

PRINCIPAL PUBLICATION LIST

Partial count: **282: 84** journal articles, **5** 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)
[2014 AIAA Best Masters Student Paper](#) (AIAA Paper № 2014-0006)
[2013 Abe M Zarem Award](#) (for best paper in Astronautics)
[2005 AIAA Best Solid Rockets Paper Award](#) (AIAA Paper № 2004-4054)

Journal Articles

1997

1. [Majdalani, J](#) and Van Moorhem, W K, "A Multiple-scales Solution to the Acoustic Boundary Layer in Solid Rocket Motors," **Journal of Propulsion and Power**, 13 (2), March 1997, pp 186-193. [doi: 10.2514/2.5168](#)

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2. [Majdalani, J](#) and Van Moorhem, W K, "Improved Time-dependent Flowfield Solution for Solid Rocket Motors," **AIAA Journal**, 36 (2), Feb 1998, pp 241-248. [doi: 10.2514/2.7507](#)
3. [Majdalani, J](#), "A Hybrid Multiple Scale Procedure for Boundary Layers Involving Several Dissimilar Scales," **Journal of Applied Mathematics and Physics (ZAMP)**, 49 (6), Nov 1998, pp 849-868. [doi: 10.1007/s000330050126](#)

1999

4. [Majdalani, J](#), "The Boundary Layer Structure in Cylindrical Rocket Motors," **AIAA Journal**, 37 (4), April 1999, pp 505-508. [doi: 10.2514/2.742](#)
5. [Majdalani, J](#), "Asymptotic Formulation for an Acoustically Driven Field Inside a Rectangular Cavity with a Well-defined Convective Mean Flow Motion," **Journal of Sound and Vibration**, 223 (1), May 1999, pp 73-95. [doi: 10.1006/jsvi.1998.2137](#)
6. [Majdalani, J](#), "Vortical and Acoustical Mode Coupling Inside a Two-dimensional Cavity with Transpiring Walls," **Journal of the Acoustical Society of America**, 106 (1), July 1999, pp 46-56. [doi: 10.1121/1.428032](#)

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7. [Majdalani, J](#), Flandro, G A and Roh, T S, "Convergence of Two Flowfield Models Predicting a Destabilizing Agent in Rocket Combustion," **Journal of Propulsion and Power**, 16 (3), May 2000, pp 492-497. [doi: 10.2514/2.5595](#)
8. [Majdalani, J](#) and Roh, T S, "The Oscillatory Channel Flow with Large Wall Injection," **Proceedings of the Royal Society, London, Series A**, 456 (1999), July 2000, pp 1625-1657. [doi: 10.1098/rspa.2000.0579](#)
9. Barron, J T, Van Moorhem, W K and [Majdalani, J](#), "A Novel Investigation of the Oscillatory Field Over a Transpiring Surface," **Journal of Sound and Vibration**, 235 (2), Aug 2000, pp 281-297. [doi: 10.1006/jsvi.2000.2920](#)

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10. [Majdalani, J](#), "The Oscillatory Channel Flow with Arbitrary Wall Injection," **Journal of Applied Mathematics and Physics (ZAMP)**, 51 (1), Jan 2001, pp 33-61. [doi: 10.1007/PL00001539](#)

11. Majdalani, J, "Improved Solution for the Vortical and Acoustical Mode Coupling Inside a Two-dimensional Cavity with Porous Walls," **Journal of the Acoustical Society of America**, 109 (2), Feb 2001, pp 475-479. [doi: 10.1121/1.1340648](https://doi.org/10.1121/1.1340648)
12. Majdalani, J, "Vorticity Dynamics in Isobarically Closed Porous Channels Part I: Standard Perturbations," **Journal of Propulsion and Power**, 17 (2), March 2001, pp 355-362. [doi: 10.2514/2.5749](https://doi.org/10.2514/2.5749)
13. Majdalani, J and Roh, T S, "Vorticity Dynamics in Isobarically Closed Porous Channels Part II: Space-reductive Perturbations," **Journal of Propulsion and Power**, 17 (2), March 2001, pp 363-370. [doi: 10.2514/2.5750](https://doi.org/10.2514/2.5750)
14. Majdalani, J and Van Moorhem, W K, "Laminar Cold-flow Model for the Internal Gas Dynamics of a Slab Rocket Motor," **Journal of Aerospace Science and Technology**, 5 (3), May 2001, pp 193-207. [doi: 10.1016/S1270-9638\(01\)01095-1](https://doi.org/10.1016/S1270-9638(01)01095-1)

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21. Majdalani, J and Flandro, G A, "The Oscillatory Pipe Flow with Arbitrary Wall Injection," **Proceedings of the Royal Society, London, Series A**, 458 (2023), July 2002, pp 1621-1651. [doi: 10.1098/rspa.2001.0930](https://doi.org/10.1098/rspa.2001.0930)
22. Majdalani, J, Vyas, A B and Flandro, G A, "Higher Mean-Flow Approximation for a Solid Rocket Motor with Radially Regressing Walls," **AIAA Journal**, 40 (9), Sep 2002, pp 1780-1788. [doi: 10.2514/2.1854](https://doi.org/10.2514/2.1854)
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197. Saad, T and Majdalani, J, "Energy Based Mean Flow Solutions for Slab Hybrid Rocket Chambers," **AIAA-2008-5021**, 44th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Hartford, CT, July 20-23, 2008
198. Maicke, B A and Majdalani, J, "On the Compressible Bidirectional Vortex," **AIAA-2008-4834**, 44th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Hartford, CT, July 20-23, 2008
199. Saad, T and Majdalani, J, "Energy Based Solutions of the Bidirectional Vortex," **AIAA-2008-4832**, 44th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Hartford, CT, July 20-23, 2008

2009

200. Dake, T and Majdalani, J, "Improving Flow Circulation in Heat Sinks Using Quadrupole Vortices," **IPACK2009-89211**, InterPACK'09, San Francisco, CA, July 19-23, 2009
201. Majdalani, J, "On the Multiplicity of Planar Solutions for Axially Traveling Waves in Simulated SRMs," **AIAA-2009-4978**, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Denver, CO, Aug 2-5, 2009
202. Barber, T A, Maicke, B A and Majdalani, J, "Current State of High Speed Propulsion: Gaps, Obstacles and Technological Challenges in Hypersonic Applications," **AIAA-2009-5118**, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Denver, CO, Aug 2-5, 2009
203. Saad, T and Majdalani, J, "Energy Based Solutions of the Bidirectional Vortex with Multiple Mantles," **AIAA-2009-5305**, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Denver, CO, Aug 2-5, 2009
204. Barber, T A and Majdalani, J, "Exact Eulerian Solution of the Conical Bidirectional Vortex," **AIAA-2009-5306**, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Denver, CO, Aug 2-5, 2009
205. Majdalani, J, "Exact Eulerian Solutions of the Cylindrical Bidirectional Vortex," **AIAA-2009-5307**, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Denver, CO, Aug 2-5, 2009

