

Curriculum Vitae

Jason T. Cassibry

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EDUCATION

Ph. D., Mechanical Engineering, University of Alabama in Huntsville, May 2004

M.S., Aerospace Engineering, University of Illinois in Urbana/Champaign, May 1999

B.S., Aerospace Engineering, University of Missouri in Rolla, May 1997

PROFESSIONAL EXPERIENCE

- September 2012 to present: Associate Professor in the Department of Mechanical and Aerospace Engineering, University of Alabama in Huntsville.
- September 2006 to August 2012: Assistant Professor (tenure track) in the Department of Mechanical and Aerospace Engineering, University of Alabama in Huntsville.
- October 2004 to September 2006: Assistant Research Professor, Propulsion Research Center, Department of Mechanical and Aerospace Engineering, University of Alabama in Huntsville.
- October 2003 to October 2004: Research Engineer, Propulsion Research Center, Department of Mechanical and Aerospace Engineering, University of Alabama in Huntsville.
- August 1999 to October 2003, Graduate Research Assistant, Department of Mechanical and Aerospace Engineering, University of Alabama in Huntsville.
- June 1997 to June 1999, Graduate Research Assistant, Department of Aeronautical and Astronautical Engineering, University of Illinois in Urbana/Champaign.
- June 1994 to May 1997, Undergraduate Research Assistant, Department of Mechanical and Aerospace Engineering and Engineering Mechanics, University of Missouri in Rolla.

HONORS AND AWARDS

As Faculty

1. AIAA Best Paper by the AIAA Nuclear and Future Flight Propulsion Technical Committee (2nd author), AIAA 2014-3520 “Developing the Pulsed Fission-Fusion (PuFF) Engine” (awarded April 2014)
2. SciQuest 2013 Quest for Excellence Award in the area of Academia, August 2013.
3. Konrad Dannenberg Educator of the Year Award, May 2013, in recognition by the Greater Huntsville Section of AIAA of outstanding service to education and promotion of math and science within the community.
4. UAHuntsville Distinguished Research Award, May 2010, in recognition of outstanding contributions in research. Award is competed among all faculty.
5. Outstanding Junior Professor for College of Engineering, February 2010, in recognition of outstanding contributions in both research and teaching as an assistant professor.

As Student

1. 2003 Mechanical and Aerospace Engineering Graduate Student of the Year

2. Membership in Phi Kappa Phi, Tau Beta Pi, Sigma Gamma Tau
3. Who's Who Among American Engineering Students
4. National Collegiate Engineering Award
5. All-American Scholar Collegiate Award
6. Academy of Mechanical Engineers Scholarship
7. Eagle Scout

PROFESSIONAL AFFILIATIONS

- American Institute of Aeronautics and Astronautics, Lifetime Senior Member
- American Physical Society, Member
- National Space Club Huntsville
- Phi Kappa Phi

PROFESSIONAL ACTIVITIES: TECHNICAL CONSULTING

- Advisor for MHD implementation into multiphysics tool package designed for propulsion system evaluation, Marshall Space Flight Center, 2004-2006.

TEACHING

Courses

MAE 310 Fluid Mechanics I

Taught Fall 2009

Earned composite teacher evaluation score of 93.73%

MAE 341 Thermodynamics I

Taught Fall 2006, Spring 2014

Earned composite teacher evaluation score of 86.3%, 95.64%

MAE 342 Thermodynamics II

Taught Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2009, and Spring 2010

Earned composite teacher evaluation score of 88.0%, 92.40%, 88.75%, 95.27%, 95.99%, and 95.02%, respectively.

MAE 420/520 Compressible Aerodynamics

Taught Spring 2011, Spring 2012, Spring 2013, Spring 2014, Spring, 2015

As MAE 420, earned SIE scores of 96.46, 97.48, 97.6, 97.4, and 97.4.

As MAE 520, earned SIE scores of 97.04, 99.26, 100, 97.08, and 97.08.

MAE 441/541 Airbreathing Propulsion

Taught Fall 2010, Fall 2012, Fall 2013, Fall 2014

As MAE 441, earned SIE score of 96.41%, 96.98%, 97.22%, (Fall 2014 data not yet available)

As MAE 544, earned SIE score of 96.05%, 96.25%, 82.24%, (Fall 2014 data not yet available)

MAE 468/568 Elements of Spacecraft Design

Taught Spring 2015

As MAE 468, SIE scores pending

As MAE 568, SIE scores pending

MAE 444/544 (formerly 495/595) Introduction to Electric Propulsion
Course was approved by the college as MAE 444/544
Developed course and taught Spring 2005, Spring 2008, Spring 2010
As special topics course, earned composite teacher evaluation score of 94.9% and ~95%
As MAE 444, taught Spring 2010, earned SIE score of 99.25%
As MAE 544, taught Spring 2010, earned SIE score of 91.33%

MAE 740 Aerothermodynamics
Taught Spring 2007, Spring 2009, Spring 2011
Earned composite teacher evaluation score of 88.0%, 95.28%, and 97.41%, respectively.

MAE 754 Hypersonics
Taught Fall 2008, Fall 2012
Earned composite teacher evaluation score of 89.44%, 95.62%

MAE 795 Magnetohydrodynamics
Taught Fall 2009, Spring 2012
Earned composite teacher evaluation score of 93.33%, 98.33.

MAE 795 ST: Fusion Propulsion
Taught Fall 2011, Fall 2013, Fall 2014
Earned composite teacher evaluation scores of 95.40%, 93.93%, (Fall 2014 data not yet available)
I have received \$25,000 from The Boeing Company to continue developing this class.

Advising and Mentoring Students

1. Graduated
 - a) Brian Peters, Magnetic Field Penetration and Enhanced Diffusion in Pulsed Plasma Thrusters, M.S. Mechanical and Aerospace Engineering, December 2005.
 - b) Branwen Schuettpelz, Examination of Faraday Probe Measurements and Plasma Conditions Supporting Detachment, M.S. Mechanical and Aerospace Engineering, December 2006.
 - c) Seth Thompson, Lindl-Widner Diagrams for Plasma Liner Driven Magneto-Inertial Fusion, M.S. Mechanical and Aerospace Engineering, May 2007.
 - d) Kjell-Edmund Ims, Integration of a Magnetic Bias Field Coil in a Plasmoid Thruster, M.S. Mechanical and Aerospace Engineering, December 2008.
 - e) Andre Turner, Mission Analysis using Experimental Results from an 8-cm Ion Thruster, M.S. Mechanical and Aerospace Engineering, August 2008.
 - f) Nilesh Dhote, Ignition and Implosion Studies of Plasma-Driven Magnetoinertial Fusion, M.S. Physics Department, expected graduation date May 2009.
 - g) Coby McColgin, Magnetic Field Mapping in the Plasmoid Thruster Experiment, M.S. Mechanical and Aerospace Engineering, May 2010.
 - h) Brittany Anne Dowell, Numerical Analysis of a Plasmoid Thruster, M.S. Mechanical and Aerospace Engineering, Defended Spring 2007, fulfilled corrections to thesis December 2010, course validation December 2010, May 2011.
 - i) Ross Cortez, Initial Design Process for a Pulsed Thermonuclear Fusion Reaction Engine, M.S. Mechanical and Aerospace Engineering, August 2011.
 - j) Emily Mattox¹, Carbon Dioxide Removal System for Closed Loop Atmosphere Revitalization, Candidate Sorbents Screen and Test Results, M.S. Mechanical and

1 Assumed position of chair of committee on behalf of Dr. Dawn Bardot, Ms. Mattox thesis advisor.

Aerospace Engineering, May 2012.

