January, 2008.

Turnquist, D.A., “Failure Analysis of a Tree Pruner Saw Blade Anchor Screw,” Presented at Microscopy and Microanalysis 2008, Albuquerque, NM, August 2008.

Turnquist, D.A., Schmidt, F.E., and Danko, M.J., “Techniques Used in the Failure Analysis of Railcar Bolsters,” Proceedings of Microscopy and Microanalysis 2006, Vol. 12, Supplement 2, Cambridge University Press, Cambridge U.K., 2006.

Winn, R.C. and Turnquist, D.A., “Accident Reconstruction: Simulation versus Animation,” Rocky Mountain Association of Special Investigation Units, Aurora, CO, August 15, 2006.

Turnquist, D.A., “Techniques Used in the Failure Analysis of Railcar Bolsters,” Engineering Systems Inc., Aurora, Illinois, August 7, 2006.

Turnquist, D.A., Schmidt, F.E., and Danko, M.J., “Techniques Used in the Failure Analysis of Railcar Bolsters,” Presented at Microscopy and Microanalysis 2006, Chicago, IL August 2006.

Turnquist, D.A., “Unique Cracking Observations in Superheater Tubes,” Presented at Microscopy and Microanalysis 2005, Honolulu, HI, August 2005.

Turnquist, D.A., Matlock, D.K., Kraus, G., and Speer, J.G., “Effects of Testing Temperature of the Fatigue Behavior of Carburized Steel,” SAE Transactions – Journal of Materials and Manufacturing, Vols. 114 – 115, Society of Automotive Engineers, Warrendale, PA, 2005, pp. 514-522.

Turnquist, D.A. and Theus, G.J., “Unique Cracking Observations in Superheater Tubes,” Proceedings of Microscopy and Microanalysis 2005, Vol. 11, Supplement 2, Cambridge University Press, Cambridge U.K., 2005.

Turnquist, D.A., Matlock, D.K., Kraus, G., and Speer, J.G., “Effects of Testing Temperature of the Fatigue Behavior of Carburized Steel,” SAE Technical Series No. 2005-01-0986, Society of Automotive Engineers, Detroit, MI, April 2005.

Turnquist, D.A., “Effects of Testing Temperature of the Fatigue Behavior of Carburized Steel,” M.S. Thesis No. T–5697, Colorado School of Mines, Golden, Colorado, December 2002.