
Ryan A. Darragh

PhD Student
Department of Aerospace Engineering Sciences
University of Colorado, Boulder

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Education

- May 2019 **Ph.D. in Aerospace Engineering Sciences**, *University of Colorado - Boulder*, Boulder, CO.
(Expected) Advisor: Dr. Peter E. Hamlington.
- May 2014 **B.A. Physics and Mathematics**, *Kenyon College*, Gambier, OH, Magna Cum Laude.
Distinction in Mathematics
- June 2010 **A.A.**, *Green River Community College*, Auburn, WA, Magna Cum Laude.

Honors

- 2016 National Defense Science & Engineering Graduate Fellow
- 2016 National Science Foundation Graduate Research Fellowship Honorable Mention
- May 2014 Phi Beta Kappa, Kenyon College Chapter
- May 2011 - Kenyon College Merit List
- May 2014
- April 2014 Solomon R. S. Kasper Prize, Kenyon College
- March 2014 Sigma Xi, Kenyon College
- December 2013 Sigma Pi Sigma, Kenyon College
- April 2013 Pi Mu Epsilon, Kenyon College
- April 2012 Elbe H. Johnson Prize in Physics, Kenyon College
- October 2009 Phi Theta Kappa, Green River Community College

Research Interests

Reacting flows, turbulent flows, combustion, computational physics, propulsion, turbulence modeling, rarefied gas dynamics.

Professional Experience

Research Experience

- 2015–Present **Research Assistant**, *Turbulence and Energy Systems Laboratory*, University of Colorado - Boulder.
- Summer 2016 **Department of Defense High Performance Computing Intern**, *Naval Research Laboratory*, Washington, DC.
- Summer 2015 **Research Intern**, *United States Air Force Academy*, US Air Force Academy, CO.
- Summer 2014 **Summer Intern**, *MIT Lincoln Labs*, Lexington, MA.
- August 2013–May 2014 **Physics Research Assistant**, *Kenyon College*, Gambier, OH.

Summer 2013 **Summer Science Scholar**, *Kenyon College*, Gambier, OH.

Summer 2012 **Summer Undergraduate Research Fellowship**, *California Institute of Technology*, Pasadena, CA.

Work & Teaching Experience

Spring Break **Mentor**, *Spring Break for Research*, University of Colorado - Boulder.
2015 & 2016

August 2014 – **Teaching Assistant**, *Department of Aerospace Engineering Sciences*, University of Colorado -
May 2015 Boulder.

June 2013 – **Director**, *Learning and Doing Science*, Kenyon College.
May 2014

May 2011 – **Desktop Support Assistant**, Kenyon College.
May 2014

August 2012 – **Mathematics Grader**, *Department of Mathematics*, Kenyon College.
May 2013

Publications

Refereed Journal Publications - In Preparation

- [1] R. Darragh, C. A. Z. Towery, A. Y. Poludnenko, and P. E. Hamlington. Lagrangian analysis of high-speed turbulent premixed reacting flows: enstrophy budget in hydrogen-air flames. *Phys. Rev. Fluids*. (In preparation for submission in 2017).
- [2] M. Ghoreyshi, R. Darragh, S. Harrison, A. J. Lofthouse, and P. E. Hamlington. Canard-wing interference effects on the flight characteristics of a transonic passenger aircraft. *Aerospace Sciences & Technology*. (In preparation for submission in 2017).
- [3] P. E. Hamlington, R. Darragh, C. A. Briner, C. A. Z. Towery, and A. Y. Poludnenko. Lagrangian analysis of high-speed turbulent premixed reacting flows: thermochemical trajectories in hydrogen-air flames. *Phys. Rev. Fluids*. (In preparation for submission in 2017).

Peer-Reviewed Conference Proceedings - Published

- [4] R. Darragh, P. Hamlington, M. Ghoreyshi, and A. Lofthouse. Evaluation of reduced-order models for predictions of separated and vortical flows. In *AIAA Paper 2016-4325*, 2016.

Peer-Reviewed Conference Proceedings - Accepted for Publication

- [5] R. Darragh, C. A. Z. Towery, A. Y. Poludnenko, and P. E. Hamlington. Lagrangian analysis of vorticity dynamics in turbulent premixed flames. In *AIAA Paper*, 2017. (Accepted to the 46th AIAA Fluid Dynamics Conference).
- [6] C. A. Z. Towery, R. Darragh, A. Y. Poludnenko, and P. E. Hamlington. Compressible turbulence effects on premixed autoignition. In *AIAA Paper*, 2017. (Accepted to the 46th AIAA Fluid Dynamics Conference).

Conference Presentations

- [P.1] To be given: Lagrangian Vorticity of Analysis of Turbulent Combustion 46th Fluid Dynamics Conference, American Institute of Aeronautics and Astronautics. Denver, CO, June 5-9, 2017.
- [P.2] Lagrangian analysis of premixed turbulent combustion in hydrogen-air flames. 69th Meeting of

the Division of Fluid Dynamics, American Physical Society. Portland, OR, November 20, 2016.

[P.3] Evaluation of Reduced-Order Models for Predictions of Separated and Vortical Flows 34th AIAA Applied Aerodynamics Conference, American Institute of Aeronautics and Astronautics. Washington D.C., June 17, 2016.