Partial count: **282** journal articles, **84** book chapters, and **193** conference papers

**Frequency:** **13/yr:** 4 journal and 9 conference papers per year during 1997-2018 (21-year avg)

**Milestones:** Fifteen (15) and sixteen (16) full-length papers at JPC’04 and JPC’10, respectively

**Best Papers:** Seventeen (17) best papers/presentations: Eleven (11) regional and six (6) national

**Regional:** Eleven (11) AIAA best student presentations (advisory role – listed below)

**National:**
- **2018 Abe M Zarem Award** (for best student paper in Astronautics)
- **2017 AIAA Best Solid Rockets Student Paper Award** (AIAA Paper № 2017-4779)
- **2015 AIAA Best Solid Rockets Paper Award** (AIAA Paper № 2014-4016)
- **2013 Abe M Zarem Award** (for best paper in Astronautics)

**Journal Articles**

1997


1998


1999


2000


2001


2002

2003


2005


2007


2008


2009


2010


2011


2012


2013


2014


2016


**2017**


**2018**


Invited Book Chapters

2007


2012


Conference Papers (Author, Coauthor & Advisor)

1997


1998


1999


2000


2001


2002


2003


2004


Joint Propulsion Conference, Ft Lauderdale, FL, July 11-14, 2004

Slab Rocket Motor,” International Workshop on High-Energy Materials: Demilitarization and
Civil Applications, Bysk Belokurikha, Russia, Sep 2004

2005


AIAA-2005-3543, 41st AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Tucson, AZ,
July 10-13, 2005

177. Fischbach, S R, Majdalani, J, Flandro, G A and French, J C, “Verification and Validation of
Joint Propulsion Conference, Tucson, AZ, July 10-13, 2005

Conference, Tucson, AZ, July 10-13, 2005

Tucson, AZ, July 10-13, 2005

4532, 41st AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Tucson, AZ, July 10-13,
2005


Conference, Tucson, AZ, July 10-13, 2005

2006

Profile with Headwall Injection and Particle Interactions,” AIAA-2006-4429, 42nd
AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Sacramento, CA, July 9-12, 2006

184. Vyas, A B and Majdalani, J, “Characterization of the Tangential Boundary Layers in the
Bidirectional Vortex Thrust Chamber,” AIAA-2006-4888, 42nd AIAA/ASME/SAE/ASEE
Joint Propulsion Conference, Sacramento, CA, July 9-12, 2006

AIAA-2006-4957, 42nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Sacramento,
CA, July 9-12, 2006

2007

186. Batterson, J W, Maicke, B A and Majdalani, J, “Advancements in Theoretical Models of
Confined Vortex Flowfields,” Invited Paper TP-2007-222, JANNAF Propulsion Conference,
Denver, CO, May 14-17, 2007


188. Saad, T and Majdalani, J, “The Taylor Profile in Porous Channels with Arbitrary Headwall
Injection,” AIAA-2007-4120, 37th AIAA Fluid Dynamics Conference and Exhibit, Miami, FL,
June 25-28, 2007


2008


2009


2010


2011


2012


2013


2014


2015


2016


2017


2018


Magazine Articles

Non-archival, Student Conference Paper Presentations (Advisory Role)

2010

2011

2012

2013
293. Fist, A, “Improved Mean Flow Solution for Solid Rocket Motors,” 64th AIAA Southeastern Regional Student Conference, Presentation Awarded FIRST PLACE in the MASTERS Division, Raleigh, NC, April 8-9, 2013
294. Kakavelakis, D., “Nusselt Number Correlation for Cyclonically-Cooled Liquid Rocket Engines,” 64th AIAA Southeastern Regional Student Conference, Presentation Awarded SECOND PLACE in the MASTERS Division, Raleigh, NC, April 8-9, 2013

2014

295. Fleischmann, J., “Complex Lamellar Helical Solution for Cyclonically Driven Hybrid Rocket Engines,” 65th AIAA Southeastern Regional Student Conference, Presentation Awarded FIRST PLACE in the MASTERS Division, Memphis, TN, April 7-8, 2014

