

**Committee on Science, Space, and Technology  
U.S. House of Representatives  
Witness Disclosure Requirement - "Truth in Testimony"  
Required by House Rule XI, Clause 2(g)(5)**

1. Your Name: <b>Klaus Brun, Ph.D.</b>		
2. Are you testifying on behalf of the Federal, or a State or local government entity?	Yes	No <b>X</b>
3. Are you testifying on behalf of an entity that is not a government entity?	Yes <b>X</b>	No
4. Other than yourself, please list which entity or entities you are representing: <b>Southwest Research Institute</b>		
5. Please list any Federal grants, cooperative agreements, or contracts (including subgrants or subcontracts) that <u>you or the entity you represent have received on or after December 31, 2015:</u>  Please see the attached Exhibit A which contains information solely retrieved from the Source: USASPENDING.gov		
6. Please list any foreign government payments that <u>you or the entity you represent have received on or after December 31, 2015:</u>  Please see the attached Exhibit B		
7. If your answer to the question in item 3 in this form is "yes," please describe your position or representational capacity with the entity(ies) you are representing:  Program Director in the Fluids and Machinery Engineering Department of the Mechanical Engineering Division at Southwest Research Institute		
8. If your answer to the question in item 3 is "yes," do any of the entities disclosed in item 4 have parent organizations, subsidiaries, or partnerships that you are not representing in your testimony?	Yes	No <b>X</b>
9. If the answer to the question in item 3 is "yes," please list any Federal grants, cooperative agreements, or contracts (including subgrants or subcontracts) that were received by the entities listed under the question in item 4 on or after December 31, 2015, that exceed 10 percent of the revenue of the entities in the year received, including the source and amount of each grant or contract to be listed:  Southwest Research Institute has not received a federal grant, cooperative agreement, or contract that has contributed more than 10 percent to its annual revenue since 12/31/15		

I certify that the above information is true and correct.

Signature: 

Date: July 12, 2018

source: USASPENDING.gov Contract Awards to Southwest Research Institute Since Dec 31, 2015

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
DEPARTMENT OF AGRICULTURE (USDA)	AG6395C140089	MEDICAL- LABORATORY TESTING	\$ 40,000
	AG6395D150465	MEDICAL- LABORATORY TESTING	\$ 37,524
	AG6395D160496	MEDICAL- LABORATORY TESTING	\$ 35,478
	AG6395P170006	SUPPORT- MANAGEMENT: DATA COLLECTION	\$ 11,875
	AG82VUP160039	MEDICAL- LABORATORY TESTING	\$ 8,400
DEPARTMENT OF COMMERCE (DOC)	DOCRA133R13NC0772	IT AND TELECOM- SYSTEMS DEVELOPMENT	\$ 94,221
DEPARTMENT OF DEFENSE (DOD)	DAAE0700CL036	R&D- DEFENSE SYSTEM: TANK/AUTOMOTIVE (ADVANCED DEVELOPMENT)	\$ 10,089,270
	FA248718C0131	R&D- GENERAL SCIENCE/TECHNOLOGY: PHYSICAL SCIENCES (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 2,949,291
	FA301616P0072	EDUCATION/TRAINING- TRAINING/CURRICULUM DEVELOPMENT	\$ 8,923
	FA301617P0021	MAINT/REPAIR/REBUILD OF EQUIPMENT- TRAINING AIDS AND DEVICES	\$ 22,803
	FA301618P0101	LEASE/RENTAL OF CONFERENCE SPACE AND FACILITIES	\$ 4,000
	FA302017F0001	MAINT/REPAIR/REBUILD OF EQUIPMENT- TRAINING AIDS AND DEVICES	\$ 63,817
	FA302018F0001	MAINT/REPAIR/REBUILD OF EQUIPMENT- TRAINING AIDS AND DEVICES	\$ 66,582
	FA448412F0037	MAINT/REPAIR/REBUILD OF EQUIPMENT- ADP EQUIPMENT/SOFTWARE/SUPPLIES/SUPPORT EQUIPMENT	\$ 77,255
	FA700009D0021	R&D- GENERAL SCIENCE/TECHNOLOGY: PHYSICAL SCIENCES (ENGINEERING DEVELOPMENT)	\$ 1,926,210
	FA810216F0017	SPECIAL STUDIES/ANALYSIS- CHEMICAL/BIOLOGICAL	\$ 246,104
	FA810217F0060	SPECIAL STUDIES/ANALYSIS- CHEMICAL/BIOLOGICAL	\$ 673,489
	FA810515C0007	MAINT/REPAIR/REBUILD OF EQUIPMENT- ADP EQUIPMENT/SOFTWARE/SUPPLIES/SUPPORT EQUIPMENT	\$ 593,669
	FA810517C0004	MAINT/REPAIR/REBUILD OF EQUIPMENT- ADP EQUIPMENT/SOFTWARE/SUPPLIES/SUPPORT EQUIPMENT	\$ 340,945
	FA812412C0015	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 970,000
	FA820215D0005	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ -
	FA820216F0012	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 522,984
	FA820217F0013	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 534,788
	FA820217F0024	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 751,823
	FA820218F0009	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 254,255
	FA822205D0009	SYSTEMS ENGINEERING SERVICES	\$ 495,989
FA822413C0041	IT AND TELECOM- SYSTEMS DEVELOPMENT	\$ 4,930,898	
FA825013C0011	TECHNICAL REPRESENTATIVE- MISCELLANEOUS	\$ 2,559,724	
FA825016M0001	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 79,494	

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
DEPARTMENT OF DEFENSE	FA825016M0009	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 52,746
	FA825016P0041	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 146,803
	FA825016P0080	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 54,714
	FA825017C0001	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 122,863
	FA825017C0002	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 139,281
	FA825017F0039	ELECTRICAL AND ELECTRONIC ASSEMBLIES, BOARDS, CARDS, AND ASSOCIATED HARDWARE	\$ 1,999,632
	FA825017P0010	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 25,095
	FA825017P0014	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 29,040
	FA825017P0048	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 33,271
	FA825017P0087	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 141,191
	FA825017P0105	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 39,498
	FA825017P0119	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 149,776
	FA825017P0122	MAINT/REPAIR/REBUILD OF EQUIPMENT- ELECTRICAL AND ELECTRONIC EQUIPMENT COMPONENTS	\$ 32,803
	FA825017P0132	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 31,361
	FA825017P0142	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 51,538
	FA825018P0017	MAINT/REPAIR/REBUILD OF EQUIPMENT- COMMUNICATION, DETECTION, AND COHERENT RADIATION EQUIPMENT	\$ 29,799
	FA825018P0048	MAINT/REPAIR/REBUILD OF EQUIPMENT- ELECTRICAL AND ELECTRONIC EQUIPMENT COMPONENTS	\$ 67,841
	FA825018P0061	MAINT/REPAIR/REBUILD OF EQUIPMENT- ELECTRICAL AND ELECTRONIC EQUIPMENT COMPONENTS	\$ 110,000
	FA825018P0068	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 55,964
	FA830718F0018	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 97,728
	FA851911M0013	MAINT/REPAIR/REBUILD OF EQUIPMENT- AIRCRAFT COMPONENTS AND ACCESSORIES	\$ 64,262
	FA852311C0010	SYSTEMS ENGINEERING SERVICES	\$ 2,682,995
	FA852317D0003	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ -
	FA852317F0008	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 2,829,232
	FA852317F0040	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 2,859,661
	FA852318F0019	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 2,583,741
	FA852710C0072	MISCELLANEOUS ELECTRICAL AND ELECTRONIC COMPONENTS	\$ 5,156,643
	FA852715C0072	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 4,928,163
	FA854011C0016	SYSTEMS ENGINEERING SERVICES	\$ 5,130,564
	FA854012C0026	SUPPORT- PROFESSIONAL: SPECIFICATIONS DEVELOPMENT	\$ 3,409,600
	FA854015C0012	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 989,998
	FA855214C0006	SUPPORT- PROFESSIONAL: LAND SURVEYS-CADASTRAL (NON-CONSTRUCTION)	\$ 578,537

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DEPARTMENT OF DEFENSE	FA855216C0007	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 610,794
	FA857112C0002	MAINT/REPAIR/REBUILD OF EQUIPMENT- MAINTENANCE AND REPAIR SHOP EQUIPMENT	\$ 1,955,819
	FA857115C0002	MAINT/REPAIR/REBUILD OF EQUIPMENT- MAINTENANCE AND REPAIR SHOP EQUIPMENT	\$ 668,053
	FA857118P0046	MAINT/REPAIR/REBUILD OF EQUIPMENT- AIRCRAFT AND AIRFRAME STRUCTURAL COMPONENTS	\$ 328,288
	FA865015C5707	R&D- DEFENSE SYSTEM: AIRCRAFT (ADVANCED DEVELOPMENT)	\$ 2,760,000
	FA865016C5237	R&D- DEFENSE SYSTEM: AIRCRAFT (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 500,000
	FA865016C9104	R&D- DEFENSE SYSTEM: ELECTRONICS/COMMUNICATION EQUIPMENT (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 10,329,601
	FA865017C7703	R&D- DEFENSE SYSTEM: ELECTRONICS/COMMUNICATION EQUIPMENT (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 1,897,776
	FA865018D5680	R&D- DEFENSE OTHER: OTHER (ENGINEERING DEVELOPMENT)	\$ -
	FA865018F5681	R&D- DEFENSE OTHER: OTHER (ENGINEERING DEVELOPMENT)	\$ 499,670
	FA875018C0030	R&D- DEFENSE OTHER: OTHER (BASIC RESEARCH)	\$ 300,000
	FA942214D8003	R&D- GENERAL SCIENCE/TECHNOLOGY: ENGINEERING (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ -
	FD01	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 968,299
	H9222210D0011	R&D- COMMUNITY SERVICE/DEVELOPMENT: OTHER (ENGINEERING DEVELOPMENT)	\$ 2,028,810
	H9222215D0011	R&D- COMMUNITY SERVICE/DEVELOPMENT: OTHER (ENGINEERING DEVELOPMENT)	\$ 8,233,652
	HDTRA107D0011	R&D- DEFENSE OTHER: OTHER (ADVANCED DEVELOPMENT)	\$ 7,243,995
		R&D- DEFENSE OTHER: OTHER (ENGINEERING DEVELOPMENT)	\$ 12,178,203
		R&D- GENERAL SCIENCE/TECHNOLOGY: OTHER (ENGINEERING DEVELOPMENT)	\$ 1,797,162
		SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 9,284,900
	HDTRA109C0044	R&D- DEFENSE OTHER: OTHER (ENGINEERING DEVELOPMENT)	\$ 4,616,197
	HDTRA110C0041	R&D- GENERAL SCIENCE/TECHNOLOGY: PHYSICAL SCIENCES (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 2,429,128
	HDTRA116C0020	R&D- DEFENSE OTHER: OTHER (ADVANCED DEVELOPMENT)	\$ 3,377,043
	HDTRA118C0010	R&D- DEFENSE OTHER: OTHER (ADVANCED DEVELOPMENT)	\$ 162,847
	HR001113C0008	R&D- DEFENSE OTHER: OTHER (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 4,096,856
	HR001117C0024	R&D- DEFENSE OTHER: OTHER (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 1,240,046
	N0001415C0034	R&D- DEFENSE OTHER: OTHER (ADVANCED DEVELOPMENT)	\$ 749,863