- k) Igor Savin², Statistical Fracture Mechanics: an Unconventional Approach to Crack Formation in Brittle Solids, M.S. Mechanical and Aerospace Engineering, August 2012.
 - l) Chris Wordingham, "Acceleration of Smooth Particle Hydrodynamic Plasma Simulations via GPU Computing," Honor's Thesis for B.S. in Mechanical and Aerospace Engineering, May 2012.
 - m) Brian Riehm, Mission Design for Flexible Path Exploration utilizing fusion propulsion, M.S. Mechanical and Aerospace Engineering, August 2012.
 - n) John Stutz, "Modeling and Evaluation of Ballistic Trajectories for Projectiles Launched from Electromagnetic Railguns," Ph.D Mechanical Engineering, May 2013.
 - o) Milos Stanic, "Effects of Plasma Jet Parameters, Ionization, Thermal conduction, and Radiation on Stagnation Conditions of an Imploding Plasma Liner," PhD Mechanical and Aerospace Engineering, May 2013.
 - p) Lindsey Blair, "Scaling of Matlab on High Performance Computing Systems," Honor's Thesis for B.S. in Mechanical and Aerospace Engineering, December 2013.
 - q) Lloyd Jackson, Three-Dimensional Model of a Plasma Railgun Using Smoothed Particle Hydrodynamics, M.S. Mechanical and Aerospace Engineering, May 2014.
 - r) Kevin Schillo, Three-Dimensional Modeling of an Ideal Nozzle for Advanced Propulsion, M.S. Mechanical and Aerospace Engineering, May 2014.
 - s) Rachael Agnew, Analytic Model to Estimate Thermonuclear Neutron Yield in Z-pinchs using the Magnetic Noh Problem, M.S. Mechanical and Aerospace Engineering, May 2014.
 - t) Laura Barkett, "Thermal Design and Modelling of Capillary Channels for a Nuclear Thermal Propulsion System," M.S. Mechanical and Aerospace Engineering, August 2014.
 - u) Steven Doyle, "Comparison of radiation dosage for human piloted Mars missions using chemical, nuclear thermal, and fusion propulsion systems," Honor's Thesis for B.S. in Aerospace Engineering, December 2014.
2. Current Students
- a) PhD
 - Mitchell Rodriguez, Studies in Ablation and Crack Growth of Electrodes in a Z-pinch Fusion Propulsion System, Ph.D. Mechanical and Aerospace Engineering, expected graduation August 2016.
 - Ross Cortez, "Fusion yield scaling on deuterium frozen fibers with long rise time current, expected graduation date, August 2016.
 - Seth Thompson, Smoothed Particle Magnetohydrodynamic Modeling of Plasma Jets Driven Magnetoinertial Fusion, Ph.D Mechanical and Aerospace Engineering, expected graduation May 2015.
 - Regan Tackett, Aerospace applications of multidimensional scattered data, interpolation/classification using radial basis functions and metaheuristic algorithms, Ph.D Mechanical and Aerospace Engineering, expected graduation May 2016.
 - Levi Terhune, Drag and Fuel Minimization and Entropy-Based Performance Analysis of Hypersonic Vehicles (tentative), Ph.D Mechanical and Aerospace Engineering, expected graduation May 2016.
 - Kevin Schillo, "Smooth Particle Hydrodynamic Modeling of Viscous Stabilization in an Imploding Plasma Liner" expected graduation date May 2017.
 - b) Master's
 - Patrick Gidden, "Design of a Linear Transformer Driver for Pulsed Z-Pinch Propulsion," expected graduation date December 2014.

² Assumed position of chair after draft of thesis had already been written.

- Jesse Dougherty, “Smooth Particle Hydrodynamic Modeling of the Rayleigh Taylor Instability in z-pinches,” expected graduation date May 2015.
 - David Hewitt, Neutron and X-ray Shielding Criteria for Crew and Plasma Facing Components for a Fusion Propulsion Vehicle, expected graduation date, August 2016.
- c) Non-thesis
- Bryan Winterling
3. Graduate Student Committees
- a) Man Zhang (Ph.D., MAE, expected graduation date: 2016)
 - b) Derek O’Rear (M.S., MAE, expected graduation date: 2015)
 - c) Andrew Hiatt (Ph.D., MAE, expected graduation date: 2015)
 - d) Althea Wilson (Ph.D., MAE, expected graduation date: 2015)
 - e) Scott Adams (PhD, MAE, expected graduation date: 2015)
 - f) Jose Suarez (Ph.D., MAE, 2015)
 - g) Dustin Matthias (M.S., MAE 2014)
 - h) Daniel Cavendar (M.S., MAE, 2013)
 - i) Travis Taylor (Ph.D., MAE, 2012)
 - j) Carolyn Horn (M.S., MAE, 2011)
 - k) Brandon Mader (M.S., MAE, 2011)
 - l) Bruce Moylan (PhD, MAE, 2010)
 - m) Joshua Rojahn (M.S., MAE, 2010)
 - n) Richard Bucak (M.S., MAE, 2007)
 - o) John Sinko (PhD, Physics, 2008)
4. Post Doctorate and Research Staff
- a) Weiwei Luo. She helped develop a 3D, parallel smooth particle hydrodynamic code that we will be using in fusion and high energy density physics research (August 2010-May 2012)

Other Instructional Activities

1. Mentor and advise a graduate student (Mr. Drew Ahern) at the University of IL in Urbana Champaign in electromagnetic propulsion.
2. Mentor for International Baccalaureate Program for three high school students (2010-2011)
3. Mentored and advised an undergraduate at the University of Illinois at Springfield for his senior project in rocket propulsion (2011).
4. Had students of electric propulsion class develop a set of educational web pages on various electric propulsion concepts, now available to the general public.
5. Have employed several undergraduate students assisting in laboratory experiments, literature review, and theoretical studies.

PUBLICATIONS

Refereed Journal Publications

1. Cassibry, J. T., Thio, Y. C. F., and Wu, S. T., “2-D Axisymmetric Magnetohydrodynamic Analysis of Blowby in a Coaxial Plasma Accelerator,” *Physics of Plasmas*, 13(5), May 2006.
2. Cassibry, J. T., Thio, Y. C. F., Markusic, T. E., and Wu, S. T., “Numerical Modeling of a Pulsed Electromagnetic Plasma Thruster Experiment,” *Journal of Propulsion and Power*, 22(2), March-April, 2006, pp 628-636.
3. Cassibry, J. T., “Effects of Equation of State and Transport on the Modeling of Pulsed Plasma Accelerators,” *Journal of Propulsion and Power*, 23(2), March-April 2007, pp. 507-510.
4. Cassibry, J. T., and Wu, S. T., “Axisymmetric Boundary Conditions for a Super-Alfvenic

