

Exponent®
Engineering & Scientific Consulting

Lonnie Smith, Ph.D.

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Professional Profile

Lonnie Smith is a Materials Engineer who specializes in failure analysis and failure prevention, fractographic examination, and microstructure-processing-property relationships of a broad range of materials. Dr. Smith's extensive expertise includes: materials characterization, ferrous and non-ferrous alloys, corrosion analysis, failure analysis, additive manufacturing, statistical analysis, and enhancing reliability of components.

Dr. Smith provides technical support and expert analyses to law firms, insurance companies, and industry.

Prior to joining exponent, Dr. Smith received his Ph.D. in Materials Science and Engineering from Carnegie Mellon University. His research focused on connection of process parameters to defect concentration for production of 3D printed parts using nickel-based superalloy UNS N07718; prediction of weld pool geometry; development of temperature history profiles to predict microstructural evolution in fabrication of titanium parts for space applications.

In addition to his research, Dr. Smith served as a teaching assistant for undergraduate and graduate materials science courses, as well as led a practical materials science laboratory course.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, Carnegie Mellon University, 2021

M.S., Materials Science and Engineering, Carnegie Mellon University, 2019

B.S., Applied Mathematics, University of New Mexico, 2017

B.S., Mechanical Engineering, University of New Mexico, 2017

Licenses and Certifications

Professional Engineer Metallurgical, California, #2062

Professional Affiliations

American Society for Materials (ASM)

The Minerals, Metals & Materials Society (TMS)

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Languages

Spanish

Publications

Ohtsuki T, Smith L, Pistorius, P.C. "Origin of Oxides and Oxide-Related Pores in Laser Powder Bed Fusion Parts." Structural Integrity of Additive Manufactured Materials and Parts, ed. N Shamsaei and M Seifi (West Conshohocken, PA: ASTM International, 2020), 45-60. http://doi.org/10.1520/STP163120190137

Presentations

Smith L, Pistorius, P C. "Development of Temperature History Profiles for Production of Ti-6Al-4V Using A Finite 1D Difference Model." Oral Presentation, The Materials Science & Technology Conference, Virtual, 2020.

Smith L, Pistorius, P C. "Effect of Process Parameters on the Porosity of IN718 Produced by Laser Powder Bed Fusion." Oral Presentation, The Minerals, Metals & Materials Society Conference, San Diego, CA, 2020.

Smith L, Pistorius, P C. "Oxide Formation on and in AlSi10Mg and IN718 Builds." Oral Presentation, The Minerals, Metals & Materials Society Conference, San Diego, CA, 2020.

Smith L, Pistorius, P C. "Characterization and Modeling of Microstructure Formation in Additively Manufactured IN718." Oral Presentation, NASA Space Technology Research Grant Conference, San Diego, CA, 2020.

Smith L, Pistorius, P C. "Laser Powder Bed Fusion of Type 304 Stainless Steel: Ferrite-Austenite Transformation." Oral Presentation, The Minerals, Metals & Materials Society Conference, San Antonio, TX, 2019.

Research Grants

NASA Space Technology Early Stage Innovations, 2017-2020