

SUMMARY

CITATIONS & IMPACT¹	total	since 2014
CITATIONS	1118	920
h-index	11	10
i10-index	12	11
PUBLICATIONS		
INVITED PUBLICATIONS	3	3
JOURNAL ARTICLES, <i>published</i>	14	5
REFEREED CONFERENCE PUBLICATIONS	30	19
RESEARCH REPORTS	6	6
TOTAL	53	33
ORAL PRESENTATIONS		
INVITED PRESENTATIONS	27	24
CONFERENCE PRESENTATIONS	24	21
POSTER PRESENTATIONS	19	17
FUNDED PROGRAM REVIEW PRESENTATIONS	75	75
TOTAL ²	175	156
FUNDING		\$k U.S.
EXTERNAL TOTAL AS PI/(CO-I+PI)		2258/2707
START-UP		13
MENTORING & ADVISING		
GRADUATE STUDENTS, <i>fully funded/unfunded</i>		8/9
UNDERGRADUATE STUDENTS, <i>funded hourly</i>		8
STUDENT AWARDS & HONORS, <i>while under supervision</i>		15
UNDERGRADUATE ADVISEES, <i>student-semesters</i>		265
TEACHING S.E.T. SCORES		Heyne Department
QUESTION 9, <i>I learned a great deal from this course.</i>	4.54	4.19
QUESTION 10, <i>I would recommend this course to other students.</i>	4.11	4.09
QUESTION 11, <i>I would recommend this instructor to other students.</i>	4.21	4.24
SERVICE		
UNIVERSITY COMMITTEE MEMBERSHIPS		6
PROFESSIONAL COMMITTEE MEMBERSHIPS		6
CHAIR POSITIONS, <i>excluding co-chair positions</i>		3
MEETING ORGANIZER ³		10
RECRUITING COMMITMENTS ⁴		11

¹SOURCE: [Google Scholar](#), UPDATED: 25 June 2019

²Includes refereed conference publication presentations

³Meetings organized in the absence of a formal committee

⁴Some recruiting commitments involve multiple events

PROFESSIONAL BIOGRAPHY

Professor Heyne is an Assistant Professor in the Mechanical and Aerospace Engineering Department at the University of Dayton, where he works to ignite passion and make a difference in students and society. Over the last five years, Professor Heyne has focused on aligning efforts and delivering objective criteria to help streamline the approval process of alternative jet fuels as part of the National Jet Fuels Combustion Program's (NJFCP) 40 institutions and 150 members. Outside of the NJFCP's integration and coordination role, Professor Heyne works on surrogates, high-performance fuel (HPF) formulation, combustion kinetics, well-stirred reactor development, forced ignition, and biomass stove combustion. The long-term aim of all of this work is to marshal greater environmental and national security.

CONTACT

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EDUCATION

<i>Philosophiae Doctoris (Ph.D.)</i> Mechanical & Aerospace Engineering Princeton University	September 2014 Princeton, NJ
<i>Magister Artium (M.A.)</i> Mechanical & Aerospace Engineering Princeton University	September 2013 Princeton, NJ
<i>Master of Science (M.S.)</i> Mechanical Engineering Pennsylvania State University	June 2009 University Park, PA
<i>Bachelor of Mechanical Engineering (B.M.E.), magna cum laude</i> Mechanical Engineering University of Dayton	June 2007 Dayton, OH

PROFESSIONAL EXPERIENCE

<i>Assistant Professor</i> , Mechanical & Aerospace Engineering Dept. University of Dayton	2014-present Dayton, OH
<i>Research Assistant</i> , Mechanical & Aerospace Engineering Dept. Princeton University	2009-2014 Princeton, NJ
<i>Research Assistant</i> , Mechanical & Nuclear Engineering Dept. The Pennsylvania State University	2007-2009 University Park, PA

3. ⁵Joshua Heyne, "Prescreening of Sustainable Aviation Fuels (SAFs)," **Commercial Alternative Aviation Fuel Initiative (CAAFI)**, CAAFI R&D Sub-Committee Publication, *in review*.
2. ⁶Zia Abdullah, Joshua Heyne, Johnathan Holladay, "Integrated Jet Fuel Report," Pacific Northwest National Laboratories Publication, Technical Report, July 2019.
1. ⁷Joshua Heyne, Hai Wang, Joseph Kalman, "Safely improving jet, rocket fuels," **Aerospace America, 2018 Year in Review**, Propellants and Combustion Technical Committee Contribution, December 2018.

JOURNAL ARTICLES

16. Ruan, H., Qin, Y., Heyne, J., Gieleciak, R., Feng, M., Yang, B., "Characterization of Chemical Compositions and Properties of Lignin-Based Jet Fuel Range Hydrocarbons," *Fuel*, *submitted*.
15. Robert D. Stachler, Joshua S. Heyne, Scott D. Stouffer, Joseph Miller, Lean Blowoff in a TJSR: Implications for Alternative Fuel Approval and Potential Mechanisms for Autoignition and Extinction, *Energy & Fuels*, *in review*.
14. Erin Peiffer, Joshua Heyne, Med Colket, Alternative Jet Fuel Effects on Lean Blowout in an Auxiliary Power Unit, *AIAA Journal*, AIAAJ-J058348, DOI: 10.2514/1.J058348.
13. Wu, Y., Heyne, J., Zhang, Z., "Simultaneous measurements of refractive index, surface tension, and evaporation rate of Jet A Fuel," *Applied Optics*, Vol. 58, Issue 16, pp. 4326-4331 (2019), <https://doi.org/10.1364/AO.58.004326>.
12. Stachler, R., Lefkowitz, J., Heyne, J., Stouffer, S., Ombrello, T., Miller, J., An Investigation into the Effect of Residence Time and Equivalence Ratio on Ignition in a Toroidal Jet-Stirred Reactor, *Proceedings of the Combustion Institute*, (2018) <https://doi.org/10.1016/j.proci.2018.09.009>
11. Colket, M. D., Heyne, J., Rumizen, M., Edwards, J. T., Gupta, M., Roquemore, W. M., Moder, J. M., Tishkoff, J. M., Li, C. An Overview of the National Jet Fuels Combustion Program, *AIAA Journal*, (2017), <http://dx.doi.org/10.2514/1.J055361>.
10. Heyne, J. S., Dooley, S., Serinyel, Z., Dryer, F. L., Curran, H., Decomposition studies of isopropanol in a variable pressure flow reactor. *Zeitschrift Für Physikalische Chemie*, (2015) DOI10.1515/zpch-2014-0630.
9. Dooley, S., Heyne, J. S., Won, S. H., Dievert, P., Ju, Y., Dryer, F. L., Importance of a Cycloalkane Functionality in the Oxidation of a Real Fuel, *Energy & Fuels*, (2014) DOI: 10.1021/ef5008962.
8. Sudholt, A., Cai, L., Heyne, J., Haas, F. M., Pitsch, H., Dryer, F. L., Ignition characteristics of a bio-derived class of saturated and unsaturated furans for engine applications. *Proc. Comb. Institute*, (2014) doi: 10.1016/j.proci.2014.06.147.
7. Dryer, F. L., Jahangirian, S., Dooley, S., Won, S. H., Heyne, J. S., Iyer, V. R., Litzinger, T. A., Santoro, R., Emulating the combustion behavior of real jet aviation fuels by surrogate mixtures of hydrocarbon fluid blends: Implications for science and engineering. *Energy & Fuels*. (2014) doi: 10.1021/ef500284x.
6. Heyne, J., Dooley, S., Dryer, F.L., Dehydration rate measurements for tertiary-butanol in a variable pressure flow reactor. *J. Phys. Chem. A*, (2013) doi: 10.1021/jp404143f.
5. Heyne, J., Dryer, F.L., Uncertainty analysis in the use of chemical thermometry — a case study with cyclohexene, *J. Phys. Chem. A*. (2013) doi: 10.1021/jp402982y.