- Magnetic Nozzle,” *Journal of Physics D: Applied Physics*, 40 (2007) pp. 5130-5139.
5. ³Hsu, Scott C., “Technical Summary of the First U.S. Plasma Jet Workshop,” *Journal of Fusion Energy*, DOI: 10.1007/s10894-008-9162-1, 27 (4), 2008.
 6. Cassibry, J. T., “Comparison of Directly and Inductively Coupled Thrusters,” *IEEE Transactions on Plasma Science*, Special Issue on Plasma Propulsion, Part 1 of 4, October 2008, 13(5), pp. 2180-2188.
 7. Cassibry, J. T., Cortez, R. J., Hsu, S. C., and Witherspoon, F. D., “Estimates of confinement time and energy gain for plasma liner driven magneto-inertial fusion using an analytic self-similar converging shock model,” *Physics of Plasmas*, 16, 112707 (2009).
 8. Richardson, G. A., Cassibry, J. T., Chung, T. J. and Wu, S. T., “Finite Element Form of FDV for Widely Varying Flowfields,” *Journal of Computational Physics*, 229 (2010) 145-167.
 9. A. G. Lynn, E. Merritt, M. Gilmore, S. C. Hsu, F. D. Witherspoon, and J. T. Cassibry, “Diagnostics for the Plasma Liner Experiment,” *Review of Scientific Instruments* **81**, 10E115 2010.
 10. Awe, T. J., Adams, C. S., Davis, J.S., Hanna, D. S., Hsu, S. C., Cassibry, J. T., “One-dimensional radiation-hydrodynamic scaling studies of imploding spherical plasma liners,” *Physics of Plasmas* 18, 072705, (2011).
 11. J. T. Cassibry, M. Stanic, S. C. Hsu, F. D. Witherspoon, S.I. Abarzhi, “Tendency of spherically imploding plasma liners formed by merging plasma jets to evolve toward spherical symmetry,” *Physics of Plasmas*, 19, 052702, 2012.
 12. Hsu, S. C., T. J. Awe, S. Brockington, A. Case, J. T. Cassibry, G. Kagan, S. J. Messer, et al., “Spherically Imploding Plasma Liners as a Standoff Driver for Magnetoinertial Fusion.” *Plasma Science, IEEE Transactions On PP* (99): 1 –12. doi:10.1109/TPS.2012.2186829.
 13. Miernik, J., G. Statham, L. Fabisinski, C.D. Maples, R. Adams, T. Polsgrove, S. Fincher, J. Cassibry, R. Cortez, M. Turner, T. Percy, “Z-Pinch Fusion-based Nuclear Propulsion.” *Acta Astronautica*, **82**, 173 (2013).
 14. M. Stanic, R.F. Stellingwerf, J.T. Cassibry, S.I. Abarzhi, “Scale coupling in Richtmyer-Meshkov flows induced by strong shocks,” *Physics of Plasmas*, **19**, 082706, 2012.
 15. J. S. Davis, S. C. Hsu, I. E. Golovkin, J. J. MacFarlane, and J. T. Cassibry, “One-dimensional radiation-hydrodynamic simulations of imploding spherical plasma liners with detailed equation-of-state modeling,” *Physics of Plasmas*, **19**, 102701, 2012.
 16. Hsu, S. C., E. C. Merritt, A. L. Moser, T. J. Awe, S. J. E. Brockington, J. S. Davis, C. S. Adams, A. Case, J. T. Cassibry, J. P. Dunn, M. A. Gilmore, A. G. Lynn, S. J. Messer, F. D. Witherspoon, “Experimental Characterization of Railgun-driven Supersonic Plasma Jets Motivated by High Energy Density Physics Applications.” *Physics of Plasmas*, **19**, 123514, 2012.
 17. J.T. Cassibry, M. Stanic, and S.C. Hsu, “Ideal hydrodynamic scaling relations for a stagnated imploding spherical plasma liner formed by an array of merging plasma jets,” *Physics of Plasmas* **20**, 032706 (2013).
 18. Stanic, M., J. McFarland, R. F. Stellingwerf, J. T. Cassibry, D. Ranjan, R. Bonazza, J. A. Greenough, and S. I. Abarzhi, “Non-Uniform Volumetric Structures in Richtmyer-Meshkov Flows.” *Physics of Fluids* **25**, (10): 106107 (2013).
 19. J. Cassibry, R. Cortez, M. Stanic, W. Seidler, R. Adams, G. Statham, and L. Fabisinski, “The Case and Development Path for Fusion Propulsion,” *Journal of Spacecraft and Rockets* **52** (2), pp. 595–612 (2015).

Ph. D. Dissertation

“Numerical Modeling Studies of a Coaxial Plasma Accelerator as a Standoff Driver for Magnetized

Target Fusion,” Mechanical and Aerospace Engineering Department, University of Alabama in Huntsville, May 2004.

Invited Presentations

1. Adams, R. and Cassibry, J. T., “The Need for Fusion Propulsion Research,” in 53rd JANNAF Propulsion Meeting, December 5-8, 2005, Monterey, California.
2. Keynote Speaker for NASA Missouri Space Grant Consortium, Springfield, MO, April 26, 2010.
3. S. C. Hsu, T. J. Awe, S. Brockington, A. Case, J. T. Cassibry, G. Kagan, S. J., Messer, M. Stanic, X. Tang, D. R. Welch, and F. D. Witherspoon, “Spherically Imploding Plasma Liners as a Standoff Driver for Magneto-Inertial Fusion,” 38th IEEE International Conference on Plasma Science (ICOPS) and 24th Symposium on Fusion Engineering (SOFE), Chicago, IL, June 26-30, 2011.
4. J. Cassibry, “The case and development path for fusion propulsion,” invited speaker for Huntsville AL L5 Society (HAL5) Monthly Public Meeting, October 6, 2011, Huntsville, AL.
5. J. Cassibry, “Fusion Propulsion for Exploration of the Solar System,” invited speaker for TedxHuntsville, <http://tedxtalks.ted.com/video/TEDxHuntsville-Jason-Cassibry-F>, September 18, 2012, Huntsville.
6. J. Cassibry, “A Sustainable Roadmap for Fusion Propulsion,” Innovation Forum at NASA Glenn Research Center 24 June 2013.
7. J. Cassibry, “The Non-Equilibrium Fusion Plasma Research Center and Development of a Fusion Augmented Thruster,” Sandia National Laboratory Technical Seminar, Albuquerque, New Mexico, March 10, 2014.

In preparation

1. K. Schillo, J. T. Cassibry, S. Thompson, “Smooth Particle Hydrodynamic Prediction of Pulsed Nozzle Propulsion Performance,” submitted to Journal of Propulsion and Power.
2. R. Agnew, B. Winterling, J. T. Cassibry, “Batch burn neutron yield scaling in pulsed z-pinch using the self-similar magnetic Noh solution,” to be submitted to Plasma Physics and Controlled fusion.
3. R. Cortez, J. T. Cassibry, S. Doyle, “Fusion gain scaling for propulsion using an Otto cycle analysis,” to be submitted to the Journal of Propulsion and Power.
4. S. Doyle, J. T. Cassibry, D. Hewitt, “Calculation of absorbed radiation dose in human piloted missions to Mars for a fusion propulsion system,” to be submitted to Journal of Spacecraft and Rockets.

Refereed Conference Proceedings

1. L. H. Sentman, J. T. Cassibry, B. P. Wootton, and A. J. Eyre, “CW HF laser line selected performance,” AIAA Guidance, Navigation, and Control Conference and Exhibit, Portland, OR, Aug. 9-11, 1999.
2. L. H. Sentman, A. J. Eyre, B. P. Wootton, and J. T. Cassibry, “Comparison of cw HF laser performance for several nozzles,” AIAA Guidance, Navigation, and Control Conference and Exhibit, Portland, OR, Aug. 9-11, 1999.
3. J. T. Cassibry, S. T. Wu, Y. C. F. Thio, “An Estimation of Tolerances on Relative Velocities of Spherically Converging Plasma Jets,” 31st AIAA Plasmadynamics and Lasers Conference, 19-22 June, 2000, Denver, Colorado.
4. Wu, S.T., Wang, A.H., and Cassibry, Jason, “Characteristic Boundary Conditions for Numerical Magnetohydrodynamic (MHD) Simulation of Solar and Laboratory Plasma Flows”, *Numerical Modeling of Space Plasma Flows: ASTRONUM-2009*, ASP Conference Series, Vol. 429, 2010

