

Jonathan Blair Balog

jbb5406@psu.edu • 1000 Mayfair Drive, Canonsburg, PA 15317

Education

Master of Science (M.S.) in Nuclear Engineering Expected 2021
The Pennsylvania State University, University Park, PA GPA: 3.95/4.00
Advisor: Dr. Arthur T. Motta
Thesis: In-situ experiments on the impacts of stress on precipitation and dissolution of hydrides in Zr alloys using synchrotron radiation.

Bachelor of Science (B.S.) in Mechanical Engineering 1/2016 – 12/2019
Bachelor of Science (B.S.) in Nuclear Engineering GPA: 3.74/4.00
Minor in Engineering Mechanics
The Pennsylvania State University, University Park, PA
Dean's List, 2016-2019
Exelon Scholarship in Nuclear Engineering, 2018

Research Interests

Nuclear Materials, Zirconium Hydrides, Materials Characterization, Additive Manufacturing, Advanced Materials, Finite Element Analysis

Experience

Graduate Research Assistant 1/2020 – Present
Advisor: Dr. Arthur T. Motta – The Pennsylvania State University, University Park, PA

- Investigate effects of applied stress on hydride precipitation temperature and kinetics.
- Utilize gaseous hydrogen charging system for samples subjected to stress and heat treatments via in-situ experiments at the Advanced Photon Source (APS).
- Research performed in support of Bruce Kammenzind at the Naval Nuclear Laboratory, Bettis Laboratory.

Technical Intern – Westinghouse Electric Corporation, Cranberry, PA 5/2019 – 8/2019
Focus: Core Engineering – Fuel Rod Design, mentored by Mr. Greg Williams & Mr. Ethan Margherio

- Developed Java program to read Rod Internal Pressure (RIP), stress output files to simulate flexible power operations for Fuel Rod Design (FRD) codes.
- Led margin recovery study using fuel rod and core design codes to identify core design best practices to reduce RIP violations.
- Completed transient study to quantify the effects of multiple condition II transients on RIP margins.

Technical Intern – Naval Nuclear Laboratory - Bettis, West Mifflin, PA 5/2018 – 7/2018

Focus: Core Manufacturing, mentored by Ms. Melissa Bulevich & Mr. Kevin White

- Provided rapid, accurate design parameters for time sensitive, critical design analysis
- Assisted employees, contractors to examine manufacturing, non-destructive testing (NDT) processes and provide input on changing examination steps to enhance NDT feedback for production.
- Developed laboratory skills in an experimental laboratory setting and served as lead for experiments.

Technical Intern – Naval Nuclear Laboratory - NRF, Scoville, ID 5/2017 – 7/2017

Focus: Construction Support, mentored by Mr. Todd Johnson & Mr. Jonathan Hopfer

- Developed Building Information Modeling (BIM) Implementation Plan recommendations for Naval Reactors Facility (NRF). Developed procedures and plans for NRF personnel to follow to control and guide laser scanning.
- Planned, executed training for FARO and Edgewise laser scanning software in addition to implementing laser scanners and software worth ~\$225K.
- Served on team to provide construction project consulting services using laser scan developed topographic data.

Grader, Nuclear Engineering 310 – Issues in Nuclear Engineering

Manager: Dr. Arthur T. Motta

The Pennsylvania State University, University Park, PA 8/2018 – 12/2020 (Fall Semesters)

- Provided timely and beneficial feedback to student writing assignments.
- Served as lead grader for 2019 and 2020, which included training other graders and serving as the main contact between students, the graders, and Dr. Arthur Motta.

Course Review Assistant – Nuclear Security Threat Analysis and Assessment (NUCE 441)

Manager: Matt Zerphy, Penn State College of Engineering

The Pennsylvania State University, University Park, PA 8/2019 – 12/2019

- Reviewed changes and updates to course content as well as presentation.
- Provided suggestions for new content and course formats.

Food Services Crew Member

The Pennsylvania State University, University Park, PA 2/2016 – 5/2016

- Served meals to students while maintaining clean serving and dining areas.
- Prepared foods to be sold in dining facility convenience stores and restaurants.

Technical Skills

Python, C++, and Java Programming, SolidWorks, Autodesk (Inventor, Revit, AutoCAD, ReCap), FARO (SCENE, Pointsense Plant & Revit), ClearEdge3D Edgewise, MATLAB, Microfilm, Abaqus FEA

Soft Skills

Leadership, Communication, Team Worker, Listening, Strong Work Ethic

Presentations

“First Core Loading Design Process for a Westinghouse AP1000.” Poster presented at The American Nuclear Society Student Conference, Richmond, VA. April 5, 2019.

Honors and Awards

Capstone Design Project – First Place Overall (Nuclear Engineering), The Pennsylvania State University, 2019

Top Poster Presentation, American Nuclear Society Student Conference at VCU, 2019

Alpha Nu Sigma and Tau Beta Pi National Honor Societies, 2018

Boy Scouts of America/Scouts BSA, Rank of Eagle Scout, 2014

Professional Associations

American Nuclear Society (ANS)

Institute of Nuclear Materials Management (INMM)

Activities & Leadership

President, Penn State Lacrosse Student Section (Panzemonium), 2018-Present

Book Club Discussion Lead, Institute of Nuclear Materials Management, 2020-Present

Member, College Diabetes Network-Penn State Student Chapter, 2020-Present

Treasurer, American Nuclear Society-Penn State Student Chapter, 2017-2019

Treasurer, Alpha Nu Sigma National Honor Society, 2018-2019

Conference Chair, American Nuclear Society-Penn State Student Chapter, 2016-2017

Volunteer & Outreach Work

Westinghouse Science Honors Institute (WSHI) Tours, The Pennsylvania State University, 2016-Present

Breazeale Reactor Open House, The Pennsylvania State University, 2019-Present

Nuclear Science Merit Badge Sessions, The Pennsylvania State University, 2016-Present

Canon-McMillan High School Engineering Club Alumni Panelist, 2019-Present

Languages

English (native), Spanish (intermediate)

Links

LinkedIn: <https://www.linkedin.com/in/jonathan-balog-411274126/>