206. Akiki, M and Majdalani, J, "Compressibility Effects in Slender Rocket Motors," **AIAA-2009-5326**, 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Denver, CO, Aug 2-5, 2009

2010

207. Saad, T and Majdalani, J, "Extension of Kelvin's Minimum Energy Theorem to Flows with Open Regions," **AIAA-2010-4287**, 40th AIAA Fluid Dynamics Conference and Exhibit, Chicago, IL, June 28-July 1, 2010
208. Saad, T and Majdalani, J, "Pressure Integration Rules and Restrictions for the Navier-Stokes Equations," **AIAA-2010-4288**, 40th AIAA Fluid Dynamics Conference and Exhibit, Chicago, IL, June 28-July 1, 2010
209. Majdalani, J, "Asymptotic Methods for Solving Wave Propagation Problems in Porous Tubes, Channels and Spheres," **AIAA-2010-4483**, 40th AIAA Fluid Dynamics Conference and Exhibit, Chicago, IL, June 28-July 1, 2010
210. Majdalani, J and Maicke, B A, "Inversion of the Fundamental Isentropic Expansion Equations in Variable Area Duct Flow," **AIAA-2010-4861**, 40th AIAA Fluid Dynamics Conference and Exhibit, Chicago, IL, June 28-July 1, 2010
211. Maicke, B A and Majdalani, J, "Analytical Methodologies for Hypersonic Propulsion," **AIAA-2010-6553**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
212. Akiki, G and Majdalani, J, "On the Bidirectional Vortex with Arbitrary Endwall Velocity," **AIAA-2010-6652**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
213. Batterson, J W and Majdalani, J, "On the Viscous Bidirectional Vortex. Part 1: Linear Beltramian Motion," **AIAA-2010-6763**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
214. Batterson, J W and Majdalani, J, "On the Viscous Bidirectional Vortex. Part 2: Nonlinear Beltramian Motion," **AIAA-2010-6764**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
215. Batterson, J W and Majdalani, J, "On the Viscous Bidirectional Vortex. Part 3: Multiple Mantles," **AIAA-2010-6765**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
216. Jankowski, T and Majdalani, J, "Axially Traveling Waves in Porous Tubes with Arbitrary Crossflow Velocity," **AIAA-2010-6801**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
217. Majdalani, J and Maicke, B A, "Modeling Mach Number and Temperature Distributions in Supersonic Nozzle Flow," **AIAA-2010-6844**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
218. Zgheib, N and Majdalani, J, "Axial Waves in Simulated Solid Rocket Motors," **AIAA-2010-6993**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
219. Maicke, B A and Majdalani, J, "Pressure Variations in Rocket Nozzles. Part 1: Direct Asymptotic Predictions," **AIAA-2010-7072**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
220. Maicke, B A, Majdalani, J and Geisler, R L, "Pressure Variations in Rocket Nozzles. Part 2: Analytical Predictions During Blowdown," **AIAA-2010-7073**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
221. Majdalani, J and Maicke, B A, "Pressure Variations in Rocket Nozzles. Part 3: Direct Calculation of the Local Mach Number," **AIAA-2010-7074**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
222. Maicke, B A, Saad, T and Majdalani, J, "On the Compressible Hart-McClure Mean Flow Motion in Simulated Rocket Motors," **AIAA-2010-7077**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010

223. Majdalani, J, Xu, H, Lin, Z L and Liao, S J, "Exact HAM Solutions for the Viscous Rotational Flowfield in Channels with Regressing and Injecting Sidewalls," **AIAA-2010-7079**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
224. Akiki, M and Majdalani, J, "Quasi-Analytical Approximation of the Compressible Flow in a Planar Rocket Configuration," **AIAA-2010-7080**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
225. Majdalani, J and Zhou, C, "Boundary Layer Treatment of the Porous Channel Flow with Wall Regression," **AIAA-2010-7157**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
226. Maicke, B A and Majdalani, J, "Evaluation of CFD Codes for Hypersonic Flow Modeling," **AIAA-2010-7184**, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010

2011

227. Majdalani, J, "Asymptotic Waves in Simple Geometric Enclosures with Wall Distributed Injection," **CMMI Paper No 0928762**, Proceedings of the NSF Engineering Research and Innovation Conference, Atlanta, Georgia, Jan 2011
228. Saad, T and Majdalani, J, "Some Thoughts on Kelvin's Minimum Energy Theorem," **ICARAME'11 Paper No P5**, International Conference on Advanced Research and Applications in Mechanical Engineering, Notre Dame University-Louaize, LB, June 13-15, 2011
229. Akiki, M and Majdalani, J, "Integral Formulation of the Compressible Flow in a Planar Injection Driven Rocket Chamber," **ICARAME'11 Paper No P6**, International Conference on Advanced Research and Applications in Mechanical Engineering, Notre Dame University-Louaize, LB, June 13-15, 2011
230. Batterson, J W and Majdalani, J, "Biglobal Instability of the Bidirectional Vortex. Part 1: Formulation," **AIAA-2011-5648**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011
231. Batterson, J W and Majdalani, J, "Biglobal Instability of the Bidirectional Vortex. Part 2: Complex Lamellar and Beltramian Motions," **AIAA-2011-5649**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011. **Best Paper of the Session in Advanced Propulsion Concepts. Nominated for Best Liquid Rockets Paper Award by Daniel J Leveck**
232. Akiki, G and Majdalani, J, "On the Viscous Bidirectional Vortex with Arbitrary Endwall Injection," **AIAA-2011-5692**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011
233. Saad, T and Majdalani, J, "Viscous Flows Revisited in Simulated Rockets with Radially Regressing Walls," **AIAA-2011-5860**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011. **Best Paper of the Session in Solid Rocket Modeling and Simulation I. Nominated for Best Solid Rockets Paper Award by Barbara Leary**
234. Saad, T, Maicke B A and Majdalani, J, "Coordinate Independent Forms of the Compressible Potential Flow Equations," **AIAA-2011-5862**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011
235. Akiki, M and Majdalani, J, "Exact Solutions for the Integral Form of the Compressible Flowfield in a Porous Cylinder," **AIAA-2011-5953**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011. **Best Paper of the Session in Solid Rocket Modeling and Simulation II. Nominated for Best Solid Rockets Paper Award by Mark Langhenry and Douglas Coats**
236. Haddad, C T and Majdalani, J, "Transverse Waves in Simulated Liquid Rocket Engines," **AIAA-2011-6029**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011