2015


Colloquia, Departmental Seminars, Guest Engagements & Plenaries

1. Invited Seminar Speaker: “Pursuing Effective Models in Research and Education,” Department of Mechanical Engineering, Maryland Baltimore County, Baltimore, MD, March 5, 2018
2. Invited Seminar Speaker: “Building Partnerships in Engineering Research and Education,” Department of Mechanical Engineering, Cleveland State University, Cleveland, OH, February 26, 2018
3. Invited Seminar Speaker: “Global Engine Optimization Using Modern Computational and Analytical Tools,” Department of Mechanical and Energy Engineering, University of North Texas, Denton, TX, March 8, 2017
5. Invited Seminar Speaker: “160 Years of Excellence at Auburn,” College of Engineering, Notre Dame University, Jan 8, 2016
7. “Research & Educational Opportunities with Auburn’s AERO Department,” Lockheed Martin, Troy, AL, Sep 30, 2015
8. “Research & Collaboration Opportunities Auburn’s AERO Department,” Warsaw University of Technology, Politechnika Warszawska, Warsaw, Poland, July 14, 2015
10. “Research & Collaboration Opportunities Auburn’s AERO Department,” West Pomeranian University of Technology (ZUT), Szczecin, Poland, July 9, 2015
12. “Some Ongoing Research Activities in Auburn’s AERO Department,” Tom Williams, MSFC Propulsion Director, Auburn University, Auburn, AL, April 30, 2015
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>“Auburn – When the Heavens Meet the Earth: Expanding Auburn’s Global Footprint,” Auburn Global</td>
<td>Taj Krishna, Hyderabad, India</td>
<td>April 1, 2015</td>
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<tr>
<td>16</td>
<td>“Expanding Auburn’s Global Footprint,” Manrav Rachna International University, New Delhi, India</td>
<td></td>
<td>March 30, 2015</td>
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<tr>
<td>17</td>
<td>“Auburn – The Loveliest Village on the Plains,” Auburn Faculty Presentation, Auburn Global</td>
<td>Taj Mahal, New Delhi, India</td>
<td>March 30, 2015</td>
</tr>
<tr>
<td>18</td>
<td>“Auburn – The Loveliest Village on the Plains,” Auburn Faculty Presentation, Auburn Global</td>
<td>Beijing, China</td>
<td>March 27, 2015</td>
</tr>
<tr>
<td>19</td>
<td>“Auburn – The Loveliest Village on the Plains,” Auburn Faculty Presentation, Auburn Global</td>
<td>Shanghai, China</td>
<td>March 26, 2015</td>
</tr>
<tr>
<td>20</td>
<td>“Auburn Launch Roadshow,” Auburn Faculty Presentation, Education China Online, Shanghai, China</td>
<td></td>
<td>March 26, 2015</td>
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<tr>
<td>21</td>
<td>“Auburn – The Loveliest Village on the Plains,” Auburn Faculty Presentation, Auburn Global</td>
<td>Shanghai, China</td>
<td>March 25, 2015</td>
</tr>
<tr>
<td>23</td>
<td><strong>Guest Speaker:</strong> “Investing in Your Future – Auburn’s Aerospace Engineering Department,” Poarch Creek Indian Leadership Council</td>
<td>Atmore, AL</td>
<td>Dec 4, 2014</td>
</tr>
<tr>
<td>24</td>
<td>“Introduction to Auburn’s Aerospace Engineering Department,” AFRL (Alok Das), Auburn University</td>