⁵Summary of prescreening methods for the novel of sustainable aviation fuels with Heyne as the lead international coordinator

⁶Requested and peer reviewed forecasting research report on future research needs in the sustainable aviation fuel community

⁷Summary of the most impactful research conducted in the Aerospace Propellants and Combustion community

4. Dooley, S., Won, S. H., Heyne, J., Farouk, T., Ju, Y., Dryer, F. L., Kumar, K., Hui, X., Sung, C., Wang, H., Oehlschlaeger, M., Litzinger, T., Santoro, R., Malewecki, T., Brezinsky, K., The Experimental Evaluation of a Methodology to Surrogate Fuel Formulation for the Emulation of Combustion Kinetic Phenomena by a Theory of Real Fuel Oxidation, *Combustion & Flame* (2012) doi:10.1016/j.combustionflame.2011.11.00.
3. Lefkowitz, J., Heyne, J., Won, S., Dooley, S., Kim, H., Haas, F., Jahangirian, S., Dryer, F. L., Ju, Y., A Chemical Kinetic Study of tertiary-Butanol in a Flow Reactor and a Counterflow Diffusion Flame, *Combustion & Flame* (2011) doi:10.1016/j.combustflame.2011.10.004.
2. Dooley, S., Won, S. W., Chaos, M., Heyne, J., Ju, Y., Dryer, F. L., Kumar, K., Sung, C., Wang, H., Oehlschlaeger, M., Santoro, R., Litzinger, T., A jet fuel surrogate formulated by real fuel properties, *Combustion & Flame*, (2010) 2333-2339, doi:10.1016/j.combustflame.2010.07.001.
1. Heyne, J., Kirby, S., Boehman, A., Autoignition Studies of trans- and cis-Decalin in an Ignition Quality Tester (IQT) and the Development of a High Thermal Stability Unifuel/Single Battlefield Fuel, *Energy & Fuels* 23 (12), 5879–5885, doi: 10.1021/ef900715m.

REFEREED CONFERENCE PUBLICATIONS

since 2014: **19**

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30. Gazella, M., Donbar, J., Ombrello, T., Lin, K.-C., Busby, K., Heyne, "Cold Start Ignition Performance Using Alternative Liquid Hydrocarbon Fuels," JANNAF 49th Combustion Subcommittee, Dayton, OH, June 2019.
 29. Joshua Heyne, Katharine Opacich, Erin Peiffer, M. Colket, "The effect of chemical and physical fuel properties on the approval and evaluation of alternative jet fuels," 11th U.S. National Combustion Meeting, Pasadena, CA, March 2019.
 28. Giacomo Flora, Shane T. Kosir, Lily Behnke, Robert D. Stachler, Joshua S. Heyne, Steven Zabarnick, Mohan Gupta. "Properties Calculator and Optimization for Drop-in Alternative Jet Fuel Blends," AIAA Scitech 2019 Forum, AIAA SciTech Forum, (AIAA 2019-2368), <https://doi.org/10.2514/6.2019-2368>.
 27. Katherine C. Opacich, Joshua S. Heyne, Erin Peiffer, Scott D. Stouffer, "Analyzing the Relative Impact of Spray and Volatile Fuel Properties on Gas Turbine Combustor Ignition in Multiple Rig Geometries," AIAA Scitech 2019 Forum, AIAA SciTech Forum, (AIAA 2019-1434), <https://doi.org/10.2514/6.2019-1434>.
 26. Shane T. Kosir, Lily Behnke, Joshua S. Heyne, Robert D. Stachler, Giacomo Flora, Steven Zabarnick, Anthe George, Alexander Landera, Ray Bambha, Russell Denney, Mohan Gupta, "Improvement in Jet Aircraft Operation with the Use of High-Performance Drop-in Fuels", AIAA Scitech 2019 Forum, AIAA SciTech Forum, (AIAA 2019-0993), <https://doi.org/10.2514/6.2019-0993>.
 25. Robert Stachler, Joseph Lefkowitz, Joshua Heyne, Scott Stouffer, Timothy, Ombrello, Joseph Miller, "An Investigation into the Effect of Residence Time and Equivalence Ratio on Ignition in a Toroidal Jet-Stirred Reactor," 37th International Symposium on Combustion, Dublin, Ireland, August 2018.
 24. Peiffer, Erin E; Heyne, Joshua S; Colket, Meredith B., "Characteristic Timescales for Lean Blowout of Alternative Jet Fuels," AIAA 2018 Joint Propulsion Conference, Cincinnati, OH 2018.
 23. Bell, David C; Heyne, Joshua S; Won, Sang Hee; Dryer, Frederick L., "The Impact of Preferential Vaporization on Lean Blowout in a Referee Combustor at Figure of Merit Conditions," ASME 2018 Power Conference, Orlando, FL 2018.
 22. Briones, Alejandro M; Olding, Robert; Sykes, Joshua P; Rankin, Brent A; McDevitt, Kyle; Heyne, Joshua S., "Combustion Modeling Software Development, Verification and Validation"

- tion,” ASME 2018 Power Conference, Orlando, FL 2018.
21. Stachler, R., Peiffer, E., Kosir, S., Heyne, J., and Stouffer, S., “A Study into the Chemical Timescale for a Toroidal Jet-Stirred Reactor (TJSR),” Central States Section of The Combustion Institute, Minneapolis 2018, <https://doi.org/10.2514/6.2018-4914>
 20. Heyne, Joshua S; Peiffer, Erin; Colket, Meredith B; Jardines, Aniel; Shaw, Cecilia; Moder, Jeffrey P; Roquemore, William M; Edwards, James T; Li, Chiping; Rumizen, Mark; Gupta, Mohan, “Year 3 of the National Jet Fuels Combustion Program: Practical and Scientific Impacts of Alternative Jet Fuel Research,” 2018 AIAA Aerospace Sciences Meeting, Orlando, FL 2018.
 19. Stachler, R.D., Lefkowitz, J. K., Ombrello, T. M., Stouffer, S. D., Heyne, J. S., Miller, J. M., “The effect of residence time on the ignitability of ethylene and air mixtures in a toroidal jet-stirred reactor,” 10th U. S. National Combustion Meeting, College Park, Maryland, April 23-27 2017.
 18. Bell, D., Heyne, J. S., Dryer, F. L., Won, S. W., Haas, F. M., Dooley, S., On the Development of General Surrogate Composition Calculations for Chemical and Physical Properties, AIAA SciTech-Aerospace Sciences Meeting, Grapevine, TX, Jan. 2017.
 17. Heyne, J. S., Colket, M., Gupta, M., Jardines, A., Moder, M., Edwards, J., Roquemore, W., Li, C., Rumizen, M., Year 2 of the National Jet Fuels Combustion Program: Towards a Streamlined Alternative Jet Fuels Certification Process, AIAA SciTech-Aerospace Sciences Meeting, Grapevine, TX, Jan. 2017.
 16. Stachler, R., Heyne, J. S., Miller, J., Stouffer, S., Investigation of Combustion Emissions from Conventional and Alternative Aviation Fuels in a Well-Stirred Reactor, AIAA SciTech-Aerospace Sciences Meeting, Grapevine, TX, Jan. 2017.
 15. Wu, Y., Gragston, M., Zhang, Z., Stachler, R. D., Heyne, J. S., Stouffer, S. D., Miller, J. D., See-through-wall Radar REMPI for Spatially Localized Temperature Measurements in a Well-Stirred Reactor, AIAA SciTech-Aerospace Sciences Meeting, Grapevine, TX, Jan. 2017.
 14. Stachler, R., Heyne, J. S., Miller, J., Stouffer, S., Zeppieri, S., Colket, M., Roquemore, M., Well Stirred Reactor Emission Studies of Fuel Surrogates, Spring Technical Meeting of the Central States Section of the Combustion Institute, Knoxville, TN, May 2016.
 13. Colket, M., Heyne, J. S., Rumizen, M., Gupta, M., Jardines, A., Edwards, T., Roquemore, W. M., Andac, G., Boehm, R., Zelina, J., Lovett, J., Condevaux, J., Bornstein, S., Risk, N., Turner, D., Graves, C., Anand, M. S., Williams, R., Xu, F., Tishkoff, J., Li, C., Moder, J., Anthenien, R., Friend, D., Chu, P., Kamin, R., Serino, P., Domen, M., Kweon, C. M., Sankaran, V., Cohen, J., Chishty, W., Canteenwalla, P., Corber, A., An Overview of the National Jet Fuels Combustion Program, AIAA SciTech, San Diego, CA, Jan. 2016.
 12. Heyne, J. S., Dryer, F. L., Won, S. H., Haas, F., Reactivity of Utmost Conventional Alternative Jet Fuels in a Variable Pressure Flow Reactor, 9th U.S. National Combustion Meeting, Cincinnati, OH, May 2015.
 11. Sudholt, A., Cai, L., Heyne, J., Haas, F. M., Pitsch, H., Dryer, F. L., Ignition characteristics of a bio-derived class of saturated and unsaturated furans for engine applications. 35th International Symposium on Combustion, San Francisco, CA, Aug. 2014.
 10. Heyne, J., Dooley, S., Dryer, F. L., A decomposition study of isopropanol in a variable pressure flow reactor, Eastern States Section of the Combustion Fall Technical Meeting, Clemson, SC, October, 2013.
 9. Heyne, J., Dryer, F. L., Serinyel, Z., Curran, H., Dooley, S., Water Elimination Rate Measurements for Isopropanol, Central States Sectional Technical Meeting, Dayton, OH, April, 2012.
 8. Veloo, P. S., Heyne, J., Haas, F., Dryer, F.L., Egolfopoulos, F. N., Iso-pentanol oxidation, Central States Sectional Technical Meeting, Dayton, OH, April, 2012.