2012

237. Akiki, G and Majdalani, J, "New Framework for Modeling the Bidirectional Vortex Engine Flowfield with Arbitrary Injection," **AIAA-2012-0138**, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, TN, Jan 9-12, 2012. **Finalist in the International Masters Division Competition**
238. Haddad, C T and Majdalani, J, "Transverse Waves in Simulated Liquid Rocket Engines with Variable Headwall Injection," **AIAA-2012-0541**, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, TN, Jan 9-12, 2012
239. Maicke, B A and Majdalani, J, "On the Compressible Bidirectional Vortex. Part 1: A Bragg-Hawthorne Stream Function Formulation," **AIAA-2012-1103**, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, TN, Jan 9-12, 2012
240. Maicke, B A and Majdalani, J, "On the Compressible Bidirectional Vortex. Part 2: A Beltramian Flowfield Approximation," **AIAA-2012-1104**, 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, TN, Jan 9-12, 2012
241. Elliott, T S, Batterson, J W and Majdalani, J, "Biglobal Stability of Cylindrically-Shaped Hybrid and Solid Rockets with Injecting or Reactive Headwalls," **AIAA-2012-3810**, 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 29-Aug 1, 2012. **Best Paper of the Session in Internal Ballistics Modeling II. Nominated for Best Hybrid Rockets Paper Award by Steven Frolik and Brian Evans**
242. Haddad, C T and Majdalani, J, "On the Sidewall Boundary Layer of Transverse Waves in Simulated Liquid Rocket Engines," **AIAA-2012-4086**, 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 29-Aug 1, 2012

2013

243. Barber, T A and Majdalani, J, "Bidirectional Helical Motion in Tapered Rocket Chambers," **AIAA-2013-0133**, 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Grapevine, TX, Jan 7-10, 2013. **Finalist in the International Masters Division Competition**
244. Akiki, M, Batterson, J W and Majdalani, J, "Biglobal Stability of Compressible Flowfields. Part 1: Planar Formulation," **AIAA-2013-3865**, 49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Jose, CA, July 14-17, 2013
245. Akiki, M, Batterson, J W and Majdalani, J, "Biglobal Stability of Compressible Flowfields. Part 2: Application to Solid Rocket Motors," **AIAA-2013-3866**, 49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Jose, CA, July 14-17, 2013. **Best Paper of the Session in Combustion Instability. Nominated for Best Solid Rockets Paper Award by David Greatrix and Charle Rousseau**
246. Majdalani, J and Van Horn, E M, "Extension of the Taylor-Culick Profile to Rockets with Noncircular Grain Perforations," **AIAA-2013-3916**, 49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Jose, CA, July 14-17, 2013
247. Maicke, B A, Katta, A and Majdalani, J, "Characterization of Particle Trajectories in Solid Rocket Motors," **AIAA-2013-3919**, 49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Jose, CA, July 14-17, 2013

2014

248. Fist, A and Majdalani, J, "Improved Mean Flow Solution for Solid Rocket Motors," **AIAA-2014-0006**, SciTech'14, 52nd AIAA Aerospace Sciences Meeting, National Harbor, Maryland, Jan 13-17, 2014. **Winner of the International Masters Division Competition, to all seven (7) regions of AIAA**
249. Maicke, B A and Majdalani, J, "Particle Image Velocimetry in Confined Vortex Flows," XXII International Conference on Spectral Line Shapes (ICSLS 2014), Tullahoma, TN, June 1-6 2014

250. Elliott, T S and Majdalani, J, "Hydrodynamic Stability Analysis of Particle-Laden Solid Rocket Motors," XXII International Conference on Spectral Line Shapes (ICSLS 2014), Tullahoma, TN, June 1-6 2014
251. Godfrey, B M and Majdalani, J, "CFD Modelling of a Quadrupole Vortex Inside a Cylindrical Channel for Research into Advanced Hybrid Rocket Designs," XXII International Conference on Spectral Line Shapes (ICSLS 2014), Tullahoma, TN, June 1-6 2014. **Winner of the Best Poster Award**
252. Batterson, J W and Majdalani, J, "Generalized Scaling Technique for the Solution of the Vortical Wave Eigenfunction Equation," **AIAA-2014-3495**, 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland, OH, July 28-30, 2014
253. Elliott, T S and Majdalani, J, "Two-Phase Flow Stability of Cylindrically-Shaped Hybrid and Solid Rockets with Particle Entrainment," **AIAA-2014-3611**, 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland, OH, July 28-30, 2014
254. Barber, T A and Majdalani, J, "New Exact Solution of the Bidirectional Vortex in a Conically-Shaped Cyclonic Chamber," **AIAA-2014-3676**, 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland, OH, July 28-30, 2014
255. Majdalani, J, "Unified Framework for Modeling Swirl Dominated Helical Motions," **AIAA-2014-3677**, 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland, OH, July 28-30, 2014. **Best Paper of the Session in Combustion Devices I.**
256. Majdalani, J and Fist, A, "Improved Mean Flow Solution for Solid Rocket Motors with a Naturally Developing Swirling Motion," **AIAA-2014-4016**, 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland, OH, July 28-30, 2014. **Best Paper of the Session in Simulation and Analysis II. Nominated for Best Solid Rockets Paper Award by Wesley Ryan and Barbara Leary. Winner of the 2015 AIAA Solid Rockets Best Paper**
257. Fist, A, Majdalani, J and Saad, T, "Energy Steepened States of the Swirling Mean Flow in a Solid Rocket Motor," **AIAA-2014-4017**, 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland, OH, July 28-30, 2014
258. Van Horn, E M and Majdalani, J, "Extension of the Taylor-Culick Profile to Rockets with Noncircular Grain Perforations," **AIAA-2014-4018**, 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Cleveland, OH, July 28-30, 2014

2015

259. Fleischmann, J and Majdalani, J, "Complex Lamellar Helical Solution for Cyclonically Driven Hybrid Rocket Engines," **AIAA-2015-0372**, SciTech'15, 53rd AIAA Aerospace Sciences Meeting, Kissimmee, Florida, Jan 5-9, 2015. **Finalist in the International Masters Division Competition**
260. Marquardt, T and Majdalani, J, "On the Quadrupole Vortex Motion in a Right-Cylindrical Hybrid Rocket Engine," AIAA-2015-3743, 51st AIAA/SAE/ASEE Joint Propulsion Conference, Orlando, FL, July 27-29, 2015
261. Elliott, T S and Majdalani, J, "Effect of Outflow Boundary Conditions on the Stability of Cylindrically-Shaped Hybrid Rockets," AIAA-2015-3744, 51st AIAA/SAE/ASEE Joint Propulsion Conference, Orlando, FL, July 27-29, 2015
262. Cecil, O and Majdalani, J, "On Steady Trkalian High Speed Flows: Swirling Compressible Motion in Rockets with Headwall Injection," AIAA-2015-3788, 51st AIAA/SAE/ASEE Joint Propulsion Conference, Orlando, FL, July 27-29, 2015. **Best Paper of the Session in Solid Rocket Motor Combustion Flow Fields and Instability I. Nominated for Best Solid Rockets Paper Award.**
263. Kovacic, P, Batterson, J W and Majdalani, J, "Vorticity Wave Formation in the Presence of Strong Mean Flow Shear Layers," AIAA-2015-3789, 51st AIAA/SAE/ASEE Joint Propulsion Conference, Orlando, FL, July 27-29, 2015
264. Barber, T A, Cecil, O and Majdalani, J, "Complex-Lamellar Cyclonic Vortex in a Cylindrical Chamber with a Hollow Core," AIAA-2015-3848, 51st AIAA/SAE/ASEE Joint Propulsion Conference, Orlando, FL, July 27-29, 2015

