

Resume of
EMILY B. MITCHELL, M.S., CAWI

- Education:** M.S., Materials and Metallurgical Engineering, Colorado School of Mines, 2019
B.S., Materials and Metallurgical Engineering, Colorado School of Mines, 2016
- Experience:** Spectrum Forensics LLC, 2021–Present
ASPPRC Graduate Researcher and Teaching Assistant, Colorado School of Mines, 2017–2019
- Conducted TOF neutron diffraction bulk texture analysis experiments on the HIPPO instrument at the Los Alamos Neutron Science Center after selection through a competitive proposal process.
 - Coordinated novel Charpy testing with the Charpy verification program at NIST by networking through local metallurgical societies and identifying experiments that were mutually beneficial to both programs' initiatives.
 - Identified insufficiencies with in-house drop weight tear testing capabilities and coordinated with corporate sponsors to complete industrial scale drop weight tear testing on API pipeline steels at EVRAZ Regina, Saskatchewan, Canada and instrumented drop weight tear testing at SABIC, Saudi Arabia.
 - Assisted in teaching multiple hands-on laboratory classes with a focus on applied research skills and safety.
- Los Alamos National Laboratory Engineering and Applied Nuclear Science Internship, Fall 2016
- Team member on multiple projects including drop tower testing installation and safety, nuclear waste container design, and FeCrAl reactor cladding material testing.
 - Worked with all levels of laboratory employees from directors to technical staff to complete design, quality assurance, and safety protocol projects while becoming proficient with the laboratory's Integrated Work Management & Document system.
 - Completed laboratory technical, safety, and security trainings including but not limited to: Radiation Worker II, information security, personal protective equipment (PPE), materials science and technology lab equipment trainings.
- Nucor Steel Memphis Special Bar Quality Mill Melt Shop Metallurgist Internship, Summer 2015
- Ran industrial scale mold powder trials with operators and engineers and identified improvement options while working on a four-strand continuous caster.
 - Researched mold level detection systems and identified sources of error in calibration and performance; launched efforts to improve system and developed novel calibration technique.
- Scholarships and Awards:** FIERF Forging Industry Women's Scholarship
AIST FeMET Scholarship
CSM Piper Wisconsin Centrifugal Scholarship
Arlington Community Foundation Marjorie D. Buynak Scholarship
9th Annual TMS Materials Bowl, Orlando, FL: 1st Place CSM team member

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EMILY B. MITCHELL, M.S., CAWI**Skills and Competencies:** *Industry Skills*

- Steel mill and national laboratory safety trainings; team problem solving with engineers and operators; industrial sample collection and analysis.

Laboratory Skills

- Metallographic sample mounting; polishing; etching; microscopy; micrograph analysis; SEM; EBSD; HIPPO TOF Neutron Diffraction; fractography; digital image processing and analysis; automated and manual hardness testing; Charpy V-Notch testing; drop weight tear testing; tensile testing; furnace treatments; chemical handling and disposal.

Professional and Communication Skills

- Gave bi-annual written reports and technical presentations to corporate sponsors of master's thesis program and gave poster and oral presentations at materials/metallurgical engineering professional conferences.
- Gave educational presentations on technical topics and made them accessible to audiences with varying education/career backgrounds: from steel mill operators, technical staff, and engineering students to general managers, politicians, and sales representatives.
- Participated in Material Advantage's National Congressional Visits Day (2015-2019) and met with Congressional Representatives and Senators in Washington DC to educate members about the importance of materials research and the need for increased federal R&D funding.

Conferences and Seminars:

Material Advantage's National Congressional Visits Day, Washington D.C.

- CSM Chapter Outreach Chair, 2015
- CSM Chapter Congressional Visits Day Lead, 2016- 2019

ASPPRC's Semiannual Sponsor Review Meeting, Colorado School of Mines

- Speaker: Abrasive Wear Resistance of Wire Steels, Fall 2015
- Speaker: Toughness and Separation Improvement of Thick Plate X70 Pipeline Steels, 2017-2019

AIST Tech 2018: 2nd International Symposium on Recent Developments in Plate Steels, Orlando, FL

- Poster presentation: Microstructural and Texture Effects on Thick Plate X70 Pipeline Steel Toughness

Materials Science & Technology 2018, Columbus, OH

- Speaker: Toughness and Separation Improvement for X70 Pipeline Steels

EBM Publications:

Mitchell, E.B., Lucon, E., Collins, L.E. et al. Microstructure and Thickness Effects on Impact Behavior and Separation Formation in X70 Pipeline Steel. JOM 73, 1966-1977 (2021). <https://doi.org/10.1007/s11837-021-04562-9>.

Di Gioacchino, F., Lucon, E., Mitchell, E.B., Clarke, K.D., Matlock, D.K., Side-grooved Charpy impact testing: Assessment of splitting and fracture properties of high-toughness plate steels, Engineering Fracture Mechanics, Volume 252 (2021), 107842, ISSN 0013-7944. <https://doi.org/10.1016/j.engfracmech.2021.107842>.



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EBM Publications:

Saville, A.I., Creuziger, A., Mitchell, E.B. et al. MAUD Rietveld Refinement Software for Neutron Diffraction Texture Studies of Single- and Dual-Phase Materials. Integrating Materials and Manufacturing Innovation, 10, 461–487 (2021). <https://doi.org/10.1007/s40192-021-00224-5>.

Testimony:

Date	Client	Case #	Case Name	Location	Trial/Depo
6/9/22	Lieberman	CL20003599-00	Nestle vs. Gates	Circuit Court Arlington County, Virginia	Deposition