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Dallas, TX 75238

RICHARD P. BARON, Ph.D., P.E.
PRINCIPAL
DIRECTOR, MATERIALS

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Dr. Baron has over 25 years of experience in the preparation, characterization, analysis, and testing of metallic, polymeric, and ceramic materials, composites, and coatings. His work experience spans multiple industries, and includes a wide range of different projects, including multidisciplinary failure investigations of high-temperature turbine components, piston engines, oil and gas components, commercial products, electronic components, complex mechanical assemblies, and water distribution systems. Dr. Baron is proficient in scanning electron microscopy (SEM) and metallurgical laboratory investigations. He has testified as a qualified professional engineering expert in both state and federal courts.

Areas of Specialization

Engineering Failure Analysis
Railroad and Transit
Non-Metallic Materials
Turbine Components
Electrical Components
Corrosion Engineering
Welding Metallurgy
Testing and Examinations
Piston Engines

Education

Ph.D., Materials Science and Engineering, University of Virginia, 1998
M.S., Materials Science and Engineering, Lehigh University, 1994
B.S., Materials Science and Engineering, Lehigh University, 1993

Licensed Professional Engineer (P.E.)

State of Texas…….. License No. 92534
State of Oklahoma…… License No. 27062

Professional Affiliations

The Minerals, Metals & Materials Society Member, 2003 - Present
Engineer-in-Training Certification, 1993
American Society of Metals and Materials Member, 1991 – Present
American Welding Society, 2006 - Present
ASTM International, 2012 – Present

January 2024

Certificates

SuperAlloys for Heavy-Duty and Aircraft-Type Gas Turbines, Certificate of Completion, University of Florida, 2018
Technical Committee for Excellence, Certificate of Participation, Houston Fire Dept., 2001
Engineer-in-Training Certification, 1993

Honors/Awards

Phi Eta Sigma Honor Society
Tau Beta Pi Honor Society
Alpha Sigma Mu Honor Society
Bachelor of Science with High Honors – Lehigh University
John Cyril Osbourn Award – Lehigh University

Positions Held

Engineering Systems Inc., Dallas, Texas

Director, Materials 2021-present
Principal 2019-present
Manager of Dallas Operations, 2015 – 2020
Senior Managing Consultant 2015-2018
Senior Consultant, 2011 – 2015

Materials Analysis, Inc., Dallas, Texas

Staff Engineer, 2003 – 2011
Graduate Engineer, 1998 – 2003

University of Virginia, Charlottesville, Virginia

Graduate Research Assistant, 1994 – 1998
Graduate Teaching Assistant, 1997

Advanced Material Development Center, Saginaw, Michigan

Summer Research Intern, 1995

Energy Research Center, Bethlehem, Pennsylvania

Graduate Research Assistant, 1993 – 1994

Continued Education

SuperAlloys for Heavy-Duty and Aircraft-Type Gas Turbines, Certificate of Completion, University of Florida, 2018

Model 250 Series IV (C40/C47) Engine Maintenance Training Course
Rolls Royce, 2008

Basic Gas Turbine Engine Technology
International Gas Turbine Institute, American Society of Mechanical Engineers, ASTM International, 2000

Publications/Presentations

"Visual Examination and Photography in Failure Analysis"
ASM Handbook, Volume 11B, October 2021

"Creep and Stress-Rupture Failures"
ASM Handbook, Volume 11, October 2020

"The Little Plane that Could: Failure Analysis of a Robust Turbine Engine"
D.E. Alexander, R. Baron, M. Lewis, C. Smith, P. Umberger, E. Wright, presented at 2019 MS&T Technical Meeting, Portland, OR, October 3, 2019

“Investigation of a Compressor Turbine Blade Failure Involving the Fir Tree Attachment Condition,”
E. Wright, G. Novak, R. Baron, D. Ahearn, D.E. Alexander, presented at 2018 MS&T Technical Meeting, Columbus, OH, October 15, 2018

“Failure of Recreational Products: Case Studies,”
R.P. Baron, A.E. Richards, M.J. Mulherin
MS&T 16, Invited Speaker, Salt Lake City, Utah, October 2016.

"Failure Analysis of a Titanium Golf Club Head"
Journal of Failure Analysis and Prevention, Volume 10, Issue 6, December 2010

"Failure Analysis of Some Uncommon Welds"
American Welding Society – North Texas Section, October 2007

"Failure Analysis of First Stage Turbine Air Seal Assembly"
Materials Science and Technology (MS&T) Fundamentals and Characterization, Volume 1, October 2006

"The Processing and Characterization of Sintered Metal Reinforced Aluminum Matrix Composites"
Ph.D. Dissertation, August 1998

"Mechanical Properties of Aluminum Matrix Composites Reinforced with Sintered Ferrous Compacts"
Materials Science and Engineering, 1998

"Relationship Between Fractional Porosity and Tensile Strength for High-Porosity Sintered Ferrous Powder Components"
Scripta Materialia, 1998

"The Processing and Characterization of Sintered Metal Reinforced Aluminum Matrix Composites"
Journal of Materials Science, 1997

"Oxidation and Erosion Resistance of Amorphous Bright Chromium Electroplated Coatings"
Advances in Surface Engineering, Volume 2: Process Technology, 1997

"The Diffusion and Properties of an Amorphous Bright Chromium Deposit on an Iron-Carbon Substrate"
M.S. Thesis, 1994