

# **Aerospace Technology Research Conducted by Public Universities**

**A Report to the Texas Legislature  
(Senate Bill 458, 84th Texas Legislature,  
Regular Session)**

**October 2018**

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## Texas Higher Education Coordinating Board



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### Agency Mission

The mission of the Texas Higher Education Coordinating Board (THECB) is to provide leadership and coordination for Texas higher education and to promote access, affordability, quality, success, and cost efficiency through *60x30TX*, resulting in a globally competitive workforce that positions Texas as an international leader.

### Agency Vision

The THECB will be recognized as an international leader in developing and implementing innovative higher education policy to accomplish our mission.

### Agency Philosophy

The THECB will promote access to and success in quality higher education across the state with the conviction that access and success without quality is mediocrity and that quality without access and success is unacceptable.

The THECB's core values are:

**Accountability:** We hold ourselves responsible for our actions and welcome every opportunity to educate stakeholders about our policies, decisions, and aspirations.

**Efficiency:** We accomplish our work using resources in the most effective manner.

**Collaboration:** We develop partnerships that result in student success and a highly qualified, globally competent workforce.

**Excellence:** We strive for excellence in all our endeavors.

The Texas Higher Education Coordinating Board does not discriminate on the basis of race, color, national origin, gender, religion, age or disability in employment or the provision of services.

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## Executive Summary

This report provides a summary of aerospace technology research conducted by public senior colleges and universities. The report is required by Senate Bill 458, 84th Texas Legislature, Regular Session, and codified as Government Code Chapter 481, Subchapter A, Section 481.0066, Aerospace and Aviation Office:

(d-2)(3) a summary of work performed as part of the aerospace and aviation office's partnership with the Texas Higher Education Coordinating Board, including a summary prepared by the board of the research conducted by public senior colleges or universities, as defined by Section 61.003, Education Code.

For biennium of Fiscal Years (FY) 2015 and 2016, the average annual research expenditure for all Texas institutions for aerospace technology research was \$32.5 million per year. The annual expenditure in FY 2017 was \$33.2 million. For FY 2017, this is 1.45 percent of all expenditures for research and development at public universities. (See the report [Research Expenditures Summary](#), Sept. 1, 2016-August 31, 2017.)

Twelve institutions reported research expenditures for FY 2017. These institutions reported 328 awards as active during this year. The total award amount of active aerospace technology research grants is \$175,809,633.

This report lists funding, award amount, and title information for all active awards. Aerospace technology grants were awarded predominantly in the research field of engineering. However, apart from engineering, a large number of other research fields received awards in aerospace technology, including multiple fields in the natural sciences. Awards also were given, for example, in mathematics, manufacturing, nanoscience, and health and human performance.

## Overview of Aerospace Technology Research

### Research Expenditures

The Texas Higher Education Coordinating Board (THECB) collects research expenditure data from Texas institutions of higher education in the special interest area of aerospace technology as part of each institution's annual financial report. Research expenditures are available on the [THECB webpage](http://www.thecb.state.tx.us/research) www.thecb.state.tx.us/research. Table 1 shows total research expenditures in the special interest area of aerospace technology for the last three years. Table 2 shows the source of funding for these expenditures for the last three years.

**Table 1. Aerospace Technology Research Expenditures by Institution, FY 2015-2017**

Institution	FY 2015	FY 2016	FY 2017
Prairie View A&M University	\$74,013		
Texas A&M University w/ System & Agencies	\$3,956,536	\$2,316,483	\$1,451,603
Texas A&M University-Corpus Christi	\$203,294	\$178,340	\$625,795
Texas Tech University	\$147,890	\$403,812	\$510,790
The University of Texas at Arlington	\$5,468,666	\$6,548,876	\$9,059,510
The University of Texas at Austin	\$11,289,589	\$10,312,497	\$9,932,612
The University of Texas at Dallas	\$4,696,031	\$3,708,084	\$3,354,792
The University of Texas at El Paso	\$5,060,303	\$3,280,937	\$3,719,776
The University of Texas at San Antonio	\$894,749	\$203,662	\$96,628
The University of Texas Rio Grande Valley	\$214,158	\$1,717,441	\$2,159,679
University of Houston	\$1,264,527	\$2,031,143	\$2,052,473
University of Houston-Clear Lake	\$184,784	\$95,183	\$53,979
University of North Texas	\$712,557	\$43,346	\$232,052
<b>Total</b>	<b>\$34,167,097</b>	<b>\$30,839,804</b>	<b>\$33,249,689</b>

Source: Coordinating Board, Annual Financial Reports

**Table 2. Aerospace Technology Research Expenditures by Source of Funds, FY 2015-2017**

Source of Funds	FY 2015	FY 2016	FY 2017
Federal	\$25,972,148	\$24,710,009	\$25,196,493
State Appropriation and Grants	\$2,543,472	\$2,373,448	\$3,610,441
Institutional Resources	\$4,169,679	\$1,991,807	\$2,055,244
Private For-Profit	\$760,725	\$737,536	\$1,539,035
Private Nonprofit	\$721,073	\$1,027,004	\$848,476
<b>Total</b>	<b>\$34,167,097</b>	<b>\$30,839,804</b>	<b>\$33,249,689</b>

Source: Coordinating Board, Annual Financial Reports

The total expenditures for research and development at Texas public higher education institutions was \$2.29 billion in FY 2017. (See the report [Research Expenditures Summary](#), Sept. 1, 2016-August 31, 2017.) The research expenditures for aerospace technology were 1.45 percent of all research expenditures.

## Awards for Aerospace Technology Research Grants

To compile a summary of work performed in the special interest area of aerospace technology research during Academic Year 2017, THECB staff identified the Texas public institutions of higher education that reported research expenditures in this area on their annual financial reports for FY 2017. THECB staff then contacted institutional representatives from those institutions and requested a list of their active awards for FY 2017. This information is presented in the section "Awards for Aerospace Technology Interest Area" beginning on page 4.

Research grant awards typically are multi-year awards, and therefore, the total award amounts for active grants during FY 2017 is higher than the year's total expenditures.

Table 3 shows research grant awards for aerospace technology according to the agency that funded the awards. More than half of the award funding was from the National Aeronautics and Space Administration (NASA) and the national defense agencies Department of Defense (DOD), the Air Force, Army, and Navy.

**Table 3.** Aerospace Technology Awards by Funding Agency, FY 2017

Funding Agency	Number of Awards	Funding Amount
NASA	101	\$76,811,144
Defense (DOD, Air Force, Army, Navy)	60	\$40,807,452
National Science Foundation	30	\$17,173,228
Other (federal, state, and undisclosed)	21	\$13,620,840
Private and Nonprofits	86	\$17,337,824
Sub-Recipient Funds	30	\$10,059,145
<b>Total</b>	<b>328</b>	<b>\$175,809,633</b>

*Source: Institutions of higher education with expenditures in the special interest area of aerospace technology.  
Note: The original source of sub-recipient funds is not reported.*

## Research Fields

Aerospace technology grants were awarded predominantly in the research field of engineering. However, apart from engineering, a large number of other research fields received awards in aerospace technology, including multiple fields in the natural sciences. Awards also were given, for example, in mathematics, manufacturing, nanoscience, and health and human performance. The list below shows the diversity of the research fields that received awards under the special interest area of aerospace technology:

- Astronomy
- Biology
- Biochemistry
- Chemistry
- Computational Sciences
- Economic Development
- Energy Science



- Engineering: Aerospace Engineering, Chemical Engineering, Civil Engineering, Bioengineering, Electrical Engineering, Mechanical Engineering
- Geosciences, Earth & Atmospheric Sciences, and Climate Science
- Health and Human Performance
- Manufacturing and Systems Engineering
- Materials Science and Materials Engineering
- Mathematics
- Nanoscience
- Physics, Astrophysics, and Astrodynamics
- Space Science
- Technology

## Awards for Aerospace Technology Interest Area

The following sections provide a summary of research awards in the special interest area of aerospace technology that were active during FY 2017. The compilation serves as a snapshot from one year and shows the array of research fields involved and the variety of research topics investigated within the aerospace technology interest area. The data were provided to the THECB by the institutions from their internal listings of research awards and were then compiled in a uniform format, which includes:

Department, Center, or Institute (discipline)  
Principal Investigator(s)  
Funding Agency, Award Number, Award Amount  
*Title of Research Project*

Abstracts are available upon request.

### Texas A&M University (TAMU) with Agencies

Texas A&M University and its service agencies listed 84 active awards in aerospace technology for FY 2017. The total award amount was \$38,328,091. During that year, TAMU's research expenditures for awards in aerospace technology were \$1,451,603. Information for the identified active awards is provided.

- Aerospace Engineering (aerospace engineering)  
Alfriend, Kyle T.  
Technology Service Corporation, \$50,000  
*Rapid Reaction Multi-mission Systems - Geo Safari.*
- Aerospace Engineering (aerospace engineering)  
Alfriend, Kyle T.  
University Of Colorado, \$259,401  
*Modeling, Observability and Change Detection In Space Situational Awareness.*
- Aerospace Engineering (aerospace engineering)  
Alfriend, Kyle T.  
Exoanalytic Solutions, Inc., \$65,000  
*Prototype for Rapid Reconstitution for Ground-Based Space Situational Awareness Capability for Near-geosynchronous Objects.*
- Aerospace Engineering (aerospace engineering)  
Alfriend, Kyle T.  
Numerica Corporation, \$500,000  
*Commercial Space Catalog.*

- Mechanical Engineering (Mechanical Engineering)  
Allaire, Douglas L.  
Massachusetts Institute Of Technology, \$753,084  
*A Unified Mathematical and Algorithmic Framework for Managing Multiple Information Sources of Multi-physics Systems.*
- Aerospace Technology Research & Operations (aerospace engineering)  
Bhattacharya, Raktim  
DOD - Air Force - Office Scientific Research, \$671,412  
*Cloud Computing Based Robust Space Situational Awareness.*
- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
Physics, Materials, and Applied Mathematics, \$56,766  
*High-Frequency Energy-Deposition Actuators for Effective Scramjet Control.*
- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
Physics, Materials, And Applied Mathemat, \$180,000  
*Phase II: Energy-Deposition to Reduce Skin Friction in Supersonic Applications.*
- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
DOD - Air Force - Office Scientific Research, \$600,000  
*Crossflow Instability Receptivity To Environmental Disturbances at Hypersonic Speeds.*
- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
University Of Tennessee, \$375,000  
*A Systematic Characterization of the Structure and Dynamics of Transitional Shock/Boundary Layer Interactions.*
- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
DOD - Office Of Naval Research, \$252,315  
*Hypervelocity Expansion Facility for Fundamental High-enthalpy Research.*
- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
University Of Miami, \$150,000  
*Estol Performance for Heavy Lift Transports Using Ultra-high Lift High-efficiency CO-flow Jet Airfoil.*
- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
Leidos, Inc., \$337,651  
*Design and Fabrication of a Mach 1.5 Wind Tunnel Facility.*

