

Justin He | Associate II



EDUCATION

- Virginia Tech
 - Bachelor of Science, Engineering Science and Mechanics, 2022

PRACTICE AREAS

- Metallurgical Evaluation
- Failure Analysis
- Laboratory Evaluations
- Mechanical Testing
- Metal Additive Manufacturing
- Thermal/Environmental Barrier Coatings
- Nickel-Based Superalloys
- Ceramics and Ceramic Matrix Composites

PROFESSIONAL AFFILIATIONS

- Materials Engineering Professional Society

CONTACT

jhe@wje.com
847.272.7400
www.wje.com

EXPERIENCE

Justin He is a metallography and microanalysis specialist with experience in hands-on laboratory work, microscopy, failure analysis, and fractography. Mr. He possesses expertise in sample preparation techniques, optical and electron microscopy, interpreting microstructural features and correlating them with material properties and performance, and failure analysis and root cause investigation using microstructural evidence.

Mr. He has worked in the aerospace, defense, and energy industries analyzing materials and examining their applications and in the research sector, experimenting with additive friction stir deposition (AFSD) and assisting with large-scale electron beam freeform fabrication and ultrasonic additive manufacturing.

REPRESENTATIVE PROJECTS

Metallurgical Evaluation

- Rene Alloy Development - Niskayuna, NY: Microstructural analysis of various Rene alloys
- Weldability Analysis - New York, NY: Weldability of structural steel member from fire escape for weld joint integrity
- Metallographic Evaluation - VA: Microstructural analysis of sewer pipe section to determine causation of damage

Failure Analysis

- Fatigue and fracture toughness testing with digital image correlation on ultrasonic additive manufacturing panels
- Fractography and failure analysis on various AFSD builds to investigate different process parameters.
- Failure Analysis of Research Facility Ductwork - TX: Microstructural and chemical analysis of corroded stainless steel ductwork section
- Evaluation of Underground Flange Bolt Failure - CA: Metallurgical evaluation of failed bolts, washers, and nuts from cast iron valves from underground chilled water extension line

Laboratory Evaluations

- Tensile/hardness testing and metallographic preparation on steel and Al AFSD specimens

Thermal/Environmental Barrier Coatings

- Accident-Tolerant Fuels - Niskayuna, NY: Materials investigation and selection for nuclear fuel rod cladding

Metal Additive Manufacturing

- Selective Reinforcement of Aerospace Vehicles - Hampton, VA: Examining metal additive manufacturing techniques to reinforce critical aerospace components

Ceramics and Ceramic Matrix Composites

- Large-Scale Electron Beam Freeform Fabrication - Hampton VA: Deposition of metal matrix composites using electron beam freeform fabrication