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
DEPARTMENT OF DEFENSE	N0002417C4206	ELECTRICAL CONTROL EQUIPMENT	\$ 6,044,276
	N0017808D3007	R&D- DEFENSE SYSTEM: ELECTRONICS/COMMUNICATION EQUIPMENT (COMMERCIALIZED)	\$ 5,948,354
		SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 2,254,078
		SUPPORT- PROFESSIONAL: SPECIFICATIONS DEVELOPMENT	\$ 72,727
	N0017811C1005	OPTICAL INSTRUMENTS, TEST EQUIPMENT, COMPONENTS AND ACCESSORIES	\$ 12,044,643
	N0017814D7928	R&D- DEFENSE OTHER: SERVICES (OPERATIONAL SYSTEMS DEVELOPMENT)	\$ -
	N0017816C2067	INFORMATION TECHNOLOGY CENTRAL PROCESSING UNIT (CPU, COMPUTER, DIGITAL)	\$ 848,200
	N0017816D3002	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 737,942
	N0017816P1131	EQUIPMENT AND MATERIALS TESTING- AMMUNITION AND EXPLOSIVES	\$ 147,946
	N0017817C6001	INFORMATION TECHNOLOGY CENTRAL PROCESSING UNIT (CPU, COMPUTER, DIGITAL)	\$ 1,155,077
	N0017817F2065	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 52,788
	N0017817FD406	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 946,023
	N0017817FD434	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 235,477
	N0017817FD435	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 125,000
	N0017818FD401	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 456,470
	N0042114C0010	RADIO AND TELEVISION COMMUNICATION EQUIPMENT, AIRBORNE	\$ 10,867,000
	N3239816P0100	LABORATORY EQUIPMENT AND SUPPLIES	\$ 12,000
	N3239816P0113	LABORATORY EQUIPMENT AND SUPPLIES	\$ 18,000
	N6523604D7856	MAINT/REPAIR/REBUILD OF EQUIPMENT- ELECTRICAL AND ELECTRONIC EQUIPMENT COMPONENTS	\$ 86,853
	N6523610D6841	COMMUNICATIONS SECURITY EQUIPMENT AND COMPONENTS	\$ 15,724
		MAINT/REPAIR/REBUILD OF EQUIPMENT- COMMUNICATION, DETECTION, AND COHERENT RADIATION EQUIPMENT	\$ 766,137
	N6523617D8008	MAINT/REPAIR/REBUILD OF EQUIPMENT- COMMUNICATION, DETECTION, AND COHERENT RADIATION EQUIPMENT	\$ -
	N6523617F0410	MAINT/REPAIR/REBUILD OF EQUIPMENT- COMMUNICATION, DETECTION, AND COHERENT RADIATION EQUIPMENT	\$ 174,537
	N6523617F0665	MAINT/REPAIR/REBUILD OF EQUIPMENT- COMMUNICATION, DETECTION, AND COHERENT RADIATION EQUIPMENT	\$ 1,445,758
	N6523618F0130	MAINT/REPAIR/REBUILD OF EQUIPMENT- COMMUNICATION, DETECTION, AND COHERENT RADIATION EQUIPMENT	\$ 519,701
	N6600117P6723	ELECTRICAL HARDWARE AND SUPPLIES	\$ 121,526
	SPE60016D5001	QUALITY CONTROL- FUELS, LUBRICANTS, OILS, AND WAXES	\$ 342,098
	SPE60318D5003	QUALITY CONTROL- FUELS, LUBRICANTS, OILS, AND WAXES	\$ -

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
DEPARTMENT OF DEFENSE	SPE7M518V6277	MISCELLANEOUS ELECTRICAL AND ELECTRONIC COMPONENTS	\$ 19,546
	SPRHAS17C0003	ELECTRICAL AND ELECTRONIC ASSEMBLIES, BOARDS, CARDS, AND ASSOCIATED HARDWARE	\$ 279,679
	SPRHAS17P0006	ELECTRICAL AND ELECTRONIC ASSEMBLIES, BOARDS, CARDS, AND ASSOCIATED HARDWARE	\$ 89,182
	SPRMM117PPB10	ANTENNAS, WAVEGUIDES, AND RELATED EQUIPMENT	\$ 19,216
	W15QKN16F0091	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 149,582
	W15QKN17P0075	INFORMATION TECHNOLOGY SOFTWARE	\$ 4,000
	W52P1J10C0030	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 237,712
	W56HZV06C0194	R&D- DEFENSE OTHER: FUELS/LUBRICANTS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 7,729,156
	W56HZV09C0100	R&D- DEFENSE OTHER: FUELS/LUBRICANTS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 32,310,403
	W56HZV10C0382	R&D- DEFENSE SYSTEM: TANK/AUTOMOTIVE (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 9,617,000
	W56HZV12C0287	R&D- DEFENSE OTHER: FUELS/LUBRICANTS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 4,731,571
	W56HZV13C0047	R&D- DEFENSE OTHER: SERVICES (BASIC RESEARCH)	\$ 2,801,353
	W56HZV14C0180	MAINTENANCE OF GOVERNMENT-OWNED CONTRACTOR-OPERATED (GOCO) R&D FACILITIES	\$ 4
	W56HZV15C0030	R&D- DEFENSE OTHER: FUELS/LUBRICANTS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 2,855,569
	W56HZV15C0129	R&D- OTHER RESEARCH AND DEVELOPMENT (ENGINEERING DEVELOPMENT)	\$ 1,253,691
	W56HZV16PL576	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 46,260
	W56HZV17P0043	MODIFICATION OF EQUIPMENT- MAINTENANCE AND REPAIR SHOP EQUIPMENT	\$ 9,850
	W56HZV17P0056	MAINT/REPAIR/REBUILD OF EQUIPMENT- MISCELLANEOUS	\$ 120,180
	W81XWH14D0057	LABORATORY EQUIPMENT AND SUPPLIES	\$ -
	W81XWH14P0650	R&D- COMMUNITY SERVICE/DEVELOPMENT: OTHER (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 74,364
	W81XWH16P0274	IN VITRO DIAGNOSTIC SUBSTANCES, REAGENTS, TEST KITS AND SETS	\$ 197,402
	W81XWH17P0308	R&D- DEFENSE OTHER: SERVICES (BASIC RESEARCH)	\$ 30,000
	W9098S16P0148	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 30,770
	W911NF15C0232	R&D- OTHER RESEARCH AND DEVELOPMENT (BASIC RESEARCH)	\$ 13,405,479
	W911NF16C0077	R&D- OTHER RESEARCH AND DEVELOPMENT (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 163,064
	W911QX17D0014	R&D- DEFENSE OTHER: OTHER (ENGINEERING DEVELOPMENT)	\$ 247,577

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
DEPARTMENT OF DEFENSE (DOD)	W911QX18F0014	MAINT/REPAIR/REBUILD OF EQUIPMENT- VEHICULAR EQUIPMENT COMPONENTS	\$ 54,943
	W911QY12C0010	R&D- DEFENSE OTHER: TEXTILES/CLOTHING/EQUIPAGE (BASIC RESEARCH)	\$ 3,199,225
	W911QY15C0133	COMMUNICATIONS SECURITY EQUIPMENT AND COMPONENTS	\$ 849,889
	W911QY17A0001	EQUIPMENT AND MATERIALS TESTING- CONTAINERS, PACKAGING, AND PACKING SUPPLIES	\$ -
	W911QY17C0004	R&D- DEFENSE OTHER: TEXTILES/CLOTHING/EQUIPAGE (BASIC RESEARCH)	\$ 467,374
	W911QY17D0044	MAINT/REPAIR/REBUILD OF EQUIPMENT- COMMUNICATION, DETECTION, AND COHERENT RADIATION EQUIPMENT	\$ 2,555,086
		R&D- DEFENSE SYSTEM: ELECTRONICS/COMMUNICATION EQUIPMENT (OPERATIONAL SYSTEMS DEVELOPMENT)	\$ 314,903
	W911QY17P0095	MISCELLANEOUS AMMUNITION	\$ 71,399
	W911QY18D0145	R&D- DEFENSE SYSTEM: MISCELLANEOUS HARD GOODS (ADVANCED DEVELOPMENT)	\$ 1,000
	W911QY18F0243	R&D- DEFENSE SYSTEM: ELECTRONICS/COMMUNICATION EQUIPMENT (OPERATIONAL SYSTEMS DEVELOPMENT)	\$ 317,565
	W911RQ17FD703	IT AND TELECOM- PROGRAMMING	\$ 378,468
	W912HQ16C0049	R&D- ENVIRON PROTECTION: POLLUTION CONTROL/ABATEMENT (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 586,956
	W912NW12P0734	MISCELLANEOUS MAINTENANCE AND REPAIR SHOP SPECIALIZED EQUIPMENT	\$ 9,531
	W912NW15P0152	ENGINE ELECTRICAL SYSTEM COMPONENTS, NONAIRCRAFT	\$ 157,056
	W912NW15P0175	MAINT/REPAIR/REBUILD OF EQUIPMENT- MAINTENANCE AND REPAIR SHOP EQUIPMENT	\$ 96,992
	W912NW17P0118	MAINT/REPAIR/REBUILD OF EQUIPMENT- MAINTENANCE AND REPAIR SHOP EQUIPMENT	\$ 56,600
	W912NW18P0019	MISCELLANEOUS MAINTENANCE AND REPAIR SHOP SPECIALIZED EQUIPMENT	\$ 25,400
	W912NW18P0045	AIRCRAFT MAINTENANCE AND REPAIR SHOP SPECIALIZED EQUIPMENT	\$ 119,223
	W91CR817C0039	R&D- DEFENSE OTHER: OTHER (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 319,611
	DEPARTMENT OF ENERGY (DOE)	89303018CET000001	SUPPORT- PROFESSIONAL: OTHER
DENE0008469		SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 972,992
DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)	HHS0005	SPECIAL STUDIES/ANALYSIS- CHEMICAL/BIOLOGICAL	\$ 39,524
	HHSD2002017F95156	EQUIPMENT AND MATERIALS TESTING- CHEMICALS AND CHEMICAL PRODUCTS	\$ 36,000