- Aerospace Engineering (aerospace engineering)  
Bowersox, Rodney D.  
National Science Foundation, \$1,999,999  
*Iuse/Pfe: Red: Revolutionizing Diversity of Engineering (redo-E).*
- Aerospace Engineering (aerospace engineering)  
Chakravorty, Suman  
National Science Foundation, \$449,996  
*Nri: A Model Based Approach to Distributed Adaptive Sampling of Spatio-Temporally Varying Fields.*
- Aerospace Engineering (aerospace engineering)  
Chakravorty, Suman  
DOD-Air Force-Office Scientific Research, \$567,476  
*C1160: An Integrated Approach to Space Situational Awareness , Dated 03 Aug 2015 and Revised 28 Apr 2016.*
- Aerospace Engineering (aerospace engineering)  
Chakravorty, Suman  
National Science Foundation, \$50,000  
*I-Corps: Accurate GPS-free Navigation and Localization.*
- Aerospace Engineering (aerospace engineering)  
Chamitoff, Gregory E.  
The University Of Sydney, \$306,069  
*USYD Aerospace Collaboration and Research.*
- Aerospace Engineering (aerospace engineering)  
Cizmas, Paul G.  
Florida International University, \$78,412  
*Development of Reduced Order Model for Reacting Gas-Solids Flow Using Proper Orthogonal Decomposition.*
- Aerospace Engineering (aerospace engineering)  
Cizmas, Paul G.  
Ohio Aerospace Institute, \$444,369  
*A Z-coordinate Proper Orthogonal Decomposition Method With Dynamic Basis Functions for Turbomachinery Aeroelastic Analysis.*
- Aerospace Engineering (aerospace engineering)  
Cizmas, Paul G.  
Slipstream Wind, \$30,000  
*Numerical Simulation of a Vertical Axis Wind Turbine.*

- Aerospace Engineering (aerospace engineering)  
Donzis, Diego A.  
National Science Foundation, \$421,240  
*FFATA: Career: Discoveries in Compressible Turbulence and Turbulent Mixing Through Petascale Simulations and Analysis.*
- Aerospace Engineering (aerospace engineering)  
Donzis, Diego A.  
National Science Foundation, \$850,000  
*XPS: Full: DSD: Asynchronous PDE Algorithms for Turbulent Flows At Exascale.*
- Aerospace Engineering (aerospace engineering)  
Donzis, Diego A.  
National Science Foundation, \$320,000  
*Beyond Incompressible Phenomenology: Mixing In Compressible Turbulent Flows.*
- Aerospace Engineering (aerospace engineering)  
Donzis, Diego A.  
DOD-Air Force-Office Scientific Research, \$654,543  
*Turbulence Control Through Thermal Non-Equilibrium: Molecular Relaxation Models and Implications for Turbulence Modeling.*
- Aerospace Engineering (aerospace engineering)  
Girimaji, Sharath S.  
National Science Foundation, \$35,365  
*Collaborative Research: A Langevin Subgrid Scale Closure and Discontinious Galerkin Exascale Large Eddy Simulation.*
- Aerospace Engineering (aerospace engineering)  
Girimaji, Sharath S.  
DOD-Air Force-Office Scientific Research, \$269,998  
*Non-Linear Growth and Breakdown Toward Turbulence In Hypersonic Boundary Layers: Investigation of Fundamental Physical.*
- Aerospace Engineering (aerospace engineering)  
Hartl, Darren J.  
University Of Dayton Research Institute, \$191,428  
*Exploration of Design Methods for Bio-Inspired Compliant Load-Bearing Mechanisms Based On Evolutionary Algorithms.*
- Aerospace Engineering (aerospace engineering)  
Hartl, Darren J.  
NASA-Johnson Space Center, \$76,700  
*Shape-Morphing Adaptive Radiator Technology.*

- Aerospace Engineering (aerospace engineering)  
Hartl, Darren J.  
University Of Michigan, \$360,000  
*Avian-Inspired Multifunctional Morphing Vehicles.*
- Aerospace Engineering (aerospace engineering)  
Hartl, Darren J.  
National Institute Of Aerospace, \$118,148  
*Superelastic SMAS.*
- Aerospace Engineering (aerospace engineering)  
Hartl, Darren J.  
Texas A&M University, \$61,500  
*Morphing Alloy Radiator.*
- Aerospace Engineering (aerospace engineering)  
Hurtado, John E.  
University At Buffalo - SUNY, \$348,914  
*OCVP Implementation and Validation To Support the AIRSS Sensor.*
- Aerospace Engineering (aerospace engineering)  
Hurtado, John E.  
NTESS, LLC - National Technology & Engineering, \$17,750  
*IMU.*
- Aerospace Engineering (aerospace engineering)  
Hurtado, John E.  
NTESS, LLC - National Technology & Engineering, \$145,000  
*Precision Navigation for Challenging Operational Environments.*
- Aerospace Engineering (aerospace engineering)  
Junkins, John L.  
DOD - Air Force - Office Scientific Research, \$625,340  
*Extremal Field Maps for Maneuverable Satellites: Reachability Analysis for Space Situational Awareness.*
- Aerospace Engineering (aerospace engineering)  
Junkins, John L.  
The Lynde And Harry Bradley Foundation, \$475,000  
*Cybersecurity Initiative.*
- Aerospace Engineering (aerospace engineering)  
Junkins, John L.  
Numerica Corporation, \$316,058  
*Automated Attention List Processing and Improved Sensor-level Track Generation for Geo Odyssey.*

- Aerospace Engineering (aerospace engineering)  
Junkins, John L.  
The Lynde And Harry Bradley Foundation, \$25,000  
*Research Fellowship - Bradley Foundation 2016-2017.*
- Aerospace Engineering (aerospace engineering)  
Junkins, John L.  
Technology Service Corporation, \$73,139  
*Technical Support On Research and Development of A Small Satellite Constellation for Optically Tracking Near-geostationary.*
- Aerospace Engineering (aerospace engineering)  
Lagoudas, Dimitris C.  
National Science Foundation, \$383,116  
*FFATA: REU: Aero-U: Aerospace Engineering Research Opportunities for Undergraduates.*
- Aerospace Engineering (aerospace engineering)  
Lagoudas, Dimitris C.  
NASA-Shared Services Center, \$9,971,116  
*D.5 University Leadership Initiative.*
- Aerospace Engineering (aerospace engineering)  
Limbach, Christopher M.  
Metrolaser, Inc., \$66,238  
*NASA SBIR Phase 2.*
- Aerospace Engineering (aerospace engineering)  
Majji, Manoranjan  
University At Buffalo - SUNY, \$121,555  
*Dynamic Data Driven Framework for Accurate Tracking and Characterization of Resident Space Objects.*
- Aerospace Engineering (aerospace engineering)  
Majji, Manoranjan  
University At Buffalo - SUNY, \$32,313  
*An Optimization Approach for Nonlinear Optimal Feedback Control Design and Uncertainty Propagation.*
- Aerospace Engineering (aerospace engineering)  
Majji, Manoranjan  
University At Buffalo - SUNY, \$95,958  
*Optimal Sensor Tasking for Enhanced Space Situational Awareness.*
- Aerospace Engineering (aerospace engineering)  
Moble, Benedict  
University Of Maryland, \$225,000  
*Conceptual Modeling of Novel Configurations for UAS Applications.*

- Aerospace Engineering (aerospace engineering)  
Moble, Benedict  
University Of Maryland, \$744,086  
*Scalable Novel Configurations for UAS Applications.*
- Aerospace Engineering (aerospace engineering)  
Mortari, Daniele  
NASA-Shared Services Center, \$360,000  
*Vision-Based Navigation for Orion.*
- Aerospace Engineering (aerospace engineering)  
Naraghi, Mohammad  
DOD- Army Research Office, \$88,675  
*A Fundamental Study Into the Effect of Filler Alignment on Damping in Nanocomposites.*
- Aerospace Engineering (aerospace engineering)  
Reed, Helen L.  
CFD Research Corporation, \$46,000  
*Prediction of Boundary Layer Transition on Hypersonic Vehicles in Large-Scale Wind Tunnels and Flight.*
- Aerospace Engineering (aerospace engineering)  
Richard, Jacques C.  
National Science Foundation, \$364,766  
*REU Site: Aerospace Engineering Research Opportunities for Undergraduates.*
- Aerospace Engineering (aerospace engineering)  
Reed, Helen L.  
DOD - Office Of Naval Research, \$560,160  
*Hypersonic Stability Predictions.*
- Aerospace Engineering (aerospace engineering)  
Miles, Richard B  
Office Of The Governor - Budget, Planning, \$5,000,000  
*Governor's University Research Initiative (GURI) Grant Program for Richard B. Miles.*
- Aerospace Engineering (aerospace engineering)  
Skelton, Robert E.  
NASA-Washington, \$499,999  
*Tensegrity Approaches To In-space Construction of a 1g Growable Habitat.*
- Aerospace Engineering (aerospace engineering)  
Strganac, Thomas W.  
Tao Of Systems Integration, Inc., \$225,000  
*Str: Distributed, Passivity-Based, Aeroservoelastic Control (DPASC) of Structurally Efficient Aircraft.*