265. Maicke, B A and Majdalani, J, "Characterization of Particle Trajectories in the Bidirectional Vortex Engine," AIAA-2015-3849, 51st AIAA/SAE/ASEE Joint Propulsion Conference, Orlando, FL, July 27-29, 2015

2016

266. Cecil, O and Majdalani, J (advisor), "On Steady Trkalian High Speed Flows: Swirling Compressible Motion in Solid Rocket Motors," AIAA-2016-0142, SciTech'16, 54th AIAA Aerospace Sciences Meeting, San Diego, CA, Jan 4-8, 2016. **Finalist in the International Masters Division Competition**
267. Majdalani, J and Barber, T A, "Beltramian and Trkalian Vortices in Cyclonic Chambers with Hollow Cores," AIAA-2016-4580, 52nd AIAA/SAE/ASEE Joint Propulsion Conference, Salt Lake City, UT, July 25-27, 2016
268. Majdalani, J, Ramesh-Kumar, T, and Akiki, M, "Biglobal Instability of the Compressible Taylor-Culick Solution in Cylindrical Rockets," AIAA-2016-4792, 52nd AIAA/SAE/ASEE Joint Propulsion Conference, Salt Lake City, UT, July 25-27, 2016. **Best Paper of the Session in Solid Rocket Combustion Instability. Nominated for Best Solid Rockets Paper Award**
269. Cecil, O M and Majdalani, J, "Generalized Trkalian Flows: Swirling Motion in Rockets with Arbitrary Headwall Injection," AIAA-2016-5069, 52nd AIAA/SAE/ASEE Joint Propulsion Conference, Salt Lake City, UT, July 25-27, 2016.

2017

270. Williams, L L, Barber, T A and Majdalani, J, "Development of the Bidirectional Vortex in a Hemispherically-Shaped Rocket Engine," AIAA-2017-4608, 53rd AIAA/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 10-12, 2017
271. Marquardt, T and Majdalani, J, "Beltramian Solution for Cyclonically Driven Hybrid Rocket Engines," AIAA-2017-4638, 53rd AIAA/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 10-12, 2017. **Best Paper of the Session in Internal Ballistics and Modeling I. Nominated for Best Hybrid Rockets Paper Award**
272. Sharma, G and Majdalani, J, "Characterization of the Cyclonic Flowfield in a Swirl Driven Combustion Chamber," AIAA-2017-4667, 53rd AIAA/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 10-12, 2017
273. Cecil, O and Majdalani, J, "The Taylor-Culick Profile for Spinning Rocket Motors," AIAA-2017-4779, 53rd AIAA/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 10-12, 2017. **Winner of the 2017 AIAA Solid Rockets Best Student Paper**
274. Williams, L L and Majdalani, J, "Development of the Bidirectional Vortex in a Hemispherically-Shaped Rocket Engine," IAF-2017-09-27, 68th International Astronautical Congress, Adelaide, Australia, September 25-28, 2017. **Winner of the Abe Zarem Award and U.S. Student Paper Representative at the International Astronautical Federation**

2018

275. Ramesh-Kumar, T and Majdalani, J, "Biglobal Stability Prediction of Axial and Transverse Vorticoacoustic Waves in Cylindrical Rocket Motors," AIAA-2018-2900434, 24th AIAA/CEAS Aeroacoustics Conference, 2018 AIAA Aviation and Aeronautics Forum, Atlanta, GA, June 25-29, 2018
276. Majdalani, J, "Generalized Scheme for the Treatment of Multiply Perturbed Differential Equations with Multiple Scales," AIAA-2018-2900844, 24th AIAA/CEAS Aeroacoustics Conference, 2018 AIAA Aviation and Aeronautics Forum, Atlanta, GA, June 25-29, 2018
277. Xuan, L J and Majdalani, J, "Development of a Stable High-Order Point-Value Enhanced Finite Volume (PFV) Method Based on Approximate Delta Functions," AIAA-2018-2900243, 48th AIAA Fluid Dynamics Conference, 2018 AIAA Aviation and Aeronautics Forum, Atlanta, GA, June 25-29, 2018
278. Sharma, G and Majdalani, J, "Simulation of the Cyclonic Flowfield in Wall-Bounded Cylindrical Chambers," AIAA-2018-2900834, 48th AIAA Fluid Dynamics Conference, 2018 AIAA Aviation and Aeronautics Forum, Atlanta, GA, June 25-29, 2018

279. Xuan, L J and Majdalani, J, "Development of a High-Order Point-Value Enhanced Finite Volume (PFV) Method for Two-Dimensional Hyperbolic Equations," **AIAA-2018-2900835**, 48th AIAA Fluid Dynamics Conference, Atlanta, GA, June 25-29, 2018
280. Elliott, T S, Flanigan, B and Majdalani, J, "Comparison of Discretization Schemes in Biglobal Stability Analysis of Cylindrically-Shaped Rockets," **AIAA-2018-2900841**, 48th AIAA Fluid Dynamics Conference, Atlanta, GA, June 25-29, 2018
281. Barber, T A, Perry, N and Majdalani, J, "On the Beltramian Motion of the Bidirectional Vortex in a Conical Cyclone with a Hollow Core," **AIAA-2018-2900850**, 48th AIAA Fluid Dynamics Conference, Atlanta, GA, June 25-29, 2018
282. Williams, L L and Majdalani, J, "Exact Solution of the Bidirectional Vortex for an Ellipsoidal Chamber Configuration," **AIAA-2018-2900858**, 48th AIAA Fluid Dynamics Conference, Atlanta, GA, June 25-29, 2018