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DEPARTMENT OF HEALTH AND	HHS2142016M90411P	MEDICAL- LABORATORY TESTING	\$ 8,020
	HHSF2230004	SPECIAL STUDIES/ANALYSIS- ARCHEOLOGICAL/PALEONTOLOGICAL	\$ 42,771
	HHSF2230510009T1	SPECIAL STUDIES/ANALYSIS- ARCHEOLOGICAL/PALEONTOLOGICAL	\$ 30,716
	HHSN261201700058A	MEDICAL- LABORATORY TESTING	\$ 14,000
	HHSN261201700667P	SPECIAL STUDIES/ANALYSIS- CHEMICAL/BIOLOGICAL	\$ 99,900
	HHSN271201700007I	R&D- MEDICAL: BIOMEDICAL (BASIC RESEARCH)	\$ 5,000
	HHSN272201500015C	R&D- MEDICAL: BIOMEDICAL (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 3,425,409
	HHSN275201300096U	MEDICAL- LABORATORY TESTING	\$ 1,411,286
	HHSO100201100038C	R&D- MEDICAL: BIOMEDICAL (ADVANCED DEVELOPMENT)	\$ 13,135,796
	DEPARTMENT OF HOMELAND SECURITY (DHS)	HSCG4017P40111	ANTENNAS, WAVEGUIDES, AND RELATED EQUIPMENT
HSCG4017P49010		MAINT/REPAIR/REBUILD OF EQUIPMENT- SHIP AND MARINE EQUIPMENT	\$ 99,262
HSFE2015P0146		ENVIRONMENTAL SYSTEMS PROTECTION- TOXIC AND HAZARDOUS SUBSTANCE ANALYSIS	\$ 5,225
HSQDC10C00069		R&D- GENERAL SCIENCE/TECHNOLOGY: PHYSICAL SCIENCES (BASIC RESEARCH)	\$ 797,894
DEPARTMENT OF JUSTICE (DOJ)	DJF151200P0006826	MAINT/REPAIR/REBUILD OF EQUIPMENT- ADP EQUIPMENT/SOFTWARE/SUPPLIES/SUPPORT EQUIPMENT	\$ 154,616
	DJF171200P0002089	INFORMATION TECHNOLOGY SOFTWARE	\$ 128,498
DEPARTMENT OF THE INTERIOR (DOI)	IND17PX00168	QUALITY CONTROL- AIRCRAFT COMPONENTS AND ACCESSORIES	\$ 32,135
	INE15PC00006	R&D- ENERGY: PETROLEUM (BASIC RESEARCH)	\$ 629,916
	INE17PC00019	R&D- ENERGY: PETROLEUM (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 267,178
DEPARTMENT OF THE TREASURY (TREAS)	TEPS1402302	R&D- GENERAL SCIENCE/TECHNOLOGY: LIFE SCIENCES (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 3,321,408
	TEPS1634769	R&D- GENERAL SCIENCE/TECHNOLOGY: LIFE SCIENCES (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 1,187,459
DEPARTMENT OF TRANSPORTATION (DOT)	DTFR5316C00017	R&D- MODAL TRANSPORTATION: RAIL (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 1,284,505
	DTNH2212F00428	SPECIAL STUDIES/ANALYSIS- ENERGY	\$ 3,338,416
	DTNH2213D00315	MISCELLANEOUS VEHICULAR COMPONENTS	\$ 28,496
	DTNH2216F00081	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 510,410
	DTNH2217D00083	EQUIPMENT AND MATERIALS TESTING- MISCELLANEOUS	\$ 160,914
	DTPH5616D00001	R&D- OTHER TRANSPORTATION: TRANSPORTING HAZARDOUS MATERIALS (BASIC RESEARCH)	\$ -



awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
DEPARTMENT OF TRANSPORTATION (DOT)	DTPH5617F00019	R&D- OTHER TRANSPORTATION: TRANSPORTING HAZARDOUS MATERIALS (BASIC RESEARCH)	\$ 449,685
ENVIRONMENTAL PROTECTION AGENCY (EPA)	EP10W001075	SPECIAL STUDIES/ANALYSIS- OTHER	\$ -
	EPB14C00007	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 747,885
	EPB15S00031	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 12,450
	EPB15S00083	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 8,550
	EPB15S00084	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 12,915
	EPB16S00009	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 49,200
	EPB16S00035	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 22,375
	EPB16S00041	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 52,410
	EPB16S00060	SPECIAL STUDIES/ANALYSIS- OTHER	\$ 10,250
	EPBOA16W0011	MEDICAL- LABORATORY TESTING	\$ -
	EPC08043	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 9,304,322
	EPC15006	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 14,527,721
	EPD15016	R&D- GENERAL SCIENCE/TECHNOLOGY: PHYSICAL SCIENCES (BASIC RESEARCH)	\$ 529,867
	EPG12C00294	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 234,291
	EPG13C00331	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 1,187,573
	EPG13C00336	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 2,142,243
	EPG13C00374	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 137,065
	EPG13C00406	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 69,234
	EPG14C00433	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 246,627
	EPG14C00435	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 81,836
	EPG14C00517	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 166,691
	EPG14C00520	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 224,693
	EPG14C00524	SPECIAL STUDIES/ANALYSIS- SCIENTIFIC DATA	\$ 633,042
GENERAL SERVICES ADMINISTRATION (GSA)	GS07F6087P	MEDICAL- LABORATORY TESTING	\$ -
	GS23F0006M	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ -
	GSQ0117BK0142	SUPPORT- PROFESSIONAL: PROGRAM MANAGEMENT/SUPPORT	\$ 1,782,488
	GSQ0717BG0028	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 109,978
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)	80GSFC17C0005	FLIGHT INSTRUMENTS	\$ 16,983,635
	80GSFC18C0002	R&D- SPACE: SCIENCE/APPLICATIONS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 40,000
	80GSFC18C0014	FLIGHT INSTRUMENTS	\$ 1,000,000
	80NSSC17P0852	PLASTICS FABRICATED MATERIALS	\$ 14,000

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)	80NSSC17P1183	R&D- GENERAL SCIENCE/TECHNOLOGY: PHYSICAL SCIENCES (BASIC RESEARCH)	\$ 68,400
	80NSSC18P1323	EDUCATION/TRAINING- GENERAL	\$ 29,000
	80NSSC18P1841	R&D- GENERAL SCIENCE/TECHNOLOGY: LIFE SCIENCES (BASIC RESEARCH)	\$ 113,931
	80NSSC18P2322	R&D- EDUCATION: EDUCATIONAL (BASIC RESEARCH)	\$ 38,000
	80NSSC18P2509	R&D- EDUCATION: EDUCATIONAL (BASIC RESEARCH)	\$ 69,800
	GSFC0200107DNASS01095	R&D- SPACE: SCIENCE/APPLICATIONS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 11,542,592
	HQTR0200004DNASW00003	R&D- SPACE: SCIENCE/APPLICATIONS (BASIC RESEARCH)	\$ 15,598,017
	HQTR0200204DNASW02008	R&D- SPACE: OTHER (ENGINEERING DEVELOPMENT)	\$ 131,746,242
	NNA16BD73P	IT AND TELECOM- DATA CONVERSION	\$ 86,000
	NNC14TA24T	SPECIAL STUDIES/ANALYSIS- AERONAUTICAL/SPACE	\$ 127,606
	NNC14VE91P	R&D- SPACE: AERONAUTICS/SPACE TECHNOLOGY (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 161,200
	NNC15MF53P	MISCELLANEOUS CHEMICAL SPECIALTIES	\$ 59,000
	NNC15MF76P	MISCELLANEOUS FABRICATED NONMETALLIC MATERIALS	\$ 65,100
	NNC16VB78P	MISCELLANEOUS FABRICATED NONMETALLIC MATERIALS	\$ 34,550
	NNC16VG15P	MISCELLANEOUS FABRICATED NONMETALLIC MATERIALS	\$ 39,650
	NNC16VH96P	MISCELLANEOUS FABRICATED NONMETALLIC MATERIALS	\$ 15,050
	NNC17QA23P	R&D- SPACE: AERONAUTICS/SPACE TECHNOLOGY (BASIC RESEARCH)	\$ 104,500
	NND12AE39C	R&D- SPACE: AERONAUTICS/SPACE TECHNOLOGY (BASIC RESEARCH)	\$ 910,933
	NND16AB20P	LEASE/RENTAL OF CONFERENCE SPACE AND FACILITIES	\$ 5,000
	NNG04EB99C	R&D- SPACE: SCIENCE/APPLICATIONS (BASIC RESEARCH)	\$ 280,538,313
	NNG05EC85C	R&D- SPACE: FLIGHT (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 116,070,724
	NNG05EC87C	R&D- SPACE: SCIENCE/APPLICATIONS (BASIC RESEARCH)	\$ 24,531,391
	NNG09EK10C	SPACE VEHICLE COMPONENTS	\$ 3,619,252
	NNG10EK25C	SPACE VEHICLE COMPONENTS	\$ 42,259,521
	NNG12CR39C	FLIGHT INSTRUMENTS	\$ 4,141,121
	NNG13PR06C	SPACE VEHICLE COMPONENTS	\$ 451,712
	NNJ11HB15C	R&D- SPACE: SCIENCE/APPLICATIONS (ENGINEERING DEVELOPMENT)	\$ 13,033,604
	NNJ16HK26P	MISCELLANEOUS AIRCRAFT ACCESSORIES AND COMPONENTS	\$ 13,700
	NNM06AA75C	R&D- SPACE: SCIENCE/APPLICATIONS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 103,781,890
	NNM09AA24C	R&D- SPACE: SCIENCE/APPLICATIONS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 24,673,138
	NNM12AA18C	R&D- SPACE: SCIENCE/APPLICATIONS (APPLIED RESEARCH/EXPLORATORY DEVELOPMENT)	\$ 2,520,434

