Ryan J. Myers

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This document is an abbreviated version of my curriculum vitae. Please reach out to me directly via email for the complete, up-to-date version.

EDUCATION

Texas A&M University, College Station **Aug 2021 – Expected Dec 2026**
J. Mike Walker '66 Department of Mechanical Engineering
Ph.D. Candidate in Mechanical Engineering, *Focus Area: Fluid Dynamics*
Dissertation: *"Reactive Metal Ejecta Formation and Breakup"*
Committee: Drs. Jacob McFarland (chair), Iman Borazjani, Matt Pharr, and Lin Shao

University of Oklahoma, Norman **Aug 2017 – May 2021**
Gallogly College of Engineering
B.S. in Mechanical Engineering, *Focus Area: Fluid Mechanics*
Awarded with Special Distinction

RESEARCH EXPERIENCE

Graduate Research Assistant, Texas A&M University **Aug 2021 – present**
J. Mike Walker '66 Department of Mechanical Engineering
Fluids Mixing at Extreme Conditions Lab | Supervisor: Dr. Jacob McFarland

Undergraduate Research Assistant, University of Oklahoma **Jun 2020 – May 2021**
School of Aerospace and Mechanical Engineering
Biomechanics and Biomaterials Design Laboratory | Supervisor: Dr. Chung-Hao Lee

Undergraduate Research Assistant, University of Oklahoma **May 2019 – Sep 2019**
School of Aerospace and Mechanical Engineering
Biomedical Engineering Lab | Supervisor: Dr. Chenkai Dai

PROFESSIONAL EXPERIENCE

Los Alamos National Laboratory | Student Researcher **May 2022 – present**
Division: XCP-4 - Continuum Models and Numerical Methods
Advisors: Dr. Jonathan Regele, Dr. Frederick Ouellet | Los Alamos, NM

TEACHING EXPERIENCE

Substitute Lecturer | Texas A&M University **Jan 2024**
› MEEN 401 Intro to Mechanical Engineering Design | MEEN 344 Fluid Mechanics **Nov 2024**

Private Math Tutor | Independent **Jan 2017 – Dec 2019**
› Geometry through Calculus III

Tutor | Moore Public Schools **Sep 2016 – May 2017**
› Math and Science Specialist (K-12)

TECHNICAL SKILLS

- *Programming Languages:* FORTRAN, Python, LaTeX, C/C++, MATLAB, CUDA, Visual Basic, HTML/CSS, JavaScript, YAML/JSON, Rust
- *Professional/Academic Software:* ParaView, Git, Microsoft Suite, VisIt, OpenFOAM, FLASH, ABAQUS, ANSYS (CFX, Fluent, Mechanical, Mechanical APDL), SOLIDWORKS, LabVIEW, Multisim, SketchUp
- *Technical Experience:* Linux administration, Server hardware design, Containerization (Docker), Single-board computers (RaspberryPi/Arduino), Website design, Code parallelization (MPI), Hybrid computing, Reverse proxies (NGINX/Traefik)

PEER-REVIEWED JOURNAL PUBLICATIONS

1. **Myers, R. J.**, Ouellet, F., Regele, J. D., and McFarland, J. A., "A stress-based fracture model for reacting metal ejecta," *Journal of Applied Physics*, Volume 139, Issue 17, 2026, 174903. doi.org/10.1063/5.0315395
2. Zargarnezhad, H., **Myers, R. J.**, and McFarland, J. A., "Particle size effects in multiphase Rayleigh–Taylor instability," *Physics of Fluids*, Volume 37, Issue 4, 2025, 043302. doi.org/10.1063/5.0257904
3. Zargarnezhad, H., **Myers, R. J.**, Speck, A. K., and McFarland, J. A., "Radiation driven-dust hydrodynamics in late-phase AGB stars," *Astronomy and Computing*, Volume 45, 2023, 100766. doi.org/10.1016/j.ascom.2023.100766

CONFERENCE PROCEEDINGS & PRESENTATIONS

1. **Myers, R. J.** et al., "Secondary Breakup of Reactive Metal Ejecta Particles," presented at the *JCRNS Joint Academic Staff Working Group Workshop*, College Station, TX, Dec 2025.
2. **Myers, R. J.** et al., "Stress Analysis of a Reacting Hydride Ejecta Particle," presented at the *JCRNS Joint Academic Staff Working Group Workshop*, College Station, TX, Dec 2024.
3. **Myers, R. J.** et al., "Early Simulations of a Reacting Metal Ejecta Particle in Still Gas," presented at the *APS Division of Fluid Dynamics Meeting*, Salt Lake City, UT, Nov 2024.
4. **Myers, R. J.** et al., "Creating Physics Mechanisms for Simulating Reactive Metal Ejecta for Use in Particle Models," poster presented at the *Texas A&M National Labs Office Reception*, College Station, TX, Mar 2024.
5. **Myers, R. J.** et al., "Analysis of a Reaction Mechanism for Use in Ejecta Particle Simulations," presented at the *APS Shock Compression of Condensed Matter*, Chicago, IL, Jun 2023.
6. **Myers, R. J.** et al., "Implementation of Diffusion and Reaction Mechanisms for Reactive Ejecta Simulations," poster presented at the *APS Division of Fluid Dynamics Meeting*, Indianapolis, IN, Nov 2022.

RESEARCH INTERESTS AND SKILLS

- Computational Fluid Dynamics (CFD)
- Hydrodynamic instability analysis
- Multi-physical material-fluid-solids interactions
- Reaction modeling
- Fracture modeling
- Finite Volume Methods
- Finite Element Methods
- Arbitrary Lagrangian-Eulerian (ALE) codes
- Point-particle implementation
- Technical writing
- Shell scripting
- Simulation and post-processing automation
- Statistical processing and analysis
- Code-base management

HONORS & AWARDS

Undergraduate Research Opportunities Program (UROP) Grant **2020-2021**
University of Oklahoma

Gallogly College of Engineering Dean's Honor Roll **Aug 2018 – May 2021**
University of Oklahoma

OU Distinguished Scholar Scholarship **Aug 2017 – May 2021**
University of Oklahoma

OKPELS Professionally Engineering the Future Scholarship **Aug 2019 – May 2021**
University of Oklahoma

Tomorrow's Engineers Scholarship **Aug 2018 – May 2021**
University of Oklahoma

RELEVANT COURSEWORK

- Aerosol Mechanics *(Dr. Jacob McFarland)*
- Computational Fluid Dynamics for Aerospace Applications *(Dr. Paul Cizmas)*
- Computational Fluid Dynamics in Nuclear Thermal Hydraulics *(Dr. Mark Kimber)*
- Finite Volume Techniques for Heat Transfer and Fluid Flow *(Dr. N. K. Anand)*
- Gas Dynamics *(Dr. Eric Petersen)*
- Hydrodynamic Stability *(Dr. Prabir Daripa)*
- Introduction to Finite Element Method *(Dr. Alan Palazzolo)*
- Methods and Applications of Partial Differential Equations *(Dr. Andrew Comech)*