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## **GRAHAM PARKINSON, Ph.D., P.E.**

### **SENIOR STAFF CONSULTANT**

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Dr. Graham Parkinson is a Senior Staff Consultant in the Polymer, Composite, and Non-metallic Materials Practice at ESi. Dr. Parkinson has a Ph.D. in Materials Science and Engineering and is a Licensed Professional Engineer. He specializes in conducting failure analysis and materials characterization investigations related to the performance of polymeric materials in plastic products from diverse industries. He provides technical consulting services to clients in the scientific and engineering industry as well as the insurance and litigation spaces. He has led numerous forensic investigations of component failures as well as failure of industrial systems to attribute the root-cause of failure to either material selection, processing, or part design. His expertise includes understanding of different material degradation mechanisms, different failure modes, and structure-property relationship of materials.

Prior to joining ESi, Dr. Parkinson worked as a Senior Consultant at Rimkus in the Materials Science and Engineering Practice. As the primary consultant responsible for investigation of plastic product failures, he worked on investigations of plastic piping and plumbing components, personal protective equipment, paints, coatings, sealants, as well as consumer products. In addition to working on polymers, he also applied materials science and engineering principles in investigations of the performance of concrete, glasses, ceramics, and both ferrous and non-ferrous metallic products. Dr. Parkinson's experience in materials science and engineering as well as chemical engineering leads to seamless project execution across multidisciplinary teams when performing complex failure analysis.

Dr. Parkinson's prior experience as a Teaching Professor, where he taught courses in materials science and engineering as well as an interdisciplinary senior design curriculum, allows him to explain complex technical issues in a manner that is easily understood by ESi's insurance and litigation clients. His work in the startup space allows him to easily adapt to new challenges and solve unique problems.

### **Areas of Specialization**

Materials Characterization  
Failure Analysis  
Polymers and Macromolecules  
Material Selection  
Material Compatibility  
Product Design

### **Education**

Ph.D., Materials Science & Engineering, Georgia Institute of Technology, Atlanta, Georgia, 2020  
B.S., Chemical Engineering, University of Colorado, Boulder, Colorado, 2012

### **Licensed Professional Engineer (P.E.)**

State of Illinois.....License No. 062.076868

November 2024

## **Certifications**

### **Engineer Intern [EI]**

State of Colorado ..... Certification No. EI.0067962

### **Certified Beer Server**

Cicerone Certification Program

## **Professional Affiliations**

**American Institute of Chemical Engineers [AIChE]**

**American Chemical Society [ACS]**

**ASM International**

**Failure Analysis Society**

**Omega Chi Epsilon-The Chemical Engineering Honor Society**

**The Minerals, Metals & Materials Society [TMS]**

## **Positions Held**

### **Engineering Systems Inc., Aurora, Illinois**

Senior Staff Consultant, 2023 – Present

### **Rimkus, Centennial, Colorado**

Senior Consultant, 2022 – 2023

### **University of Denver, Denver, Colorado**

Visiting Teaching Assistant Professor, 2021 – 2022

### **WyoNano, Laramie, Wyoming**

Senior Research Engineer, 2021

### **Georgia Institute of Technology, Atlanta, Georgia**

Graduate Research Assistant, 2012 – 2020

### **Atramento, Atlanta, Georgia**

Co-founder & CEO, 2014 – 2018

### **National Institute of Standards and Technology, Gaithersburg, Maryland**

Guest Researcher, 2014

## Teaching

### University of Denver

ENME 2410 Materials Science I  
ENME 2421 Materials Science II with Lab  
ENGR 3313 Engineering Design Project I  
ENGR 3323 Engineering Design Project II  
ENGR 3333 Engineering Design Project III

## Continued Education

NIST Center for Neutron Research Summer School on the Fundamentals of Neutron Scattering and Neutron Reflectometry

National Institute of Standards and Technology, 2015

SFB 985 and Georgia Institute of Technology Joint Summer School on Functional Microgels and Microgel Systems

RWTH Aachen University, 2015

## Publications

Zhang, X.J., Fu, J., Zhang, Z., Jangda, M., Rosu, C., **Parkinson, G. D. B.**, Russo, P.S. Differential Dynamic Microscopy: Diffusion Measurements Where You Want Them. *Macromolecules*. January 2024.

Blake, A. M., **Parkinson, G. D. B.**, Russo, P. S. Detection of a Polypeptide Conformation Transition in Solution via Sound Velocity. *Macromolecules*. January 2020.

## Presentations

**Parkinson, G. D. B.**; Zhang, X. J.; Russo, P. S. Comparison of analysis methods for Differential Dynamic Microscopy. Presented at the ACS Colloids Meeting, Atlanta, Georgia, June 16, 2019.

**Parkinson, G. D. B.**; Sun, J.; Russo, P. S. Breaking, healing, and templating of chemical and physical gel networks. Presented at the National Graduate Research Polymer Conference, Akron, Ohio, March 21, 2016.

**Parkinson, G. D. B.**; Sun, J.; Russo, P. S. Self-healing and disruption of arborol fibers. Presented at the ACS National Meeting, Denver, Colorado, March 26, 2015.

Qin, D.; Yang, Y.; Zhang, Q.; **Parkinson, G. D. B.** Ag-Au Bimetallic Nanoplates for Printable Electronics. Presented at the MRS Fall Meeting, Boston, Massachusetts, December 3, 2013.