7. Heyne, J., Dooley, S., Dryer, F. L., Water elimination rate measurements for tertiary-butanol, Eastern States Sectional Technical Meeting, Storrs, CT, October, 2011.
6. Heyne, J., Lefkowitz, J., Haas, F., Won, S.H., Dooley, S., Kim, H. H., Jahangirian, S., Dryer, F. L., Ju, Y., Combustion kinetics study of t-butanol and its principal intermediates iso-butene, acetone, and methane, US Joint Meeting of the Combustion Institute, Atlanta, GA, 2011.
5. Lefkowitz, J., Heyne, J., Won, S.H., Dooley, S., Kim, H. H., Haas, F., Jahangirian, S., Dryer, F. L., Ju, Y., A Chemical Kinetic Study of the Alternative Transportation Fuel, tertiary-Butanol, 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Orlando, FL, 2011.
4. Haas, F., Heyne, J., Grieb, J., Dryer, F. L., Comparative IQT Ignition Delay Times of the Isomeric Butanols, Western States Technical Meeting, Spring 2010, Boulder, CO.
3. Heyne, J., Kirby, S., Boehman, A., Development of a drop-in unifuel/single battlefield fuel of high thermal stability, ACS National Meeting & Exposition, Salt Lake City, Utah, March, 2009.
2. Heyne, J., Kirby, S., Boehman, A., Proposed reactivity mechanism for trans- and cis-decalin and implications for the development of JP-900, ACS National Meeting & Exposition, Salt Lake City, Utah, March, 2009.
1. Stouffer, S. D., Pawlik, R., Justinger, G., Heyne, J., Zelina, J., Ballal, D., Combustion Performance and Emissions Characteristics for a Well-Stirred Reactor for Low Volatility Hydrocarbon Fuels, AIAA 2007-5673.

INVITED PRESENTATIONS

since 2014: 24

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27. Colket, M., Heyne J., "Major results from the National Jet fuels and Combustion Program," ASME TurboExpo, Phoenix, AZ, June 2019.
 26. Joshua Heyne, "The Mission Benefits of Sustainable Drop-in High-Performance Fuels," ASME TurboExpo, Phoenix, AZ, June 2019.
 25. T. Edwards, J. Heyne, "Towards the Minimization of ASTM D4054 Tier 3 & 4 AJF Approvals," 2019 CRC Aviation Committee Meetings, San Juan, PR, May 2019.
 24. J. Heyne, "Drop-in High-Performance Fuels: ," 2019 CRC Aviation Committee Meetings, San Juan, PR, May 2019.
 23. J. Heyne, "Reasonable Transportation Sustainability," University of Dayton Sustainability Scholars, Dayton, OH April 2019.
 22. J. Heyne, "High-Performance Fuels for Emissions Reductions and ICAO Support," NASA Glenn, Cleveland, OH, April 2019.
 21. J. Heyne, "High-Performance Fuels for Operability and Mission Benefits," AFRL/RQHC, Dayton, OH, April 2019.
 20. J. Heyne, "The Approval and Evaluation NJFCP Learnings and High-Performance Fuels for Operability and Mission Benefits," Rolls-Royce, Indianapolis, IN, April 2019.
 19. J. Heyne, "Drop-in High-Performance Fuels: From Molecule Selection to Mission Benefits," NREL IBRF Lab, Golden, CO, March 2019.
 18. J. Heyne, A. George, R. Denney, "Drop-in High-Performance Fuels: From Molecule Selection to Mission Benefits," BETO-DOE Office, Washington, D.C., January 2019.
 17. M. Colket, J. Heyne, T. Lee, "NJFCP Update: Properties and Modeling to FOM Predictions," JetScreen Meeting, Paris, FR, December 2018.
 16. J. Heyne, M. Colket, T. Lee, "An overview of ASCENT research efforts to improve our understanding of how fuel composition and characteristics determine performance," CAAFI Biennial General Meeting, December 2018.
 15. George, A., Heyne, J., Denney, R., Gupta, M., "Engine Optimized Sustainable Drop-in JET

- High Performance Fuels (HPF),” Advanced Bioeconomy Leadership Conference (ABLC), San Francisco, CA, November 2018.
14. M. Colket, J. Heyne, “Early Evaluation of Alternative Jet Fuels Based on NJFCP Results,” Advanced Bioeconomy Leadership Conference (ABLC), San Francisco, CA, November 2018.
 13. Z. Abdulla, J. Heyne, J. Holladay, “Jet Workshop Learnings: Interpretations and Recommendations,” BETO-DOE Office, Washington, D.C., October 2018.
 12. Heyne, J. S., “Four Rules on How to Undergrad,” **University of Dayton Convocation Keynote Address**, Dayton, OH, August 2018.
 11. Heyne, J., Edwards, T., “What makes a Great Jet Fuel?,” **Keynote, Tri-Lateral US-Mexico-Canada Bio-Jet Workshop**, Pacific Northwest National Laboratories, May 2018.
 10. J. Heyne, M. Colket, “Overview and Results from the National Jet Fuels Combustion Program,” CAAFI SOAP-Jet Webinar, Jan. 2018.
 9. Med Colket, Sang Hee Won, Stephen, Dooley, Bill Pitz, Charlie Westbrook, Josh Heyne, Fred Dryer, Steve Zeppieri, “Surrogates for Practical Fuels: Historical Perspective, Palettes, Selection, Use and Modeling,” 2018 MACCCR Meeting, Sandia National Laboratories, Livermore, CA, 2018.
 8. M. Colket, J. Heyne, “NJFCP Update,” JET SCREEN Meeting, Rome, October 2017.
 7. M. Wolcott, J. Heyne, M. Colket, “ASCENT Overview,” CAAFI SOAP-Jet Webinar, December 2017.
 6. Edwards, T., Heyne, J. S., Colket, M., Gupta, M., An Update for the NJFCP, CRC Aviation Meeting, Washington, D.C., May 2016.
 5. J. Heyne, “Career Opportunities and Trajectories Post Doctorate,” Princeton MAE Department Reunions Panel, Princeton, NJ, June 2015.
 4. Heyne, J. S., Colket, M., National Jet Fuels Combustion Program: Alternative Jet Fuel Certification Augmentation, 2015 CRC Aviation Committee Meeting, Nashville, TN, May 2015.
 3. J. Heyne, “Rate Constant Determinations and UQ for Combustion Reactions,” Aerospace Systems Directorate Seminar, WPAFB/AFRL, Dayton OH, March 2014.
 2. Heyne, J. S., Why go to Graduate School?, Mechanical Engineering Department, University of Dayton, Fall 2014.
 1. J. Heyne, “Graduate Student Experience at Princeton,” ‘Many Minds, Many Stripes’ Conference, Princeton, NJ, Oct. 2013.