Magazine Articles

283. Majdalani, J, "[Auburn University –Romance, Rocketry, and the Dannenberg Connection](#)," **Aerospace America Momentum**, June/July 2014
284. Majdalani, J, "Expanding the Global Footprint of Hybrid Rocketry," **Aerospace America**, 53 (11), Dec 2015, p 54. [Year-in-review article](#)
285. Cecil, O and Majdalani, J, "[Several Hybrid Rocket Technologies Hit Advanced Test Stages](#)," **Aerospace America**, 54 (11), Dec 2016, p 54. [Year-in-review article](#)
286. Majdalani, J and Cecil, "[Hybrid Rockets: To Wax Or To Whirl](#)," **Aerospace America**, 55 (11), Dec 2017, p 57. Year-in-review article
287. Carr, C, Black R, Neri, A and Majdalani, J, "[Missile Launches, Large Space Boosters Register Solid Performances](#)," **Aerospace America**, 55 (11), Dec 2017, p 63. Year-in-review article

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

2010

288. Zgheib, N, "Asymptotic Solutions for Longitudinal Waves in Solid Rocket Motors," 61st AIAA Southeastern Regional Student Conference, **Presentation Awarded SECOND PLACE in the MASTERS Division**, Destin, FL, April 8-9, 2010
289. Akiki, M, "Compressible Integral Formulation of the Two-Dimensional Porous Channel Flow," 61st AIAA Southeastern Regional Student Conference, **Presentation Awarded THIRD PLACE in the MASTERS Division**, Destin, FL, April 8-9, 2010

2011

290. Akiki, G, "New Framework for Modeling the Bidirectional Vortex Engine with Arbitrary Injection," 62nd AIAA Southeastern Regional Student Conference, **Presentation Awarded FIRST PLACE in the MASTERS Division**, Tuscaloosa, AL, April 4-5, 2011

2012

291. Barber, T A, "Bidirectional Helical Motion in Tapered Rocket Chambers," 63rd AIAA Southeastern Regional Student Conference, **Presentation Awarded FIRST PLACE in the MASTERS Division**, Cape Canaveral, FL, April 2-3, 2012
292. Haddad, C T, "On the Sidewall Boundary Layer of Transverse Waves in Simulated Liquid Rocket Engines," 63rd AIAA Southeastern Regional Student Conference, **Presentation Awarded SECOND PLACE in the MASTERS Division**, Cape Canaveral, FL, April 2-3, 2012. **Winner of the Abe M Zarem Award for Distinguished Achievement in Astronautics**

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

296. Cecil, O, "On Steady Trkalian High Speed Flows: Swirling Compressible Motion in Solid Rocket Motors," 66th AIAA Southeastern Regional Student Conference, **Presentation Awarded FIRST PLACE in the MASTERS Division**, Savannah, GA, April 9-10, 2015

297. Marquardt, T, "On the Quadrupole Vortex Motion in a Right-Cylindrical Hybrid Rocket Engine," 66th AIAA Southeastern Regional Student Conference, **Presentation Awarded SECOND PLACE in the MASTERS Division**, Savannah, GA, April 9-10, 2015

298. Pollard, A J, "A Highly Effective Rocket-Based Outreach Program for Youth STEM Engagement," 66th AIAA Southeastern Regional Student Conference, **Presentation Awarded FIRST PLACE in the COMMUNITY OUTREACH Division**, Savannah, GA, April 9-10, 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
4. **Invited Seminar Speaker:** "Performance and Stability of Swirl Driven Rocket Engines," ONERA (*Office National d'Etudes et de Recherches Aéropatiales*), French Aeronautics and Space Research Center, Toulouse, France, Oct 25, 2016
5. **Invited Seminar Speaker:** "160 Years of Excellence at Auburn," College of Engineering, Notre Dame University, Jan 8, 2016
6. "Auburn Aerospace Engineering Overview & Vision," Gulfstream, Savannah, GA, Oct 6, 2015
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
9. "Research & Collaboration Opportunities Auburn's AERO Department," Cracow University of Technology, Politechnika Krakowska, Cracow, Poland, July 13, 2015
10. "Research & Collaboration Opportunities Auburn's AERO Department," West Pomeranian University of Technology (ZUT), Szczecin, Poland, July 9, 2015
11. "Investing in Your Future - Auburn's Aerospace Engineering Department," Kenneth Kleinfelter, Alabama Fuel Systems, GKN Aerospace, Auburn University, Auburn, AL, May 13, 2015
12. "Some Ongoing Research Activities in Auburn's AERO Department," Tom Williams, MSFC Propulsion Director, Auburn University, Auburn, AL, April 30, 2015
13. "Investing in Your Future - Auburn's Aerospace Engineering Department," Lt. Col. William Petit, Tactical Flight Services, Auburn University, Auburn, AL, April 22, 2015

14. "Auburn – Where Heaven and Earth Meet," Auburn Global, Taj Lands End, Mumbai, India, April 3, 2015
15. "Auburn – When the Heavens Meet the Earth: Expanding Auburn's Global Footprint," Auburn Global, Taj Krishna, Hyderabad, India, April 1, 2015
16. "Expanding Auburn's Global Footprint," Manrav Rachna International University, New Delhi, India, March 30, 2015
17. "Auburn – The Loveliest Village on the Plains," Auburn Faculty Presentation, Auburn Global, Taj Mahal, New Delhi, India, March 30, 2015
18. "Auburn – The Loveliest Village on the Plains," Auburn Faculty Presentation, Auburn Global, Beijing, China, March 27, 2015
19. "Auburn – The Loveliest Village on the Plains," Auburn Faculty Presentation, Auburn Global, Shanghai, China, March 26, 2015
20. "Auburn Launch Roadshow," Auburn Faculty Presentation, Education China Online, Shanghai, China, March 26, 2015
21. "Auburn – The Loveliest Village on the Plains," Auburn Faculty Presentation, Auburn Global, Shanghai, China, March 25, 2015
22. "Auburn – The Loveliest Village on the Plains," Auburn Faculty Presentation, Auburn Global, Guangzhou, China, March 23, 2015
23. **Guest Speaker:** "Investing in Your Future – Auburn's Aerospace Engineering Department," Poarch Creek Indian Leadership Council, Atmore, AL, Dec 4, 2014
24. "Introduction to Auburn's Aerospace Engineering Department," AFRL (Alok Das), Auburn University, Auburn, AL, Dec 2, 2014
25. "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, Nov 21, 2014
26. "Introduction to Auburn's AERO Departmental Capabilities," NASA MSFC/AUHRC, Michael Ogles, Auburn University, Auburn, AL, Oct 29, 2014
27. "Modeling & Simulation of Advanced Rockets," Auburn University Huntsville Research Center (AUHC), Auburn University, Auburn, AL, Sep 9, 2014
28. **Guest Speaker:** "On the Power of Perturbations," Society for Industrial and Applied Mathematics (SIAM) Student Chapter, Department of Mathematics and Statistics, Auburn University, Auburn, AL, Nov 12, 2014
29. **Guest Speaker:** "Auburn's Historical Participation in AIAA Activities – Successes and Failures," AIAA Student Chapter, Department of Aerospace Engineering, Auburn University, Auburn, AL, Sep 3, 2014
30. "Modeling & Simulation of Advanced Rockets," NASA MSFC Visit, Auburn University, Auburn, AL, May 1, 2014
31. "Recent Advances in Swirl Combustion and Rocket Instability Theories," A Three-Part Graduate Seminar Series, Department of Aerospace Engineering, Auburn University, Auburn, AL, Jan 22, Feb 12, and Feb 26, 2014
32. "Modeling and Simulation of Advanced Rockets," AMRDEC, Aviation & Missile Research, Development & Engineering Center, Auburn University, Auburn, AL, Dec 5, 2013
33. "Performance and Stability Characterization of Vortex Driven Rocket Engines," Dynetics Campus Visit, Auburn University, Auburn, AL, Nov 8, 2013
34. **Guest Speaker:** "Thermofluid and Stability Characterization of Cyclonically Driven Rocket Engines," AIAA Student Chapter, Auburn University, Auburn, AL, Sep 2, 2013
35. **Invited Seminar Speaker:** "Thermofluid and Stability Characterization of Cyclonically Driven Rocket Engines," Department of Mechanical and Aerospace Engineering, University of Miami, Coral Gables, FL, May 23, 2013
36. **Invited Seminar Speaker:** "Recent Advances in Modeling Swirl Dominated Rockets," Department of Aerospace Engineering, University of Texas A&M, College Station, TX, May 15, 2013

