



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

[rpbaron@engsys.com](mailto:rpbaron@engsys.com)

Dr. Baron has over 27 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 2025*

## **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