CONFERENCE PRESENTATIONS

since 2014: **21**

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24. Lily Behnke, Shane Kosir, Joshua S. Heyne, Steven Zabarnick, Giacomo Flora, Russell K. Denney, Mohan Gupta, “The Role of High Energy Molecules and Alternative Jet Fuel Blends in the Advancement of Conventional Jet Fuels,” DESS2018-020, 14th Dayton Engineering Sciences Symposium, Wright State University, 2018.
 23. Shane Kosir, Lily Behnke, Joshua S. Heyne, Steven Zabarnick, Giacomo Flora, Russell K. Denney, Mohan Gupta, “Improvement in Jet Aircraft Operation with the Use of High-Performance Alternative Drop-in Fuels in Conventional Fuels,” DESS2018-007, 14th Dayton Engineering Sciences Symposium, Wright State University, 2018.
 22. Robert Stachler, Joshua Heyne, Erin Peiffer, Scott Stouffer, Joseph Miller, “Assessment of Lean Blowoff in a Toroidal Jet Stirred Reactor,” DESS2018-055, 14th Dayton Engineering Sciences Symposium, Wright State University, 2018.
 21. Katherine Opacich, Joshua S. Heyne, Erin Peiffer, Scott D. Stouffer, “Analyzing the Relative Impact of Spray and Volatile Fuel Properties on Gas Turbine Combustor Ignition,” DESS2018-019, 14th Dayton Engineering Sciences Symposium, Wright State University, 2018.
 20. Erin Peiffer, Joshua Heyne, “Combustor Rig Sensitivity to DCN for LBO and Ignition Results

- from Year 3 of the NJFCP,” 43rd Dayton-Cincinnati Aerospace Sciences Symposium, Sinclair Community College, February 2018.
19. Robert D. Stachler, Joshua S. Heyne, Scott D. Stouffer, Joseph D. Miller, Keith Rein, “Characterization of a Toroidal Jet-Stirred Reactor using Hot-Wire Anemometry and Tunable Diode Laser Absorption Spectroscopy (TDLAS),” 43rd Dayton-Cincinnati Aerospace Sciences Symposium, Sinclair Community College, February 2018.
 18. Erin Peiffer, Sari Mira, Joshua Heyne, “TENDING PRACTICES AND THERMAL EFFICIENCY FOR BIOMASS COOKSTOVES,” ETHOS Conference, Kirkland, WA Jan. 2018.
 17. David Bell, Joshua Heyne, “Preferential Vaporization’s Effect on Lean Blow Off,” 13th Dayton Engineering Sciences Symposium, Wright State University, 2017.
 16. Peiffer, E., Heyne, J., “LBO and Ignition Feature Importance’s from Year 3 of the National Jet Fuels Combustion Program (NJFCP),” 13th Dayton Engineering Sciences Symposium, Wright State University, 2017.
 15. Robert D. Stachler, Joshua S. Heyne, Scott D. Stouffer, Joseph K. Lefkowitz, Timothy M. Ombrello, Joseph D. Miller, “Characterization of a Toroidal Jet-Stirred Reactor Using Hot-Wire Anemometry,” 13th Dayton Engineering Sciences Symposium, Wright State University, 2017.
 14. Mira, S., Heyne, J., “Modeling and Characterization of Wood Stove Efficiencies in Natural Draft and Induced Turbulence Environments,” 13th Dayton Engineering Sciences Symposium, Wright State University, 2017.
 13. Bell, D., Heyne, J. S., “Developing a Calculator for Generating Surrogate Jet Fuels with Target Chemical and Physical Properties,” DESS, Nov. 1, 2016.
 12. Carson, J., Heyne, J. H., Henderschott, T., Stouffer, S., “On the Use of Statistical Analysis Techniques to Determine Driving Factors in Combustion Processes,” DESS, Nov. 1, 2016.
 11. Heyne, J. S., “On the Streamline of the Alternative Jet Fuel Certification Process,” DESS, Nov. 1, 2016.
 10. Peiffer, E., Heyne, J., “Minimizing Deforestation and Pollutant Emissions with Biomass Gasification,” 12th Dayton Engineering Sciences Symposium, Nov. 1, 2016.
 9. Heyne, J. S., Mira, S., “Developing an Efficient Bio-mass Stove using Gas Turbine Design Principles,” DESS, Nov. 1, 2016.
 8. Robert Stachler, Scott Stouffer, Joshua Heyne, “A Study of Surrogate, Conventional, and Alternative Fuel Emissions Using a Well-Stirred Reactor,” Stander Symposium, Dayton, OH, April 2016.
 7. Sari Mira, Robert Stachler, Joshua Heyne, “Reduced Order Experimental Configuration Studies of Wood Combustion,” Stander Symposium, Dayton, OH, April 2016.
 6. Stachler, R., Heyne, J. S., Miller, J., Stouffer, S., Roquemore, M., Emission Studies of Surrogates in a Well-Stirred Reactor, DCASS, Dayton, OH, Mar. 2016.
 5. Mira, S., Stachler, R., Heyne, J., Zhang, Y., Lakshminarayanan, S., Long, B., Pereira, K., Sounik, J., Reduced Order Experimental configuration Studies of Wood Combustion, ETHOS Conference, Kirkland, WA, Jan. 2016.
 4. Stachler, R., Heyne, J. S., Miller, J., Stouffer, S., Roquemore, M., Well Stirred Reactor Emission Studies of Fuel Surrogates, 11th Annual Dayton Engineering Sciences Symposium, Fairborn, OH, Nov. 2015.
 3. Heyne, J., Dryer, F. L., A Dehydration Study of tertiary-butanol and Implications for Chemical Thermometry and Relative Rate Studies, ACEEES Education Forum, Waikaloa, Hawaii, December, 2012.
 2. Dooley, S., Jahangirian, S., Farouk, T., Heyne, J., Ramcharan, A., Dryer, F. L., Surrogate Mixtures for Real Fuels; Concepts and Associated Kinetic Studies of Surrogate Components, Multi-Agency Coordination Committee for Combustion Research, Argonne National Laboratory, Sept. 2011.

1. Serinyel, Z., Heyne, J., Dryer, F. L., Chemical Kinetics of Isopropanol and t-Butanol Pyrolysis and Oxidation, EFRC Annual Meeting, Princeton, NJ, Sept. 2010.

POSTER PRESENTATIONS

since 2014: 17

19. Meyer, T., Heyne, J. "Importance of Data Compilation in Regards to Understanding Fuel Property Effects on Gas Turbine Combustor Ignition," Stander Symposium, Dayton, OH, April 2019.
18. Lily Behnke, Joshua Heyne "The Importance of Novel Molecule Properties in the Formation and Advancement of Alternative Jet Fuel Blends," Stander Symposium, Dayton, OH, April 2019.
17. Shane Kosir, Joshua Heyne "Improvement in Jet Aircraft Operation with the Use of High-Performance Drop-in Fuels," Stander Symposium, Dayton, OH, April 2019.
16. S. Stouffer, T. Lieuwen, J. Seitzman, N. Mastorakas, T. Lee, J. Temme, M. Kweon, B. Culbertson, R. Williams, J. Heyne, "Ignition: NJFCP Summary," CAAFI-CBGM, Washington, D.C., Dec. 2018.
15. J. Heyne, S. Stouffer, B. Emerson, T. Lieuwen, N. Mastorakas, D. Blunck, P. LeClercq, S. Won, F. Dryer, B. Khandelwal, . Ihme, S. Menon, J. P. Gore, S. Som, "Lean Blowout: NJFCP Summary," CAAFI-CBGM, Washington, D.C., Dec. 2018.
14. Zhang, H., Shane Kosir, Robert Stachler, Erin Peiffer, Joshua S. Heyne, "Optimization of Surrogate Jet Fuel for Determination of Combustion Properties and Sensitivities," Dayton Engineering Sciences Symposium, Dayton, OH 2018.
13. S. Stouffer, T. Lieuwen, J. Seitzman, N. Mastorakas, T. Lee, J. Temme, M. Kweon, B. Culbertson, R. Williams, J. Heyne, "Ignition Working Group Update," FAA ASCENT Meeting, Washington, D.C., October 2018.
12. J. Heyne, S. Stouffer, B. Emerson, T. Lieuwen, N. Mastorakas, D. Blunck, P. LeClercq, S. Won, F. Dryer, B. Khandelwal, . Ihme, S. Menon, J. P. Gore, S. Som, "Lean Blowout Working Group Update," FAA ASCENT Meeting, Washington, D.C., October 2018.
11. Katharine Opacich, Joshua Heyne, "Understanding the Impact of Fuel Volatility and Viscosity on Gas Turbine Engine Ignition," Stander Symposium, Dayton, OH, April 2018.
10. Shane Kosir, Robert Stachler, Joshua Heyne, "The Development of a Deeper Understanding of Cantera for use in the Simulation of Modern Combustion Problems," Stander Symposium, Dayton, OH, April 2018.
9. S. Stouffer, T. Lieuwen, J. Seitzman, N. Mastorakas, T. Lee, J. Temme, M. Kweon, B. Culbertson, R. Williams, J. Heyne, "Ignition Working Group Update," FAA ASCENT Meeting, MIT, Cambridge, MA, March 2018.
8. J. Heyne, S. Stouffer, B. Emerson, T. Lieuwen, N. Mastorakas, D. Blunck, P. LeClercq, S. Won, F. Dryer, B. Khandelwal, . Ihme, S. Menon, J. P. Gore, S. Som, "Lean Blowout Working Group Update," FAA ASCENT Meeting, MIT, Cambridge, MA, March 2018.
7. Alexander Briones, Joshua Heyne, "A CFD common format routine for predicting stability limits," Fall 2017 ASCENT Meeting, Washington, D.C., September, 2017.
6. Erin Peiffer, Joshua Heyne, "Combustion Efficiency vs. Tending Practices of Biomass Cookstoves," 13th DESS, Fairborn, OH, October 2017.
5. Sari Mira, Joshua Heyne, "Effects of Turbulence in a Trapped Vortex on Wood Combustion Performance," Stander Symposium, Dayton, OH, April 2017.
4. Erin Pieffer, Joshua Heyne, "Rocket Technology and Enabling Well-Stirred Combustion," Stander Symposium, Dayton, OH, April 2017.
3. Mira, S., Stachler, R., Heyne, J. S., Reduced Order Experimental Configuration Studies of Wood Combustion, Patterson Chemistry Program, Central State University, Wilberforce, Ohio, Apr. 2016.