- Aerospace Engineering (aerospace engineering)  
Talreja, Ramesh R.  
DOD - Office Of Naval Research, \$518,521  
*A Hybrid Approach To Composite Damage and Failure Analysis Combining Synergistic Damage Mechanics and Peridynamics.*
- Aerospace Engineering (aerospace engineering)  
Talreja, Ramesh R.  
Lulea University Of Technology, \$8,500  
*Transverse Fiber/Matrix Debond Growth in Unidirectional Composites with Local Hexagonal Fiber Clustering.*
- Aerospace Engineering (aerospace engineering)  
Unknown, Unknown  
NTESS, LLC - National Technology & Engineering, \$17,783  
*Verification and Validation of the Sandia National Laboratories (SNL) Roll Stable Inertial Measurement Unit (RSIMU) Emulator.*
- Aerospace Engineering (aerospace engineering)  
Valasek, John L.  
DOT-Federal Aviation Administration, \$1,444,938  
*Pegasas FAA General Aviation Research Center of Excellence.*
- Aerospace Engineering (aerospace engineering)  
Valasek, John L.  
DOD-Air Force-Research Laboratory, \$85,389  
*State Constrained Adaptive Flight Control.*
- Aerospace Engineering (aerospace engineering)  
Whitcomb, John D.  
Clarkson Aerospace Corporation, \$276,677  
*AFRL Collaboration Program - Materials and Manufacturing Research.*
- Aerospace Engineering (aerospace engineering)  
White, Edward B.  
NTESS, LLC - National Technology & Engineering, \$135,000  
*Experimental Studies of Leading Edge Erosion on an Inboard Wind Turbine Airfoil.*
- Aerospace Engineering (aerospace engineering)  
White, Edward B.  
University Of Texas, \$240,000  
*New Approaches to Understanding Roughness-induced Transition.*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Various Nonprofit Sponsors, \$47,695  
*AVSI AFE 84: ISRP Planning With Lf Risk Reduction (government).*

- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
DOT-Federal Aviation Administration, \$45,693  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (government).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
NASA-Langley Research Center, \$34,454  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (government).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Airbus Americas, Inc., \$33,458  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (industry).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
The Boeing Company, \$33,458  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (industry).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Embraer, \$33,458  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (industry).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
General Electric Aircraft Engines, \$33,458  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (industry).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Honeywell, \$33,458  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (industry).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Rockwell Collins, Inc., \$33,458  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (industry).*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Sikorsky, \$33,458  
*AFE 62r1 - Virtual Integration Process - Savi Version 1.0D (industry).*

- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
The Boeing Company, \$8,418  
*AVSI AFE 77s1: Shape Memory Alloy Test Methods.*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Embraer, \$8,418  
*AVSI AFE 77s1: Shape Memory Alloy Test Methods.*
- Aerospace Vehicle Systems Institute (aerospace engineering)  
Redman, David A.  
Rolls-Royce Canada Limited, \$8,418  
*AVSI AFE 77s1: Shape Memory Alloy Test Methods.*
- Biology (biology)  
Smotherman, Michael S.  
National Science Foundation, \$660,000  
*Networking Strategies Used By Bats To Improve Social Sonar.*
- Materials Science And Engineering (Materials Science And Engineering)  
Shamberger, Patrick J.  
Purdue University, \$165,000  
*Rechargeable Ammonia Salts for Highly Transient Thermal Management.*
- Mechanical Engineering (mechanical engineering)  
Petersen, Eric L.  
Department of Defense - BMDO, \$616,516  
*Ignition of Composite Propellants with Advanced Additives.*
- Mechanical Engineering (Mechanical Engineering)  
Allaire, Douglas L.  
Massachusetts Institute Of Technology, \$300,000  
*Dynamic Data Driven Methods for Self-aware Aerospace Vehicles.*
- Mechanical Engineering (Mechanical Engineering)  
Muliana, Hanifah  
DOD-Air Force-Office Scientific Research, \$599,629  
*Multi-field Compliant Mechanisms of Adaptive Foldable Structures.*
- Mechanical Engineering (Mechanical Engineering)  
Rathinam, Sivakumar  
National Science Foundation, \$241,292  
*RI: Small: Collaborative Research: Cooperative Autonomous Vehicle Routing Algorithms With Resource and Localization Constraints.*

- Physics and Astronomy (astronomy)  
Depoy, Darren L.  
GMTO - Giant Magellan Telescope Organization, \$285,488  
*GMACS Conceptual Design (Multi-object Astronomical and Cosmological Spectrograph).*

### **Texas A&M University-Corpus Christi (TAMU-Corpus Christi)**

Texas A&M University-Corpus Christi listed two active awards in aerospace technology for FY 2017. The total award amount was \$1,108,452. During that year, TAMU-Corpus Christi's research expenditures for awards in aerospace technology were \$625,795. Information for the identified active awards is provided.

- Armstrong Research Center (aerospace)  
Hendrix, Jerry  
National Aeronautics and Space Administration (NASA), NND15SA85B, \$1,073,452  
*UAS Traffic Management and Live Virtual and Constructive Architecture Development.*
- Unmanned Aircraft System (UAS) Integration Office (aerospace)  
Hendrix, Jerry  
Federal Aviation Administration (FAA), DTACTION15A-0004, \$35,000  
*UAS Detections in the NAS.*

### **Texas Tech University (Texas Tech)**

Texas Tech University listed 14 active awards in aerospace technology for FY 2017. The total award amount was \$3,755,437. During that year, Texas Tech's research expenditures for awards in aerospace technology were \$510,790. Information for the identified active awards is provided.

- Chemical Engineering (chemical engineering)  
Vanapalli, Siva A.  
NASA Shared Services Center (NXX15AL16G), \$452,623  
*Determining Muscle Strength in Space-flown Caenorhabditis Elegans.*
- Chemistry (chemistry)  
Poirier, Lionel W.  
University of Maryland College Park (Z7680601) / NASA Johnson Space Center, \$283,535  
*Origins of Sulfur Mass-independent Fractionation: A Chemical Physics.*
- Civil and Environmental Engineering (civil engineering)  
Jackson, William A.  
Paragon Space Development Corporation (S09600008) / NASA-Goddard Space Flight Center, \$43,000  
*Sustainable Wastewater Treatment for Long-term Space Habitation Using Coupled Biological and Ionomer Technologies.*

- Civil and Environmental Engineering (civil engineering)  
Jackson, William A.  
NASA Shared Services Center (NNX16AP45H), \$28,917  
*Transformation of Chlorate in Martian Soils: Implications of Chlorate Stable Isotope Composition in Earth Mars Analogs.*
- Geosciences (geosciences)  
Nagihara, Seiichi  
NASA Shared Services Center (NNX15AI82G), \$266,561  
*Processing an Addition of ALSEP High-order Data Products and Metadata to the Planetary Data System.*
- Geosciences (geosciences)  
Nagihara, Seiichi  
National Aeronautics and Space Administration (80NSSC17K0120), \$635,543  
*Heat Flow Probe for Robotic Landing Missions to Europa and the Other Icy Moons.*
- Mechanical Engineering (mechanical engineering)  
Kim, Jungkyu  
Georgia Tech Research Corp (RG016-G1) / NASA, \$149,605  
*The Small Bodies/Icy Moon Penetrator Organic Analyzer (SB/IM-POA): Early TRL Development.*
- Mechanical Engineering (mechanical engineering)  
Coverstone, Victoria L.  
Northwestern University (SP003801-PROJ0011716) / NASA, \$242,000  
*Enhancements to a NIAC funded project, APERTURE, to Better Enable Space Deployable Membrane Mirrors.*
- Mechanical Engineering (mechanical engineering)  
Coverstone, Victoria L.  
National Institute of Aerospace (AGREEMENT 4.14.17), \$6,000  
*Earth to Lunar Interchangeable Transportation Environment (ELITE).*
- Mechanical Engineering (mechanical engineering)  
Idesman, Alexander V.  
DOD - Office of Naval Research (FA9550-16-1-0177), \$326,157  
*An Advanced Numerical Approach for Wave Propagation Problems in Isotropic and Anisotropic Inhomogeneous Materials. Application to High-frequency Pulse Propagation in the Hopkinson Pressure Bar.*
- Physics (physics)  
Corsi, Alessandra  
NASA Shared Services Center (NNX17AF93G), \$39,000  
*Joint IPTF-VLA-swift Follow-up of Aligo Events.*

- VP Research  
Moore, Alan L.  
DOD Army (MOOREIPA), \$584,012  
*IPA for A. Leigh Moore.*
- Water Resources Center (engineering)  
Morse, Audra N.  
NASA Shared Services Center (NNX13AL52H), \$230,000  
*NASA FELLOWSHIP: Advancement of Membrane-aerated Biological Reactors via Post-inoculation Hibernation and Novel Membrane Fabrication for Enhanced Mission Sustainability (Dylan Christenson).*
- Water Resources Center (engineering)  
Jackson, William A.  
NASA Shared Services Center (NNX15AC87A), \$468,484  
*Biological Treatment for Wastewater Stabilization in Support of Manned Space Exploration: Further Research Needs.*

### **The University of Texas at Arlington (UT-Arlington)**

The University of Texas at Arlington listed 43 active awards in aerospace technology for FY 2017. The total award amount was \$17,436,098. During that year, UT-Arlington's research expenditures for awards in aerospace technology were \$9,059,510. Information for the identified active awards is provided.