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)	NNM13AA38C	R&D- SPACE: AERONAUTICS/SPACE TECHNOLOGY (ENGINEERING DEVELOPMENT)	\$ 25,391,600
	NNM16AA08C	R&D- SPACE: AERONAUTICS/SPACE TECHNOLOGY (ENGINEERING DEVELOPMENT)	\$ 6,211,545
	NNX16TG26D	EDUCATION/TRAINING- OTHER	\$ 16,500
	NNX17EB41P	MISCELLANEOUS FABRICATED NONMETALLIC MATERIALS	\$ 20,000
	NNX17ED62P	CHEMICALS	\$ 57,600
	NNX17RA43P	R&D- COMMUNITY SERVICE/DEVELOPMENT: OTHER (MANAGEMENT/SUPPORT)	\$ 110,354
NUCLEAR REGULATORY COMMISSION (NRC)	31310018D0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ -
	31310018D0002	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ -
	31310018F0053	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 132,969
	31310018F0058	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 132,397
	31310018F0061	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 649,877
	31310018F0069	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 147,597
	NRC4109011	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ -
	NRCHQ12C020089	SUPPORT- PROFESSIONAL: OTHER	\$ -
	NRCHQ13C030044	SUPPORT- PROFESSIONAL: OTHER	\$ 717,419
	NRCHQ2014T0002	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 162,000
	NRCHQ2014T0005	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 150,000
	NRCHQ2014T0006	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 140,036
	NRCHQ2014T0007	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 251,000
	NRCHQ2014T0008	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 260,000
	NRCHQ2014T0010	SUPPORT- PROFESSIONAL: ENGINEERING/TECHNICAL	\$ 37,982
	NRCHQ2014T0015	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 111,462
	NRCHQ2014T0020	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 7,043
	NRCHQ2014T0021	SUPPORT- PROFESSIONAL: OTHER	\$ 171,726
	NRCHQ2015T0002	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 85,288
	NRCHQ2015T0003	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 85,288
NRCHQ2015T0007	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 455,262	
NRCHQ2015T0008	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 159,786	
NRCHQ2015T0009	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 115,556	
NRCHQ2015T0010	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 633,953	
NRCHQ2015T0014	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 982,153	
NRCHQ2015T0015	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 101,536	
NRCHQ2015T0017	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 41,644	
NRCHQ2015T0018	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 30,370	
NRCHQ2015T0019	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 147,200	

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
NUCLEAR REGULATORY	NRCHQ2016T0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 48,085
	NRCHQ2016T0002	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 70,249
	NRCHQ2016T0003	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 786,885
	NRCHQ2016T0004	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 105,000
	NRCHQ2016T0005	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 28,892
	NRCHQ2016T0006	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 583,000
	NRCHQ2016T0007	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 100,970
	NRCHQ2017T0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 74,214
	NRCHQ2017T0002	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 149,000
	NRCHQ2017T0003	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 275,000
	NRCHQ2017T0004	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 127,081
	NRCHQ2017T0005	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 21,112
	NRCHQ2017T0006	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 29,951
	NRCHQ2017T0007	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 200,708
	NRCHQ2017T0008	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 350,000
	NRCHQ2514T0023	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 240,089
	NRCHQ2515T0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 785,635
	NRCHQ2516T0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 50,000
	NRCHQ5014E0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ -
	NRCHQ5014T0001	SPECIAL STUDIES/ANALYSIS- REGULATORY	\$ 4,343,808
	NRCHQ5015T0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 96,158
		SUPPORT- PROFESSIONAL: OTHER	\$ 916,251
	NRCHQ5015T0002	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 239,788
	NRCHQ5015T0003	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 608,148
	NRCHQ5015T0004	SPECIAL STUDIES/ANALYSIS- ENVIRONMENTAL ASSESSMENTS	\$ 511,557
	NRCHQ5015T0005	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 795,511
	NRCHQ5016T0001	SUPPORT- PROFESSIONAL: OTHER	\$ 921,475
	NRCHQ5017T0001	SUPPORT- PROFESSIONAL: OTHER	\$ 517,433
	NRCHQ5017T0002	SUPPORT- PROFESSIONAL: OTHER	\$ 941,686
	NRCHQ5514T0009	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 1,565,012
	NRCHQ5514T0022	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 593,057
	NRCHQ6014T0001	R&D- OTHER RESEARCH AND DEVELOPMENT (BASIC RESEARCH)	\$ 81,824
	NRCHQ6014T0002	R&D- OTHER RESEARCH AND DEVELOPMENT (BASIC RESEARCH)	\$ 291,600
	NRCHQ6014T0003	R&D- OTHER RESEARCH AND DEVELOPMENT (BASIC RESEARCH)	\$ 1,870,443
	NRCHQ6015T0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 419,314
	NRCHQ6016T0001	SPECIAL STUDIES/ANALYSIS- GEOTECHNICAL	\$ 793,471
NRCT002	SUPPORT- PROFESSIONAL: OTHER	\$ 3,960,534	
NRCT004	SUPPORT- PROFESSIONAL: OTHER	\$ 2,343,432	
NRCT006	SUPPORT- PROFESSIONAL: OTHER	\$ 349,426	

awarding_agency_name	Award Identifier	product_or_service_code_description	Sum of obligated_amount
NUCLEAR REGULATORY	NRCT007	SUPPORT- PROFESSIONAL: OTHER	\$ 249,931
	NRCT008	SUPPORT- PROFESSIONAL: OTHER	\$ 254,347
	NRCT009	SUPPORT- PROFESSIONAL: OTHER	\$ 6,706,282
	NRCT010	SUPPORT- PROFESSIONAL: OTHER	\$ 22,685
	NRCT011	SUPPORT- PROFESSIONAL: OTHER	\$ 173,687
	NRCT013	SUPPORT- PROFESSIONAL: OTHER	\$ 202,061
<b>Grand Total</b>			<b>\$ 1,205,117,085</b>

source: USASPENDING.gov Contract Sub-Awards to Southwest Research Institute Since Dec 31, 2015

prime_awarding_sub_agency_name	prime_award_parent_piid	prime_awardee_name	subaward_description	Sum of subaward_amount
DEFENSE CONTRACT MANAGEMENT AGENCY (DCMA)	SP070000D3180	BATTELLE MEMORIAL INSTITUTE	MMB4 MANUFACTURING AND SUPPORT	\$ 739,967
DEPT OF THE AIR FORCE	FA820209D0003	NORTHROP GRUMMAN TECHNICAL SERVICES, INC.	AIRCRAFT AND ACCESSORIES	\$ 6,130,793
	FA822212D0013	KI HO MILITARY ACQUISITION CONSULTING, INC.	A-10 SOFTWARE DEVELOPMENT AND SUSTAINMENT	\$ 8,284,986
	FA862011G4026	L-3 COMMUNICATIONS CORPORATION	FACILITIES SUPPORT SERVICES	\$ 258,158
	FA875012D0005	CACI INC FEDERAL	541330 - ENGINEERING SERVICES 541712 - RESEARCH AND DEVELOPMENT IN THE PHYSICAL, ENGINEER	\$ 925,991
DEPT OF THE ARMY	G500Q14OADU402	BATTELLE MEMORIAL INSTITUTE	MMB4 DRUG PRODUCT/ENHANCED FORMULATION MANUFACTURING AND STABILITY	\$ 1,992,707
	W15P7T10DD413	CACI TECHNOLOGIES, INC.	ENGINEERING SERVICES	\$ 290,701
	W58RGZ12D0089	REDSTONE DEFENSE SYSTEMS	SEE S5OW	\$ 110,688
	W911W414D0004	DYNACORP INTERNATIONAL LLC	ELECTRICAL SYSTEM UPGRADE	\$ 44,375
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNG10AZ138	ORBITAL SCIENCES CORPORATION	SSR, EM & FLIGHT	\$ 2,000,000
	NNL12AA09C	ANALYTICAL MECHANICS ASSOCIATES, INC.	TASK 3 - CONTINUE EFFORTS IN LPV PROBABILISTIC FRAMEWORK BY MATURING STRESS AND CRITICAL CRACK SIZE (CCS) MODELS WITH QUANTIFIED UNCERTAINTIES FOR PREDICTING THE CCS IN INDIVIDUAL VESSELS. EVALUATE INSPECTION AND PROOF TESTING APPROACHES FOR RELIABILITY IMPROVEMENTS AND INVESTIGATE THE INCORPORATION OF FLAW POPULATION ESTIMATES TO EVALUATE AGAINST CCS ESTIMATES. SPECIFIC DELIVERABLE ITEM FOR SUCCESSFUL COMPLETION OF TASK 3 SHALL BE A REPORT SUMMARIZING RESULTS, PROGRESS, ACTIVITIES, AND FORWARD RECOMMENDATIONS IN TASKS 3.1 THROUGH 3.4.  TASK 3.1: QUANTIFY UNCERTAINTIES IN LPV STRESS MODELS DUE TO GEOMETRY AND WRS APPROXIMATIONS: A) WORK COOPERATIVELY WITH NASA MSFC STRUCTURAL ANALYSIS DISCIPLINE AND LPV TEAM CONSULTANTS TO ASSESS VARIOUS LPV STRUCTURAL CASE STUDIES. USE CASE STUDY RESULTS TO ESTABLISH SUFFICIENT AND EFFICIENT MODELS TO INTEGRATE INTO THE NESSUS PROBABILISTIC MODEL FRAMEWORK. LPV CASE STUDIES ARE EXPECTED TO INCLUDE PLANE-STRAIN MODELS OF GAPPING AND FRICTION EFFECTS AND THREE-DIMENSIONAL EVALUATIONS OF LONGITUDINAL WELDS AND THE EFFECTS ON PREDICTED STRESSES IN CRITICAL REGIONS. B) WORK NASA MSFC AND LPV TEAM CONSULTANTS TO DEVELOP PROBABILISTIC WRS MODELS FOR DIFFERENT VESSEL CONFIGURATIONS. DETERMINE THE MOST APPROPRIATE METHOD TO INCORPORATE WRS MODEL ESTIMATES INTO THE PROBABILISTIC AND DETERMINISTIC FRAMEWORKS. TASK 3.2: UPDATE AND QUANTIFY UNCERTAINTIES IN MODELS TO PREDICT CCS IN LPV WELDS: A) QUANTIFY UNCERTAINTY DUE TO APPROXIMATIONS IN NASGRO CCS SOLUTION FOR LPV GEOMETRIES B) QUANTIFY UNCERTAINTY DUE TO APPROXIMATIONS IN NASGRO CCS SOLUTION FOR LPV GEOMETRIES	\$ 48,896
	NNL13AA14C	JACOBS TECHNOLOGY INC.	4FT UPWT RECERT - FRACTURE AND FATIGUE ANALYSES	\$ 177,083

prime_awarding_sub_agency_name	prime_award_parent_piid	prime_awardee_name	subaward_description	Sum of subaward_amount
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	DTNH2214D00328	VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY	ASSESSMENT, EVALUATION, AND APPROACHES TO MODIFICATIONS OF FMVSS THAT MAY IMPACT COMPLIANCE OF INNOVATIVE NEW VEHICLE DESIGNS ASSOCIATED WITH AUTOMATED DRIVING	\$ 159,563
			HEAVY VEHICLE V@V BASIC SAFETY MESSAGE AND IMPLEMENTATION ISSUES FOR DEPLOYMENT	\$ 54,000
			TESTABLE CASES AND SCENARIOS FOR HIGHLY AUTOMATED-VEHICLE SYSTEMS	\$ 534,863
U.S. SPECIAL OPERATIONS COMMAND (USSOCOM)	H9225409D0001	LOCKHEED MARTIN CORPORATION	300 EACH-3D SCANNING OF TITANIUM CLANDESTINE BODY ARMOR (CLBA)	\$ 76,500
<b>Grand Total</b>				<b>\$ 21,829,270</b>