<td>Auburn, AL</td>
<td>Dec 2, 2014</td>
</tr>
<tr>
<td>25</td>
<td>“Introduction to Auburn’s Graduate AERO Program,” Junior Engineer Development Initiative (JEDI), Aerospace Testing Alliance (ATA), presented at Arnold Engineering Development Complex (AEDC), Tullahoma, TN</td>
<td></td>
<td>Nov 21, 2014</td>
</tr>
<tr>
<td>27</td>
<td>“Modeling &amp; Simulation of Advanced Rockets,” Auburn University Huntsville Research Center (AUHC)</td>
<td>Auburn University</td>
<td>Sep 9, 2014</td>
</tr>
<tr>
<td>28</td>
<td><strong>Guest Speaker:</strong> “On the Power of Perturbations,” Society for Industrial and Applied Mathematics (SIAM) Student Chapter, Department of Mathematics and Statistics, Auburn University</td>
<td>Auburn, AL</td>
<td>Nov 12, 2014</td>
</tr>
<tr>
<td>29</td>
<td><strong>Guest Speaker:</strong> “Auburn’s Historical Participation in AIAA Activities – Successes and Failures,” AIAA Student Chapter, Department of Aerospace Engineering, Auburn University</td>
<td>Auburn, AL</td>
<td>Sep 3, 2014</td>
</tr>
<tr>
<td>30</td>
<td>“Modeling &amp; Simulation of Advanced Rockets,” NASA MSFC Visit, Auburn University</td>
<td>Auburn, AL</td>
<td>May 1, 2014</td>
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<td>31</td>
<td>“Recent Advances in Swirl Combustion and Rocket Instability Theories,” A Three-Part Graduate Seminar Series, Department of Aerospace Engineering, Auburn University</td>
<td>Auburn, AL</td>
<td>Jan 22, Feb 12, and Feb 26, 2014</td>
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<tr>
<td>32</td>
<td>“Modeling and Simulation of Advanced Rockets,” AMRDEC, Aviation &amp; Missile Research, Development &amp; Engineering Center, Auburn University</td>
<td>Auburn, AL</td>
<td>Dec 5, 2013</td>
</tr>
<tr>
<td>33</td>
<td>“Performance and Stability Characterization of Vortex Driven Rocket Engines,” Dynetics Campus Visit, Auburn University</td>
<td>Auburn, AL</td>
<td>Nov 8, 2013</td>
</tr>
<tr>
<td>34</td>
<td><strong>Guest Speaker:</strong> “Thermofluid and Stability Characterization of Cyclonically Driven Rocket Engines,” AIAA Student Chapter, Auburn University</td>
<td>Auburn, AL</td>
<td>Sep 2, 2013</td>
</tr>
<tr>
<td>35</td>
<td><strong>Invited Seminar Speaker:</strong> “Thermofluid and Stability Characterization of Cyclonically Driven Rocket Engines,” Department of Mechanical and Aerospace Engineering, University of Miami, Coral Gables, FL</td>
<td></td>
<td>May 23, 2013</td>
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<tr>
<td>36</td>
<td><strong>Invited Seminar Speaker:</strong> “Recent Advances in Modeling Swirl Dominated Rockets,” Department of Aerospace Engineering, University of Texas A&amp;M, College Station, TX</td>
<td></td>
<td>May 15, 2013</td>
</tr>
</tbody>
</table>
37. **Invited Seminar Speaker**: “A Collection of Research Recollections,” Department of Ocean and Mechanical Engineering, Florida Atlantic University, Boca Raton, FL, April 30, 2013
38. **Invited Seminar Speaker**: “Recent Advances in Modeling Self-Cooled Cyclonic Engines,” Department of Mechanical Engineering, University of Alabama, Tuscaloosa, AL, April 8, 2013