2. Heyne, J. S., Dryer, F. L., n-Butanol Speciation Measurements in a Variable Pressure Flow Reactor, 34th International Symposium on Combustion, Warsaw, Poland, Aug., 2012.
1. Heyne, J. S., Dryer, F. L., Uncertainty Analysis of Chemical Thermometry and the Decomposition of Cyclohexene in a Variable Pressure Flow Reactor, 22nd International Symposium on Gas Kinetics, Boulder, CO, Jun., 2015.

RESEARCH REPORTS

since 2014: **6**

6. Dimitri Marvis, Anthe George, Joshua Heyne, "Engine Optimized Sustainable Drop-in JET High Performance Fuels (HPF)," Program Report, DOE-BETO, December 2018.
5. Joshua Heyne, Erin Peiffer, Scott Stouffer, Robert Stachler, Alexander Briones, "Project 34 Overall Integration and Coordination," FAA ASCENT Annual Technical Report, November 2018.
4. Joshua Heyne, Erin Peiffer, Scott Stouffer, Robert Stachler, Alexander Briones, "Project 34 Overall Integration and Coordination," FAA ASCENT Annual Technical Report, October 2017.
3. Mel Roquemore, Scott Stouffer, Edwin Corporan, Vish Katta, Joshua Heyne, "Emissions from Burning Alternative Fuels," SERDP Final Technical Report, March 2017.
2. Joshua Heyne, Erin Peiffer, Scott Stouffer, Robert Stachler, Alexander Briones, "Project 34 Overall Integration and Coordination," FAA ASCENT Annual Technical Report, December 2016.
1. Joshua Heyne, Erin Peiffer, Scott Stouffer, Robert Stachler, Alexander Briones, "Project 34 Overall Integration and Coordination," FAA ASCENT Annual Technical Report, December 2015.

FUNDED PROGRAM REVIEW PRESENTATIONS

since 2014: **75**

75. A. George, J. Heyne, R. Denney, "Analysis for Engine Optimized Sustainable Drop-In JET High Performance Fuels (HPF)," BETO Peer Review, Denver, CO, March 2019.
74. J. Heyne, M. Colket, "AIAA Book and Year 5 – Next Steps and Action Item Review," NJFCP 2019 Review Meeting, OAI, Cleveland, OH, March 2019.
73. J. Heyne, B. Emerson, T. Lieuwen, S. Stouffer, D. Blunck, E. Corporan, N. Mastorakas, P. de Oliveira, "LBO WG Update and 4 Year Summary," NJFCP 2019 Review Meeting, OAI, Cleveland, OH, March 2019.
72. S. Stouffer, J. Heyne, R. Boehm, E. Mayhew, T. Lee, P. Canteenwalla, "Ignition WG Update and 4 Year Summary," NJFCP 2019 Review Meeting, OAI, Cleveland, OH, March 2019.
71. J. Heyne, M. Colket, "Highlights of NJFCP Achievements - Overall impact of program - Tiers and HPF," NJFCP 2019 Review Meeting, OAI, Cleveland, OH, March 2019.
70. Heyne, J., Colket, M., Moder, Jeff, Shaw, C., "NJFCP Status Update," FAA ASCENT, Alexandria, VA, Oct. 2018.
69. J. Holladay, Z. Abdulha, J. Heyne, "Preliminary DOE Summary Report with Focus on JET HPF," JET Program Review, Georgia Tech, Atlanta, GA Aug. 2018.
68. J. Heyne, S. Zabarnick, "Review of Progress: Molecules to Drop-in HPFs – Novel and Conventional Fuel Composition," JET Program Review, Georgia Tech, Atlanta, GA Aug. 2018.
67. J. Heyne, A. George, "Integration of UD and SNL Work activities," JET Program Review, Georgia Tech, Atlanta, GA Aug. 2018.
66. J. Heyne, S. Zabarnick, "ASTM Specs and Blending Optimization Tool - Application to HPF," JET Program Review, Georgia Tech, Atlanta, GA Aug. 2018.

65. S. Zabarnick, J. Heyne, "ASTM Approval Process," JET Program Review, Georgia Tech, Atlanta, GA Aug. 2018.
64. J. Heyne, S. Zabarnick, "Next Steps: Optimization Blending Tool for Costs and Screening," JET Program Review, Georgia Tech, Atlanta, GA Aug. 2018.
63. Colket, M., Heyne, J.S., Review of Key Action Items, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug 2018.
62. Colket, M., Heyne, J.S., Year 5 plans and objectives, including outreach, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug 2018.
61. Heyne, J.S., Colket, M., AIAA Book Publication - Next Steps with Schedule, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug 2018.
60. Emerson, B., Heyne, J.S., Lieuwen, T., Stouffer, S., Blunck, D., LeClercq, P., Khandelwal, B., Mastorakas, N., Corporan, E., Andac, G., LBO Working Group, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug 2018.
59. Lee, T., Heyne, J.S., Data Collect/Store/Doc, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug 2018.
58. Heyne, J.S., Colket, M., Agenda and Overall NJFCP and Book Status, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug 2018.
57. Heyne, J.S., Colket, M., Plan for remainder of year and draft for year 5, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug 2018.
56. Heyne, J.S., Colket, M., Highlights of NJFCP Achievements - Year 4 and overall impact of program, NJFCP Mid-Year Meeting, GE Aviation, Cincinnati, Ohio Aug. 2018.
55. Heyne, J., Colket, M., Moder, Jeff, Shaw, C., "NJFCP Status Update," FAA ASCENT, Cambridge, MA, April 2017.
54. Colket, M., Heyne, J.S., Review of Key Action Items, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017
53. Colket, M., Heyne, J.S., Year 4 plans, including outreach, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
52. Heyne, J.S., Colket, M., AIAA Book Publication Plans, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
51. Heyne, J.S., Morning Updates, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
50. Lee, T., Heyne, J.S., Data Collect/Store/Doc, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
49. Emerson, B., Heyne, J.S., Lieuwen, T., Rock, N., Stouffer, S., Blunck, D., Khandelwal, B., Corporan, E., Pieffer, E., Bell, D., LBO Working Group, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
48. Heyne, J.S., Morning updates, University of Dayton, Dayton, Ohio December 2017.
47. Heyne, J.S., Colket, M., Agenda and Overall NJFCP Status, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
46. Heyne, J.S., Logistics, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
45. Heyne, J.S., Colket, M., Draft plan for Year 4, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
44. Heyne, J.S., Colket, M., Needs from OEMs for AIAA Book, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
43. Heyne, J.S., Outside Engagement (past and planned), NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
42. Heyne, J.S., Colket, M., Highlights of NJFCP Achievements - Year 3, NJFCP Year End Meeting, University of Dayton, Dayton, Ohio December 2017.
41. Heyne, J.S., Meeting logistics, NJFCP Year End Meeting, University of Dayton, Dayton,