- (peer reviewed), 294-302.
5. J. T. Cassibry, S. T. Wu, Y. C. F. Thio, "Interfacial Stability of Converging Plasma Jets for Magnetized Target Fusion," 31st AIAA Plasmadynamics and Lasers Conference, 19-22 June, 2000, Denver, Colorado.
 6. F. Thio, J. Cassibry, T. Markusic, "Pulsed Electromagnetic Acceleration of Plasmas," 38th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, July 7-10, 2002, Indianapolis, Indiana.
 7. F. Thio, R. Eskridge, J. Smith, A. Martin, T. Markusic, J. Cassibry, "An Experimental Study of a Pulsed Electromagnetic Plasma Accelerator," 38th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, July 7-10, 2002, Indianapolis, Indiana.
 8. Y. C. F. Thio, J. Cassibry, S. T. Wu, "2-D Magnetohydrodynamic Modeling of a Pulsed Plasma Thruster," 33rd AIAA Plasmadynamics and Laser Dynamics Conference, May 20-23, 2002, Maui, Hawaii.
 9. Cassibry, J.T., T.E. Markusic, and S.T. Wu. "Effects of Propellant Injection, Material and Electrode Geometry on the Performance of a Two-Stage Pulsed Plasma Accelerator," in 40th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, 2004, Fort Lauderdale, FL.
 10. Cassibry, J.T., T.E. Markusic, and S.T. Wu, "Effects of Equation of State and Transport on the Modeling of Pulsed Plasma Accelerators," in 35th Plasmadynamics and Lasers Conference, 2004, Portland, Oregon.
 11. Cassibry, J.T., and S.T. Wu. "Comparison of Directly and Inductively Coupled Pulsed Electromagnetic Thrusters," in 36th Plasmadynamics and Lasers Conference, 2005, Toronto, Canada.
 12. Thomas, Scott, Perrell, Eric, Liron, Caroline, Chiroux, Robert, Cassibry, J. T., and Adams, Robert, "Verification of a Multiphysics Toolkit against the Magnetized Target Fusion Concept," in 41st AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, 2005, Tucson, Arizona.
 13. Adams, R. and Cassibry, J. T., "The Need for Fusion Propulsion Research," in 41st AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, July 10-13, 2005, Tucson, Arizona.
 14. Cassibry, J. T., "Sub-Alfvénic Inlet Boundary Conditions for Axisymmetric MHD Nozzles," in 37th AIAA Plasmadynamics and Lasers Conference, AIAA-2006-3561, San Francisco, California, June 5-8, 2006.
 15. Schuettpelz, B., Li, Z., and Cassibry, J. T., "Plume Diagnostics Supporting Magnetic Nozzle Detachment Demonstration Experiment," in 42nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, AIAA-2006-5159, Sacramento, CA, July 9-12, 2006.
 16. Cassibry, J. T., "Theoretical Performance of an MHD Nozzle Using Super-Alfvénic Detachment," in 42nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, AIAA-2006-5160, Sacramento, CA, July 9-12, 2006.
 17. Cassibry, J., Knapp, C., Kirkpatrick, R., and Wu, S. T., "Numerical Modeling Studies of Plasma Driven Magnetoinertial Fusion," in 38th AIAA Plasma dynamics and Lasers Conference, Miami, FL, June 25-28, 2007.
 18. Fimognari, Peter J, Cassibry, J. T, and Ims, Kjell-Edmund "Effects of Pre-ionization and Bias Field on Plasmoid Formation and Acceleration," in 43rd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, AIAA-2007-5262, Cincinnati, Ohio, July 8-11, 2007.
 19. J. Cassibry and S. Thompson "Modeling of Formation and Implosion of Plasma Liners by Discrete Jets in 39th Plasmadynamics and Lasers Conference," in 39th AIAA Plasma dynamics and Lasers Conference, AIAA-2008-3890, Seattle, Washington, June 23-26, 2008.
 20. Bryan Taylor, David Peterson, William Strobl, Jim Mildice, S. Locke Bogart, Adrian Coroian, Dr. Jean-Luc Cambier, Dr. Albert Juhasz, and Dr. Jason Cassibry, "Magnetically Accelerated

- Plasmoid Thruster Systems Analysis,” JANNAF 6th Modeling and Simulation / 4th Liquid Propulsion / 3rd Spacecraft Propulsion Joint Subcommittee Meeting, Orlando, FL, 2008.
21. S. Thompson and J. Cassibry, “Euler Equations Flow Field Dependent Finite Element Method,” 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 4 - 7 January 2011, Orlando, Florida, AIAA 2011-1210.
 22. Cassibry, J. T., Stanic, M., Hsu, Scott, Witherspoon, D. and Gilmore, M., “Scaling laws for merging and implosion of discrete plasma jets,” 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 4 - 7 January 2011, Orlando, Florida, AIAA-2011-963.
 23. T. Polsgrove, S. Fincher, R. B. Adams, J. Cassibry, R. Cortez, M. Turner, C. D. Maples, J. N. Miernik, G. N. Statham, L. Fabisinski, J. Santarius, T. Percy, “Design of Z-pinch and Dense Plasma Focus Powered Vehicles,” 49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, 4 - 7 January 2011, Orlando, Florida, AIAA 2011-962.
 24. Stanic, M., Cassibry, J. T., Stellingwerf, R. F., Chou, C-C., Fryxell, B.J., Abarzhi, S.I., “Validation of SPHC and Crash codes in modeling of linear and non-linear Richtmyer-Meshkov instabilities,” 20th AIAA Computational Fluid Dynamics Conference, 27 - 03 June 2011, Honolulu, HI, AIAA-2011-3400.
 25. Loverich, J., Hakim, A., Mahalingam, S., Stotz, P. Zhou, S C.D., Keidar, M., Kandrapu, M., Zhuang, T., Cassibry, J., Hatcher, R., “Simulation of laboratory accretion disk and weakly ionized hypersonic flows using Nautilus,” 42nd AIAA Plasmadynamics and Lasers Conference, 27 - 03 June 2011, Honolulu, HI, AIAA-2011-4012.
 26. Miernik, J., Statham, G., Fabisinski, L., Maples, C. D., Adams, R. Polsgrove, T., Fincher, S., Cassibry, J., Cortez, R., Turner, M., Percy, T., “Fusion Propulsion Z-pinch Engine Concept,” 8th Modeling and Simulation/6th Liquid Propulsion/5th Spacecraft Propulsion Joint Subcommittee Meeting (JANNAF), December 5-9, 2011.
 27. Hatcher, R., Stanic, M., Cassibry, J., Loverich, J., Kundrapu, M., “Project Icarus: Analysis of Magnetic Nozzle Design for Pulsed-Fusion Propulsion System,” 63rd International Astronautical Congress, 1 -5 October 2012, Naples, Italy, IAC-12-C4.8.4.
 28. J. Cassibry, R. Cortez, M. Stanic, W. Seidler, R. Adams, G. Statham, and L. Fabisinski, “The Case and Development Path for Fusion Propulsion,” in 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, Atlanta, GA, 30 July - 01 August 2012, AIAA 2012-4114.
 29. Adams, Robert B., Jason T. Cassibry, and Kevin Schillo, “Developing the Pulsed Fission-Fusion (PuFF) Engine,” in *50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference*. American Institute of Aeronautics and Astronautics, July 2014, (*AIAA Best Paper by the AIAA Nuclear and Future Flight Propulsion Technical Committee*).
 30. Rodriguez, Mitchell, Jason T. Cassibry, Christopher A. Marlar, and Jeffrey L. Evans, “A Cohesive Model to Predict Mechanical Responses in Novel Nuclear Fusion Materials and Designs Using a Combined Computational and Empirical Approach,” in *50th AIAA/ASME/SAE/ASEE Joint Propulsion Conference*. American Institute of Aeronautics and Astronautics, July 2014.

Conference Presentations without Proceedings

1. J. T. Cassibry, S. T. Wu, Y. C. F. Thio, “Interfacial Stability of Spherically Converging Plasma Jets for Magnetized Target Fusion,” 42nd Annual Meeting of the Division of Plasma Physics, 23-27 October, 2000, Quebec Canada.
2. J. T. Cassibry, S. T. Wu, Y. C. F. Thio, “Interfacial Stability of Spherically Converging Plasma Jets for Magnetized Target Fusion,” Space Technology and Application International Forum, 11-15 February 2001, Albuquerque, New Mexico.