39. **Invited Seminar Speaker**: “Recent Advances in Modeling Swirl Dominated Rockets,” Department of Aerospace Engineering, Auburn University, Auburn, AL, March 8, 2013
40. **Invited Seminar Speaker**: “Recent Advances in Modeling Swirl Dominated Flowfields,” Department of Mechanical and Industrial Engineering, University of Illinois (UIC), Chicago, IL, Feb 1, 2013
41. **Invited Seminar Speaker**: “Recent Advances in Modeling Swirl Dominated Phenomena,” Department of Mechanical Engineering, Vanderbilt University, Nashville, TN, Nov 12, 2012
42. **Invited Guest Speaker**: “Recent Advances in Modeling Swirl Augmented Propulsion,” Tennessee Section Meeting of the American Institute of Aeronautics and Astronautics, Tullahoma, TN, Nov 9, 2012
43. “Quadrupole-Swept Hybrid Rocket Engine Concept,” NASA MSFC, Rocket Propulsion Test (RPT) program, Huntsville, AL, Nov 2, 2012
45. **Invited Keynote Speaker (Plenary)**: “Flow-Field Structure of Vortex Combustors,” 9-ISICP, International Symposium on Special Topics in Chemical Propulsion, Quebec City, Canada, July 11, 2012 (Presentation voted 2nd among 9 keynote lectures)
46. **Invited Seminar Speaker**: “Shaping the Future Through Local and Global Partnerships in MAE,” Department of Mechanical and Aerospace Engineering, New Mexico State University, Las Cruces, NM, May 17, 2012
48. **Invited Seminar Speaker**: “Seeking Value and Valor in Research and Education,” Department of Ocean and Mechanical Engineering, Florida Atlantic University, Boca Raton, FL, April 5, 2012
49. **Invited Seminar Speaker**: “Building Partnerships in Aerospace Research and Education,” Department of Aerospace Engineering, University of Kansas, Lawrence, KS, March 26, 2012
50. **Invited Seminar Speaker**: “Motion and Stability of Swirl-Dominated Thrust Engines,” Department of Aerospace and Mechanical Engineering, Saint Louis University, Saint Louis, MO, March 23, 2012
51. **Invited Seminar Speaker**: “Motion and Stability of Vortex-Fired Rocket Engines,” College of Engineering, Embry-Riddle Aeronautical University, Daytona Beach, FL, Feb 9, 2012
52. **Invited Oral Presentation**: “Thermophysics and Heat Transfer Research at the University of Tennessee Space Institute,” given at the 49th AIAA Aerospace Sciences Meeting, Orlando, FL, Jan 6, 2011
54. **Guest Speaker**: “Injection and Swirl Driven Rocket Engines,” Jacobs Engineering Group, Tullahoma, TN, March 2, 2009
55. **Invited Seminar Speaker**: “Injection and Swirl Driven Rocket Engines,” Department of Mechanical Engineering, Notre Dame University, LE, Jan 13, 2008
56. **Invited Seminar Speaker**: “Modeling of Hybrid Core Flows,” Mechanical Engineering Department, Peking University, Beijing, PRC, July 15, 2008
57. **Invited Seminar Speaker**: “Solutions for Porous Channel Flows,” Mechanical Engineering Department, Peking University, Beijing, PRC, July 14, 2008
58. **Invited Seminar Speaker:** “Modeling of Unsteady Oscillatory Waves,” Mechanical Engineering Department, Peking University, Beijing, PRC, July 11, 2008