- Department of Bioengineering (bioengineering)  
Mohanty, Samarendra  
Cancer Prevention & Research Institute of Texas (RP150711), \$199,999  
*Biomechanical Profiling of Migrating Brain Cancer Genotypes in Tightly-Confined Space for Drug Screening.*
- Department of Bioengineering (bioengineering)  
Tang, Liping  
Department of Defense (W81W81XWH-14-1-0459), \$1,044,800  
*Treating Post-traumatic Osteoarthritis by Promoting Autologous Stem Cell-mediated Cartilage Regeneration.*
- Department of Bioengineering (bioengineering)  
Tang, Liping  
Department of Defense (W81XWH-14-1-0289), \$553,650  
*Tissue-engineered Constructs for Investigating the Effect of Lymph Node Microenvironment on Prostate Cancer Metastasis.*
- Department of Chemistry and Biochemistry (biochemistry)  
Dasgupta, Purnendu  
National Aeronautics & Space Administration - NASA (NNX12AM76G), \$983,311  
*Detection of Amino Acids/Organics on an Open-tubular Ion/Liquid Chromatograph.*

- Department of Electrical Engineering (electrical engineering)  
Zhou, Weidong  
Air Force Office of Scientific Research (AFOSR) (FA9550-16-0010), \$935,952  
*Single Sheet Lasers for Attojoule Optoelectronics.*
- Department of Electrical Engineering (electrical engineering)  
Schizas, Ioannis  
Air Force Office of Scientific Research (FA9550-15-0103), \$215,000  
*A Distributed Dynamic Data Driven (DDDAS) Framework for Multi-threat Tracking.*
- Department of Electrical Engineering (electrical engineering)  
Wetz, David  
Air Force Research Laboratory (AFRL) (FA9451-15-1-0077), \$99,650  
*Energy Storage Devices as a Prime Power Supplies for Low Energy, High Voltage Marx Generators.*
- Department of Electrical Engineering (electrical engineering)  
Lee, Wei-Jen  
Boeing Company at Seattle (1366017), \$29,300  
*Preliminary Comparison between 50/60Hz and 400Hz Arc Flash Phenomena.*
- Department of Electrical Engineering (electrical engineering)  
Davoudi, Ali  
Department of Defense (DoD) (N0014-16-1-3180), \$220,000  
*Testbed Acquisition for Resilient Self-organizing Microgrids.*
- Department of Electrical Engineering (electrical engineering)  
Davoudi, Ali  
Department of Defense (DoD) (W911NF-16-1-0534), \$300,000  
*Realizing Resilient Self-organizing Microgrids.*
- Department of Electrical Engineering (electrical engineering)  
Wan, Yan  
National Science Foundation (NSF) (1714519), \$322,924  
*CAREER: Co-Design of Networking and Decentralized Control to Enable Aerial Networks in an Uncertain Airspace.*
- Department of Materials Science & Engineering (materials science)  
Aswath, Pranesh  
Boeing (98536), \$130,123  
*A Combinations Approach to Design of an Aerospace Grease.*
- Department of Physics (physics)  
Deng, Yue  
Air Force Office of Scientific Research (AFOSR) (FA9550-16-0059), \$248,665  
*Geomagnetic Energy Distribution and Influence on the Ionosphere/Thermosphere in the Polar Region.*

- Department of Physics (physics)  
Deng, Yue  
Air Force Office of Scientific Research (AFOSR) (FA9550-16-1-0364), \$3,785,050  
*Next Generation Advances in Ionosphere Thermosphere Coupling at Multiple Scales for Environmental Specification and Prediction.*
- Department of Physics (physics)  
Liu, Ping  
Department of Defense (DoD) (W911NF-16-1-0164), \$160,000  
*Acquisition of a MPMS EverCool System for Characterization of Nanocomposite Magnets.*
- Department of Physics (physics)  
Deng, Yue  
National Aeronautics & Space Administration - NASA (NNX13AD64G), \$407,668  
*The Altitudinal Distribution of Magnetospheric Energy Input and its Influence on the Upper Atmosphere.*
- Department of Physics (physics)  
Deng, Yue  
National Aeronautics & Space Administration - NASA (NNX14AD46G), \$534,124  
*Vertical Wind: Possible Forcing and Influence.*
- Department of Physics (physics)  
Lopez, Ramon  
National Aeronautics & Space Administration (NASA) (NNX15AJ03G), \$502,956  
*The Role of Solar Wind Fluctuations in Solar Wind-Geospace Coupling.*
- Industrial, Manufacturing, & Systems Engineering (manufacturing)  
Componation, Paul  
National Science Foundation (NSF) (DUE-1650172), \$75,421  
*NSF Workshop on Advanced Manufacturing Research Needs for the Aerospace Industry.*
- LINK Research Lab  
Siemens, George  
The Boeing Company (NS259417), \$30,000  
*ALTI MOOC Analysis.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Huang, Haiying  
Air Force Office of Scientific Research (FA9550-14-1-0319), \$451,781  
*An Integrated Experimental-Numerical Framework for Study of Early Fatigue Damage.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Subbarao, Kamesh  
Air Force Research Laboratory (AFRL) (FA9453-16-1-0058), \$201,147  
*Cooperative Control of Multiple Spacecraft Subject to Measurement Uncertainties and Time Delays.*



- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Dancila, Dragos  
Arlington Chamber of Commerce Foundation, Inc. (0516WPB000), \$36,000  
*Unmanned Aircraft Systems Consortium.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
Bell Helicopter Textron, \$200,000  
*Innovative Tools for Structural Diagnostic of Rotorcraft Composites.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
Boeing Research & Technology (1379012), \$292,014  
*Material Properties Testing to Generate Interlaminar Tensile Allowables for Tape Composites.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
Boeing Research & Technology (1404578), \$440,000  
*Advanced Inspection and Analysis of Common Feature Test Component for Composite Airframe Life Extension (CALE) Program.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Kim, Daejong  
Brayton Energy, LLC (OSD13-PR5-1), \$63,184  
*Improved Turbo/Supercharger for UAV Applications.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
Georgia Institute of Technology (RH541-G2), \$193,426  
*Novel High-performing Materials through Integration of Process and Structure Modeling.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
Georgia Institute of Technology (W911W6-11-2-0010), \$506,928  
*Affordable Material Qualification for Composite Rotorcraft Structures.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Jain, Ankur  
Inventek Corp, \$21,810  
*Rolled-ribbon Thermal Model Development.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
Lockheed Martin Corporation (PO XS305300E), \$265,000  
*Data Requirements for Progressive Damage Analysis (PDA) of Composite Structures.*

- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Dennis, Brian  
National Aeronautics & Space Administration - NASA (NNL15AA08C), \$513,356  
*Microfluidic Electrochemical Reactor for Oxygen Recovery from Carbon Dioxide.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Subbarao, Kamesh  
National Aeronautics & Space Administration - NASA (NNX14AO82H), \$67,000  
*Unbiased Observation of Titan's Dynamic Ionosphere Using a Constellation of Miniature Satellites.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
Numerical Technology Company LLC (NTC2016-0704), \$46,728  
*Certification Modeling for Composites with Voids and Wrinkles for Engines and Structures.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Maddalena, Luca  
Office of Naval Research (ONR) (N00014-15-1-2942), \$1,010,000  
*National Hypersonic Research Facility for High-temperature Materials Development and Characterization.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
The Boeing Company (1189751), \$64,500  
*Characterization of Composite Damage Initiation and Propagation.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
The Boeing Company (1248395), \$124,995  
*High Fidelity Experimental and Analytical Characterization of Input Properties for Progressive Damage Analysis Methods.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Makeev, Andrew  
The Boeing Company (PO 1161311), \$385,200  
*Damage Tolerance Analysis and Test.*
- Mechanical & Aerospace Engineering (mechanical and aerospace engineering)  
Subbarao, Kamesh  
University of Texas at San Antonio (1000001360), \$4,000  
*Developing Nonlinear Guidance, Control, and Estimation Laws for cCooperative UAVs to Detect and Track Centroid and Interface of The Plume.*
- Texas Manufacturing Assistance Center (mechanical and aerospace engineering)  
Sessumes, Mark  
Aeroblaze Laboratories, \$1,000  
*Development and Assistance Starting up a Test Lab to Burn Aerospace Materials.*

- UT Arlington Research Institute (materials science)  
Iarve, Endel  
Air Force Research Laboratory (AFRL), \$550,000  
*Post-Buckling Simulation of Laminated Composites by Using Discrete Damage Modeling.*
- UT Arlington Research Institute (materials science)  
Iarve, Endel  
National Aeronautics & Space Administration (NASA) (NNL16AA02C), \$1,047,436  
*Development of Fatigue Life Prediction of Rotor Spars by Using Discrete Damage Modeling.*
- UT Arlington  
Lu, Frank  
National Aeronautics & Space Administration - NASA (NNX13AR81H), \$172,000  
*One Stop Shopping Initiative (OSSI).*

### **The University of Texas at Austin (UT-Austin)**

The University of Texas at Austin listed 55 active awards in aerospace technology for FY 2017. The total award amount was \$47,662,583. During that year, UT-Austin's research expenditures for awards in aerospace technology were \$9,932,612. Information for the identified active awards is provided.

- Center for Aeromechanics Research (engineering)  
Akella, Maruthi R.  
NASA, NNX14AK46A, \$300,000  
*Onboard Autonomy, Coordination, and Coverage Algorithms for Spacecraft Swarms.*
- Center for Aeromechanics Research (engineering)  
Bakolas, Efstathios  
NSF, 1562339, \$273,835  
*Optimal Path Planning Among Mobile Sources of Threat in Complex Environments.*
- Center for Aeromechanics Research (engineering)  
Bakolas, Efstathios  
Honeywell International Inc, UTA16-000224, PO 3501988081E, \$170,000  
*Autonomous, Fault-tolerant Spacecraft Guidance and Control.*
- Center for Aeromechanics Research (engineering)  
Clemens, Noel T.  
Strategic Environmental Research and Development Program, W912HQ-11-C-0035,  
\$1,969,166  
*Development of Demonstrably Predictive Models for Emissions from Alternative Fuels Based Aircraft Engines.*

- Center for Aeromechanics Research (engineering)  
Clemens, Noel T.  
Department of Energy, DE-FE0012053, \$500,000  
*Predictive LES modeling and Validation of High-pressure Turbulent Flames and Flashback in Hydrogen-enriched Gas-turbine Combustion.*
- Center for Aeromechanics Research (engineering)  
Clemens, Noel T.  
Florida State University, R01748, \$481,902  
*A Comprehensive Study of 3-D Shock/Turbulent Boundary Layer Interaction Physics: Flow Morphology and System Dynamics.*
- Center for Aeromechanics Research (engineering)  
Clemens, Noel T.  
NSF, 1511025, \$166,000  
*UNS: Collaborative Research: Experiments and Theory of Nonequilibrium Processes in Turbulent Combustion.*
- Center for Aeromechanics Research (engineering)  
Clemens, Noel T.  
Spectral Energies, LLC, SB1201-001-2, \$250,274  
*Towards Closed-Loop Control of Unstart in Scramjets: Development of Tools for Optimal Design of Sensors.*
- Center for Aeromechanics Research (engineering)  
Clemens, Noel T.  
University of Michigan, 3003932306, \$159,125  
*Collaborative Research: Experiments and Theory of Nonequilibrium Processes in Turbulent Combustion.*
- Center for Aeromechanics Research (engineering)  
Clemens, Noel T.  
Nanohmics Inc, UTA16-000773, \$41,850  
*Demonstration of Plenoptic Imaging in UT Windtunnel.*
- Center for Aeromechanics Research (engineering)  
Goldstein, David B.  
NASA, NNX11AD88G, \$445,000  
*Simulation of Gas Dynamics in the Pluto-Charon System.*
- Center for Aeromechanics Research (engineering)  
Goldstein, David B.  
NASA, NNX13AH12A, \$316,711  
*Understanding the LCROSS Impact Event and Characterizing the Nature of the Permanently Shadowed Region on the Moon.*