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
44. **Invited Seminar Speaker:** "Fundamental Structure of Vortex Fired Hybrid and Liquid Rocket Flowfields," ONERA (*Office National d'Etudes et de Recherches Aérospatiales*), French Aeronautics and Space Research Center, Centre Midi-Pyrénées, Le Fauga-Mauzac, Toulouse, France, Oct 24, 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
47. **Invited Seminar Speaker:** "The Future of Engineering Education in the U.S.," Department of Engineering Education, Utah State University, Logan, UT, May 1, 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
53. **Invited Keynote Speaker (Plenary):** "On the Effective Use of Analytical Methods in a Computer Dominated Era," IEEE/ACTEA'09, International Conference on Advances in Computational Tools for Engineering Applications, Notre Dame University, LE, July 17, 2009
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
68. **Invited Oral Presentation:** "Analytical Models of Hybrid Rockets: Headwall and Vortex Injection," for the AIAA Progress Series, *Fundamentals of Hybrid Rocket Combustion and Propulsion*, presented at the 42nd AIAA/ASME/ASEE/SAE Joint Propulsion Conference, Sacramento, CA, July 12, 2006
69. **Invited Oral Presentation:** "High Speed Flow Effects in Hybrid Rockets," for the AIAA Progress Series, *Fundamentals of Hybrid Rocket Combustion and Propulsion*, presented at the 42nd AIAA/ASME/ASEE/SAE Joint Propulsion Conference, Sacramento, CA, July 12, 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
71. **Invited Workshop Speaker:** "Some Progress in Rocket Mean Flow Modeling and Instability," 2005 SEA Combustion Stability Technical Interchange Meeting, Squaw Creek, NV, Aug 30-31, 2005
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

80. **Invited Seminar Speaker:** "Core Flow Models in Injection-Driven Combustion Chambers," Center for Simulation of Advanced Rockets, Champaign, IL, March 29, 2002
81. **Invited Seminar Speaker:** "Core Flow Models in Injection-Driven Combustion Chambers," Department of Mechanical Engineering, University of Akron, Akron, OH, March 11, 2002
82. **Guest Speaker:** "CFD Study of the Cool Wall Vortex Combustion Chamber," Orbital Technologies Corporation, 1212 Fourier Drive, Madison, WI, Nov 26, 2001
83. **Invited Seminar Speaker:** "Towards Improving Aeroacoustic Stability in Solid Rocket Motors," Department of Mechanical Engineering, University of Memphis, Memphis, TN, May 25, 2001
84. **Invited Seminar Speaker:** "Mathematical Models in Combustion Stability Theory," Department of Mechanical Engineering, Gannon University, Erie, PA, May 14, 2001
85. **Invited Seminar Speaker:** "Towards a Detailed Combustion Stability Model in Solid Rocket Motors," Department of Materials and Mechanical Engineering, University of Alabama at Birmingham, AL, March 29, 2001
86. **Invited Seminar Speaker:** "Modeling the Internal Gas Dynamics in Solid Rocket Motors," Department of Aerospace Engineering, Embry-Riddle Aeronautical University, Daytona, FL, Nov 30, 2000
87. **Invited Seminar Speaker:** "Convergence of Analytical and Numerical Solutions in Describing the Internal Flow Behavior in Rocket Motors," Department of Mechanical Engineering, Louisiana State University, Baton Rouge, LA, July 31, 2000
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
89. **Invited Seminar Speaker:** "Importance of CFD in Validating Mathematical Models in Combustion," Department of Mechanical Engineering, San Diego State University, San Diego, CA, April 13, 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
91. **Invited Seminar Speaker:** "Flow Models in Propulsion Systems," Department of Mechanical Engineering, University of Wisconsin, Milwaukee, WI, March 9, 2000
92. **Invited Seminar Speaker:** "Improved Flow Models in Propulsion Systems Ranging from Rockets to Hearts and Lungs," Department of Mechanical Engineering, Louisiana Tech, Ruston, AL, Feb 25, 2000
93. **Guest Speaker:** "Vorticity Dynamics in Rocket Motors," Naval Air Warfare Center, China Lake, CA, July 27, 1997
94. **Invited Seminar Speaker:** "Numerical and Analytical Solutions of Internal Flow Models in Propulsion Systems," CFD Research Corporation, Huntsville, AL, Aug 5, 1996
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 8-12, 2018
2. 53rd AIAA/SAE/ASEE Joint Propulsion Conference (P&E'17), Atlanta, GA, July 9-12, 2017
3. 52nd AIAA/SAE/ASEE Joint Propulsion Conference (P&E'16), Salt Lake City, UT, July 25-27, 2016
4. 54th AIAA Aerospace Sciences Meeting (SciTech'16), San Diego, CA, Jan 4-8, 2016
5. 51st AIAA/SAE/ASEE Joint Propulsion Conference (P&E'15), Orlando, FL, July 27-29, 2015
6. Aerospace Alliance Spring Summit Meeting, "Preparing the Workforce for the Aerospace Industry," Daytona Beach, Florida, April 23-24, 2015
7. 53rd AIAA Aerospace Sciences Meeting (SciTech'15), Kissimmee, Florida, Jan 5-9, 2015