3. J. Cassibry, Y. C. Francis Thio, Thomas Markusic, James Sommer, "Design of A Plasma Injector for a Pulsed Plasma Accelerator," 44th Annual Meeting of the Division of Plasma Physics, November 11-15, 2002, Orlando, Florida.
4. Y. C. Francis Thio, Peter J. Turchi, Thomas E. Markusic, Jason T. Cassibry, James C. Sommer, "Some Considerations on the Pulsed Electromagnetic Acceleration of Plasma," 44th Annual Meeting of the Division of Plasma Physics, November 11-15, 2002, Orlando, Florida.
5. Y. C. Francis Thio, Peter J. Turchi, Thomas E. Markusic, Jason T. Cassibry, James C. Sommer, "Pulsed Electromagnetic Acceleration of Plasma: A Review," 44th Annual Meeting of the Division of Plasma Physics, November 11-15, 2002, Orlando, Florida.
6. Jason T. Cassibry, Y. C. Francis Thio, S. T. Wu, "Numerical Simulation of Plasma Liner Formation and Implosion on a Magnetized Target by Discrete Jets," 45th Annual Meeting of the Division of Plasma Physics, October 27-31, 2003, Albuquerque, New Mexico.
7. Robert Adams, Jason T. Cassibry, "The Need for Fusion," NASA/JPL/MSFC/UAH 16th Annual Advanced Space Propulsion Workshop, April 7-8, 2005, University of Alabama, Huntsville, AL.
8. Jason T. Cassibry, Zhongmin Li, Clark Hawk, "Overview of Electric Propulsion Research at the University of Alabama Propulsion Research Center", NASA/JPL/MSFC/UAH 16th Annual Advanced Space Propulsion Workshop, April 7-8, 2005, University of Alabama, Huntsville, AL.
9. Seth Thompson, Jason T. Cassibry, and Ron Kirkpatrick, "Parameter Space for Plasma Liner Driven Magnetoinertial Fusion," 48th Annual Meeting of the Division of Plasma Physics, October 30-November 3, 2006, Philadelphia, Pennsylvania.
10. Jason T. Cassibry, Charles Knapp, Ron Kirkpatrick, and S. T. Wu, "Numerical Modeling Studies of Plasma Driven Magnetoinertial Fusion," 48th Annual Meeting of the Division of Plasma Physics, October 30-November 3, 2006, Philadelphia, Pennsylvania.
11. Jason T. Cassibry, Seth Thompson, Nilesh Dhote, Charles Knapp, Ron Kirkpatrick, and S. T. Wu, "A Test Suite for Magnetoinertial Fusion," 49th Annual Meeting of the Division of Plasma Physics, November 12-16, 2007, Orlando, FL.
12. Jason T. Cassibry, "Accessing the High Energy Density Physics Regime Using Converging Shocks," 1st Los Alamos Workshop on Plasma Jets, January 24-25, 2008.
13. Jason T. Cassibry, "Accessing the HEDP Regime Using a Plasma Liner," 2008 APS April Meeting and HEDP/HEDLA Workshop, St. Louis, MO.
14. Jason T. Cassibry, "Scaling Laws for Plasma Jets-driven Liner Implosions," 1st Los Alamos Workshop on Plasma Jets, January 24-25, 2008, 50th Annual Meeting of the Division of Plasma Physics, November 17-20, Dallas, TX.
15. Jason T. Cassibry, Scott Hsu, Doug Witherspoon, Mark Gilmore, and the PLX team, "Hydrodynamic Modeling of the Plasma Liner Experiment, " 51st Annual Meeting of the Division of Plasma Physics, November 2-6, 2009, Atlanta, GA.
16. J.S. Davis, D.S. Hanna, T.J. Awe, S.C. Hsu, M. Stanic, J.T. Cassibry, J.J. MacFarlane, "Numerical Modeling of Imploding Plasma liners Using the 1D Radiation-Hydrodynamics Code HELIOS" Bulletin of the American Physical Society, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15), <http://meetings.aps.org/link/BAPS.2010.DPP.JP9.41>.
17. R. J. Mason, R.J. Faehl, R.C. Kirikpatrick, D. Witherspoon, and J. Cassibry, "Modeling of plasma jet production from rail and coaxial guns for imploding plasma liner formation," Bulletin of the American Physical Society, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15), <http://meetings.aps.org/link/BAPS.2010.DPP.UP9.114>.
18. J.R. Thompson, N.I. Bogatu, S.A. Galkin, J.S. Kim, D.R. Welch, C. Thoma, J.J. MacFarlane, F.D. Witherspoon, J.T. Cassibry, T.J. Awe, S.C. Hsu, "Plasma Jet Propagation and Stability Modeling for the Plasma Liner Experiment (PLX)," Bulletin of the American Physical Society, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15),

- <http://meetings.aps.org/link/BAPS.2010.DPP.UP9.122>.
19. Thomas Awe, David Hanna, Joshua Davis, Scott Hsu, Milos Stanic, Jason Cassibry, “One-dimensional numerical modeling of imploding plasma liners,” *Bulletin of the American Physical Society*, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15), <http://meetings.aps.org/link/BAPS.2010.DPP.UP9.166>.
 20. S.C. Hsu, T.J. Awe, D.S. Hanna, J.S. Davis, F.D. Witherspoon, J.T. Cassibry, M.A. Gilmore, D.Q. Hwang “Overview, Status, and Plans of the Plasma Liner Experiment (PLX),” *Bulletin of the American Physical Society*, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15), <http://meetings.aps.org/link/BAPS.2010.DPP.UP9.108>.
 21. F. Douglas Witherspoon, Richard Bomgardner, Andrew Case, Sarah Messer, Samuel Brockington, Linchun Wu, Raymond Elton, Scott Hsu, Jason Cassibry, Mark Gilmore “Overview of Plasma Guns for PLX,” *Bulletin of the American Physical Society*, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15), <http://meetings.aps.org/link/BAPS.2010.DPP.UP9.111>.
 22. Elizabeth Merritt, Mark Gilmore, Alan Lynn, Bruno Bauer, F. Douglas Witherspoon, Jason Cassibry, Scott Hsu, “Diagnostics for the Plasma Liner Experiment (PLX),” *Bulletin of the American Physical Society*, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15), <http://meetings.aps.org/link/BAPS.2010.DPP.UP9.109>.
 23. J.T. Cassibry, M.D. Stanic, T.J. Awe, D.S. Hanna, J.S. Davis, S.C. Hsu, F.D. Witherspoon, “Theory and Modeling of the Plasma Liner Experiment (PLX),” *Bulletin of the American Physical Society*, 52nd Annual Meeting of the APS Division of Plasma Physics, 55 (15), <http://meetings.aps.org/link/BAPS.2010.DPP.UP9.118>.
 24. J. Cassibry, R. Cortez, M. Stanic, M. Beattie, S. Thompson, R. Hatcher, R. Adams, W. Seidler, “The Case and Development Path for Fusion Propulsion,” International Space Development Conference, May 22, 2011.
 25. J.T. Cassibry, M.D. Stanic, R. Hatcher, S.C. Hsu, F.D. Witherspoon, M. Gilmore, W. Luo, “The Tendency of Plasma Liners Formed by Hypersonic Jets to Evolve Toward Good Spherical Symmetry During Implosion,” *Bulletin of the American Physical Society*, 53rd Annual Meeting of the APS Division of Plasma Physics, 56 (16), <http://meetings.aps.org/link/BAPS.2011.DPP.TP9.104>.
 26. Hatcher, Richard, Jason Cassibry, Milos Stanic, John Loverich, and Ammar Hakim. 2011. “Eulerian and Lagrangian Plasma Jet Modeling for the Plasma Liner Experiment.” *Bulletin of the American Physical Society* Volume 56, Number 16 (November 17). <http://meeting.aps.org/Meeting/DPP11/Event/153207>.
 27. Hsu, S. C, F. D Witherspoon, J. T Cassibry, and M. A Gilmore. 2011. “Overview of the Plasma Liner Experiment (PLX).” *Bulletin of the American Physical Society* Volume 56, Number 16: 307. <http://meetings.aps.org/Meeting/DPP11/Event/153192>.
 28. Stanic, Milos, Jason Cassibry, Robert Stellingwerf, Chuan-Chih Chou, Bruce Fryxell, and Snezhana Abarzhi. 2011. “Validation of SPHC and CRASH Codes in Modeling of Linear and Non-linear Richtmyer-Meshkov Instabilities.” *Bulletin of the American Physical Society* Volume 56, Number 16 (November 16). <http://meeting.aps.org/Meeting/DPP11/Event/152653>.
 29. Thompson, J. R, I. N Bogatu, S. A Galkin, J. S Kim, D. R Welch, C. Thoma, I. Golovkin, et al. 2011. “A 1D (radial) Plasma Jet Propagation Study for the Plasma Liner Experiment (PLX).” *Bulletin of the American Physical Society* Volume 56, Number 16 (November 17). <http://meeting.aps.org/Meeting/DPP11/Event/153201>.
 30. Witherspoon, F. D, S. Brockington, A. Case, S. J Messer, L. Wu, R. Elton, S. C Hsu, J. T Cassibry, and M. A Gilmore. 2011. “Development of MiniRailguns for the Plasma Liner Experiment (PLX).” *Bulletin of the American Physical Society* Volume 56, Number 16 (November 17). <http://meetings.aps.org/Meeting/DPP11/Event/153212>.

