

Stephanie L. Miller**Summary of Qualifications**

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| <ul style="list-style-type: none"> ▪ Ferrous Metallurgy ▪ Phase Transformation ▪ Thermo-mechanical Processing ▪ Macro- to Nano-scale Materials Characterization | <ul style="list-style-type: none"> ▪ Laser Welding/Additive Manufacturing ▪ Precipitation in Metal Alloys ▪ Failure Analysis ▪ Technical Communication |
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Experience

Mar 2016 to Present	SAFE Inc.	Monument, CO
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Senior Scientist

- Evaluation of cold spray deposition (CSD) repair of aluminum components
- Development of novel multi-layer micro-fabrication techniques using dual-beam FIB
- Non-ferrous and ferrous metallurgy support for 8+ engineers
- Failure analysis of non-ferrous and ferrous components

Mar 2015 to Mar 2016	National Institute of Standards and Technology	Boulder, CO
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Materials Research Engineer, Applied Chemicals and Materials Division

- Ferrous metallurgy expert for the laser welding initiative team of 15+ engineers
- Conducted extensive material characterization of laser welds: macroetching, metallography, SEM, EBSD, Vickers hardness, EDS mapping, APT (with FIB sample preparation), and TEM
- Correlated microstructure to tensile, Charpy impact, hardness, and fatigue results for optimization of laser processing
- Directed fundamental research on laser joining of 8 commercial automotive sheet steels
- Managed a \$50k budget to build a modern metallographic analysis laboratory

Aug 2010 to Mar 2015	Colorado School of Mines	Golden, CO
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Graduate Student/Teaching Assistant, Dept. of Metallurgical and Materials Engineering

- Designed novel high carbon wire alloys to optimize strength by additions of V, Nb, N
- Developed, verified, and implemented a thermomechanical torsion schedule to simulate industrial hot rolling of bar steels
- Characterized effects of heat treatments using optical metallography, prior austenite grain size analysis, mechanical property assessment, electrochemical dissolution, SEM, TEM, and APT. Prepared samples using a dual-beam FIB.
- Led Gleeble® 3500 research laboratory (1 yr), in charge of problem solving, maintenance, and training other users
- Conducted first principles thermodynamic modeling of precipitation in steels

May to Aug 2010	Washington State University	Rockford, IL
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Undergraduate Research Assistant

- Characterized tin whisker formation to mitigate electronic component failures in satellites
- Fuel cell design: investigated high surface area morphologies of electroplated tin on copper

Jan to Dec 2008, May to Aug 2007 and 2006	Hamilton Sundstrand Aerospace	Rockford, IL
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Materials Engineer

- Conducted root cause failure analysis investigations of mechanical components including SEM, fractography, and metallographic analyses. Identified contaminants using FT-IR.
- Performed flammability, smoke and toxicity testing for thermosets, thermoplastics, printed circuit boards, and other nonmetallic to meet FAA requirements
- Identified and eliminated hazardous materials from 787 Dreamliner secondary electrical power distribution unit

Education

Aug 2010 – May 2015	Colorado School of Mines	Golden, CO
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Stephanie L. Miller

PhD – Metallurgical and Materials Engineering		
Dissertation, “Effect of Microalloy Elements on Pearlite Transformation in High Carbon Wire Steels”		
Aug 2010 – May 2013	Colorado School of Mines	Golden, CO
MS – Metallurgical and Materials Engineering		
Aug 2005 – May 2010	University of Illinois at Urbana-Champaign	Champaign, IL
BS – Materials Science and Engineering, Metals Concentration Area		
Specialized Training		
TMS Additive Manufacturing Short Course, 2016 NIST Uncertainty of Measurements Short Course, 2015		
Licenses/Certificates		
Engineer in Training, State of Colorado		
Awards		
Postdoctoral Fellowship Awardee, National Academies of Sciences National Research Council (NRC), 2015 Best Speaker (Graduate), CEER Conference on Earth Energy and Environment, 2014 Best Speaker (Undergraduate), University of Illinois Materials Engineering Dept, 2010 Clifton B. Bergeron Scholarship Recipient, University of Illinois Materials Engineering Dept, 2008		
Professional Affiliations		
Executive Officer, American Society for Metals (ASM) Rocky Mountain Chapter Member, American Institute of Iron and Steel (AISI) Member, Wire Association International (WAI) Member, The Metals, Materials, and Minerals Society (TMS)		
Publications		
S.L. Miller, E. Pfief, J. Sowards, M. Dowell, “Dissimilar fiber laser welding of automotive sheet steels: optical and metallographic characterization,” Proceedings of SPIE Photonics West, Feb 16 18 (2016), <i>in press</i> .		
S.L. Miller, “Effect of Microalloying on Pearlite Transformation of High-Carbon Wire Steels,” Ph.D. Thesis, Dept. of Metallurgical and Materials Engr., Colorado School of Mines (2015) pp. 1 164.		
S.L. Miller and E. De Moor, “Influence of Nb Additions on Microstructural Evolution of a V-Microalloyed High-Carbon Steel Wire During Patenting,” JOM 66 8 (2014), pp. 1471-1478.		
S.L. Miller and E. De Moor, “Effects of Microalloying Additions to a Vanadium Microalloyed High Carbon Wire Steel,” Wire Journal International (2014) pp. 74-77.		
S.L. Miller, E. De Moor, and G. Eavenson, “Thermomechanical Processing Simulation of Mill Deformation of High Carbon Wire Rod,” Proceedings of AISTech 2014, Indianapolis, IN, May 5 7 (2014), pp.1-8.		
E. De Moor, S. L. Miller, and W. Van Raemdonck, “Microalloyed High Carbon Wire Steels,” TMS 2014 Supplemental Proceedings, ed. by TMS (The Minerals, Metals & Materials Society), San Diego, CA (2014) pp. 935-942.		
S.L. Miller and E. De Moor, “Vanadium and Niobium Microalloying to Increase Strength of High-Carbon Wire Steels”, Interwire 2013, Proceedings of the 83rd Annual Convention of the Wire Association International (2013) pp. 1 13.		

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E. De Moor and S. L. Miller, "Effects of Niobium Additions to a Vanadium Microalloyed High Carbon Wire Steel," Proceedings, CabWire World Conference (2013) pp. 1-7.

S.L. Miller, "Effect of Microalloying on Strength of High-Carbon Wire Steels," M.S. Thesis, Dept. of Metallurgical and Materials Engineering, Colorado School of Mines (2013) pp. 1-95.

G. Krauss, S.L. Miller, E. De Moor, and D. Matlock, "Ultrahigh strength pearlitic microstructures: Contributions by George D. W. Smith," TMS 2012, Supplemental Proceedings, ed. by TMS (The Minerals, Metals & Materials Society), (2012) pp. 503-512.

U. Sahaym, S.L. Miller, M. Norton, "Effect of plating temperature on Sn surface morphology," Materials Letters, 64 14 (2010) pp. 1547-1550.