

Kaiser W. Aguirre

Education

Case Western Reserve University
Master of Science, Materials Science & Engineering

Expected Graduation: May 2023

Iowa State University
Bachelor of Science, Aerospace Engineering
3.46 of 4.00 GPA

May 2021

Skills

Microsoft Office
LaTeX

Matlab
Solidworks
German

Materials Synthesis
Powder X-Ray Diffraction

Employment

NASA Glenn Research Center

Cleveland, OH

Pathways Intern

January 2020 – Present

- Collaboratively develop Technology Maturation Plan for spaceflight hardware
- Collaboratively develop tests, processes, and procedures for spaceflight hardware qualification and certification
- Ensure hardware conforms to applicable NASA standards

ISU Department of Aerospace Engineering

Ames, IA

Undergraduate Research Assistant – Bastawros Lab Group

August – December 2018, September – December 2019

- Designed mechanical testing apparatus
- Prepared samples for mechanical testing
- Utilized interferometer and polarizing microscope to image sample surfaces post-testing
- Wrote code for data processing, including noise removal and signal smoothing

ISU Department of Materials Engineering

Ames, IA

Teaching Assistant, Principles of Materials Science and Engineering

August – December 2019

- Clarified class curriculum and coached students in problem-solving methodology

Sierra Nevada Corporation

Madison, WI

Technical Intern 1: Materials and Processes

January – August 2019

- Planned, wrote, and implemented qualification testing of spaceflight hardware
- Inspected metal samples for manufacturing defects
- Performed directed research on compatibility between propellant and propellant storage materials
- Performed directed research of plant growth in controlled environments
- Wrote process documentation ensuring conformity to government, industry, and military specifications
- Collaborated with vendors, purchasers, and logistics personnel to ensure timely shipment and delivery of hardware

The Ames Laboratory

Ames, IA

Student Associate, Caloricool project

January 2017 – August 2018

- Trained undergraduates, graduates, and interns in materials processing techniques and best-practices
- Produced high-purity, novel materials via vacuum arc melting, solid-state synthesis, and flux synthesis
- Characterized magnetic properties of materials using TGA/DSC
- Characterized and analyzed materials' phase composition using x-ray diffraction and Rietveld refinement via the Jana software
- Worked under minimal supervision, completing assigned tasks and troubleshooting with little input
- Reported experimental results to supervisor using MS Office applications and other programs
- Presented research results at symposia and open houses to advertise lab group strengths and recruit researchers

Leadership & Activities

ISU Spaceflight Operations Workshop

Ames, IA

Project Coordinator

August 2019 – May 2021, August 2017 – August 2018

- Managed a budget of over \$20,000, including expense planning, funding acquisition, and spending
- Lead the writing of a new application form and the review of written applications
- Lead applicant interviews, verifying applicants' compatibility with the goals of the workshop
- Lead the final participant selection process
- Supervised two Crew Guides in planning workshop logistics and task fulfillment, utilizing teamwork theory to enhance performance
- Scheduled workshop activities, including scuba certification, skydiving, virtual reality exercise, flight simulations, a backpacking trip, and seminars by ISU faculty and NASA personnel
- Corresponded with industry vendors and ISU offices regarding liability and insurance for workshop activities and participants
- Wrote first-time documentation of workshop logistics; updated old documentation to current practices

Consultant

August 2018 – August 2019

- Assisted the Project Coordinator in managing the participant selection process and workshop logistics
- Provided insight into the history, intent, and effectiveness of workshop activities
- Provided first-time, eyewitness feedback of new workshop activity, including written debrief of lessons-learned
- Supported Crew Guides in their leadership responsibilities, including responding to inquiries concerning their leadership of the crews

Crew Guide

August 2016 – August 2017

- Conducted interviews of applicants and collaboratively selected candidates for participation
- Supervised a team of 6 workshop participants, evaluating participant strengths and areas for improvement
- Counseled with participants concerning their strengths and methods for improving their weaknesses
- Taught workshop participants to independently discern and use operational thinking and logical reasoning
- Exemplified servant leadership

Participant

August 2016

- Earned PADI Scuba Certification
- Learned about team formation, dynamics, and performance and the interface between teams and individuals
- Learned about leadership philosophies and their impact on team performance
- Participated in instructor-led seminars regarding spaceflight physiology, design of instrument panels in flight cockpits, operational procedure development, and decision-making
- Participated in flight simulator training and a virtual reality exercise based in the International Space Station

ISU Department of Horticulture

Ames, IA

Undergraduate Research Assistant – Currey Lab Group

August – December 2019

- Performed directed research on the response of plants in controlled environments to variance in Daily Light Integral

ISU NASA Micro-g NExt Challenge Team

Ames, IA

Team Member

August – December 2019

- Designed an ice coring device for sample extraction from the lunar south pole
- Wrote code to analyze the effects of various design parameters of the corer's cutting edge on the performance of the corer

ISU NEEMO Tool Development Team

Ames, IA

Team Lead

August – December 2018

- Collaborated with NASA personnel in writing engineering requirements for hardware design
- Supervised a team of four undergraduate students in designing tool-carrying hardware for testing during NEEMO Expedition 23
- Reported on team progress to technical and faculty advisers
- Presented design reviews to stakeholders at ISU and NASA

Publications

Lin, Q.; Aguirre, K.; Saunders, S.M.; Hackett, T.A.; Liu, Y.; Taufour, V.; Paudyal, D.; Budko, S.; Canfield, P.C.; Miller, G.J. Polar Intermetallics Pr₅Co₂Ge₃ and Pr₇Co₂Ge₄ with Planar Hydrocarbon-Like Metal Clusters. *Chemistry: A European Journal* **2017**, 23 (44), 10516-10521.