31. S.C. Hsu, A.L. Moser, J.S. Davis, J.P. Dunn, T.J. Awe, E.C. Merritt, C.S. Adams, A.G. Lynn, M.A. Gilmore, S. Brockington, A. Case, S.J. Messer, D. van Doren, F.D. Witherspoon, J.T. Cassibry, and M. Stanic, in *Bulletin of the American Physical Society*, **57**(12), 54th Annual Meeting of the APS Division of Plasma Physics, October 29–November 2 2012; Providence, Rhode Island, <http://meetings.aps.org/link/BAPS.2012.DPP.BO6.10>.
32. E. Merritt, S. Hsu, A. Lynn, A. Moser, J. Dunn, J. Davis, T. Awe, M. Gilmore, S. Brockington, F.D. Witherspoon, and J. Cassibry, in *Bulletin of the American Physical Society*, **57**(12), 54th Annual Meeting of the APS Division of Plasma Physics, October 29–November 2 2012; Providence, Rhode Island, <http://meetings.aps.org/link/BAPS.2012.DPP.BO6.10>.
33. M. Stanic, J. Cassibry, and S. Hsu, in *Bulletin of the American Physical Society*, **57**(12), 54th Annual Meeting of the APS Division of Plasma Physics, October 29–November 2 2012; Providence, Rhode Island, <http://meetings.aps.org/link/BAPS.2012.DPP.BO6.10>.
34. M. Stanic, R.F. Stellingwerf, J. Cassibry, and S.I. Abarzhi, in *Bulletin of the American Physical Society*, **57**(12), 54th Annual Meeting of the APS Division of Plasma Physics, October 29–November 2 2012; Providence, Rhode Island, <http://meetings.aps.org/link/BAPS.2012.DPP.BO6.10>.
35. R.F. Stellingwerf, M. Stanic, J.T. Cassibry, and S.I. Abarzhi, in *Bulletin of the American Physical Society*, **57**(12), 54th Annual Meeting of the APS Division of Plasma Physics, October 29–November 2 2012; Providence, Rhode Island, <http://meetings.aps.org/link/BAPS.2012.DPP.BO6.10>.
36. R. Agnew, J. Cassibry, “Analytic Model to Estimate Thermonuclear Neutron Yield in Z-Pinches using the Magnetic Noh Problem,” Nuclear and Emerging Technologies for Space (NETS 2014), February 24-26, 2014, Infinity Science Center, Mississippi.
37. R. Adams, J. Cassibry, “Progress on the Pulsed Fission-Fusion (PuFF) Propulsion Concept,” Nuclear and Emerging Technologies for Space (NETS 2014), February 24-26, 2014, Infinity Science Center, Mississippi.
38. M. Derzon, J. Cassibry, “The Non-equilibrium Fusion Plasma Research Center and Development of a Fusion Augmented Thruster using Microfabricated Components,” Nuclear and Emerging Technologies for Space (NETS 2014), February 24-26, 2014, Infinity Science Center, Mississippi.
39. Cassibry, Jason, Jesse Dougherty, Seth Thompson, S. C Hsu, and F. D. Witherspoon, “Ram Pressure Scaling and Non-Uniformity Characterization of a Spherically Imploding Liner Formed by Hypervelocity Plasma Jets,” Workshop on Exploratory Topics in Plasma and Fusion Research (EPR) and US-Japan Compact Torus (CT) Workshop Madison, WI, August 5-8, 2014.
40. Cassibry, Jason, Jesse Dougherty, Seth Thompson, Scott Hsu, and F.D. Witherspoon, “Ram-Pressure Scaling and Non-Uniformity Characterization of a Spherically Imploding Liner Formed by Hypervelocity Plasma Jets,” In *Bulletin of the American Physical Society*. Vol. 59 (15), October 28, 2014, New Orleans, Louisiana, <http://meetings.aps.org/Meeting/DPP14/Event/225584>.
41. Hsu, S. C, J. T. Cassibry, and F. D. Witherspoon, “Contoured-Gap Coaxial Guns for Imploding Plasma Liner Experiments,” In *Bulletin of the American Physical Society*. Vol. 59 (15), October 28, 2014, New Orleans, Louisiana, <http://meetings.aps.org/link/BAPS.2014.DPP.JP8.89>.
42. Witherspoon, F. D., A. Case, S. Brockington, J. T. Cassibry, and S. C Hsu, “Contoured-Gap Coaxial Guns for Imploding Plasma Liner Experiments,” In *Bulletin of the American Physical Society*. Vol. 59 (15), October 28, 2014, New Orleans, Louisiana, <http://meetings.aps.org/link/BAPS.2014.DPP.JP8.90>.
43. R. Adams, J. Cassibry , G. Statham, P. Giddens , “Development of the Pulsed Fission Fusion (puff) Deep Space Propulsion System,” 26th IEEE Symposium on Fusion Engineering (SOFE), Austin, TX, 5/31/15-6/4/15.

44. B. Winterling, R. Agnew, J. Cassibry, "Batch Burn Estimate of Thermal Neutron Yield in Pulsed Z-Pinches by Time and Spatial Integration of the Magnetic Noh Problem ," 20th IEEE Pulsed Power Conference (PPC), Austin, TX, 5/31/15-6/4/15.

Popular Press Articles and Media Events on my Research

1. "New research could power rocket trip to Mars in weeks, not months," Lee Roop, *Huntsville Times*, May 17, 2012, http://blog.al.com/space-news/2012/05/new_research_could_power_trip.html.
2. "The Big Machine That Could Lead to Fusion-Powered Spaceships," Sarah Fecht, *Popular Mechanics*, June 5, 2012, <http://www.popularmechanics.com/science/space/rockets/the-big-machine-that-could-lead-to-fusion-powered-spaceships-9450996>.
3. "Charger-1 will help UAHuntsville-led research team study thermo-nuclear propulsion," Mike Kelley, *Huntsville Times*, July 5, 2012, http://www.al.com/42/index.ssf/2012/07/charger-1_will_help_uahuntsvil.html.
4. "Interview on The Space Show," Dr. David Livingston, Host, <http://thespaceshow.wordpress.com/2012/10/10/dr-jason-cassibry-tuesday-10-9-12/>.
5. "Interview on The Space Show," Dr. David Livingston, Host," <http://archived.thespaceshow.com/shows/2147-BWB-2013-12-20.mp3>.
6. "The Unveiling of Charger 1 Fusion Pulse Power Generator," February 22, 2013, UAH Aerophysics Center. Participants included Governor Robert Bentley, U.S. Congressman Mo Brooks, Redstone Garrison Commander Col. John Hamilton, UAH President Robert AltenkirchMSFC Associate Director Dale Thomas, and The Boeing Company Vice President Greg Hyslop.

Local Research Seminars

1. "The Case and Development Path for Fusion Propulsion," J. Cassibry, North Alabama Science Fiction Association (NASFA), February 17, 2012, Huntsville, Alabama.
2. J. Cassibry, "Fusion for In-Space Propulsion," North Alabama Section of ASME, April 2, 2014, Huntsville, Alabama.