59. **Invited Seminar Speaker:** “A Method for the Treatment of Compressible Internal Mean Flow Fields,” Mechanical Engineering Department, Peking University, Beijing, PRC, July 8, 2008

60. **Invited Seminar Speaker:** “A Collection of Research Recollections,” Mechanical Engineering Department, Peking University, Beijing, PRC, July 7, 2008

61. **Invited Seminar Speaker:** “Building Partnerships in Research and Education,” Department of Mechanical, Aerospace and Biomedical Engineering, Knoxville, TN, Aug 21, 2007

62. **Invited Seminar Speaker:** “Building Partnerships in Research and Education,” Department of Mechanical, Aerospace and Biomedical Engineering, Tullahoma, TN, Aug 20, 2007

63. **Invited Seminar Speaker:** “Strategic Partnerships in Research and Education,” Department of Mechanical and Energy Engineering, University of North Texas, Denton, TX, Aug 15, 2007

64. **Invited Seminar Speaker:** “On the Trapped Vortex Engine,” Department of Mechanical and Aerospace Engineering, University of Missouri, Rolla, MO, April 16, 2007

65. **Invited Seminar Speaker:** “On the Trapped Bidirectional Vortex Engine,” Department of Mechanical and Aerospace Engineering, Univ of Virginia, Charlottesville, VA, April 11, 2007

66. **Invited Seminar Speaker:** “Some Recent Developments in Swirl Dynamics,” Department of Mechanical and Industrial Engineering, Northeastern University, Boston, MA, Feb 22, 2007

67. **Invited Seminar Speaker:** “On the Vortex Engine,” Department of Mechanical and Energy Engineering, University of North Texas, Denton, TX, Oct 11, 2006


70. **Invited Seminar Speaker:** “Modeling and Simulation of Surface Injection and Swirl Driven Combustion Chambers,” Colorado State University, Fort Collins, CO, March 29, 2006


72. **Invited Seminar Speaker:** “Some Recent Developments in Rocket Core Flow Models,” ATK Thiokol, Science and Engineering Fluid Dynamics Section, Brigham City, UT, Aug 19, 2005

73. **Invited Keynote Speaker (Plenary):** “Some Computational Research at UTSI,” Computational Applications and Cyber-Infrastructure, 2005 Experimental Program to Stimulate Competitive Research (EPSCoR) Meeting, Middle Tennessee State University, Murfreesboro, TN, Jan 20, 2005

74. **Guest Speaker:** “On the Vortex Engine,” Aerospace Testing Alliance (ATA), Arnold Engineering Development Center (AEDC, USAFB), Tullahoma, TN, Dec 7, 2004

75. “The NASA/ORBITEC Vortex Engine,” Department of Mechanical, Aerospace and Biomedical Engineering, University of Tennessee, Tullahoma, TN, July 16, 2003

76. **Invited Seminar Speaker:** “Some Interesting Features of Injection and Swirl-Driven Combustion Chambers,” Department of Mechanical Engineering, Santa Clara University, Santa Clara, CA, May 19, 2003

77. **Invited Seminar Speaker:** “Application of the Bidirectional Vortex to Swirl-Driven Combustion Chambers,” Department of Mechanical Engineering, Ohio State University, Columbus, OH, March 13, 2003

78. **Guest Speaker:** “The Bidirectional Vortex: An Exact Solution,” Orbital Technologies Corporation, 1212 Fourier Drive, Madison, WI, Sep 17, 2002

79. **Invited Seminar Speaker:** “Prediction of Thermoacoustic Instabilities in Rocket Motors,” Department of Mechanical Engineering and Biomechanics, University of Texas, San Antonio, TX, April 12, 2002
88. Invited Seminar Speaker: “Importance of Computer Aided Simulations in Improving Mathematical Models in Propulsion,” Department of Mechanical Engineering, University of Louisville, Louisville, KY, April 21, 2000
90. Invited Seminar Speaker: “Improved Models in Propulsion Systems Ranging from Rockets to Hearts and Lungs,” Mechanical Engineering Department, Oakland University, Oakland, MI, March 31, 2000
95. Invited Seminar Speaker: “Improved Flowfield Models in Propulsion Systems Ranging from Rockets to Hearts and Lungs,” Marquette University, Milwaukee, WI, July 8, 1996
96. Invited Seminar Speaker: “Undergraduate Education: The Role of Research and Group Projects,” Rowan University, Glassboro, NJ, April 12, 1996

