



Dayane Marques Oliveira, Ph.D.

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Professional Profile

Dr. Oliveira is a materials scientist with extensive experience with advanced mechanical testing and material characterization using optical, confocal, and scanning electron microscopes. She also has a strong background on failure analysis, from designing experiments to establishing connections between processing, structure, properties and performance.

Dr. Oliveira has specific expertise in mechanical behavior of materials with an emphasis on the effect of hydrogen on fatigue deformation and failure.

Prior to joining Exponent, Dr. Oliveira earned her Ph.D in Materials Science and Engineering at the University of California Davis. She investigated mechanisms of cyclic deformation and fatigue failure in Type 316L stainless steel and CrMnFeCoNi high entropy alloys for structural and hydrogen energy applications. During her graduate program, she developed expertise in low cycle fatigue and plastic strain rate change experiments, tensile tests, advanced data analysis, metallographic examination, and electron microscopy.

Dr. Oliveira earned her bachelor's degree in Materials Engineering at the Federal University of Itajuba (UNIFEI), Itabira, where she synthesized ordered mesoporous silica MCM-41 with controlled morphology for potential application in controlled drug delivery systems. She has also worked with polymer matrix composites, focusing on fiber volume ratios and cure cycle of resins.

Academic Credentials & Professional Honors

Ph.D., Materials Sci & Engineering, University of California, Davis, 2022

B.S., Materials Engineering, Federal University of Itajuba, Itabira, 2016

Global Study Program, Materials Science and Engineering, University of California, Davis, 2014-2015

Recipient, Enrique Lavernia Fellowship, University of California, Davis, 2019

Academic Appointments

Teaching Assistant, Materials Science and Engineering, University of California, Davis, 2018-2022

Professional Affiliations

The Minerals, Metals & Materials Society (TMS)

The Materials Information Society (ASM International)

Association for Iron & Steel Technology (AIST)

Languages

Portuguese (Brazil)

English (United States)

Publications

Oliveira DM, San Marchi CW, Medlin DL, Gibeling JC. The Influence of Hydrogen on the Low Cycle Fatigue Behavior of Strain-hardened 316L Stainless Steel. *Materials Science and Engineering: A* 2022; 849(6):143477.

Contreras A, Vogt R, Oliveira DM, Schoenung JM, Gibeling JC Low Cycle Fatigue of an Ultra-Fine Grained AA5083 Aluminum Alloy Composite Produced by Cryomilling. *Metallurgical and Materials Transactions A* 2021; 52(3):1-10.

Oliveira DM, Andrada AS. Synthesis of ordered mesoporous silica MCM-41 with controlled morphology for potential application in controlled drug delivery systems. *Ceramica* 2019; 65(374):170-179.

Presentations

Oliveira DM, George EP, Gibeling JC. Low Cycle Fatigue Behavior of the Equiatomic CrMnFeCoNi High Entropy Alloy. Oral presentation, 2nd World Congress on High Entropy Alloys (HEA 2021), Charlotte, NC, 2021.

Oliveira DM, San Marchi CW, Gibeling JC. Influence of Hydrogen on Kinetics of Dislocation Glide During Low Cycle Fatigue of 316L Stainless Steel. Oral presentation, Materials Research Society (MRS) Fall Meeting MRS 2021, Virtual, 2021.

Oliveira DM, San Marchi CW, Gibeling JC. Low cycle fatigue behavior of strain-hardened 316L stainless steel for hydrogen fuel cell vehicles. Oral presentation, Materials Science & Technology (MS&T) Technical Meeting and Exhibition, Portland, OR, 2019.

Contreras A, Vogt R, Oliveira DM, Schoenung JM, Gibeling JC. Low Cycle Fatigue of an Ultrafine Grained AA5083 Aluminum Alloy Composite Produced by Cryomilling. *Metallurgical and Materials Transactions A* 2021; 52: 975–984.