Technical Reports

1. L. H. Sentman, J. T. Cassibry, A. J. Eyre , and B. P. Wootton, Overtone Mirror Characteristics as a Function of Time, AAE TR 99-07, UILU Eng 99-0507, June, 1999.
2. L. H. Sentman, J. T. Cassibry, B. P. Wootton and A. J. Eyre, Influence of Grating Design on CW HF Laser Line Selected Performance, AAE TR 99-08, UILU Eng 99-0508, June, 1999.
3. Clark Hawk et al., Final Report: Methane viability Assessment, submitted to Perkins Technical Services, January 29, 2008.
4. Jason Cassibry, Final Report: Modeling of Advanced Microwave Electrothermal Thruster Fueled by Water, submitted to Orbitec, January 4, 2010.
5. Tara Polsgrove, Leo Fabisinski, Sharon Fincher, C. Dauphne Maples, Janie Miernik, Tom Percy, Geoff Statham, Matt Turner, Jason Cassibry, Ross Cortez, John Santarius, Final Report: "Z-Pinch Pulsed Plasma Propulsion Technology Development," Advanced Concepts Office (ED04), Marshall Space Flight Center, October 8, 2010.

SPONSORED RESEARCH

Federal

1. "Magnetic Nozzle and Efficiency of the Plasma Detachment", Boris Breizman (UT-Austin, PI), Jason Cassibry (Co-I), (Other participants from JSC, MSFC), NASA Broad Agency Announcement 04-02 - Human and Robotic Technology, 01/01/2005-12/31/2005, (Note, all contracts funded through this BAA were canceled halfway through due to agency redirection of funds), \$896,146, (Cassibry \$134,221).
2. "Theoretical Investigation of Plasma Jets Driven Magneto-inertial Fusion using Smooth Particle Hydrodynamics, Department of Energy," Jason Cassibry (PI), Office of Science, EPSCoR, 1/1/2008-12/31/2008, \$422,613, (Cassibry \$422,613).
3. "An Upgrade to the Solid Propellant Rocket Performance Prediction Computer Program (SPP)," Jason Cassibry (PI), NASA MSFC, 6/1/2008-8/9/2008, \$30,000, (Cassibry \$30,000).
4. "Performance Calculations for Plasma-Driven Micrometeoroid Accelerator," Jason Cassibry (PI), NASA MSFC, NNM05AA22A Supplement 51, 5/1/2010-8/9/2010, \$17,500, (Cassibry \$17,500).
5. "Z-Pinch/Dense Plasma Focus Concept for Fusion Propulsion," Jason Cassibry (PI), NASA Innovative Partnerships Program, NNM05AA22A, (added to NNM05AA22A Supplement 51), 10/1/2010-3/30/2010 \$7,000, (Cassibry \$7,000).
6. "Formation of Imploding Plasma Liners for Fundamental HEDP Studies and MIF Standoff Driver Concept," Jason Cassibry (PI), U.S. Department of Energy, DE-SC0003560, 2/1/2010 – 5/31/2013, \$803,690, (Cassibry \$803,690).
7. "Innovative Propulsion Technology Support," Propulsion Research Center Investigator, [R. Frederick and R. Tyson (CO-PIs), N. Slegers and J. Cassibry, (Propulsion Research Center Investigators), M. Griffin (Director)], Contract HQ0147-11-C-6006, Missile Defense Agency, 2/10/2011 to 10/31/2012, \$751K (Cassibry \$67,554).
8. "Rapid Response Architecture Optimization," Co-Investigator, Michael Griffin (PI), Jason Cassibry Co-PI, Missile Defense Agency, HQ0147-10-C-6002, 08/12/2010-08/11/2012, \$214,509, (Cassibry \$214,509).
9. "Innovative Propulsion Technology Support," Propulsion Research Center Investigator, Robert Frederick (PI) [R. Tyson (CO-PIs), N. Slegers and J. Cassibry, (Propulsion Research Center Investigators)], Contract HQ0147-11-C-6006, Missile Defense Agency, 11/1/2012 to 12/31/2013, \$800K (Cassibry \$65,000).
10. "Innovative Propulsion Technology Support," Propulsion Research Center Investigator, [R. Frederick and R. Tyson (CO-PIs), N. Slegers and J. Cassibry, (Propulsion Research Center Investigators), Contract HQ0147-11-C-6006, Missile Defense Agency, 1/1/2014 – 3/30/2015, \$853K (Cassibry \$68,000).
11. "Support for Frozen Deuterium Fiber Z-Pinch Research at the Navy Research Laboratory," Jason Cassibry (PI), subcontract to Navy Research Laboratory, as part of a proposal to ARPA-E, 6/18/2014 - 6/17/2015, \$36,853, (Cassibry, PI, \$36,853).
12. "Innovative Propulsion Technology Support," Richard Tyson (PI), MDA, 1/1/15-4/30/15, \$250,611.00 (Cassibry, Research Scientist, \$40,000).
13. "Pulsed Fission-Fusion (PuFF) Propulsion System," Jason Cassibry (PI), NASA MSFC, 3/1/15-9/30/15, \$30000 (Cassibry, PI, \$30,000).
14. "Game-Changing Kill Vehicle/Interceptor Technology," Robert Frederick (PI), MDA, 3/30/15-3/29/16, \$828,474.00 (Cassibry, Co-PI, \$828,474.00).

State

1. "Studies in Helicity Injection in a Plasmoid Thruster as a Bridge to Near Term Fusion

- Propulsion,” Jason Cassibry (PI and advisor), on behalf of graduate student Ross Cortez (author of proposal) Alabama Space Grant Fellowship, 8/19/2009/-8/18/2010, \$24,000.
2. “Studies in Z-Pinch Fusion Propulsion,” Jason Cassibry (PI and advisor), on behalf of graduate student Ross Cortez (author of proposal) Alabama Space Grant Fellowship, 8/19/2001/-8/18/2011, \$24,000, (Cassibry \$24,000).
 3. “Development and Testing of the Charger Facility for Deep Space Fusion Propulsion Research,” Jason Cassibry (PI), Alabama Innovation Fund, 10/1/12-12/31/14, \$299,557.

Industry

1. “Investigation of plasma ignition of methane,” C. Hawk (PI), J. Blackmon (Co-I), Z. Li (Co-I), J. Cassibry (Co-I), Perkins Technical Institute, through Propulsion Research Center, 9/1/2006-8/31/2007, \$377,957, (Cassibry \$30,000).
2. “Theoretical Support of an FRC Thruster Model,” Jason Cassibry (PI), Advatech Pacific, 2/15/2008-3/3/2009, \$15,000, (Cassibry \$15,000).
3. “Modeling of Plasma Jets Driven Magneto-inertial Fusion using SPHC,” Jason Cassibry (PI), HyperV Technologies, Inc., 10/1/2008-2/28/09, \$5,996, (Cassibry \$5,996).
4. “Advanced MET fueled by water with plume diagnostics and modeling,” Chris St. Clair (PI, ORBITEC), Jason Cassibry (PI on subcontract to Orbitec), NASA STTR Topic T3.01 Space Power and Propulsion, 1/1/09 – 12/31/09, \$100,000, (Cassibry \$32,785).
5. “Modeling of Plasma Jets Driven Magneto-inertial Fusion using SPHC,” Doug Witherspoon (PI, HyperV Technologies, Inc.), Jason Cassibry (PI on subcontract to HyperV Technologies, Inc.), U.S. Department of Energy Annual Phase I Small Business Innovation Research (SBIR) funding opportunity (DE-PS02-08ER08-34) subtopic 57c high energy density laboratory plasmas (HEDLP) and magneto-inertial fusion, 7/1/09 – 4/1/10, \$100,000, (Cassibry \$9,837).
6. “Development of Radiation and Atomic Physics Modeling to Support High-Fidelity Simulation,” Joe MacFarlane Prism (PI, Prism Sciences, Inc.), Jason Cassibry (PI on subcontract from Prism Sciences), U.S. Department of Energy Annual Phase I Small Business Innovation Research (SBIR) funding opportunity (DE-FOA-0000413), 6/1/2011-2/29/2012, \$100,000, (Cassibry \$26,998).
7. Principal Investigator, “Modeling of the Plasma Liner Experiment,” subcontract from Tech-X, portion of DOE SBIR Phase II award, 8/15/2011-8/14/2012, \$88,315, (Cassibry \$88,315).
8. “Development of a Course for Fusion Propulsion,” Jason Cassibry (PI), The Boeing Company, 8/1/2010-7/31/2011, \$10,000, (Cassibry \$10,000).
9. “Development of a Course for Fusion Propulsion,” Jason Cassibry (PI), The Boeing Company, 8/1/2011-7/31/2012, \$5,000, (Cassibry \$5,000).
10. “Development of a Course for Fusion Propulsion,” Jason Cassibry (PI), The Boeing Company, 8/1/2012-7/31/2013, \$5,000, (Cassibry \$5,000).
11. “Development of a Course for Fusion Propulsion,” Jason Cassibry (PI), The Boeing Company, 8/1/2013-7/31/2014, \$5,000, (Cassibry \$5,000).