Contributions to National & International Meetings
1. 56th AIAA Aerospace Sciences Meeting (SciTech’18), Kissimmee, FL, Jan 8-121, 2018
2. 53rd AIAA/SAE/ASEE Joint Propulsion Conference (P&E’17), Atlanta, GA, July 9-12, 2017
4. 54th AIAA Aerospace Sciences Meeting (SciTech’16), San Diego, CA, Jan 4-8, 2016
7. 53rd AIAA Aerospace Sciences Meeting (SciTech’15), Kissimmee, Florida, Jan 5-9, 2015
9. 52nd AIAA Aerospace Sciences Meeting (SciTech’14), National Harbor, Maryland, Jan 13-17, 2014
10. 49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Jose, CA, July 14-17, 2013
11. 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Grapevine, TX, Jan 7-10, 2013
13. 9-ISICP, International Symposium on Special Topics in Chemical Propulsion, Quebec City, Canada, July 9-13, 2012
15. 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, TN, Jan 9-12, 2012
18. 49th AIAA Aerospace Sciences Meeting (ASM) including the New Horizons Forum and Aerospace Exposition, Orlando, FL, Jan 4-8, 2011
19. 2011 NSF CMMI Engineering Research and Innovation Conference, Engineering for Sustainability and Prosperity, Atlanta, GA, Jan 4-7, 2011
21. 40th AIAA Fluid Dynamics Conference and Exhibit, Chicago, IL, June 28-July 1, 2010
22. 10th AIAA/ASME Joint Thermophysics and Heat Transfer Conference, Chicago, IL, June 28-July 1, 2010
23. 28th AIAA Applied Aerodynamics Conference, Chicago, IL, June 28-July 1, 2010
24. 5th Flow Control Conference, Chicago, IL, June 28-July 1, 2010
31. 2007 SAE AeroTech Congress & Exhibition, Los Angeles, CA, Sep 18-20, 2007
32. 43rd AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cincinnati, OH, July 8-11, 2007
34. 54th JANNAF Propulsion Conference, Denver, CO, May 14-17, 2007
36. 8th Annual CSAR Meeting, Champaign, IL, Nov 13-14, 2006
37. 42nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Sacramento, CA, July 9-12, 2006
38. 41st AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Tucson, AZ, July 10-13, 2005
Twenty-Six Graduate Student Best Paper/Presentation Awards or Nominations

1. Kovacic, P (presenter) and Majdalani (advisor), "Designing a Stable Rocket Engine," **SECOND PLACE IN THE FINISH-IN-FIVE PRESENTATION COMPETITION** of the Council of Engineering Graduate Students competition, March 22, 2018, Auburn, AL

2. Williams, L, "Development of the Bidirectional Vortex in a Hemispherically-Shaped Rocket Engine," **Winner of the (national) Zarem Award in Astronautics**


11. Fleischmann, J, “Complex Lamellar Helical Solution for Cyclonically Driven Hybrid Rocket Engines,” 65th AIAA Southeastern Regional Student Conference, Presentation Awarded FIRST PLACE in the MASTERS Division, Memphis, TN, April 7-8, 2014


14. Kavelakis, D, “Nusselt Number Correlation for Cyclonically-Cooled Liquid Rocket Engines,” 64th AIAA Southeastern Regional Student Conference, Presentation Awarded SECOND PLACE in the MASTERS Division, Raleigh, NC, April 8-9, 2013


Award Winning & Representative Graduate Student Posters (Advisory Role)


32. Ramesh-Kumar, T (presenter) and Majdalani (advisor), “Towards Safer and More Stable Rocket Launches,” BEST POSTER IN AEROSPACE ENGINEERING at the Graduate Engineering Research Showcase, Oct 20, 2016, Auburn, AL

33. Watson, R (presenter) and Majdalani (advisor), “CFD Simulations of the Bi-Directional Vortex Liquid Rocket Engine,” Overall HONORABLE MENTION at the Graduate Engineering Research Showcase, Oct 22, 2015, Auburn, AL

34. Kovacic, P (presenter) and Majdalani (advisor), “Designing a Stable Rocket Engine,” BEST POSTER IN AEROSPACE ENGINEERING at the Graduate Engineering Research Showcase, Oct 22, 2015, Auburn, AL

35. Godfrey, B (presenter) and Majdalani (advisor), “CFD Simulation of a Quadrupole Vortex Inside a Cylindrical Hybrid Rocket Chamber,” BEST POSTER AWARD for the XXII International Conference on Spectral Line Shapes (ICSLS 2014), June 1-6 2014, Tullahoma, TN