



GRAHAM PARKINSON, Ph.D.
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 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 plastic 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 Visiting Teaching Assistant 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.

Areas of Specialization

Materials Characterization
Failure Analysis
Polymers and Macromolecules
Material Selection
Material Compatibility

Education

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

Certifications

Engineer Intern [EI]

State of Colorado License No. EI.0067962

October 2023

Professional Affiliations

American Institute of Chemical Engineers

American Chemical Society

ASM International

Failure Analysis Society

American Society for Engineering Education

Omega Chi Epsilon-The Chemical Engineering Honor Society

American Physical Society

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, 2012 – 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*. In Press.

Blake, A. M.; **Parkinson, G. D. B.**; Russo, P. S. Detection of a Polypeptide Conformation Transition in Solution via Sound Velocity. *Macromolecules*. **2020**, 53(13), 5127-5139.

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.