source: USASPENDING.gov Grants and Assistance Awards to Southwest Research Institute Since Dec 31, 2015

awarding_sub_agency_name	award_id_fain	award_description	Sum of obligated_amount
DEFENSE THREAT REDUCTION AGENCY	HDTRA11610030	CWA THERMAL DEFEAT IN REACTIVE ATMOSPHERES	\$ 281,078
DEPARTMENT OF DEFENSE	HDTRA11610030	CWA THERMAL DEFEAT IN REACTIVE ATMOSPHERES	\$ 141,000
	W911NF1620048	ADVANCE SENSOR SUPPORT	\$ 187,915
	W911NF1620135	PLASMA-BASED SCALE-UP SYNTHESIS AND LINEAR STRAND BURN TESTING OF NOVEL PROPELLANT MATERIALS	\$ 161,097
DEPARTMENT OF ENERGY	DEAR0000837	DE-FOA-00014564 AND CONTROL NUMBER 1564-1529. SOUTHWEST RESEARCH INSTITUTE	\$ 2,899,934
	DEFE0027771	DE-FE0027771; AMENDMENT 0004  PROJECT TITLE - PRE-PROJECT PLANNING FOR A FLAMELESS PRESSURIZED OXY-COMBUSTION PILOT PLANT  THE PURPOSE OF THIS AMENDMENT IS TO AUTHORIZE A NO COST TIME EXTENSION AND EXTEND THE PERIOD OF PERFORMANCE.	\$ 3,279,208
	DEFE0029020	DE-FE0029020, SMART METHANE EMISSION DETECTION SYSTEM DEVELOPMENT, AMENDMENT 0003 TO AUTHORIZE CONTINUATION INTO BUDGET PERIOD 2 AND PROVIDE INCREMENTAL FUNDING	\$ 628,396
	DEFE0029021	DE-FE0029021, NOVEL SEAL DESIGN FOR EFFECTIVE MITIGATION OF METHANE EMISSIONS FROM RECIPROCATING COMPRESSORS, AMENDMENT 0004 TO AUTHORIZE CONTINUATION INTO BUDGET PERIOD 2	\$ 797,517



awarding_sub_agency_name	award_id_fain	award_description	Sum of obligated_amount
DEPARTMENT OF ENERGY	DEFE0031549	DE-FE0031549; AMENDMENT 0001  PROJECT TITLE: PARTICLE SEPARATOR FOR IMPROVED FLAMELESS PRESSURIZED OXY - COMBUSTION  THE PURPOSE OF THIS AMENDMENT IS TO ACKNOWLEDGE RESOLUTION OF THE CONDITIONS ON AWARD AND REVISE THE DATA MANAGEMENT PLAN	\$ 881,217
	DEFE0031580	DE-FE0031580 PROJECT ENTITLED "FLAMELESS PRESSURIZED OXY-COMBUSTION LARGE PILOT DESIGN, CONSTRUCTION, AND OPERATION"	\$ 998,862
DEPARTMENT OF THE ARMY	W81XWH1720071	LOCAL STEM CELL THERAPY DURING THE PRESERVATION OF VCA BY MACHINE PERFUSION	\$ 154,715
FEDERAL AVIATION ADMINISTRATION	17G008	EFFECT OF FUSELAGE AND SEAT COMPLIANCE ON SYSTEM CRASHWORTHINESS	\$ 349,983
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	80ARC017M0008	MULTIPLE YEAR AWARD WITH INCREMENTAL FUNDING FOR YEARS ONE TO FIVE. THIS PROPOSAL IS ENTITLED PROJECT ESPRESSO: EXPLORATION SCIENCE PATHFINDER RESEARCH FOR ENHANCING SOLAR SYSTEM OBSERVATIONS. THIS IS AWARDED IN RESPONSE TO COOPERATIVE AGREEMENT NOTICE (CAN) NO. NNH16ZDA009C NASA SOLAR SYSTEM EXPLORATION RESEARCH VIRTUAL INSTITUTE (SSERVI) CYCLE THREE (3). THE PRINCIPAL INVESTIGATOR IS DR. ALEX H. PARKER WITH THE SOUTHWEST RESEARCH INSTITUTE (SWRI). PROJECT	\$ 1,086,906
	80NSSC17K0099	GOALS. THIS PROPOSED WORK WILL EXTEND LASER ABLATION RESONANCE IONIZATION SPECTROMETRY (LARIMS) FROM THE PREVIOUSLY DEMONSTRATED RUBIDIUM-STRONTIUM (RB-SR) GEOCHRONOLOGY SYSTEM TO FOUR OTHER RADIOGENIC SYSTEMS ENABLING IN-SITU CONCORDANT AGE DETERMINATIONS TO BE MADE ON EXTRATERRESTRIAL BODIES IN THE SOLAR SYSTEM. THIS CAPABILITY ADDRESSES A CRITICAL NEED TO PROVIDE DATING INFORMATION TO FULFILL NASA S GOAL OF UNDERSTANDING THE HISTORY OF	\$ 744,474

awarding_sub_agency_name	award_id_fain	award_description	Sum of obligated_amount
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	80NSSC17K0153	A CRITICAL ISSUE IN DEALING WITH NEAR-EARTH OBJECTS (NEO) ACCORDING TO NEOO PROGRAM GOALS AND THE PLANETARY DEFENSE COORDINATION OFFICE (PDCO) IS TO IDENTIFY POTENTIAL IMPACTORS THAT MAY STRIKE THE EARTH. GIVEN THIS PRIORITY IT IS DISTURBING THAT WE DO NOT YET HAVE AN ACCURATE MODEL OF THE ORBITS AND PHYSICAL PROPERTIES OF NEO IMPACTORS. AT BEST WE HAVE VAGUE APPROXIMATIONS FOR IMPACTOR TRAJECTORIES VELOCITIES SIZES STRENGTHS AND COMPOSITIONS. WITH AN	\$ 149,271
	80NSSC17K0347	DETECTION OF (RECENTLY) EXTANT LIFE BY A LANDER ON THE SURFACE OF EUROPA WOULD RANK AMONG THE GREATEST SCIENTIFIC DISCOVERIES OF ALL TIME. DETERMINING THE PROVENANCE OF SUCH LIFEFORMS IS CRITICAL TO UNDERSTANDING THE EXTENT OF EUROPA'S HABITABILITY AND TO FORMULATING EFFICIENT FOLLOW-UP. THE 2012 EUROPA LANDER STUDY SPECIFIES A MAGNETOMETER AND SEISMOMETER TO MEASURE THE DEPTH AND THICKNESS OF ANY WATER LAYERS PRESENT. HOWEVER THE MAGNETOMETER	\$ 1,551,649
	80NSSC17K0457	SUMMARY: CERES DEFIED PRE-DAWN MISSION PREDICTIONS BY PRESENTING A MORE COMPLICATED GEOLOGIC HISTORY THAN EXPECTED THROWING MANY HYPOTHESES ON ITS ORIGIN AND FORMATION BACK FOR RECONSIDERATION. CURRENT CERES DATA SUGGEST A LIKELY DIFFERENTIATED DWARF PLANET WITH A STRONG LITHOSPHERE (ALTHOUGH STILL ICE-RICH) WITH SIGNS OF GEOLOGICAL ACTIVITY INCLUDING EVIDENCE OF RESURFACING BRIGHT SALT DEPOSITS AND POTENTIAL CRYOVOLCANISM; DAWN CONTINUES TO STUDY	\$ 92,798
	80NSSC17K0585	SCIENCE GOALS UNDER PIDDP NSF AND INTERNAL FUNDING WE HAVE DEVELOPED AN INSTRUMENT CALLED CODEX (THE CHEMISTRY ORGANICS AND DATING EXPERIMENT) TO SEARCH FOR EVIDENCE OF PAST LIFE ON MARS REVEAL THE HISTORY OF HABITABILITY AND ASCERTAIN HOW THE LOCAL GEOLOGY EVOLVED; THESE ARE ALSO KEY SCIENTIFIC GOALS FOR THE MOON OTHER PLANETS AND ASTEROIDS. CODEX IS UNIQUELY ABLE TO ANALYZE THE MICROSCOPIC CHEMICAL AND ORGANIC MAKEUP OF A SAMPLE IN SPATIAL	\$ 371,240
	80NSSC17K0596	SCIENCE GOALS UNDER PIDDP NSF AND INTERNAL FUNDING WE HAVE DEVELOPED AN INSTRUMENT CALLED CODEX (THE CHEMISTRY ORGANICS AND DATING EXPERIMENT) TO SEARCH FOR EVIDENCE OF PAST LIFE ON MARS REVEAL THE HISTORY OF HABITABILITY AND ASCERTAIN HOW THE LOCAL GEOLOGY EVOLVED; THESE ARE ALSO KEY SCIENTIFIC GOALS FOR THE MOON OTHER PLANETS AND ASTEROIDS. CODEX IS UNIQUELY ABLE TO ANALYZE THE MICROSCOPIC CHEMICAL AND ORGANIC MAKEUP OF A SAMPLE IN SPATIAL	\$ -