- Center for Aeromechanics Research (engineering)  
Goldstein, David B.  
DoD-Air Force, FA9550-15-1-0345, \$535,774  
*New Approaches to Understanding Roughness-induced Transition.*
- Center for Aeromechanics Research (engineering)  
Goldstein, David B.  
NASA, NNX16AI52G, \$276,854  
*Using Detailed Physical Modeling and Bayesian Analysis to Interpret the Enceladus Plume Origin.*
- Center for Aeromechanics Research (engineering)  
Raja, L L.  
Stanford Univ, 60300258-107109-A, \$372,000  
*Computational Modeling of Ultra-high Speed Neutral Plasma Jets and their Interactions with Materials Generating Extreme Conditions.*
- Center for Aeromechanics Research (engineering)  
Raja, L L.  
DoD-Army, W911NF-14-1-0226, \$384,295  
*RailPac : A Rail Electrode Based Plasma Actuator for High-authority Aerodynamic Flow Control.*
- Center for Aeromechanics Research (engineering)  
Raja, L L.  
Stanford Univ, 60803373-114411, \$1205,740  
*Plasma-based Reconfigurable Photonic Crystals and Metamaterials.*
- Center for Aeromechanics Research (engineering)  
Raja, L L.  
Stanford Univ, 61394691-125118, \$220,000  
*Computational Modeling of Ultra-high Speed Neutral Plasma Jets and their Interactions with Materials Generating Extreme Conditions.*
- Center for Aeromechanics Research (engineering)  
Sentis, Luis  
Apptronik Systems Inc, UT-001-2017, \$450,011  
*Exoskeleton with Liquid Cooled Viscoelastic Actuators for Carrying Heavy Loads for Extended Periods of Time.*
- Center for Mechanics of Solids, Structures, and Materials (engineering)  
Sirohi, Jayant  
University of Maryland, Z845803, \$714,600  
*Multi-functional Flaps for High-efficiency High-speed Coaxial Composites.*

- Center for Mechanics of Solids, Structures, and Materials (engineering)  
Sirohi, Jayant  
Dod-Army, W911NF-13-1-0463, \$285,644  
*Research Area 1: Mechanical Sciences: Detailed Measurements of the Aeroelastic Response of a Rigid Coaxial Rotor in Hover.*
- Center for Mechanics of Solids, Structures, and Materials (engineering)  
Sirohi, Jayant  
New Mexico State University, Q01586; 830832-1, \$398,972  
*Comprehensive Reduced-order Modeling and Validation for Loads and Flight Stability of a Flapping Wing.*
- Center for Aeromechanics Research (engineering)  
Trafton, Laurence M  
NASA, NNX14AO39G, \$427,390  
*An Investigation into the Unsteadiness of Tvashtar's Plume.*
- Center for Aeromechanics Research (engineering)  
Varghese, Philip L.  
DoD-Air Force, FA9550-12-1-0460, \$1,367,367  
*The Multiscale Interaction of Vibrational Energy Transfer and Turbulent Combustion in Supersonic Flows.*
- Center for Aeromechanics Research (engineering)  
Varghese, Philip L.  
NASA, NNX15AH17A, \$500,000  
*Development of an Inductively Coupled Plasma Torch Facility for Research on High Temperature Materials.*
- Center for Space Research (engineering)  
Bettadpur, Srinivas V.  
California Institute of Technology Jet Propulsion Laboratory, 1478584, \$8,157,897  
*GRACE Follow-on Mission.*
- Center for Space Research (engineering)  
Bettadpur, Srinivas V.  
NASA, NNX15AD24G, \$204,035  
*Integrating GRACE and GRACE Follow-on Data into Flood and Drought Forecasts for the Continental U.S..*
- Center for Space Research (engineering)  
Bettadpur, Srinivas V.  
Geoptics Inc, UTA16-001038, EGO-XO-02, \$262,006  
*Science and Mission Architecture Studies for EGO-XO.*

- Center for Space Research (engineering)  
Bettadpur, Srinivas V.  
Midwestern State University, UTA16-000053\_AMD NO. 1, \$1,350  
*TexasView Research and Education Grant: Undergraduate research.*
- Center for Space Research (engineering)  
Bettadpur, Srinivas V.  
California Institute of Technology Jet Propulsion Laboratory, 1561873, \$50,000  
*Gravity Recovery with Gravity Gradient Measurement Data.*
- Center for Space Research (engineering)  
Bettadpur, Srinivas V.  
NASA, NNX17AG97G, \$453,256  
*Framework for Multi-technique, mm-Metrology at the McDonald Geodetic Observatory (MGO).*
- Center for Space Research (engineering)  
Chen, Jianli  
NASA, NNX12AJ97G, \$706,347  
*Improved Estimation of Mass Variations Within the Earth Climate System from GRACE.*
- Center for Space Research (engineering)  
Chen, Jianli  
NASA, NNX12AM86G, \$643,385  
*Long-term Variability of Earth Rotation, Low-degree Gravity, and Climate Change.*
- Center for Space Research (engineering)  
Chen, Jianli  
NASA, NNX17AG96G, \$191,682  
*Geophysical Interpretations of Earth Rotation and Low-degree Gravitational Change and Implications on Core-Mantle Coupling.*
- Center for Space Research (engineering)  
Cheng, Minkang  
NASA, NNX16AF20G, S02, \$311,242  
*Augmenting GRACE and GRACE Follow-on with Long Wavelength Variations of the Earth's Gravity Field from Satellite Laser Ranging Data.*
- Center for Space Research (engineering)  
Davis, Edgar S.  
California Institute of Technology Jet Propulsion Laboratory, 1556838, \$60,000  
*EVI-3 Proposal.*
- Center for Space Research (engineering)  
Davis, Edgar S.  
California Institute of Technology Jet Propulsion Laboratory, 1543389, \$105,600  
*MISR Optics Ghost Model.*

- Center for Space Research (engineering)  
Davis, Edgar S.  
California Institute of Technology Jet Propulsion Laboratory, 1551021, \$12,354  
*APD/PEM Imaging Polarimeter Proof-of-Concept.*
- Center for Space Research (engineering)  
Davis, Edgar S.  
California Institute of Technology Jet Propulsion Laboratory, 1579246, \$48,000  
*Engineering Support for Airborne Instrument Technology.*
- Center for Space Research (engineering)  
Davis, Edgar S.  
California Institute of Technology Jet Propulsion Laboratory, 1569380, \$177,937  
*MAIA Systems Engineering Support.*
- Center for Space Research (engineering)  
Jones, Brandon A.  
Orbit Logic Inc, FA9451-16-C-0405UT, UTA16-000246, \$126,799  
*Space Object Sensor Tasking Using Finite Set Statistics.*
- Center for Space Research (engineering)  
Jones, Brandon A.  
Orbit Logic Inc, UTA16-001176, \$173,972  
*Optimal SSN Tasking to Enhance Real-time SSA.*
- Center for Space Research (engineering)  
Ries, John C.  
California Institute of Technology Jet Propulsion Laboratory, 1479726, \$501,782  
*Geodetic Contributions to Data Records of Earth System Mass Flux.*
- Center for Space Research (engineering)  
Russell, Ryan P.  
Emergent Space Technologies, Inc, UTA14-001102, \$213,795  
*Phase II Holistic RSO Awareness Algorithms.*
- Center for Space Research (engineering)  
Russell, Ryan P.  
Analytical Mechanics Associates, Inc., C1292.001.P0319, \$36,000  
*Robust Trajectory Design in Highly Perturbed Environments Leveraging Continuation Methods.*
- Center for Space Research (engineering)  
Save, Himanshu  
University of South Florida, 2500-1662-00-A, \$160,596  
*Quantifying Decadal Transport Variations of the Antarctic Circumpolar Current & Atlantic Meridional Overturning Circulation using GRACE and GRACE Follow-on Observations.*



- Center for Space Research (engineering)  
Shelus, Peter J.  
NASA, NNG12VI01C, \$3,701,373  
*Satellite Laser Ranging Support Services for the Ground Network Project Office (MLRS).*
- Center for Space Research (engineering)  
Shelus, Peter J.  
NASA, NNG17VI05C, \$1,124,463  
*McDonald Space Geodesy Services and Data Analysis.*
- Center for Space Research (engineering)  
Tapley, Byron D  
NASA, NNL14AA00C, \$14,216,598  
*GRACE Extended Mission.*
- Center for Space Research (engineering)  
Urban, Timothy J.  
NASA, NNX13AB40G, \$2,850,610  
*ICESat-2 Precision Orbit and Pointing Determination (POD/PPD).*
- Center for Space Research (engineering)  
Wells, Gordon L.  
Texas Department of Public Safety, 201601650-001, \$39,165  
*March 2016 Texas Severe Weather Event (DR 4266).*
- Center for Space Research (engineering)  
Wells, Gordon L.  
Texas Department of Public Safety, 00138, \$15,160  
*April 2016 Texas Severe Weather Event (DR-4269).*
- Center for Space Research (engineering)  
Wells, Gordon L.  
Texas Department of Public Safety, 00072, \$42,172  
*May-June 2016 Texas Severe Weather Event - DR4272.*
- Center for Space Research (engineering)  
Zanetti, Renato  
NASA, NNX17AI35A, S000002, \$239,600  
*Autonomous Onboard Space Navigation in the Absence of GPS.*
- Institute for Computational Engineering and Sciences (applied research)  
Topcu, Ufuk  
DoD-ARPA, D14AP00084, \$622,898  
*Density Control: A Decentralized Control Paradigm Enabling Coordinated Autonomous Vehicle Swarms.*

## The University of Texas at Dallas (UT-Dallas)

The University of Texas at Dallas listed 12 active awards in aerospace technology for FY 2017. The total award amount was \$5,676,202. During that year, UT-Dallas' research expenditures for awards in aerospace technology were \$3,354,792. Information for the identified active awards is provided.

