



**Exponent<sup>®</sup>**  
Engineering & Scientific Consulting

**Jason Geathers, Ph.D., P.E.**

Senior Engineer | Mechanical Engineering  
Atlanta  
+1-678-412-4816 | [jgeathers@exponent.com](mailto:jgeathers@exponent.com)

## Professional Profile

Dr. Geathers is a licensed mechanical engineer specializing in failure analysis, fatigue, fracture mechanics, and machine design. He has provided consulting services involving consumer products (pressure cookers, juicers, automotive components, and marine components) and machinery (axle failures, bolt failures, plastic straps, cables, and lifts). Dr. Geathers also has experience diagnosing failures in metallic, polymeric, and composite materials. He routinely leverages his extensive knowledge in both the mechanical engineering and materials science disciplines to help his clients solve their most complex problems. Dr. Geathers has firsthand experience with machining, mechanical testing techniques, nondestructive evaluation, fractography, microscopy, and additive manufacturing of polymeric materials. In addition, Dr. Geathers has provided consulting services regarding product recalls, product defect litigation, product compliance, intellectual property litigation, and insurance disputes.

Prior to joining Exponent, Dr. Geathers was an Assistant Professor in the Department of Mechanical Engineering at The Citadel, The Military College of South Carolina where he taught classes and labs in measurements and instrumentation, manufacturing, engineering materials, solid mechanics, thermo-fluids, and machine design. As a graduate student at the University of Michigan, Dr. Geathers investigated the influence of microstructure and environment on the very high cycle fatigue (VHCF) behavior of titanium alloys in support of the aerospace industry's need to increase the lifetimes of turbine engine components. He developed a system and experiments that combined ultrasonic fatigue and electron microscopy to study crack initiation and growth mechanisms in structural materials as a function of the local crack-tip strain, microstructure, and environment. He gained extensive experience with scanning electron microscopy (SEM), electron backscattered diffraction (EBSD), Auger electron spectroscopy (AES) and energy dispersive X-ray spectroscopy (EDS). He also performed experiments using 2-D and 3-D digital image correlation (DIC) techniques at various length scales from macro to micro to map displacement and strain localization in metals towards understanding the nature of strain accumulation leading to crack initiation and fracture.

## Academic Credentials & Professional Honors

Ph.D., Mechanical Engineering, University of Michigan, 2016

M.S.E., Mechanical Engineering, University of Michigan, 2012

B.S., Applied Physics, Morehouse College, 2009

B.S.E., Mechanical Engineering, University of Michigan, 2009

## Academic Appointments

Assistant Professor, Mechanical Engineering, The Citadel, 2016 - 2021

## Prior Experience

Graduate Student Research Assistant, University of Michigan, 2010–2016

## Professional Affiliations

The Minerals, Metals & Materials Society (TMS)

The American Society of Mechanical Engineers (ASME)

## Publications

Geathers J, Torbet CJ, Jones JW, Daly S. “Examining the Role of Water Vapor on Small Fatigue Crack Growth Behavior in Ti-6242S Using Ultrasonic Fatigue and Scanning Electron Microscopy”. International Journal of Fatigue, Vol. 156, 2022.

Geathers J, Torbet CJ, Jones JW, Daly S. Investigating environmental effects on small fatigue crack growth in Ti-6242S using combined ultrasonic fatigue and scanning electron microscopy. International Journal of Fatigue 2015; 70:154 – 162.

## Presentations

Geathers J. Investigating microstructural and environmental effects on the very high cycle fatigue behavior of Ti-6242S. 7th International Conference on Very High Cycle Fatigue, Dresden, Germany, 2017.

Geathers J. Examining fatigue crack initiation and growth behavior in Ti-6242S using ultrasonic fatigue. Society of Experimental Mechanics, Indianapolis, IN, 2017.

Geathers J. Studying small fatigue crack growth behavior in Ti-6242S using ultrasonic fatigue and scanning electron microscopy. The Minerals, Metals, and Materials Society, Orlando, FL, 2015.

## Peer Reviews

International Journal of Fatigue

Experimental Mechanics