8. 50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference (P&E'14), Cleveland, OH, July 28-30, 2014
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
12. 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 29-Aug 1, 2012
13. 9-ISICP, International Symposium on Special Topics in Chemical Propulsion, Quebec City, Canada, July 9-13, 2012
14. 2012 NSF CMMI Engineering Research and Innovation Conference, Engineering Transformation Through Partnerships, Boston, MA, July 9-12, 2012
15. 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, Nashville, TN, Jan 9-12, 2012
16. 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011
17. ICARAME'11, International Conference on Advanced Research and Applications in Mechanical Engineering, Notre Dame University-Louaize, LB, June 13-15, 2011
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
20. 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Nashville, TN, July 25-28, 2010
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
25. 45th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Denver, CO, Aug 2-5, 2009
26. IEEE/ACTEA'09, International Conference on Advances in Computational Tools for Engineering Applications, Notre Dame University, LE, July 15-17, 2009
27. 44th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Hartford, CT, July 20-23, 2008
28. 2008 IREE Conference, Washington, DC, May 2-3, 2008
29. 15th AIAA International Space Planes and Hypersonic Systems and Technologies Conference, Dayton, OH, April 28-May 1, 2008
30. 2008 NSF CMMI Engineering Research and Innovation Conference, The University of Tennessee, Knoxville, TN, Jan 7-10, 2008
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
33. 37th AIAA Fluid Dynamics Conference and Exhibit, Miami, FL, June 25-28, 2007
34. 54th JANNAF Propulsion Conference, Denver, CO, May 14-17, 2007
35. 2nd Frontiers in Biomedical Devices Conference, Proceedings of BioMed2007, Irvine, CA, June 7-8, 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
39. 40th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Ft Lauderdale, FL, July 11-14, 2004
40. 13th Annual Wisconsin Space Conference, Our Changing Earth, Green Bay, WI, Aug 14-15, 2003
41. 39th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Huntsville, AL, July 20-23, 2003

42. InterPACK'03, The Pacific Rim/ ASME International Electronic Packaging, Technical Conference and Exhibition, Maui, Hawaii, July 8-13, 2003
43. 33rd AIAA Fluid Dynamics Conference and Exhibit, Orlando, FL, June 23-26, 2003
44. 36th AIAA Thermophysics Conference, Orlando, FL, June 23-26, 2003
45. 12th Annual Wisconsin Space Conference, Space Ventures, Middleton, WI, Aug 15-16, 2002
46. 38th AIAA/ ASME/SAE/ ASEE Joint Propulsion Conference, Indianapolis, IN, July 7-10, 2002
47. 32nd AIAA Fluid Dynamics Conference and Exhibit, St Louis, MO, June 24-27, 2002
48. 3rd AIAA Theoretical Fluid Mechanics Meeting, St Louis, MO, June 24-27, 2002
49. 8th AIAA/ ASME Joint Thermophysics and Heat Transfer Conference, St Louis, MO, June 24-27, 2002
50. InterPACK'01, The Pacific Rim/ ASME International Electronic Packaging, Technical Conference and Exhibition, Kauai, Hawaii, July 8-13, 2001
51. 37th AIAA/ ASME/SAE/ ASEE Joint Propulsion Conference, Salt Lake City, UT, July 8-11, 2001
52. 31st AIAA Fluid Dynamics Conference, Anaheim, CA, June 11-14, 2001
53. 35th AIAA Thermophysics Conference, Anaheim, CA, June 11-14, 2001
54. 15th AIAA Computational Fluid Dynamics Conference, Anaheim, CA, June 11-14, 2001
55. 2001 ASME Fluids Engineering Division Summer Meeting, New Orleans, LA, May 29-June 1, 2001
56. 7th AIAA/CEAS Aeroacoustics Conference, Maastricht, The Netherlands, May 28-30, 2001
57. 36th AIAA/ ASME/SAE/ ASEE Joint Propulsion Conference, Huntsville, AL, July 16-19, 2000
58. 6th AIAA/CEAS Aeroacoustics Conference, Maui, HA, June 12-14, 2000
59. 30th AIAA Fluid Dynamics Conference, Norfolk, VA, June 28-July 1, 1999
60. 35th AIAA/ ASME/SAE/ ASEE Joint Propulsion Conference, Los Angeles, CA, June 20-24, 1999
61. 29th AIAA Fluid Dynamics Conference, Albuquerque, NM, June 15-18, 1998
62. 2nd AIAA Theoretical Fluid Mechanics Meeting, Albuquerque, NM, June 15-18, 1998
63. 34th AIAA/ ASME/SAE/ ASEE Joint Propulsion Conference, Cleveland, OH, July 13-15, 1998
64. 7th AIAA/ ASME Joint Thermophysics and Heat Transfer Conference, Albuquerque, NM, June 15-18, 1998
65. 33rd AIAA/ ASME/SAE/ ASEE Joint Propulsion Conference, Seattle, WA, July 6-9, 1997
66. 31st AIAA/ ASME/SAE/ ASEE Joint Propulsion Conference, San Diego, CA, July 10-12, 1995

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**
3. Cecil, O and Majdalani, "The Taylor-Culick Profile for Spinning Rocket Motors," AIAA-2017-4779, 53rd AIAA/SAE/ ASEE Joint Propulsion Conference, Atlanta, GA, July 10-12, 2017. **Winner of the 2017 AIAA Solid Rockets Best Student Paper**
4. Marquardt, T and Majdalani, "Beltramian Solution for Cyclonically Driven Hybrid Rocket Engines," AIAA-2017-4638, 53rd AIAA/SAE/ ASEE Joint Propulsion Conference, Atlanta, GA, July 10-12, 2017. **Best Paper of the Session in Internal Ballistics and Modeling I. Nominated for Best Hybrid Rockets Paper Award**
5. Cecil, O and Majdalani, "Generalized Trkalian Flows: Swirling Motion in Rockets with Arbitrary Headwall Injection," AIAA-2016-5069, 52nd AIAA/SAE/ ASEE Joint Propulsion Conference, Salt Lake City, UT, July 25-27, 2016. **Nominated for Best Hybrid Rockets Student Paper**
6. Cecil, O and Majdalani (advisor), "On Steady Trkalian High Speed Flows: Swirling Compressible Motion in Solid Rocket Motors," AIAA-2016-0142, SciTech'16, 54th AIAA Aerospace Sciences Meeting, San Diego, CA, Jan 4-8, 2016. **Finalist in the International Masters Division Competition**