- Mechanical Engineering (mechanical engineering)  
Qian, Dong  
Engility, US Air Force Research Lab, GS04T09DBC0017/2015-S-EGL-0127, \$391,413  
*Advancing Multi-temporal Scale Method for Structural Response and Life Predictions of Aerospace Structures under Combined Extreme Environment.*
- Physics (physics)  
King, Lindsay Jane  
Space Telescope Science Institute, HST-GO-12871.01-A, \$54,078  
*When Giants Collide: Mapping the Mass in the Cluster Merger Abell 2146.*
- Space Sciences (space sciences)  
Heelis, Roderick A  
NASA, NNX14AF33G, \$373,176  
*Spatial and Temporal Characterization of Convection and Precipitation Boundaries in the Auroral Region using DMSP Multi-point Measurements.*
- Space Sciences (space sciences)  
Coley, William R  
Natl Science Foundation, 1663763, \$119,551  
*RAPID: Improving DMSP SSIES-3 Data to Level-2 Quality.*
- Space Sciences (space sciences)  
Stoneback, Russell A  
Natl Science Foundation, AGS-1259508, \$314609  
*Collaborative Research: Inferring High Latitude Convection Patterns Using SuperDARN, DMSP and ACE.*
- Space Sciences (space sciences)  
Stoneback, Russell A  
Atmospheric & Space Tech Res Assoc., LLC, NASA, NNX14AP88G, \$300,000  
*Scintillation Observations and Response of The Ionosphere to Electrodynamics (SORTIE).*
- Space Sciences (space sciences)  
Heelis, Roderick A  
NASA, NNX15AT31G, \$945,000  
*The Coupled Ion Neutral Dynamics Investigation (CINDI) Extended Mission (2016-18).*

- Space Sciences (space sciences)  
Heelis, Roderick A  
The University of Texas at Arlington, US Air Force Office of Sci Res, FA9550-16-0364,  
\$827,541  
*Next Generation Advances in Ionosphere Thermosphere Coupling at Multiple Scales for Environmental Specification and Prediction.*
- Space Sciences (space sciences)  
Chen, Lunjin  
NASA, NNX15AF55G, \$391,859  
*Quantify the Contribution of Electromagnetic Ion Cyclotron Waves in the Inner Magnetosphere to Radiation Belt Electron Loss.*
- Space Sciences (space sciences)  
Anderson, Phillip Charles  
Aerospace Corporation, NASA, NNX16AH46G, \$149,865  
*High Resolution Modeling of the Cusp Region Density Anomaly.*
- Space Sciences, (space sciences)  
Heelis, Roderick A  
University Corp for Atmospheric Research, Natl Science Foundation, W14-16198/1033112,  
\$1,068,000  
*COSMIC-2 Spacecraft IVM Support Project.*
- Space Sciences (space sciences)  
Chen, Lunjin  
NASA, NNX17AI52G, \$741,110  
*Investigating Magnetosonic Wave Excitation in the Earth's Magnetosphere.*

## **The University of Texas at El Paso (UT-El Paso)**

The University of Texas at El Paso listed 52 active awards in aerospace technology for FY 2017. The total award amount was \$20,054,179. During that year, UT-El Paso's research expenditures for awards in aerospace technology were \$3,719,776. Information for the identified active awards is provided.

- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(geology)  
Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$169,936  
*Jacobs-NASA JSC Planetary Geologist (FY17).*
- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(geology/materials science)  
Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$426,200  
*Jacobs-NASA JSC Astromaterials Research Scientist (FY17).*

- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(interdisciplinary)  
Olivas, John D. and Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$160,475  
*Jacobs-NASA JSC Engineering, Technology and Science (JETS) Subcontract (FY15-20).*
- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(materials science/physics)  
Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$542,592  
*Jacobs-NASA JSC Hypervelocity Impact Research Scientist (FY17).*
- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(materials science/physics)  
Cone, Darren M.  
Jacobs Engineering; S24622 / 8, \$70,264  
*Jacobs-NASA JSC Hypervelocity Impact (FY17).*
- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(materials science/physics)  
Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$26,342  
*Jacobs-NASA JSC Orbital Debris (FY17).*
- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(physics/astronomy)  
Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$490,500  
*Jacobs-NASA JSC Orbital Debris Astronomer (FY17).*
- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(physics/astronomy)  
Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$444,132  
*Jacobs-NASA JSC Orbital Debris Astronomer (FY17).*
- Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR)  
(physics/computational sciences/applied mathematics)  
Cone, Darren M.  
Jacobs Engineering; EN41520TMS, \$529,185  
*Jacobs-NASA JSC Orbital Debris Computational Scientist (FY17).*
- Center for Space Exploration Technology Research (engineering)  
Chessa, John F.  
Kyushu Institute Of Technology; NAID-OR20150202, \$28,896  
*WIRES Centennial Ground Support Equipment (GSE) Development.*

- Center for Space Exploration Technology Research (engineering)  
Choudhuri, Ahsan  
University Research Foundation, Inc. Madl; PO 11647, \$121,572  
*Development of 20N Class ADN Thrusters for Fast-response Time DAC Propulsion Systems.*
- Center for Space Exploration Technology Research (engineering)  
Choudhuri, Ahsan  
US Department Of Energy; DE-FE0026330, \$250,000  
*Metal 3D Printing of Low-NOX Fuel Injectors with Integra.*
- Center for Space Exploration Technology Research (engineering)  
Love, Norman  
Missile Defense Agency; HQ0147-15-C-6001, \$200,107  
*HAN Based Advanced Hybrid Rocket Motor Technologies.*
- Center for Space Exploration Technology Research (engineering)  
Prabhakar ,Pavana  
Defense Intelligence Agency; W911NF-15-1-0430, \$594,000  
*An Integrated Experimental and Computational Investigation.*
- Center for Space Exploration Technology Research (engineering)  
Shafirovich, Evgeny  
US Department Of Energy; DE-FE0026333, \$250,000  
*Combustion Synthesis of Boride-Based Electrode Materials.*
- Center for Space Exploration Technology Research (engineering)  
Shafirovich, Evgeny  
National Aeronautics And Space Admin; NNX16AT16H, \$100,000  
*Combustion Joining of Regolith Tiles for the In-Situ Fab.*
- Center for Space Exploration Technology Research (engineering)  
Shafirovich, Evgeny  
National Science Foundation; 1658628, \$249,965  
*IREs: US-Canada Collaborative Research on Combustion.*
- Center for Space Exploration Technology Research (engineering)  
Shafirovich, Evgeny  
Jet Propulsion Laboratory - Caltech; 1575045, \$15,000  
*High Energy Chemical Reactions for Potential Space Power.*
- Center for Space Exploration Technology Research (engineering)  
Shafirovich, Evgeny  
National Aeronautics And Space Admin; 80NSSC17K0161, \$132,052  
*Combustion Synthesis of Thermoelectric Materials.*

- Center for Space Exploration Technology Research (engineering)  
Lin, Yirong  
US Department Of Energy; DE-FE0027502, \$250,000  
*Additive Manufacturing of Energy Harvesting Material System for Active Wireless MEMS Sensors.*
- Computer Science (engineering)  
Kiekintveld, Christopher D.  
National Science Foundation; IIS-1253950, \$488,288  
*Robust Strategic Reasoning For Multi-agent Systems.*
- Computer Science (engineering)  
Teller, Patricia  
Army Research Laboratory; 60300261-107307-B, \$300,000  
*Towards Enabling Battlefield Decision-making.*
- Computer Science (engineering)  
Teller, Patricia  
Army Research Laboratory; 60300261-107307-B, \$225,000  
*Towards Enabling Battlefield Decision-making; Sub B.*
- Electrical & Computer Engineering (engineering)  
Rumpf, Raymond C.  
Lockheed Martin Aeronautics; XS3610790E, \$79,386  
*Modulated Reflective Metasurface.*
- Electrical & Computer Engineering (engineering)  
Rumpf, Raymond C.  
Air Force Research Laboratory; FA8650-17-C-1011, \$199,965  
*3D Printed Microwave Circuits and Structures.*
- Electrical & Computer Engineering (engineering)  
Velez-Reyes, Miguel  
City College Of New York; 49312-B, \$243,760  
*Center for Earth System Sciences and Remote Sensing Technologies.*
- FAST (engineering)  
Carrasco, Cesar J.  
NASA; 122578, \$314,170  
*Solar Probe Light Phase C/D - Micrometeoroid Risk Analysis.*
- FAST (engineering)  
Carrasco, Cesar J.  
NASA; 41N0919033, \$825,781  
*LEIDOS Storefront.*

- FAST (engineering)  
Carrasco, Cesar J.  
NASA; 4102574187, \$110,189  
*Facilities Development Operations Contract (FDOC).*
- Industrial, Manufacturing & System Engineering (engineering)  
Tseng, Tzu-Liang  
Lockheed Martin Aeronautics; 6574009892, \$93,049  
*Robotic Crawler Integrated with Augmented Reality (AR).*
- Mechanical Engineering (engineering)  
Kumar, Vinod  
Air Force Office Of Scientific Research; FA9550-17-1-0253, \$100,053  
*Remote Sensing and Imaging Physics.*
- Mechanical Engineering (engineering)  
Ramana, Chintalapalle V.  
Clarkson Aerospace; UTEP RAM 16-S7700-03-C2, \$298,499  
*Coatings Based On Nitride And Oxynitride Nanostructures.*
- Mechanical Engineering (engineering)  
Ramana, Chintalapalle V.  
National Science Foundation; ECCS-1509653, \$367,474  
*Refractory Metal Doped Gallium Oxide Sensors for Extreme.*
- Mechanical Engineering (engineering)  
Ramana, Chintalapalle V.  
Washington State University; 125794\_G003504, \$189,999  
*AOI-1: Low-Cost, Efficient and Durable High Temperature.*
- Mechanical Engineering (engineering)  
Choudhuri, Ahsan  
National Aeronautics And Space Admin; NNX15AQ04A, \$5256,058  
*MIRO Center for Space Exploration and Technology Research.*
- Metallurgical & Materials Engineering (engineering)  
Misra, Devesh  
Arcelormittal Global R&D; NAID-OR20150335, \$221,112  
*Streamlining Alloy Design.*
- Metallurgical & Materials Engineering (engineering)  
Misra, Devesh  
Army Research Laboratory; W911NF-16-1-0475, \$494,532  
*Advanced Thermal Analysis and Imaging System.*

