

Samuel B. Inman

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Citizenship and Security: US Citizen, Active DOE Qualified (Q) Clearance

Professional Experience:

Post-doc: Center for Integrated Nanotechnologies, Sandia National Laboratories, Albuquerque, NM 2024-Present
Primary Supervisor: Brad L. Boyce

Education:

University of Virginia, Charlottesville, VA 2019-2024
GPA 3.83/4.0, Doctorate of Philosophy: Materials Engineering
Thesis: Understanding Microstructural Phase Evolution, Compositional Partitioning, Passivation, and Corrosion Resistance of Multi-Phase Complex Concentrated Alloys
Advisor: John R. Scully
Masters of Engineering: Materials Engineering

Purdue University, West Lafayette, IN 2016-2019
GPA 3.78/4.0, Bachelor of Science: Materials Engineering, Minor: Chemistry, Honors College
Research Advisors: Kevin P. Trumble, Michael S. Titus
Senior Design Sponsor: AIM-MRO and GE Aviation

Publications:

Total publications: 11 First author publications: 8 h-index: 6 Citations: 206

- Stochastic room temperature creep of 316 L stainless steel 2025
SB Inman, KW Garber, AE Robertson, NK Brown, R Dingerville, BL Boyce, International Journal of Plasticity, v. 189, p. 104326
- Factors governing passivation behavior of Fe-Cr-Al-Ti alloys in sulfate containing acidified solutions: Uncovering the many roles of Ti 2025
D Sur, **SB Inman**, KL Anderson, N Smith, J Qi, M Barbieri, C Wolverton, JR Scully, Materialia, v. 39, p. 102370, 10.1016/j.mtla.2025.102370
- Variation of the Passive Film on Compositionally Concentrated Dual-phase Al_{0.3}Cr_{0.5}Fe₂Mn_{0.25}Mo_{0.15}Ni_{1.5}Ti_{0.3} and Implications for Corrosion 2024
SB Inman, MA Wischhusen, J Qi, SJ Poon, SR Agnew, JR Scully, Metallurgical and Material Transactions A, v. 55, i. 12, p. 4776, 10.1007/s11661-024-07572-9
- Effect of Ti on the Corrosion Resistance of Al-Cr-Fe-Mn-Mo-Ni Single and Multi-Phase CCAs 2024
SB Inman, J Han, DI Hoyos, J Qi, SR Agnew, K Ogle, JR Scully, Corrosion Science, v. 236, p. 112262, 10.1016/j.corsci.2024.112262
- Passivation and Localized Corrosion Resistance of Al_{0.3}Cr_{0.5}Fe₂Mo_xNi_{1.5}Ti_{0.3} Compositionally Complex Alloys: Effect of Mo Content 2024
SB Inman, J Han, MA Wischhusen, J Qi, SJ Poon, K Ogle, JR Scully, Corrosion Science, v. 227, p. 111692, 10.1016/j.corsci.2023.111692

Design and Discovery of Compositionally Complex Alloys (CCA) that Include High Corrosion Resistance	2024
SB Inman, JR Scully, CORROSION, v. 80, i. 3, p.250, 10.5006/4451	
Corrosion Behavior of a Compositionally Complex Alloy Utilizing Simultaneous Al, Cr, and Ti Passivation	2024
SB Inman, D Sur, J Han, K Ogle, JR Scully, Corrosion Science, v. 217, p. 111138, 10.1016/j.corsci.2023.111138	
Lightweight, Low Cost Compositionally Complex Multiphase Alloys with Optimized Strength, Ductility and Corrosion Resistance: Discovery, Design and Mechanistic Understandings	2023
JJ Bhattacharyya, SB Inman, MA Wischhusen, J Qi, SJ Poon, JR Scully, SR Agnew, Materials & Design v. 228, p. 111831, 10.1016/j.matdes.2023.111831	
Effect of Mn Content on the Passivation and Corrosion of $\text{Al}_{0.3}\text{Cr}_{0.5}\text{Fe}_2\text{Mn}_x\text{Mo}_{0.15}\text{Ni}_{1.5}\text{Ti}_{0.3}$ Compositionally Complex Face-Centered Cubic Alloys	2022
SB Inman, J Han, AY Gerard, J Qi, MA Wischhusen, SR Agnew, SJ Poon, K Ogle, JR Scully, CORROSION, v. 78, i. 1, p. 32-48, 10.5006/3906	2020
Controlling the corrosion resistance of multi-principal element alloys	
JR Scully, SB Inman, AY Gerard, CD Taylor, W Windl, DK Schreiber, P Lu, JE Saal, GS Frankel, Scripta Materialia, v. 188, i. 1, p. 96-101, 10.1016/j.scriptamat.2020.06.065	2020
Planar Front Growth of Single Crystal Ni-Based Superalloy René N515	
S Matsunaga, D Huang, SB Inman, JC Mason, D Konitzer, DR Johnson, MS Titus, JOM, v. 72, i. 5, p. 1794-1802, 10.1007/s11837-020-04091-x	

Technical Presentations:

High-Throughput Creep Characterization for Use in Accelerated Aging Prediction	2025
TMS Annual Meeting & Exhibition, Las Vegas, NV	
Lateral Variation in Multi-phase HEA Passive Films: Implications for Corrosion Resistant Alloy Design	2023
TMS 3rd World Congress on High Entropy Alloys, Pittsburgh, PA	
Design of Dual-Phase Corrosion-Resistant Compositionally Complex Alloys: Evaluating Elemental Partitioning and Passivation	2023
AMPP Annual Meeting and Expo, Denver, CO	
Selected Student Presentation: Isolating Elemental Roles in Compositionally Complex Alloy Passivation	2022
Gordon Research Conferences: Aqueous Corrosion, New London, NH	
Invited: Corrosion Resistance of Al-Cr-Ti Containing Compositionally Complex Alloys	2022
TMS Annual Meeting & Exhibition, Anaheim, CA	
Invited: What Controls Corrosion and Passivation of Compositionally Complex Alloys?	2022
TMS Annual Meeting & Exhibition, Anaheim, CA Presented on behalf of first author JR Scully	

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Design of Low Cost Compositionally Complex Alloys (CCAs) with Excellent Corrosion Resistance 2021

TMS 2nd World Congress on High Entropy Alloys, Charlotte, NC

2019

Design of Lightweight Compositionally Complex Alloys (CCAs)

AAMP (NACE) CORROSION, Virtual

Poster Presentations:

Corrosion Inclusive Compositionally Complex Alloy (CCA) Design: A Case Study in the Al-Cr-Fe-Mn-Mo-Ni-Ti System 2023

AMPP Annual Meeting and Expo, Denver, CO

Corrosion Inclusive Compositionally Complex Alloy (CCA) Design: A Case Study in the Al-Cr-Fe-Mn-Mo-Ni-Ti System 2022

Gordon Research Conferences: Aqueous Corrosion, New London, NH

Corrosion Inclusive Compositionally Complex Alloy (CCA) Design: A Case Study in the Al-Cr-Fe-Mn-Mo-Ni-Ti System 2021

TMS 2nd World Congress on High Entropy Alloys, Charlotte, NC

Design of Low Cost, Lightweight Compositionally Complex Alloys (CCAs) with Excellent Corrosion Resistance 2021

AAMP (NACE) CORROSION, Virtual

Design of Low Cost, Light Weight Compositionally Complex Alloys (CCAs) 2019

Accepted to AAMP (NACE) CORROSION, Canceled

Technical Abilities:

- **Electrochemistry:** Polarization, EIS, ZRA
- **Metallurgical Skills:** XRD, Tensile testing, Vickers Hardness Test, Specimen Polishing and Etching
- **Microscopy:** SEM, EBSD, EDS, AFM, TEM analysis
- **Spectroscopy and Chemical Analysis:** XPS, Auger Electron Spectroscopy,
- **Computer Programming:** Python, C,
- **Statistical Analysis:** Z and T-Score Hypothesis Testing, Goodness of Fit, Regression Analysis
- **Language:** Native English Fluency, Conversational Spanish Fluency

Teaching and Academic Administration Experience:

UVA Engineering Teaching Fellow: Introduction to Materials Science 2023

- Co-developed, instructed, and administered class with faculty teaching mentor
- Participated in UVA Center for Teaching Excellence Course Design Institute

2022

Graduate Teaching Assistant: Corrosion, Batteries, and Fuel Cells

University of Virginia Undergraduate Recruitment Committee

2020-Present

- Served as a graduate student representative on faculty recruitment committee

Professional Membership:

• The Minerals, Metals, and Materials Society (TMS)	2024-Present
• Material Advantage:	2017-2021
○ American Ceramic Society (ACerS)	
○ Association for Iron & Steel Technology (AIST)	
○ ASM International- The Materials Information Society	
○ The Minerals, Metals, and Materials Society (TMS)	2021-2024
• The Electrochemical Society (ECS)	2020-2024
• Association for Materials Protection and Performance (AMPP/ NACE)	

Engineering Outreach:

CORROSION, Corrosion Science, Scripta Materialia, and more: Reviewer	2020-Present
UVA MSE Graduate Student Board: Qualifying Exam Chair	2022-2023
UVA MSE Graduate Student Board: Service Chair	2020-2022
UVA MSE Graduate Recruitment Committee	2020-Present
UVA MSE Nanodays Volunteer	2019-Present
Purdue Engineering Projects in Community Service (EPICS): Team Ecuador, Team VETS	2017, 2019
Purdue University Material Advantage: Purdue MSE Ambassador	2018-2019
Purdue University Material Advantage: Purdue MSE Safety Team	2018-2019

Academic Awards:

• Fred D. Rosi Outstanding Citizen Award	2024
• UVA Engineering Teaching Fellow	2023
• AMPP student poster competition: First place Mars Fontana section	2023
• Gordon Research Conferences selected student speaker	2022
• Purdue University presidential scholar	2016-2019
• Dr. Mysore A. Dayananda Academic Excellence Scholarship recipient	2018
• Tau Beta Pi initiate	2018