- Ohio December 2017.
40. Heyne, J., Colket, M., Moder, Jeff, Shaw, C., "NJFCP Status Update," FAA ASCENT, Alexandria, VA, Sept. 2017.
 39. Heyne, J.S., Colket, M., Refinement of technical plans to meet program objectives, NJFCP Mid-Year Meeting, Purdue University, West Lafayette, IN June 2017.
 38. Lee, T., Heyne, J.S., Data Collect/Store/Doc Working Group, NJFCP Mid-Year Meeting, Purdue University, West Lafayette, IN June 2017.
 37. Heyne, J.S., Agenda and Overall NJFCP Status, NJFCP Mid-Year Meeting, Purdue University, West Lafayette, IN June 2017.
 36. Heyne, J.S., Outside Engagement (past and planned), NJFCP Mid-Year Meeting, Purdue University, West Lafayette, IN June 2017.
 35. Heyne, J.S., Colket, M., NJFCP Goals & Expectations for Year 3 from Year 2 meeting, NJFCP Mid-Year Meeting, Purdue University, West Lafayette, IN June 2017.
 34. Heyne, J., Colket, M., Moder, Jeff, Jardines, Aniel, Shaw, C., "NJFCP Status Update," FAA ASCENT, Alexandria, VA, April 2017.
 33. Heyne, J. S., Colket, M., NJFCP Goals & Expectations for Year 2 and 3 from mid-Year meeting and Review of Progress and Concerns, NJFCP Year End Meeting, Indianapolis, IN, Dec. 2016.
 32. Heyne, J. S., Colket, M., NJFCP Goals and Year 3 Strategy, NJFCP Year End Meeting, Indianapolis, IN, Dec. 2016.
 31. Heyne, J., Lieuwen, T., Emerson, B., Stouffer, S., Blunck, D., Mastorakos, E., Khandelwal, B., Allison, P., "LBO Results and Implications for Streamlining the Certification process for Alternative Jet Fuels," NJFCP Year End Meeting, Indianapolis, IN, Dec. 2016.
 30. Colket, M., Heyne, J., "Action Item Review," NJFCP Year End Meeting, Indianapolis, IN, Dec. 2016.
 29. Heyne, J., Colket, M., Gupta, M., "Year 2 Update to the National Jet Fuels Combustion Program," FAA ASCENT, Alexandria, VA, Sept. 2016.
 28. Heyne, J. S., Colket, M., Overall NJFCP Goals, NJFCP Mid-Year Review Meeting, East Hartford, CT, June 2016.
 27. Heyne, J. S., Lee, T., Status of Experimental Validation Data, NJFCP Mid-Year Review Meeting, East Hartford, CT, June 2016.
 26. Heyne, J. S., Wang, H., Cross-Experiment Analysis, NJFCP Mid-Year Review Meeting, East Hartford, CT, June 2016.
 25. Heyne, J. S., Briones, A., User Defined Function Plan, NJFCP Mid-Year Review Meeting, East Hartford, CT, June 2016.
 24. Colket, M., Heyne, J. S., Overview of "Critical Paths," NJFCP Mid-Year Review Meeting, East Hartford, CT, June 2016.
 23. Heyne, J. S., Lee, T., Status of Data Collection and Database, NJFCP Mid-Year Review Meeting, East Hartford, CT, June 2016.
 22. Colket, M., Heyne, J. S., Review of Meeting Action Items, Heyne, J. S., Lee, T., Status of Experimental Validation Data, NJFCP Mid-Year Review Meeting, East Hartford, CT, June 2016.
 21. Heyne, J. S., Colket, M., Gupta, M., FAA ASCENT, Spring Update for the NJFCP, Washington, D.C., Apr. 2016.
 20. Heyne, J. S., Stachler, R., Miller, J., Stouffer, S., Roquemore, W. M., Emission Studies of Surrogates in a Well-Stirred Reactor, Final SERDP Program Review meeting, Dayton, OH, Mar. 2016.
 19. Heyne, J. S., Stachler, R., Miller, J., Stouffer, S., Roquemore, W. M., Well-Stirred Reactor Studies of Alternative Fuel Surrogates, Year End SERDP Program Review meeting, Dayton, OH, Dec. 2015.

18. Colket, M., Heyne, J. S., Year 2 Goals & Objectives/Success Criteria, NJFCP Year 1 Year End Review Meeting, Livermore, CA, Oct. 2015.
17. Colket, M., Heyne, J. S., OEM V&V (CFR, model delivery plan and timeline for OEM Testing) , NJFCP Year 1 Year End Review Meeting, Livermore, CA, Oct. 2015.
16. Heyne, J. S., Colket, M., Generalized Testing Capabilities, NJFCP Year 1 Year End Review Meeting, Livermore, CA, Oct. 2015.
15. Heyne, J. S., Colket, Elements of Year-2 and Year-3 Activities, NJFCP Year 1 Year End Review Meeting, Livermore, CA, Oct. 2015.
14. Colket, M., Heyne, J. S., NJFCP Integrated Analysis and Assessment, NJFCP Year 1 Year End Review Meeting, Livermore, CA, Oct. 2015.
13. Colket, M., Heyne, J., Modeling Overview and Introduction, NJFCP Year 1 Year End Review Meeting, Livermore, CA, Oct. 2015.
12. Heyne, J., Colket, M., Testing Overview and Introduction, NJFCP Year 1 Year End Review Meeting, Livermore, CA, Oct. 2015.
11. Heyne, J. S., Colket, M., Gupta, M., Roquemore, W. M., Moder, J., NJFCP: Introduction and Results, MACCCR Review Meeting, Livermore, CA, Oct. 2015.
10. Heyne, J. S., Colket, M., Gupta, M., National Jet Fuels Combustion Program, ASCENT Year End Meeting, Seattle, WA, Oct. 2015.
9. Heyne, J. S., Stachler, R., Miller, J., Stouffer, S., Emissions Studies with the Well-Stirred Reactor (WSR), SERDP Program Review Meeting, Dayton, OH, Sept. 2015.
8. Gupta, M., Heyne, J., Colket, M., Edwards, T., Roquemore, W. M., NJFCP Program: Mid-Year Status Update, Washington D.C., July 2015.
7. Colket, M., Heyne, J., Program Optimization for Next Six Months and Year 2, NJFCP Mid-Year Meeting, Evendale, OH, May 2015.
6. Heyne, J. S., Colket, M., Edwards, T., Fuel Properties and Down-selection, NJFCP Mid-Year Meeting, Evendale, OH, May 2015.
5. Heyne, J. S., Colket, M., Collective Interpretation: Cross-area integration, and Implications of to-date results and progress, NJFCP Mid-Year Meeting, Evendale, OH, May 2015.
4. Heyne, J. S., Colket, M. National Jet Fuels Combustion Program: Overall Program Integration and Analysis, ASCENT Spring Review Meeting, Washington D.C., March 2015.
3. Heyne, J. S., Colket, M., Program Integration and IMS, NJFCP Kick-Off Meeting, Dayton, OH, Dec. 2014.
2. Colket, M., Heyne, J. S., Program Integration and Integrated Master Schedule (IMS) Overview, NJFCP Kick-Off Meeting, Dayton, OH, Dec. 2014.
1. Chu, P., Heyne, J., Lee, T., Data Reporting and Archival, NJFCP Kick-Off Meeting, Dayton, OH, Dec. 2014.