- MRTI (materials science)  
Chianelli, Russell R  
Office Of Naval Research; N00014-15-1-2717 (R19011), \$150,000  
*Copper/Carbon Nanotube Ultraconductive.*
- Vice President for Research (engineering)  
Robinson, Nathaniel  
Peraton Inc.; 2712-15-87, \$153,295  
*SCNS Telecom Security Assurance.*
- Vice President for Research (engineering)  
Robinson, Nathaniel  
Fundacao Para A Ciencia E A Tecnologia; NOAID20170517, \$85,160  
*Atlantic Spaceport Complex.*
- Vice President for Research (engineering)  
Robinson, Nathaniel  
Army Research Laboratory; W911QX-15-D-0011, \$361,651  
*Enterprise Radar Testbed.*
- Vice President for Research (engineering)  
Robinson, Nathaniel  
Army Research Laboratory; W911QX-15-D-0011, \$102,497  
*White Sands Missile Range (WSMR) Engineering and Science Service Support (ESSS).*
- Vice President for Research (engineering)  
Robinson, Nathaniel  
Army Research Laboratory; W911QX-15-D-0011, \$47,278  
*Radar Jammer Waveforms via Neural Networks.*
- Vice President for Research (engineering)  
Robinson, Nathaniel  
Army Research Laboratory; W911QX-15-D-0011, \$32,059  
*Automated Vulnerability and Susceptibility Assessment.*
- W.M. Keck Center for 3D Innovation (engineering)  
Wicker, Ryan  
AFRL (Through Clarkson Aerospace); UTEP WIC 16-S7700-03-C2, \$105,000  
*AFRL Collaboration Program - Materials and Manufacturing Research.*
- W.M. Keck Center for 3D Innovation (engineering)  
Wicker, Ryan  
NASA; NNC17CA02C, \$890,000  
*Innovative Compact Additively Manufactured Electric Motor.*



- W.M. Keck Center for 3D Innovation (engineering)  
Roberson, David  
Air Force Office Of Scientific Research; FA9550-14-1-0260, \$360,000  
*Synthesis of 3D Printable Polymer Matrix Composites.*
- W.M. Keck Center for 3D Innovation (engineering)  
Wicker, Ryan  
AFRL (Through General Dynamics); 08ESM832597, \$166,000  
*Geometrically Sensitive Process Strategies for Electron Beam Powder Bed Additive Manufacturing Support.*
- W.M. Keck Center for 3D Innovation (engineering)  
Wicker, Ryan  
Lockheed Martin; M7809009, \$402,706  
*Investigation and Testing of Direct Manufacturing Technology for Aerospace Tooling - Extension.*
- W.M. Keck Center for 3D Innovation (engineering)  
Wicker, Ryan  
AFRL (Through The National Center For Defense Manufacturing And Machining; FA8650-12-2-7230, \$1,000,000  
*A Low-cost Industrial Multi3d System for 3d Electronics Manufacturing.*
- W.M. Keck Center for 3D Innovation (engineering)  
Wicker, Ryan  
AFRL (Through The National Center For Defense Manufacturing And Machining; FA8650-12-2-7230, \$980,000  
*Multi-functional BAAM: Big Area Additive Manufacturing with Multi-purpose Wire Embedding.*
- W.M. Keck Center for 3D Innovation (engineering)  
Roberson, David A.  
Air Force Office Of Scientific Research; FA9550-14-1-0260, \$360,000  
*Synthesis of 3D-printable Polymer Matrix Composites.*

## **The University of Texas at San Antonio (UT-San Antonio)**

The University of Texas at San Antonio listed one active award in aerospace technology for FY 2017. The total award amount was \$577,110. During that year, UT-San Antonio's research expenditures for awards in aerospace technology were \$96,628. Information for the identified active awards is provided.

- Electrcical Engineering (engineering)  
Guo, Ruyan  
US Dept of the Navy, \$577,100  
*Hybrid 3-D Digital Deposition Platform for Bottom-up Fabrication of Multicomponent-Multiferroic Composites (DURIP: H3DPlatform).*

## The University of Texas Rio Grande Valley (UT-RGV)

The University of Texas-Rio Grande Valley listed 12 active awards in aerospace technology for FY 2017. The total award amount was \$12,462,806. During that year, UT-RGV's research expenditures for awards in aerospace technology were \$2,159,679. Information for the identified active awards is provided.

- Center for Advanced Radio Astronomy (College of Sciences)  
Fredrick, Jenet A  
Office of the Governor 1788960, \$4,050,500  
*Texas Emerging Technology Fund Stargate.*
- Center for Gravitational Wave Astronomy (College of Sciences)  
Diaz, Mario  
National Science Foundation HRD-1242090, \$5,240,574  
*The CGWA in the Era of Multimessenger Astronomy.*
- Center for Gravitational Wave Astronomy (College of Sciences)  
Romano, Joseph  
National Science Foundation PHY-1430284, \$622,293  
*NANOGrav Physics Frontier Center.*
- Center for Gravitational Wave Astronomy (College of Sciences)  
Diaz, Mario  
National Science Foundation 1461237, \$395,000  
*REU & RET Site in Physics at The University of Texas at Brownsville.*
- Center for Gravitational Wave Astronomy (College of Sciences)  
Martirosyan, Karen  
National Science Foundation - Award No. 1138205, \$210,000  
*Development of the Nanoscale Engineering Concentration (NEC) at The University of Texas at Brownsville.*
- Center for Gravitational Wave Astronomy (College of Sciences)  
Rakhmanov, Malik  
U.S. Department of Defense W911NF-13-1-0140, \$539,260  
*Modulation Spectroscopy and Opto-mechanics of Micro Toroidal Resonators.*
- Center for Gravitational Wave Astronomy (College of Sciences)  
Romano, Joseph  
National Science Foundation 1505861, \$450,000  
*Support of LIGO Data Analysis Activities at The University of Texas at Brownsville.*
- Center for Gravitational Wave Astronomy (College of Sciences)  
Creighton, Teviet  
National Science Foundation 1547443, \$334,969  
*Collaborative Research: Radio Frequency Interference Aware Radio Astronomy Systems.*

- College of Engineering & Computer Science (mechanical engineering)  
Choutapalli, Isaac Manohar  
U.S. Department of Defense FA9550-14-1-0199, \$302,910  
*Vortex Dynamics & Boundary Layer Characteristics of Airfoils with Surface Modifications.*
- College of Engineering & Computer Science (electrical engineering)  
Zhou, Yong  
Texas Space Grant Consortium, \$1,300  
*2017 Team CHRONOS.*
- College of Sciences (biology)  
Hicks, David W  
Space Exploration Technologies Corp, \$16,500  
*SpaceX PreConstruction Monitoring.*
- Research Translation (research, innovation & economic development)  
Michel, Jackie  
Office of the Governor 1788960, \$299,500  
*RGV ETF-Research Translation.*

## **University of Houston (UH)**

The University of Houston listed 35 active awards in aerospace technology for FY 2017. The total award amount was \$14,425,558. During that year, UH's research expenditures for awards in aerospace technology were \$2,052,473. Information for the identified active awards is provided.

- Biology/Biochemistry (natural science/mathematics)  
Fox, George E.  
NASA Headquarters; Contract #107026, \$421,039  
*Transitioning from an RNA World: The Origins of the Protein Synthesis Machinery.*
- Biology/Biochemistry (natural science/mathematics)  
Fox, George E.  
NASA Goddard Space Flight Center; Contract #107122, \$422,732  
*Evolutionary History of the Translation Machinery.*
- Chemical Engineering (engineering)  
Vekilov, Peter  
NASA Headquarters; Contract #106744, \$841,142  
*Research Opportunities in Complex Fluids and Macromolecular Biophysics-NRA-NNH13ZTT001N.*

- Chemical Engineering (engineering)  
Balakotaiah, Vemuri  
NASA Glenn Research Center; Contract #106992, \$300,000  
*Modeling and Experimental Studies on Gas-Liquid Two-phase Flow through Packed Beds in Microgravity.*
- Chemical Engineering (engineering)  
Vekilov, Peter  
NASA Marshall Space Flight Center; Contract #108045, \$500,000  
*Formation Mechanisms of the Protein-rich Clusters.*
- Chemical Engineering (engineering)  
Balakotaiah, Vemuri  
NASA Glenn Research Center; Contract #113213, \$100,000  
*Gas-Liquid Two-phase Flow through Packed Beds in Microgravity Instrument Technology to Study the Auroral Ionosphere and Stratospheric Ozone Layer Using Ultralight Balloon Payloads.*
- Civil Engineering (engineering)  
Lee, Hyongki  
NASA Goddard Space Flight Center; Contract #105108, \$606,508  
*Enhancement of GRACE Temporal Gravity Field Solutions to Study Terrestrial Water Dynamics in the Congo Basin.*
- Civil Engineering (engineering)  
Lee, Hyongki  
NASA Goddard Space Flight Center; Contract #107387, \$256,165  
*Estimating Two-dimensional Surface Water Depths in the Congo Wetlands using Multiple Remote Sensing Measurements.*
- Civil Engineering (engineering)  
Lee, Hyongki  
NASA Goddard Space Flight Center; Contract #108224, \$221,869  
*Towards Operational Water Resources Management in South Asia Exploiting Satellite Geodetic and Remote Sensing Technologies.*
- Civil Engineering (engineering)  
Lee, Hyongki  
NASA Headquarters; Contract #109775, \$60,000  
*Diffusion Modeling of Water Flow in the central Congo Floodplain using Geodetic and Remote Sensing Measurements.*
- Civil Engineering (engineering)  
Lee, Hyongki  
NASA Goddard Space Flight Center; Contract #110398, \$81,640  
*Integrating Lateral Contributions and Longitudinal Controls Along River Reaches to Improve SWOT Discharge Estimates.*