University

1. “Theoretical Modeling for Plasma Propulsion,” Jason Cassibry (PI), Propulsion Research Center, University of AL in Huntsville, funding supported by Shelby Propulsion Research Initiative and NASA MSFC, 10/1/2003-8/15/2006, \$281,142 (Cassibry \$218,142).
2. “Startup funds for tenure earning assistant professor position with Department of Mechanical and Aerospace Engineering, University of Alabama in Huntsville,” Jason Cassibry (PI), 9/1/2006-8/31/2008, \$35,200, (Cassibry \$35,200).
3. “Improved thrust and exhaust speed measurements on a plasmoid thruster with bias flux,” J. Cassibry (PI), UAH Minigrant, 1/1/2008-12/31/2008, \$10,178, (Cassibry \$10,178).

4. "Development of a 1D Flowfield Dependent Variational Method for Magnetohydrodynamics," G. Richardson (Co-PI), J. Cassibry (Co-PI), University Research Infrastructure Investment Grant Program 2007-2008, UAHuntsville, 5/1/2008-4/30/2009, \$35,147, (Cassibry \$17,000).
5. "Energy Yield Calculations and Hardware Development for Fusion Propulsion Research utilizing Charger 1," J. Cassibry (PI), UAH Industry University Partnership, 1/1/2014-5/7/2014, \$9,208 (Cassibry \$9,208).

Awarded, but not funded

"Gallium Electromagnetic Accelerator for In-Space Propulsion," Thomas Markusic (PI, NASA MSFC), Iain Boyd (Co-I U. Mich.), Rodney Burton (Co-I, UIUC), J. Monheiser (Co-I, Aerojet), Jason Cassibry (Co-I), NASA NRA, NNH04ZSS001N-CIEP, submitted 4/30/2004, 6 month phase I grant with possible renewal up to 3 years total, (this proposal won, but was never funded due to changes in agency research priorities prior to awarding of funds), 9/1/2004-8/31/2007, \$1,592,500 (Cassibry \$185,325).

Submitted/Pending

- 1.

SERVICE

Service to the institution (department, college, and university)

1. Jemison College Academy Student Selection Committee (2015)
2. SACS (Southern Association of Colleges and Schools) committee
3. SACS College of Engineering, Learning Resources Subcommittee
4. Faculty Awards for Excellence Review Committee
5. Reappointment committees in Civil Engineering and Space Science Departments.
6. UAH Vice President of Research Search Committee (August 2012 to March 2013)
7. UAH Ad hoc Research Committee commissioned by the Faculty Senate President (Fall of 2012 and April 2014).
8. UAH MAE Program Advisory Board
9. PhD preliminary exam author for Fluids and Thermodynamics Tests
10. InSPIRESS PDF Review Board (Presentation review for UAH high school outreach initiative), September 2012.
11. Member of the UAH Honors Faculty
12. Member of MAE faculty search committee.
13. Member of MAE faculty search committee for Eminent Scholar in Propulsion position
14. Member of MAE graduate faculty
15. Presentation of fusion propulsion research to UAH COE Engineering Advisory Board, March 1, 2013.
16. Presentation of fusion propulsion research to UAH Alumni Lunch and Learn, February 20, 2013.
17. Participant in student organized Program for UAH Student Residents, 'Pizza with Professors', September 26, 2012.
18. Course Coordinator for MAE 420, 441
19. Technical Program Chair for the Student Poster Session of the 4th Wernher von Braun Memorial Symposium sponsored by the American Astronomical Society, October 24-26, 2011, UAHuntsville (~45 papers given).
20. Reviewer of student activities and proposals:
 - a) Aerojet Scholarship

- b) aesthetics on MAE 100 student projects
- c) Research Experiences for Undergraduates.
- 21. External Observer for M.S. and Ph.D. Theses and Dissertations.
- 22. Chair of Sigma Gamma Tau Aerospace Engineering Honor Society (2008-present)
- 23. Member of the Faculty Senate (finance and means committee) 2009-2012.
- 24. Panelist at the UAHuntsville New Faculty Orientation Workshop, August 2010.
- 25. Guest speaker for classes and student run organizations
 - a) ASME student chapter
 - b) PH 110 Frontiers in Science course
 - c) MAE 200.
 - d) UAHuntsville AIAA student meeting.
- 26. ABET Audit Committee
- 27. Program Advisory Board of the MAE department for aerospace engineering.
- 28. Aerospace Undergraduate Committee.
- 29. Planned Dr. S. T Wu's retirement party.

Service to the discipline

1. Reviewer for peer reviewed journals
 - a) AIAA Journal
 - b) AIAA Journal of Propulsion and Power.
 - c) AIP Physics of Plasmas
 - d) Aircraft Engine and Aerospace Technology
 - e) Journal of Thermophysics and Heat Transfer
 - f) IEEE Transactions on Plasma Science
 - g) Journal of the British Interplanetary Society article
2. Reviewer for proposals to these agencies
 - a) NASA
 - b) DOE
 - c) DOE Advanced Scientific Computing Research
 - d) NSF
 - e) Oak Ridge Institute for Science and Education
3. Reviewer for these books
 - a) Moon Base and Beyond, by Margaret Morris
4. Panelist for "Enabling Broader Participation in Developing Breakthrough Science and Technologies: Perspectives from Scientists and Science Educators", May 22, 2011, International Space Development Conference in Huntsville, AL.
5. Session chair for these conferences
 - a) AIAA Aerospace Science Meeting
 - b) Nuclear and Emerging Technologies for Space workshop
 - c) AIAA Joint Propulsion Conference
 - d) AIAA Plasmadynamics and Lasers Conference
6. Member of these technical planning committees
 - a) AIAA Plasmadynamics and Lasers Technical Committee (2006-2012).
 - b) AIAA Nuclear and Future Flight Committee (2011-present).
 - c) Advanced Space Propulsion Workshop
7. Technical Program Chair for AIAA Aerospace Science Meeting, January 2011.
8. Reviewer for abstracts submitted to these conferences
 - a) AIAA Plasmadynamics and Lasers Conference
 - b) AIAA Aerospace Science Meeting

- c) AIAA Joint Propulsion Conference
- 9. Responsible for web page updates for AIAA Plasmadynamics and Lasers committee (2006-2009)
- 10. National Research Council Assessment of Research-Doctorate Programs Questionnaire.
- 11. Judge for SAIC Case Competition

Other service activities

- 1. Consulting to International Space Systems, Inc and NASA MSFC for magnetohydrodynamic modeling of MPD thrusters and Particle-In-Cell code development.
- 2. Written ~104 letters of recommendation since 2004 on behalf of students and professionals for scholarships, fellowships, University applications, and employment.