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	80NSSC17K0683	ADVANCES TOWARD A NEAR REAL TIME DESCRIPTION OF THE SOLAR ATMOSPHERE AND INNER HELIOSPHERE WE PROPOSE TO ADAPT THREE CURRENT DEMONSTRATED ANALYSIS METHODS INTO A NOWCASTING FACILITY FOR THE SOLAR WIND NEAR THE SUN. THE METHODS ARE: FLUXON MODELING OF GLOBAL MAGNETIC FIELD EVOLUTION IN THE VICINITY OF THE SUN MAGNETIC TRACKING OF MAGNETIC FOOTPOINTS IN PHOTOSPHERIC MAGNETOGRAMS DIRECT AUTOMATED MEASUREMENT OF WIND FLOW SPEED	\$ 172,146
	80NSSC17M0061	SOUTHWEST RESEARCH INSTITUTE (SWRI) IS A LARGE NONPROFIT CORPORATION ORGANIZED IN THE PUBLIC INTEREST AND EXISTING UNDER THE LAWS OF THE STATE OF TEXAS WITH ITS GENERAL OFFICES AND LABORATORIES LOCATED AT 6220 CULEBRA ROAD SAN ANTONIO TEXAS 78238. ADDITIONAL OFF-SITE OFFICES AND LABORATORIES ARE LOCATED IN SEVERAL OTHER CITIES WITHIN THE UNITED STATES. SWRI PRESENTLY EMPLOYS APPROXIMATELY 2700 SCIENTISTS ENGINEERS TECHNICIANS ADMINISTRATIVE AND SERVICE	\$ 240,685
	80NSSC18K0006	SCIENCE GOALS AND OBJECTIVES THE ULTIMATE GOAL OF THE PROPOSED RESEARCH IS TO ACHIEVE A BETTER UNDERSTANDING OF CRATERING PHYSICS AND EJECTA SCALING LAWS AND HOW THEY MAY BE AFFECTED BY PRE-IMPACT SUBSURFACE STRUCTURE OF THE TARGET MATERIALS AND GEOLOGIC UNITS SPECIFICALLY IN THE VICINITY OF METEOR CRATER AZ. MEASUREMENTS OF THE SIZE-FREQUENCY AND SPATIAL DISTRIBUTIONS OF EJECTA BLOCKS SURROUNDING THE CRATER CAN PROVIDE CRUCIAL CONSTRAINTS ON THESE	\$ 178,097
	80NSSC18K0008	WE HAVE DISCOVERED NEW FEATURES AT IO'S SODIUM NEUTRAL CLOUDS DURING A GROUND-BASED SPECTROSCOPIC OBSERVATION CAMPAIGN THAT PROMISES TO SHED LIGHT ON THE RELATIVE IMPORTANCE OF ESCAPE PROCESSES AT PLAY AT IO. THESE FEATURES ARE: 1) A BLUE-SHIFTED EMISSION FEATURE VISIBLE IN SOME OF OUR SPECTRA INDICATING SODIUM STREAMING AWAY FROM IO AT A FAST VELOCITY (TENS OF KM/S RELATIVE TO IO); 2) A "BUMP" OR "SKIRT" IN THE MAIN EMISSION LINE VISIBLE IN ALL OF OUR	\$ 216,009
	80NSSC18K0011	HERE WE PROPOSE TO ATTACK THESE PROBLEMS BY MODELING IMPACTORS STRIKING THESE SATELLITES COMPARING OUR RESULTS TO PUBLISHED CRATER AND SATELLITE GRAVITY DATA AND THEN USING THE RESULTS TO CONSTRAIN UNEXPLORED ASPECTS OF THE NICE MODEL. IN THE NICE MODEL GIANT PLANET MIGRATION SCATTERED A DISK OF PLANETESIMALS ONCE LOCATED BEYOND NEPTUNE. THIS DISK WAS COLLISIONALLY-EVOLVED LIKE THE MAIN BELT WHICH GAVE IT A WAVY MAIN BELT-LIKE SFD. THIS PROCESS NOT ONLY SENT COMET-	\$ -

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	80NSSC18K0131	SCIENCE GOALS WE HAVE DEVELOPED AN INSTRUMENT TO ASSESS AND REVISE THE HISTORY OF THE INNER SOLAR SYSTEM SEARCH FOR ORGANICS AND REVEAL THE HISTORY OF HABITABILITY CALLED "THE CHEMISTRY AND DATING EXPERIMENT" (CDEX) INSTRUMENT. THE CDEX INSTRUMENT IS UNIQUELY ABLE TO MAP MICROSCOPIC CHEMICAL AND ORGANIC CONTEXT OF A SAMPLE WHILE SIMULTANEOUSLY DETERMINING AGE. THE INSTRUMENT MEASURES RUBIDIUM-STRONTIUM (RB-SR) ISOTOPES USING LASER ABLATION RESONANCE IONIZATION	\$ 800,000
	80NSSC18K0186	GIVEN THE FAR-REACHING SUCCESS OF THE CASSINI MISSION IT IS CURIOUS AND DISTURBING THAT WE STILL DO NOT UNDERSTAND THE BOMBARDMENT HISTORY OF SATURN S SATELLITES. THIS IS DESPITE THE FACT WE NOW HAVE EXCEPTIONAL IMAGERY OF SATURN S MOONS AND THAT MANY GROUPS HAVE REPORTED ON THEIR CRATER HISTORIES (E.G. KIRCHOFF ET AL. 2009). AS WE SHOW IN THIS PROPOSAL THESE CRATER DATA WHEN CONSIDERED AS A SYSTEM RATHER THAN MOON BY MOON REVEAL SEVERAL INTRIGUING	\$ 267,587
	80NSSC18K0486	THAI-SPICE IS THE TESTBED FOR HIGH-ACUITY IMAGING - STABLE PHOTOMETRY AND IMAGE-MOTION COMPENSATION EXPERIMENT -- IT IS A LEAD PROPOSAL ACCOMPANIED BY A CO-INSTITUTIONAL PROPOSAL FROM MIT LL. THE OVER ARCHING GOAL OF THAI-SPICE IS TO ADVANCE BALLOONBORNE TELESCOPES TO THE POINT WHERE THEY CAN SURPASS HST IN TERMS OF SPATIAL RESOLUTION IN VISIBLE WAVELENGTHS AND SURPASS THE KEPLER MISSION IN TERMS OF OBSERVING EXOPLANET TRANSITS. BALLOON-BORNE TELESCOPES ARE	\$ 100,000
	80NSSC18K0520	SOUTHWEST RESEARCH INSTITUTE (SWRI) IS A LARGE NONPROFIT CORPORATION ORGANIZED IN THE PUBLIC INTEREST AND EXISTING UNDER THE LAWS OF THE STATE OF TEXAS WITH ITS GENERAL OFFICES AND LABORATORIES LOCATED AT 6220 CULEBRA ROAD SAN ANTONIO TEXAS 78238. ADDITIONAL OFF-SITE OFFICES AND LABORATORIES ARE LOCATED IN SEVERAL OTHER CITIES WITHIN THE UNITED STATES. FOR OVER 25 YEARS TO MEET THE NEEDS OF OUR SPONSORS AND CLIENTS SWRI HAS EMPLOYED BETWEEN 2400 AND 3100 FULL-	\$ 31,087
	80NSSC18K0529	ATMOSPHERIC MODELING INVOLVING THE CONDENSATION PROCESS SUCH AS IN PHOTOCHEMICAL OR MICROPHYSICAL MODELS REQUIRES KNOWLEDGE OF THE VAPOR PRESSURE OF THE CONDENSING SPECIES AS A FUNCTION OF TEMPERATURE. ADDITIONALLY LATENT HEAT VALUES WHICH CAN BE RELATED TO THE VAPOR PRESSURE THROUGH THE CLAUSIUS-CLAPEYRON EQUATION ARE IMPORTANT WHEN MODELING ENERGY TRANSPORT PROCESSES. ONLINE REFERENCE SITES SUCH AS THE NIST CHEMISTRY WEBBOOK CONTAIN	\$ 61,436

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	80NSSC18K0570	THE OBJECTIVE OF OUR PROPOSAL IS TO UNDERSTAND THE DYNAMICS OF THE EARTH'S MAGNETOPAUSE IN THE PRESENCE OF FLOW SHEARS AND THE EFFECTS OF THESE DYNAMICS ON SOLAR WIND-MAGNETOSPHERE COUPLING AND THE GLOBAL FIELD-ALIGNED CURRENT SYSTEM. ALTHOUGH UBIQUITOUS IN THE GEOSPACE ENVIRONMENT THE VELOCITY SHEARS THAT TRIGGER THE ONSET OF THE KELVIN-HELMHOLTZ INSTABILITY (KHI) AND GENERATE FLOW VORTICITY ARE PARTICULARLY PROMINENT ON THE MAGNETOPAUSE AND ALONG THE INNER	\$ 146,362
	80NSSC18K0590	SCIENCE GOALS AND OBJECTIVES THE PRIMARY GOAL OF THE PROPOSED RESEARCH IS TO ACHIEVE A BETTER UNDERSTANDING OF THE DUST AGGREGATION STAGE OF PLANET FORMATION IN PROTOPLANETARY NEBULAE. A CRUCIAL STEP IN THE EARLIEST STAGES OF PLANET FORMATION IS THE GROWTH OF SOLID BODIES IN THE MILLIMETER TO METER SIZE RANGE BY THE AGGREGATION OF MILLIMETER- TO SUB-MILLIMETER-SCALE DUST GRAINS. THE PROCESS BY WHICH DUST AGGREGATED INTO PLANETESIMALS IS NOT WELL	\$ 148,000
	80NSSC18K0671	WE SEEK TO DETERMINE THE NATURE OF THE SOLAR DYNAMO: IS THERE ONE SOLAR DYNAMO OR TWO? IS THE DYNAMO A SINGLE FUNDAMENTALLY COMPLEX MECHANISM? OR DO TWO SEPARATE MECHANISMS GIVE RISE TO THE OBSERVED SOLAR CYCLE AND THE SMALL SCALE SALT AND PEPPER FIELD? RECENT THEORETICAL ADVANCES HAVE CALLED INTO QUESTION THE LONG-HELD SEPARATION OF THE SOLAR DYNAMO INTO A GLOBAL-SCALE MECHANISM THAT GENERATES SUNSPOTS AND ASSOCIATED PHENOMENA OF THE SOLAR	\$ 170,010
	80NSSC18K0693	THE OBJECTIVE OF THIS PROPOSAL IS TO UNDERSTAND THE DYNAMICS OF WAVES GENERATED IN THE MULTI-SCALE BOUNDARY LAYERS OF MAGNETIC RECONNECTION (ELECTRON AND ION DIFFUSION REGIONS SEPARATRICES INFLOW AND EXHAUST REGIONS) AND THE ROLES AND EFFECTS OF THESE DYNAMICS ON THE MAGNETIC RECONNECTION PROCESS. THE RECENTLY-LAUNCHED MMS SPACECRAFT PROVIDING DETAILED HIGH-RESOLUTION PARTICLE AND FIELD DATA AT AND NEAR THE NIGHTSIDE (SYMMETRIC) AND	\$ 110,756
	80NSSC18K0733	ICE GIANTS LIKE URANUS REMAIN POORLY UNDERSTOOD YET WE NOW KNOW THAT THEY ARE PERHAPS THE MOST COMMON TYPE OF PLANETS BASED ON EXOPLANET DETECTIONS. A SATELLITE SYSTEM CAN BE USED TO PLACE IMPORTANT CONSTRAINTS ON THE FINAL STAGES OF A PLANET'S FORMATION. HOWEVER THE ORIGIN OF THE URANIAN SATELLITES REMAINS THE LEAST WELL UNDERSTOOD OF ANY OF THE OUTER SATELLITE SYSTEMS. THE LARGE SATELLITES OF JUPITER AND SATURN LIKELY FORMED WITHIN	\$ 155,000