- Civil Engineering (engineering)  
Lee, Hyongki  
NASA Goddard Space Flight Center; Contract #111937, \$598,528  
*Building Lasting Capacity for Water Management in Vulnerable Deltas of Indochina.*
- Center for Life Sciences Technology (technology)  
Iyer, Rupa S.  
National Institute of Standards and Technology; Contract #110008, \$74,887  
*Integration of Standards, Models of Standardization and Science Policy for the 21st Century Biotechnology Workforce.*
- Earth/Atmospheric Sciences (natural science/mathematics)  
Lapen, Thomas J.  
NASA Goddard Space Flight Center; Contract #109946, \$60,000  
*In Situ Investigations of Al-Mg Isotopes in Type B1 CAIs (Graduate Student Fellowship for A. Kerekgyarto).*
- Earth/Atmospheric Sciences (natural science/mathematics)  
Brandon, Alan  
NASA Goddard Space Flight Center; Contract #110206, \$375,000  
*The Search for Nebular Heterogeneity and the Compositions of Terrestrial Planetary Materials Using Nd, Sm, and Os Isotopes.*
- Earth/Atmospheric Sciences (natural science/mathematics)  
Bissada, Kadry K.  
NASA Johnson Space Center; Contract #1110842, \$91,007  
*Evaluating Aqueous Martian Environments through Coordinated Analysis of Carbonates in Martian Meteorite EETA 79001.*
- Earth/Atmospheric Sciences (natural science/mathematics)  
Flynn III, James H.  
NASA Goddard Space Flight Center; Contract #110956, \$172,285  
*In Situ Measurements of Ozone and NO<sub>2</sub> in the East Sea and Yellow Sea in Support of KORUS-OC and KORUS-AQ.*
- Earth/Atmospheric Sciences (natural science/mathematics)  
Jiang, Xun  
NASA Goddard Space Flight Center; Contract #112944, \$192,406  
*Generating and Archiving Cassini ISS Long-term Multi-filter Global Maps for Jupiter and Saturn.*
- Electrical Engineering (engineering)  
Prasad, Saurabh  
NASA Goddard Space Flight Center; Contract #107380, \$261,105  
*Novel Bayesian Image Analysis for Robust Multisensor Remote Sensing with Applications to Coastal Ecosystem Monitoring.*

- Health/Human Performance (health and human performance)  
Layne, Charles S.  
Wyle Science Technology and Engineering; Contract #112427, \$1,801,132  
*Enhanced Development of the Office of Scientific Data Review and Dissemination.*
- Health/Human Performance (health and human performance)  
Simpson, Richard J.  
NASA Johnson Space Center; Contract #109433, \$594,114  
*The Impact of Modeled Microgravity and Prior Radiation Exposure on Cytomegalovirus Reactivation and Host Immune Evasion.*
- Health/Human Performance (health and human performance)  
Simpson, Richard J.  
NASA Johnson Space Center; Contract #102913, \$712,412  
*Effects of Long-term Exposure to Microgravity on Salivary Markers of Innate Immunity.*
- Health/Human Performance (health and human performance)  
Paloski, William H.  
NASA Johnson Space Center; Contract #106319, \$777,291  
*NASA Intergovernmental Personnel Act (IPA) Agreement: Manager, Human Research Program.*
- Health/Human Performance (health and human performance)  
Laughlin, Mitzi S.  
NASA Johnson Space Center; Contract #102912, \$717,983  
*Modulation of Muscle Function by Lower Limb Loading During Space Flight.*
- Health/Human Performance (health and human performance)  
Simpson, Richard J.  
NASA Johnson Space Center; Contract #110826, \$225,000  
*The Impact of an ISS Mission on the Anti-viral and Functional Properties of NK-cells, T-cells, B-cells and Dendritic Cells.*
- Human Development/Consumer Sciences (technology)  
Hines, Andrew L.  
NASA - National Aeronautics and Space Admin-Office of Biological/Physical Res; contract #175060, \$24,950  
*Wind Tunneling Plans Via Scenarios of The Future of Work.*
- Mechanical Engineering (engineering)  
White, Kenneth W.  
NASA Headquarters; Contract #110343, \$204,800  
*An Investigation of Mechanisms in Bonding and Failure of Thermal Spray Coatings.*
- Physics (natural science/mathematics)  
Freundlich, Alexandre  
Various Private Profit Agencies; Contract #94095, \$496,148  
*CAM Consortium Memberships.*

- Physics (natural science/mathematics)  
Freundlich, Alexandre  
Arizona State University; Contract #99644, \$1,343,141  
*ERC for Quantum Energy and Sustainable Solar Technologies.*
- Physics (natural science/mathematics)  
Li, Liming  
NASA Headquarters; Contract #98168, \$319,717  
*Energy Balance of Saturn and Jupiter.*
- Physics (natural science/mathematics)  
Bering, Edgar A.  
NASA Headquarters; Contract #106783, \$49,995  
*An Undergraduate Student Instrumentation Project to Develop New Instrument Technology to Study the Auroral Ionosphere and Stratospheric Ozone Layer Using Ultralight Balloon Payloads.*
- Physics (natural science/mathematics)  
Li, Liming  
NASA Headquarters; Contract #109160, \$198,914  
*Radiant Energy Budgets of Jupiter, Saturn, and Titan From Cassini Long-term Multi-instrument Observations.*
- Physics (natural science/mathematics)  
Li, Liming  
NASA Goddard Space Flight Center; Contract #110546, \$290,208  
*Generating and Archiving Cassini ISS Long-term Multi-filter Global Maps for Jupiter and Saturn.*
- Physics (natural science/mathematics)  
Bering, Edgar A.  
NASA Headquarters; Contract #111730, \$100,000  
*Students Improving Ultralight Balloon Technology for Auroral and Stratospheric Studies.*
- Psychology ()  
Alfano, Candice A.  
NASA Johnson Space Center; Contract #108758, \$933,441  
*Characterization of Psychological Risk, Overlap with Physical Health, and Associated Performance in Isolated, Confined, Extreme (ICE) Environments.*

## University of Houston-Clear Lake (UH-Clear Lake)

The University of Houston-Clear Lake listed three active awards in aerospace technology for FY 2017. The total award amount was \$142,148. During that year, UH-Clear Lake's research expenditures for awards in aerospace technology were \$53,979. Information for the identified active awards is provided.

- Biology (biological sciences)  
Rohde, Larry  
NASA-Johnson Space Center (JSC), NNX16AR08G, \$27,727  
*DNA Damage Response in the ISS Astronaut's Lymphocytes and their Association with Stress-induced Immune Dysfunction.*
- Biology (biological sciences)  
Rohde, Larry  
NASA-Johnson Space Center (JSC), NNX12AD35A, 1622978, \$27,347  
*Dependence of Radiation Quality on Charged Particle-induced Chromosomes.*
- Engineering (mechanical engineering)  
Dabney, James  
NASA-Johnson Space Center (JSC), NNX16AD54G, \$87,074  
*IV & V of Software Developed Using Agile Methods.*

## University of North Texas (North Texas)

The University of Houston-Clear Lake listed 15 active awards in aerospace technology for FY 2017. The total award amount was \$14,180,979. During that year, North Texas' research expenditures for awards in aerospace technology were \$232,052. Information for the identified active awards is provided.

- College of Engineering (electrical engineering)  
Wan, Yan  
National Science Foundation, 1453722, \$291,986  
*CAREER: Communication and Control Co-design to Enable Aerial Networking in Uncertain Airspace Environment: Paradigm Shift From Ignorance and Constraints to Facilitators.*
- College of Engineering (electrical engineering)  
Namuduri, Kameswara R.  
National Science Foundation, 1622978, \$213,583  
*EAGER: Networked Aerial Base Stations For Enabling Emergency Communications During Disaster Recovery.*
- College of Engineering (material science & engineering)  
Banerjee, Rajarshi  
Air Force Research Laboratory, FA8650-08-C-5226, \$10,917,886  
*Institute for Science and Engineering Simulation.*



- College of Engineering (material science & engineering)  
John, Kuruvilla  
Air Force Research Laboratory, FA8651-14-2-0007, \$474,999  
*Novel Experimental Techniques, Size Effect, and Damage Evolution for Heterogeneous Materials.*
- College of Engineering (material science & engineering)  
Mishra, Rajiv Sharan  
National Science Foundation, IIP-1157754, \$192,982  
*NSF IUCRC: Friction Stir Processing.*
- College of Engineering (material science & engineering)  
Mishra, Rajiv Sharan  
Air Force Research Laboratory, W911NF-13-2-0018 P00007, \$48,000  
*ARL Subcontract - I/UCRC for Advanced Non-Ferrous Structural Alloys (CANFSA) – Membership.*
- College of Engineering (material science & engineering)  
Mishra, Rajiv Sharan  
Air Force Research Laboratory, W911NF-13-2-0018, \$35,000  
*ARL Membership Fees.*
- College of Engineering (material science & engineering)  
Young, Marcus Lynn  
National Aeronautics & Space Administration, NNC16VA71P, \$102,890  
*Processing Studies on NiTi-based High Temperature Shape Memory Alloys.*
- College of Engineering (material science & engineering)  
Young, Marcus Lynn  
Texas A&M University - College Station (Boeing Prime), M1602601, \$50,000  
*Development and Characterization of High Temperature Shape Memory Alloys for Aerospace Actuation Devices.*
- College of Information (learning technologies)  
Knezek, Gerald  
National Aeronautics & Space Administration, NNX1 6AL63A, \$1,230,582  
*NASA STEM Research.*
- College of Science (chemistry)  
Marpu, Sreekar Babu  
Intelligent Optical Systems, Inc. (NASA Prime), \$226,749  
*Advanced Gas Sensing Technology for Space Suits.*
- College of Science (physics)  
Shemmer, Ohad  
National Aeronautics & Space Administration, NNX1 7AC67G, \$60,111  
*Weak Line Quasars at High Redshift: Extremely High Accretion Rate Sources?*

- College of Science (physics)  
Shemmer, Ohad  
National Aeronautics & Space Administration, NNX1 6AC06G, \$62,313  
*Weak Line Quasars at High Redshift: Extremely High Accretion Rate Sources.*
- College of Science (physics)  
Schultz, David Robert  
University of Kansas Center for Research (NASA Prime), \$177,272  
*Energy Deposition in the Upper Atmosphere of Jupiter and Saturn by Energetic Particles: The Polar Aurora.*
- College of Science (physics)  
Schultz, David Robert  
Auburn University (NASA Prime), NNX15AE47G, \$96,626  
*Atomic Fine-structure Diagnostic and Cooling Transitions for Far In-fared and Sub-millimeter Observations.*



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