7. Cecil, O and Majdalani, "[On Steady Trkalian High Speed Flows: Swirling Compressible Motion in Rockets with Headwall Injection](#)," AIAA-2015-3788, 51st AIAA/SAE/ASEE Joint Propulsion Conference, Orlando, FL, July 27-29, 2015 **Best Paper of the Session in Solid Rocket Motor Combustion Flow Fields and Instability I. Nominated for Best Solid Rockets Paper Award by James Hornick**
8. Cecil, O, "[On Steady Trkalian High Speed Flows: Swirling Compressible Motion in Solid Rocket Motors](#)," 66th AIAA Southeastern Regional Student Conference, Presentation Awarded **FIRST PLACE in the MASTERS Division**, Savannah, GA, April 9-10, 2015
9. Marquardt, T, "[On the Quadrupole Vortex Motion in a Right-Cylindrical Hybrid Rocket Engine](#)," 66th AIAA Southeastern Regional Student Conference, Presentation Awarded **SECOND PLACE in the MASTERS Division**, Savannah, GA, April 9-10, 2015
10. Fleischmann, J and Majdalani (advisor), "[Complex Lamellar Helical Solution for Cyclonically Driven Hybrid Rocket Engines](#)," AIAA-2015-0372, SciTech'15, 53rd AIAA Aerospace Sciences Meeting, Kissimmee, Florida, Jan 5-9, 2015. **Finalist in the International Masters Division Competition**
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
12. Fist, A and Majdalani (advisor), "[Improved Mean Flow Solution for Solid Rocket Motors](#)," AIAA-2014-0006, SciTech'14, 52nd AIAA Aerospace Sciences Meeting, National Harbor, MD, Jan 13-17, 2014. **Winner of the International Masters Division Competition, to all seven regions of AIAA**
13. 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
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
15. Barber, T and Majdalani (advisor), "[Bidirectional Helical Motion in Tapered Rocket Chambers](#)," AIAA-2013-0133, 51st AIAA Aerospace Sciences Meeting, Grapevine, TX, Jan 7-10, 2013. **Finalist in the International Masters Division Competition**
16. Akiki, M, Batterson, J and Majdalani, "[Biglobal Stability of Compressible Flowfields. Part 2: Application to Solid Rocket Motors](#)," AIAA-2013-3866, 49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Jose, CA, July 14-17, 2013. **Best Paper of the Session on Combustion Instability. Nominated for Best Solid Rockets Paper Award by David Greatrix and Charle Rousseau**
17. Barber, T, "[Bidirectional Helical Motion in Tapered Rocket Chambers](#)," 63rd AIAA Southeastern Regional Conference, Presentation Awarded **FIRST PLACE in the MASTERS Division**, Cape Canaveral, FL, April 2-3, 2012
18. Haddad, C, "[On the Sidewall Boundary Layer of Transverse Waves in Simulated Liquid Rocket Engines](#)," 63rd AIAA Southeastern Regional Student Conference, Presentation Awarded **SECOND PLACE in the MASTERS Division**, Cape Canaveral, FL, April 2-3, 2012. **Winner of the (national) Zarem Award.**
19. Elliott, T, Batterson, J and Majdalani, "[Biglobal Stability of Cylindrically-Shaped Hybrid and Solid Rockets with Injecting or Reactive Headwalls](#)," AIAA-2012-3810, 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Atlanta, GA, July 29-Aug 1, 2012. **Best Paper of the Session on Internal Ballistics Modeling II. Nominated for Best Hybrid Rockets Paper Award**
20. Akiki, G and Majdalani (advisor), "[New Framework for Modeling the Bidirectional Vortex Engine Flowfield with Arbitrary Injection](#)," AIAA-2012-0138, 50th AIAA Aerospace Sciences Meeting, Nashville, TN, Jan 9-12, 2012. **Finalist in the International Masters Competition**
21. Akiki, G, "[New Framework for Modeling the Bidirectional Vortex Engine with Arbitrary Injection](#)," 62nd AIAA Southeastern Regional Student Conference, Presentation Awarded **FIRST PLACE in the MASTERS Division**, Tuscaloosa, AL, April 4-5, 2011

22. Batterson, J and Majdalani, "[Biglobal Instability of the Bidirectional Vortex. Part 2: Complex Lamellar and Beltramian Motions](#)," **AIAA-2011-5649**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011. **Best Paper of the Session in Advanced Propulsion Concepts**
23. Saad, T and Majdalani, "[Viscous Flows Revisited in Simulated Rockets with Radially Regressing Walls](#)," **AIAA-2011-5860**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011. **Best Paper of the Session on Solid Rocket Modeling and Simulation I. Nominated for Best Solid Rockets Paper Award by B. Leary**
24. Akiki, G and Majdalani, "[Exact Solutions for the Integral Form of the Compressible Flowfield in a Porous Cylinder](#)," **AIAA-2011-5953**, 47th AIAA/ASME/SAE/ASEE Joint Propulsion Conference, San Diego, CA, July 31-Aug 3, 2011. **Best Paper of the Session on Solid Rocket Modeling and Simulation II. Nominated for Best Solid Rockets Paper Award by Mark Langhenry and Douglas Coats**
25. Zgheib, N, "[Asymptotic Solutions for Longitudinal Waves in Solid Rocket Motors](#)," 61st AIAA Southeastern Regional Student Conference, Presentation Awarded **SECOND PLACE in the MASTERS Division**, Destin, FL, April 8-9, 2010
26. Akiki, M, "[Compressible Integral Formulation of the Two-Dimensional Porous Channel Flow](#)," 61st AIAA Southeastern Regional Student Conference, Presentation Awarded **THIRD PLACE in the MASTERS Division**, Destin, FL, April 8-9, 2010

Award Winning & Representative Graduate Student Posters (Advisory Role)

27. Kovacic, P (presenter), Williams L (presenter) and Majdalani (advisor), "Characterization of the Bidirectional Vortex Rocket Engine," **REPRESENTATIVE POSTER FROM AEROSPACE ENGINEERING** for the Alabama Aerospace Week/NASA Day at the Alabama State House, Feb 22, 2018, Montgomery, AL
28. Cecil, O (presenter) and Majdalani (advisor), "The Taylor-Culick Profile for Spinning Rocket Motors," Overall **HONORABLE MENTION at the Graduate Engineering Research Showcase**, Nov 9, 2017, Auburn, AL
29. Kovacic, P (presenter) and Majdalani (advisor), "Vorticoacoustic Stability Analysis of the Bidirectional Vortex Engine," **BEST POSTER IN AEROSPACE ENGINEERING at the Graduate Engineering Research Showcase**, Nov 9, 2017, Auburn, AL
30. Ramesh-Kumar, T (presenter) and Majdalani (advisor), "Towards Safer and More Stable Rocket Launches," **REPRESENTATIVE POSTER FROM AEROSPACE ENGINEERING** for the Alabama Aerospace Week/NASA Day at the Alabama State House, March 2, 2017, Montgomery, AL
31. Cecil, O (presenter) and Majdalani (advisor), "Development of Vortex Rocket Engines," **REPRESENTATIVE POSTER FROM AEROSPACE ENGINEERING** for the Alabama Aerospace Week/NASA Day at the Alabama State House, March 2, 2017, Montgomery, AL
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