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX16AD65G	THE TWO TWINS SPACECRAFT HAVE BEEN GETTING STEREO IMAGES AND SCIENCE DATA SINCE 2008. THE PRINCIPAL INVESTIGATOR OF TWINS IS DR. DAVID MCCOMAS OF SOUTHWEST RESEARCH INSTITUTE (SWRI). AFTER 2 YEARS OF PRIME SCIENCE MISSION (PHASE E) TWINS WAS RATED THE HIGHEST SCIENCE PER DOLLAR MISSION THE 2010 HELIOPHYSICS SENIOR REVIEW WHICH ALSO AGAIN RECENTLY RECOMMENDED THAT TWINS BE EXTENDED THROUGH FY2017. SOUTHWEST RESEARCH INSTITUTE IS THE PRIME GRANTEE UNDER THIS	\$ 346,445
	NNX16AF22G	EXPLODING STARS KNOWN AS CORE COLLAPSE SUPERNOVAE ENRICH THE UNIVERSE WITH HEAVY ELEMENTS. THE EXPLOSION OCCURS IN ASIMILAR FASHION FOR ALL MASSIVE STARS WITH THE CORE COLLAPSING AND THE REBOUNTING SHOCKWAVE BLOWING OUT THE LAYERS OF THE STAR INTO SPACE. HOWEVER THIS IS WHERE THE SIMILARITIES END. OUR OBJECTIVE IS TO BOUND PARAMETER SPACE TO DETERMINE EFFECTS ON LIGHT CURVES OF DIFFERENT SUB TYPES AND WITHIN SUB TYPES DUE TO IN SITU ENVIRONMENTS	\$ 333,535
	NNX16AF25G	ADVANCING THE NEXT GENERATION OF UV INSTRUMENTATION TO FLIGHTTHE MAJOR GOAL OF THIS PROPOSAL IS TO INCREASE THE TECHNOLOGY READINESS LEVEL (TRL) OF HIGH QE LARGE FORMAT UV DETECTORS FOR FUTURE NASA MISSIONS. MICROCHANNEL PLATE (MCP) DETECTORS ARE COMMONLY USED FOR UV ASTRONOMY; RECENT DEVELOPMENTS IN MCP SUBSTRATE AND READOUT ANODE TECHNOLOGY MAKE THEM IDEAL FOR APPLICATIONS IN A LARGE ULTRAVIOLET-OPTICAL-INFRARED (UVOIR) TELESCOPE. WE PROPOSE TO	\$ 99,846
	NNX16AF98G	UNDERSTANDING JETS PLUMES AND THE FAST SOLAR WINDWE PROPOSE A COORDINATED ATTACK COMBINING OBSERVATIONS THEORY AND MODELING TO DEVELOP DEEP PHYSICAL INSIGHT INTO JETS AND PLUMES IN CORONAL HOLES QUANTIFY THEIR CONTRIBUTIONS TO THE SOLAR WIND AND INTERPLANETARY MEDIUM AND TEST OUR MODELS VIA DIRECT COMPARISON OF OBSERVABLE PREDICTIONS WITH DATA FROM CURRENT NASA MISSIONS. OUR RESEARCH PROGRAM IS BUILT AROUND THREE WELL-FORMED QUESTIONS	\$ 134,522
	NNX16AG22G	DEVELOPING A SINGLE DETECTOR CAPABLE OF MEASURING SPACE PLASMAS FROM A FEW KEV UP TO A FEW MEV/NUC IS CRUCIAL TO UNDERSTANDING MANY FUNDAMENTAL PROCESSES INCLUDING PARTICLE HEATING AND ACCELERATION BY PROVIDING COMPLETE SPECTRA OF ENERGETIC PARTICLE POPULATIONS NEAR THE SUN THE HELIOSPHERE AND IN GEOSPACE (E.G. SOLAR ENERGETIC PARTICLES INTERPLANETARY SHOCKS COROTATING INTERACTION REGIONS VAN ALLEN RADIATION BELTS PLASMA SHEET EARTH S	\$ 299,921

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX16AG63G	PROPOSAL SUMMARY OBJECTIVES AND TECHNIQUES: THIS PROPOSAL WILL CONSIST OF THREE SEPARATE TASKS WITH A UNIFYING THEME OF OBSERVATIONS OF DYNAMIC PROCESSES ON THE GALILEAN SATELLITES. WE PROPOSE TO FOLLOW UP ON THE FIRST DIRECT OBSERVATIONS OF IO S MOLECULAR ATMOSPHERE IN JUPITER ECLIPSE VIA 19 M ABSORPTION LINES IN THE?2 BAND OF SO2 SEEN AGAINST THERMAL EMISSION FROM THE SURFACE. THESE OBSERVATIONS ARE MADE POSSIBLE BY THE LIGHT GATHERING POWER	\$ 280,085
	NNX16AG98G	WE WILL INVESTIGATE THE QUESTION OF THE SIZE AND SHAPE OF CORONAL LOOPS A PROBLEM OF CRITICAL IMPORTANCE TO OUR UNDERSTANDING OF THE CORONAL MAGNETIC FIELD. ALTHOUGH LARGE FLUX DOMAINS IN THE CORONAL MAGNETIC FIELD CLEARLY EXPAND WITH ALTITUDE INDIVIDUAL LOOPS MAINTAIN AN APPROXIMATELY UNIFORM APPARENT CROSS SECTION. WE WILL MOUNT A SYSTEMATIC INVESTIGATION TO DETERMINE THE CAUSE OF THIS PUZZLING OBSERVATION USING DATA FROM SOLAR DYNAMIC	\$ 168,919
	NNX16AJ47G	SCIENCE GOALS AND OBJECTIVESRECURRING SLOPE LINEAE (RSL) ARE NARROW FINGER-LIKE FEATURES THAT ARE DARKER THAN THEIR SURROUNDINGS AND HAVE BEEN OBSERVED TO INCREMENTALLY LENGTHEN FADE AND RECUR OVER MULTIPLE MARS YEARS. OVER 200 POSSIBLE RSL SITES HAVE BEEN DISCOVERED WITHIN THE SOUTHERN MID-LATITUDES VALLES MARINERIS EQUATORIAL HIGHLANDS AND IN NORTHERN CHRYSE PLANITIA AND SOUTHWESTERN ACIDALIA PLANITIA. IT IS NOW GENERALLY RECOGNIZED THAT RSL ARE CAUSED	\$ 161,443
	NNX16AK82G	DETAILED MODELING OF VENUS' CHEMICAL EVOLUTIONTHE MAIN OBJECTIVE OF OUR VENUS CLIMATE ORBITER (VCO) PARTICIPATING SCIENTIST PROPOSAL IS TO SUPPORT AND ENHANCE THE SCIENCE RETURN OF THE VCO AND VENUS EXPRESS (VEX) MISSIONS. IN PARTICULAR VCO PLANS USE UV IMAGING TO TRACK THE SPATIAL DISTRIBUTION OF THE ULTRAVIOLET ABSORBERS THAT DOMINATE ALBEDO SIGNATURE OF VENUS' UPPER CLOUD DECK AND THEIR RELATIONSHIPS WITH THE CLOUD STRUCTURE AND THE WIND FIELD. NOTING	\$ 199,169
	NNX16AL73G	1. SCIENCE GOALS ELECTROMAGNETIC (EM) SOUNDING USES INDUCTION FROM NATURAL SOURCES TO BUILD PROFILES OF ELECTRICAL CONDUCTIVITY OF PLANETARY INTERIORS. THE TECHNIQUES OF EM SOUNDING PERFORMED PREVIOUSLY FOR THE MOON AND GALILEAN SATELLITES OPERATE GLOBALLY AT VERY LOW FREQUENCIES (<<1 HZ) AND CANNOT RESOLVE STRUCTURES OF INTEREST IN CRUSTS AND UPPER LITHOSPHERES WHICH ARE COMPARATIVELY SHALLOW. WE HAVE DEVELOPED A NEW THEORY FOR EM SOUNDING THAT	\$ 607,435

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX16AL95G	THE OVERARCHING GOAL OF THE PROPOSED WORK IS TO IMPROVE OUR UNDERSTANDING OF THE GLOBALSCALE HYDROLOGIC AND CLIMATIC ENVIRONMENT PREVAILING ON MARS A	\$ 249,428
	NNX16AN52G	THE EFFECT OF TERRAIN STRENGTH AND LAYERING ON DETERMINING CRATER-RETENTION AGES OF LUNAR SURFACES THE OBJECTIVES OF THE PROPOSED WORK ARE TO ASCERTAIN THE INFLUENCE THAT REGIONAL AND VERTICAL VARIATIONS OF TERRAIN MECHANICAL PROPERTIES HAVE ON CRATER SIZE-FREQUENCY DISTRIBUTIONS (SFDS) AND ON COMPUTING CRATER-RETENTION AGES OF LUNAR SURFACES. ANALYZING CRATER SFDS AND USING THEM TO DETERMINE MODEL AGES OF SURFACES IS AN IMPORTANT TECHNIQUE IN	\$ 248,144
	NNX16AN54G	COLD-TRAPPING OF ARGON IN THE LUNAR PERMANENTLY SHADED REGIONS WE PROPOSE TO UNDERSTAND THE VARIABILITY SOURCES AND SINKS OF ARGON IN THE LUNAR EXOSPHERE AND STUDY ITS COLD-TRAPPING IN THE PERMANENTLY SHADED REGIONS (PSRS) OF THE MOON. THIS GOAL WILL BE ACHIEVED BY ANSWERING THE FOLLOWING SCIENCE QUESTIONS: WHERE DOES ARGON OUTGAS FROM? WHERE IS ARGON PREFERENTIALLY TRAPPED AND HOW MUCH OF IT IS STORED IN THE PSRS? WHAT ARE THE RELATIVE ROLES OF	\$ 141,531
	NNX16AN65G	RECENT WORK ON MARTIAN CLIMATE CHANGE HAS INCREASINGLY HIGHLIGHTED THE IMPORTANT ROLE THAT VOLCANIC OUTGASSING MAY HAVE PLAYED IN GENERATING TRANSIENT WARMER AND WETTER CLIMATES THROUGH THE OUTGASSING OF H2O CO2 AND SO2 [E.G. PHILLIPS ET AL. 2001; HALEVY ET AL. 2007; MISCHNA ET AL. 2013; URATA AND TOON 2013]. THESE VOLCANIC ERUPTIONS ARE GENERALLY THOUGHT TO HAVE BEEN STOCHASTIC AND UNPREDICTABLE IN TIME. IT HAS ALSO BEEN DEMONSTRATED THAT MARS	\$ 13,384
	NNX16AP97G	UNDERSTANDING IMPACT PHYSICS THROUGH HIGH-RESOLUTION MAPPING OF EJECTA AND SECONDARY CRATERS ON THE MOON AND MERCURY INVESTIGATION GOALS: WE WILL USE OBSERVATIONS OF SECONDARY CRATERS ON THE MOON AND MERCURY TO PLACE CONSTRAINTS ON IMPACT CRATERING PHYSICS AND TO IMPROVE OUR UNDERSTANDING OF THE DISTRIBUTION OF EJECTA AND SECONDARY CRATERS CREATED BY LARGE PRIMARY EVENTS (~KM-SCALE OR GREATER). CRATER EXCAVATION PROCESSES	\$ 406,195