FUNDED RESEARCH PROJECTS

total: \$2258k PI: \$2707k

	TITLE	AGENCY	PERIOD	AMOUNT ⁸ (\$k)
16.	JET Bio-fuel optimization, (R-25209), PI: Joshua Heyne	SNL/DOE	3/19-9/19	105
15.	Integration and Coordination National Jet Fuels Combustion Program and Fuels Testing, ⁹ PI: Joshua Heyne	FAA	12/18-12/20	585
14.	A Review of Emissions Reductions for Biomass Combustion, PI: Dean Still	EPA	4/18-2/19	10
13.	JET Bio-fuel optimization, (R-24373), PI: Joshua Heyne	SNL/DOE	4/18-12/18	145
12.	Integration and Coordination of the National Jet Fuels Combustion Program and Fuels Testing, 13-C-AJFE-UD (Amendment No. 018), PI: Joshua Heyne	FAA	12/17- 12/18	375
11.	Integration and Coordination of the National Jet Fuels Combustion Program and Fuels Testing, 13-C-AJFE-UD (Amendment No. 017), PI: Joshua Heyne	FAA	8/17- 9/18	193
10.	National Jet Fuel Combustion Program Area #7, Overall Program Integration and Analysis, 13-C-AJFE-UD (Amendment No. 013), PI: Joshua Heyne	FAA	8/16-12/17	386
9.	National Jet Fuel Combustion Program Area #7, Surrogate Fuel Development and Optimization, PI: Steve Zabarnick	AFRL	8/16-8/17	55
8.	National Jet Fuel Combustion Program Area #7, Overall Program Integration and Analysis, 13-C-AJFE-UD (Amendment No. 010), PI: Joshua Heyne	FAA	7/16-12/17	249
7.	Enabling Well-Stirred Combustion in Biomass Combustion, PI: Erin Pieffer	UD Honors Program	8/16-5/17	2

⁸Funding listed here represents the level of effort provided to specific projects.

⁹Currently awaiting full execution from FAA/DOT

6.	Emissions and Lean Blow Out studies in a Well-Stirred Reactor, WP2145, PI: Mel Roquemore	SERDP	1/16-6/15	80
5.	Modeling and kinetic model development for advanced gas turbine engine development, PI: Scott Stouffer	AFRL	9/15-5/16	172
4.	National Jet Fuel Combustion Program Area #7, Overall Program Integration and Analysis, 13-C-AJFE-UD (Amendment No. 009), PI: Joshua Heyne	FAA	9/15-9/16	135
3.	National Jet Fuel Combustion Program Area #7, Overall Program Integration and Analysis, FA8650-10- 2-2934., PI: Steve Zabarnick	AFRL/ NAVAIR	5/15-10/15	50
2.	Emissions and Lean Blow Out studies in a Well-Stirred Reactor, WP2145, PI: Mel Roquemore	SERDP	1/15-12/15	80
1.	National Jet Fuel Combustion Program Area #7, Overall Program Integration and Analysis, 13-C-AJFE-UD (Amendment No. 004), PI: Joshua Heyne	FAA	2/15-1/16	85

STUDENT MENTORING

Graduate funded/unfunded: 8/9
Undergrad: 8

Graduate Students, *fully funded by Heyne*¹⁰

17.	Shane Kosir, MS Research Topic: Jet Fuel Composition Optimization Award(s): Ohio Space Grant Consortium Master's Fellowship	2019-present 2019-2020
16.	Katie Opacich, MS Research Topic: Spray property effects on ignition operability Award(s): Ohio Space Grant Consortium Master's Fellowship	2019-present 2019-2020
15.	Zhibin (Harrison) Yang, MS Research Topic: Development of Surrogate Fuels for Cold Ignition Operability	2018 - present
14.	Erin Peiffer, MS Research Topic: Alt. Jet Fuel Data-basing and Meta Data Analysis Subsequent Position: Graduate student, Oregon State	2017-2018
13.	David Bell, MS Research Topic: Surrogate Fuel Formulation Award: 2018 Young Engineer of the Year - ASME Dayton Section Award Subsequent Position: Engineer, Belcan	2016-2017

¹⁰Includes full tuition and stipend of at least \$21k/year

- | | | |
|-----|---|--------------|
| 12. | Terrance Corrigan, PhD ¹¹
Research Topic: Modeling Limit Phenomena
Subsequent Position: Energy Engineer, Plug Smart, Columbus, OH | 2016 |
| 11. | Jeremy Carson, MS
Research Topic: Alt. Jet Fuel Data-basing and Meta Data Analysis
Subsequent Position: Associate Mechanical Engineer, UDRI | 2016-2017 |
| 10. | Robert Stachler, MS, PhD
Research Topic: Alt. & Surrogate Jet Fuels Performance and Emissions
Award(s): 2016 Young Engineer of the Year - ASME Dayton Section Award
2018 Outstanding Research Award – Mechanical Engineering
3x DESS Therm.-Fluid-Sciences Best Presentation Winner | 2015-present |

Graduate Students, *research adviser*

- | | | |
|----|--|---------------|
| 9. | Andrew Olson, MS
Research Topic: Rotating Detonation Engine Combustion | 2019-present |
| 8. | Luke Kozal, MS
Research Topic: Multi Sector Annular Rig Testing on Alternative Fuels | 2019-present |
| 7. | Jennifer Colborn, MS
Research Topic: Alt. Fuel Chemical Time Scale Effects with Pressure and Temperature Variance | 2018-present |
| 6. | Craig Attenweiler, MS
Research Topic: Bio-mass Emission Reduction Strategies | 2018-present |
| 5. | Travis Tidball, MS
Research Topic: Dissolution Methods of Gaseous and Liquid Fuels | 2017-present |
| 4. | Matthew Gazella, MS
Research Topic: Ignition Studies of Alternative Fuels in a Hyper-sonic Cavity | 2017- present |
| 3. | Katie Moosman, MS
Research Topic: The Effects of Dissolved Gasses on Sprays | 2017- present |
| 2. | Sari Mira, PhD ¹¹
Research Topic: Turbulent Intensity Effects on Bio-mass Combustion
Subsequent Position: Strategy Engineer, SEEL LLC | 2015-2018 |
| 1. | Sneha Lakshminarayanan, MS ¹¹
Research Topic: Kinetic Model Reduction Using Machine Learning Methods | 2015-2016 |

Undergraduate Researchers, *funded hourly*

- | | | |
|----|---|--------------|
| 8. | Franchesca Hauck
Research Topic: Jet Fuel Blend Effects on Alt. Fuels | 2019-present |
| 7. | Travis Meyer
Research Topic: Property Variance of Select Hydrocarbon Molecules | 2019-present |
| 6. | Aidan Grace
Research Topic: Properties of Hydrocarbon Molecules in Jet Fuel | 2018 |
| 5. | Lily Behnke
Research Topic: Blend Modeling of Alt. Jet Fuel Compositions
Award(s): Paula Martin Scholarship, GE Women’s Network, 2018 | 2018-present |
| 4. | Shane Kosir
Research Topic: Predictive Swelling Models for Non-Aromatic Jet Fuels | 2018-2019 |

¹¹Did not complete noted degree under Heyne’s supervision

- Award(s): Class of 1902 Award of Excellence for Outstanding Mechanical Engineering Achievement, 2019; Ohio Space Grant Consortium Undergraduate Fellowship Recipient, 2018
3. Jennifer Colborn 2017-2018
Research Topic: Cross Area Analysis of Alt. Jet Fuel Tests
 2. Katherine Opacich 2017-2019
Research Topic: On the Competition of Surface Tension and Viscosity for Alt. Fuel Ignition Propensities
Award(s): Ohio Space Grant Consortium Fellowship Recipient, 2018; The Martin C. Kuntz, 1912, Award of Excellence to the Outstanding Junior in Mechanical Engineering
 1. Erin Peiffer, 2016-2017
Thesis: Biomass Cookstoves: an Empirical Study into the Relationship between Thermal Efficiency and Tending Practices for the Developing World
Awards: Best Overall Presentation: DESS 2016; Palermo Summer Scholarship
Subsequent Position: Graduate student, UD

TEACHING EXPERIENCE

Instructor of Record

	Semester	Enrollment
9. Fundamentals of Combustion, MEE/AAE 565	Spring 2019	12
8. Advanced Thermodynamics, MEE 511	Fall 2018	13
7. Fundamentals of Combustion, MEE/AAE 565	Spring 2018	11
6. Advanced Thermodynamics, MEE 511	Fall 2017	13
5. Fundamentals of Combustion, MEE/AAE 565	Spring 2017	11
4. Advanced Thermodynamics, MEE 511	Spring 2016	6
3. Fundamentals of Combustion, MEE/AAE 565	Fall 2015	5
2. Advanced Thermodynamics, MEE 511	Spring 2015	23
1. Fundamentals of Combustion, MEE/AAE 565	Fall 2014	5

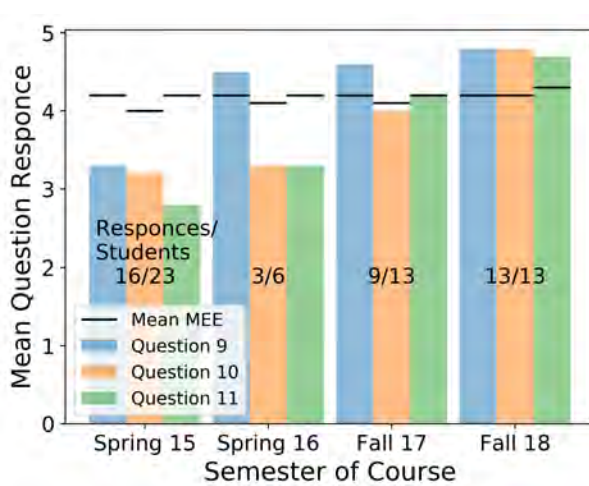
Co-Instructor^a

3. Freshman Seminar, MEE 101	Spring 2019
2. Freshman Seminar, MEE 101	Spring 2018
1. Engineering Design and Appropriate Technology II, EGR 590	Spring 2016

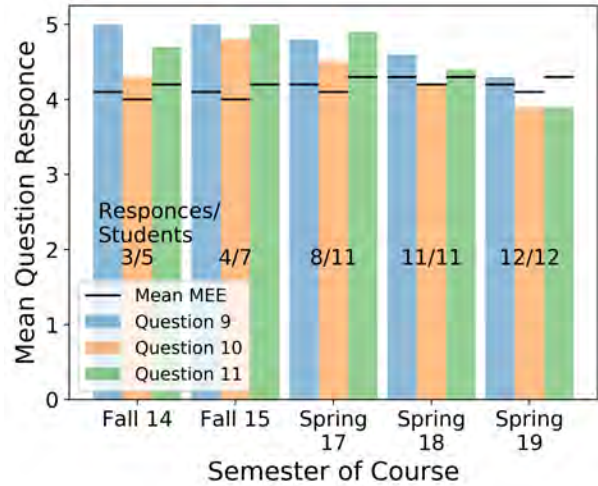
^aTaught one or more classes within course

Instructor of Record Student Evaluation of Teaching

Course	Semester	Question 9 Heyne/Dept.	Question 10 Heyne/Dept.	Question 11 Heyne/Dept.	Responded/ Enrolled*
MEE 565	Spring 2019	4.3/4.2	3.9/4.1	3.9/4.3	12/12
MEE 511	Fall 2018	4.8/4.2	4.8/4.2	4.7/4.3	13/13
MEE 565	Spring 2018	4.6/4.3	4.2/4.2	4.4/4.3	11/11
MEE 511	Fall 2017	4.6/4.2	4.0/4.1	4.2/4.2	9/13
MEE 565	Spring 2017	4.8/4.2	4.5/4.1	4.9/4.3	8/11
MEE 511	Spring 2016	4.5/4.2	3.3/4.1	3.3/4.2	3/6
MEE 565	Fall 2015	5.0/4.1	4.8/4.0	5.0/4.2	3/5
MEE 511	Spring 2015	3.3/4.2	3.2/4.0	2.8/4.2	16/23
MEE 565	Fall 2014	5.0/4.1	4.3/4.0	4.7/4.2	3/5
AVERAGE		4.54/4.19	4.11/4.09	4.21/4.24	78% Response Rate



(a) MEE 511



(b) MEE/AEE 565

Figure 1: Student Evaluation of Teaching (SET) Scores, see QUESTION and RESPONSE REFERENCES below.
 (a) *Advanced Thermodynamics* (MEE 511) (b) *Fundamentals of Combustion* (MEE/AEE 565)

Question Reference:

- Question 9: I learned a great deal from this course.
- Question 10: I would recommend this course to other students.
- Question 11: I would recommend this instructor to other students.

Response Reference:

- Strongly Agree=5
- Agree=4
- Neutral=3
- Disagree=2
- Strongly Disagree=1

Undergraduate Advising

total student-semesters: **265**

8. 2019 Spring37 students
 7. 2018 Fall 15 students
 6. 2018 Spring29 students
 5. 2017 Fall 39 students

4. 2017 Spring42 students
 3. 2016 Fall 43 students
 2. 2016 Spring44 students
 1. 2015 Fall 16 students

AWARDS AND HONORS

4. Outstanding Service Award, ASME Dayton Section 2018
3. Excellence in Research, Southern Ohio Council of Higher Education (SOCHE) 2016
2. Class of 1902 Award of Excellence for Outstanding Mechanical Engineering Achievement, MAE Dept., UDayton 2007
1. Citizenship Award, Alter High School 2003

UNIVERSITY SERVICE

Committee Membership

- **University Roles**

4. **Chair**, Athletics Advisory Committee 2019-present
3. Chair Elect, Athletics Advisory Committee 2017-2019
2. Athletics Gender Equity Sub-committee, Athletics Advisory Committee 2017-present
1. Athletics Advisory Committee, 2016-present

- **School of Engineering Roles**

1. ETHOS Center Development and Operation, School of Engineering, 2015-present

- **Department Roles**

2. **Chair**, Academic Dishonesty Sub-Committee 2016-present
1. Faculty Search Committee, MAE Dept 2014-2015

- **University Honors Program Roles**

1. Reviewer for Berry Summer Thesis Institute 2017

Recruiting Commitments

11. Football On Campus Visit Faculty Rep. 2019
10. Department Visit Faculty Rep. Host 2018
9. Football On Campus Visit Faculty Rep. 2018
8. Summer Bridge Program (Instructor) 2017
7. Department Visit Faculty Rep. Host 2017
6. Football On Campus Visit Faculty Rep. 2017
5. Department Visit Faculty Rep. Host 2016
4. Football On Campus Visit Faculty Rep. 2016
3. Summer Bridge Program (Instructor) 2015
2. Football On Campus Visit Faculty Rep. 2015
1. Department Visit Faculty Rep. Host 2015

PROFESSIONAL SERVICE

Committee Membership

6. Board Member, ASME Dayton Section 2019
5. **General Chair**, ASME Dayton Engineering Sciences Symposium (DESS) 2018
4. Board Member, ASME Dayton Section 2018
3. **Co-chair**, ASME Dayton Engineering Sciences Symposium (DESS) 2017
2. ASME DESS Organization Committee 2016
1. ASME DESS Organization Committee 2015

Reviewer

- | | |
|-------------------------------|--------------------------------------|
| 6. ACS Energy & Fuels | 3. Combustion Institute |
| 5. Journal of Hydrogen Energy | 2. Fuel |
| 4. ASME TurboExpo | 1. Combustion Science and Technology |

Meeting Organizer^a

10. NJFCP Year 5 Review Meeting, OAI/NASA Glenn, Cleveland, OH, March 2019.
9. NJFCP Year 4 Mid-Year Review Meeting, GE Learning Center, Cincinnati, OH, August 2018.
8. ^bNJFCP Year 3 Year End Review Meeting, **University of Dayton, Dayton, OH**, Dec. 2017.
7. NJFCP Year 3 Mid-Year Review Meeting, Purdue University, West Lafayette, IN, June 2017.
6. NJFCP Year 2 Year End Review Meeting, Rolls-Royce, Indianapolis, IN, Dec. 2016.
5. NJFCP Year 2 Mid-Year Review Meeting, United Technologies Research Center, Hartford, CT, June 2016.
4. NJFCP Year 1 Mid-Year Review Meeting, Sandia National Laboratories, Livermore, CA, Oct. 2015.
3. NJFCP Year 1 Mid-Year Review Meeting, GE Learning Center, Evendale, OH, May 2015.
2. NJFCP OEM Feedback Meeting and Strategic Planning, GE Learning Center, Cincinnati, OH, May 2015.
1. NJFCP Kick-off Meeting, TechEdge-Wright Brothers Institute, Dayton, OH, Dec. 2014.

^aNo formal committee for meeting organization

^bKeynote Speaker: UDayton President Eric Spina