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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX16AQ07G	ANALYSES OF GROOVED TERRAIN DEVELOPMENT AND TECTONIC RESURFACING ON ICY MOONS RECENT ADVANCES IN FINITE ELEMENT MODELING OF GROOVED TERRAIN ON GANYMEDE HAVE REIGNITED THE DEBATE OVER HOW THESE TECTONIC LANDFORMS DEVELOP AND EVOLVE AND WHETHER TECTONIC RESURFACING IS A VIABLE GEOLOGIC PROCESS AT WORK ON ICY MOONS. THIS PROJECT SEEKS TO CHARACTERIZE THROUGH A SUITE OF PHYSICAL ANALOG MODELING EXPERIMENTS (I) HOW ICY LITHOSPHERES RESPOND TO LOCALIZED	\$ 284,779
	NNX16AQ09G	EXPLORING 3-D MICROPHYSICAL PROCESSES IN TITAN'S ATMOSPHERE WITH THE TITANWRF AND CARMA MODELS AEROSOL PARTICLES ARE IMPORTANT COMPONENTS OF TITAN'S ATMOSPHERE. THE FOREMOST EXAMPLES ARE THE ORGANIC HAZE PARTICLES WHICH RESIDE IN LAYERS THROUGHOUT THE STRATOSPHERE. AT ALTITUDES MUCH CLOSER TO THE SURFACE ARE THE MOST WELL KNOWN CLOUD FEATURES THE OPTICALLY THICK METHANE CONVECTIVE CLOUDS SEEN AT VARIOUS LATITUDES THROUGHOUT THE TROPOSPHERE. AT	\$ 467,881
	NNX16AQ78G	LOW VELOCITY TO ULTRA-HIGH VELOCITY IMPACT STUDIES SWRI BELIEVES THAT OUR FACILITIES AND KNOWLEDGE OF IMPACT PHENOMENA CAN BE A BENEFIT TO JSC RESEARCHERS. WE UNDERSTAND THAT JSC OFTEN HAS REQUIREMENTS FOR CONDUCTING TESTS USING LOW VELOCITY IMPACTORS. IN PARTICULAR JSC IS CURRENTLY STUDYING LOW-MASS IMPACT SENSORS. SWRI HAS THE FACILITIES AND EXPERIENCED PERSONNEL TO ASSIST WITH THAT STUDY. ADDITIONALLY MUCH OF THE NEW SHIELDING FOR LUNAR PROJECTS MUST	\$ 15,000
	NNX16AR17G	THE PROPOSED WORK WILL INVESTIGATE THE AGE CHARACTERISTICS AND FORMATION MECHANISM OF YOUNG HIGH THERMAL INERTIA MANTLING UNITS INTERPRETED AS PYROCLASTIC DEPOSITS SURROUNDING SEVERAL OF THE CERBERUS FOSSAE FISSURES. THIS WORK WILL BE UNDERTAKEN IN THREE INTERRELATED TASKS: TASK 1. INVESTIGATION OF THE GEOLOGY SUPERPOSITION RELATIONSHIPS AND CRATER RETENTION AGE OF THE CERBERUS MANTLING UNIT (CMU) AND SURROUNDING SURFACES. TASK 2:	\$ 21,414
	NNX16AR20G	RECENT ANALYSES OF DATA FROM THE GRAVITY RECOVERY AND INTERIOR LABORATORY (GRAIL) MISSION HAVE REVEALED EVIDENCE FOR SUBSURFACE DENSITY ANOMALIES WITHIN THE LUNAR CRUST AT ALL SCALES. A QUASI-RECTANGULAR PATTERN OF GRAVITY ANOMALIES ENCOMPASSING THE PROCELLARUM KREEP TERRAIN (PKT) HAS BEEN INTERPRETED AS THE SIGNATURE OF A NETWORK OF VOLCANICALLY FLOODED RIFT VALLEYS BURIED BENEATH THE MARIA. GLOBALLY DISTRIBUTED LINEAR GRAVITY ANOMALIES	\$ 71,796

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX16AR87G	ENVIRONMENTAL CONSEQUENCES OF ASTEROIDAL BOMBARDMENT ON EARLY MARS THE PAST HABITABILITY OF MARS IS INEXTRICABLY LINKED TO ITS CLIMATE HISTORY. GEOMORPHOLOGICAL EVIDENCE HAS SHOWN THAT MARS LIKELY EXPERIENCED EPISODES OF WIDESPREAD LIQUID WATER DURING ITS EARLY HISTORY PRIOR TO ~3.5 GA. DURING THIS KEY PERIOD IN MARTIAN HISTORY ASTEROIDAL IMPACTS WERE MUCH MORE NUMEROUS AND ENERGETIC THAN DURING SUBSEQUENT EVOLUTION AND MAY POTENTIALLY HAVE PLAYED A KEY	\$ 272,315
	NNX16AR91G	SOURCE AND FLOW DYNAMICS OF MARTIAN RECURRING SLOPE LINEAE RECURRING SLOPE LINEAE (RSL) ARE THE BEST EVIDENCE FOR CONTEMPORARY LIQUID WATER FLOWING ON MARS YET SEVERAL INCONSISTENCIES HAVE CAUSED SOME RESEARCHERS TO SEEK ALTERNATIVE MECHANISMS SUCH AS MOIST GRANULAR FLOWS. WE PROPOSE TO THOROUGHLY INVESTIGATE THE LIQUID HYPOTHESIS FOR RSL THROUGH A SERIES OF NUMERICAL MODELS THAT TREAT THE SUBSURFACE WATER SOURCE (POSSIBLY A SHALLOW AQUIFER OR	\$ 351,356
	NNX16AT32G	THE FIRST TASK WOULD MAKE USE OF MULTIPLE FORWARD AND INVERSE MODELING TECHNIQUES IN THE SPATIAL AND SPECTRAL DOMAINS TO ADDRESS BOTH SCIENCE QUESTIONS. THESE ARE LUMPED UNDER A SINGLE TASK BECAUSE THIS WORK IS LARGELY AN EXTENSION OF A CURRENTLY FUNDED LASER GRANT (PI ANDREWS-HANNA) AND THE NEW WORK FOR THIS PROPOSAL WOULD PRIMARILY INVOLVE THE INCORPORATION OF GRAIL DATA INTO THE INVERSE MODELING AND THE COMPARISON OF THE FORWARD MODEL PREDICTIONS	\$ 51,864
	NNX17AB10G	THE MAIN OBJECTIVE OF THIS PROJECT IS TO DELIVER SCIENTIFICALLY VALID AND USEFUL DATA SETS IN COMMON DATA FORMAT (CDF) TO THE SPACE PHYSICS DATA FACILITY FOR LONG-TERM ARCHIVAL AND PUBLIC DISSEMINATION. THESE DATA SETS ARE FROM PAST PROGRAMS AND WERE NOT DELIVERED TO A PUBLIC ARCHIVE. SOUTHWEST RESEARCH INSTITUTE HAS THESE DATA SETS ON SERVERS IN THE INSTRUMENT DATA FILE SET (IDFS) FORMAT. THE GOALS OF THIS PROJECT ARE TO CONVERT THE IDFS DATA TO CDF PROVIDING	\$ 114,848
	NNX17AB74G	1. MOTIVATION SCIENCE GOAL&OBJECTIVES IN COLLISIONLESS PLASMAS SUCH AS THE SOLAR WIND THE COUPLING BETWEEN PLASMA CONSTITUENTS AND THE EMBEDDED MAGNETIC FIELD OCCURS ON VARIOUS TEMPORAL AND SPATIAL SCALES AND IS PRIMARILY RESPONSIBLE FOR THE TRANSFER OF ENERGY BETWEEN WAVES AND PARTICLES. RECENTLY USING ~20-YEARS OF ULYSSES OBSERVATIONS OF THE SOLAR WIND PLASMA PARAMETERS (DENSITY TEMPERATURE AND POLYTROPIC INDEX) AND THE INTERPLANETARY MAGNETIC	\$ 200,000

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX17AB98G	DETERMINING THE PROCESSES AFFECTING THE ASYMMETRIC PLASMA SHEET STRUCTURE1. SCIENCE GOALS AND OBJECTIVES THE INTERSTELLAR BOUNDARY EXPLORER (IBEX) CONTINUES TO PROVIDE ENERGETIC NEUTRAL ATOM (ENA) OBSERVATIONS FROM THE HELIOSPHERE AND THE EARTH S MAGNETOSPHERE IN GLOBAL CONTEXT INCLUDING SPATIAL TEMPORAL AND ENERGY INFORMATION. RECENTLY THE PI STUDIED THE NIGHTSIDE PLASMA SHEET STRUCTURE USING IBEX ENA IMAGING AND REPORTED A HEMISPHERIC	\$ 222,262
	NNX17AC01G	STUDIES OF THE ORIGIN OF COMPACT PLANETARY SYSTEMSTHE MAJORITY OF PLANETS DISCOVERED BY THE KEPLER TELESCOPE ARE SUPER-EARTH AND MINI-NEPTUNES IN CLOSE-IN MULTIPLANET SYSTEMS. THE ORBITS ARE OFTEN CLOSELY PACKED TOGETHER TYPICALLY NON-RESONANT AND EXPECTED TO BE NEARLY CIRCULAR AND NEARLY CO-PLANAR. THE PREVALENCE OF THESE SYSTEMS IN THE KEPLER DATASET SUGGESTS THAT THEY MAY REPRESENT THE MAIN CHANNEL OF PLANETARY FORMATION IN THE GALAXY. IT IS UNSETTLING	\$ 241,277
	NNX17AD47G	WE PROPOSE TO BUILD ON THESE PREVIOUS STUDIES TO IMPROVE OUR UNDERSTANDING OF THE TECTONIC MECHANISMS ON MERCURY THE MOON AND MARS AND TO IMPROVE OUR ABILITY TO RELATE THE TECTONIC RECORD TO THE STRAIN HISTORY. THE PROPOSED WORK CONSISTS OF THREE TASKS AIMED AT TWO OBJECTIVES: OBJECTIVE 1: CONSTRAIN THE TECTONIC ARCHITECTURE OF LOBATE SCARPS WRINKLE RIDGES AND GRABEN ON MARS THE MOON AND MERCURY TO BETTER UNDERSTAND THEIR FORMATION AND	\$ 42,535
	NNX17AE33G	SEVERAL PROPERTIES OF THE SOLAR SYSTEM INCLUDING THE WIDE RADIAL SPACING AND ORBITAL ECCENTRICITIES OF THE GIANT PLANETS CAN BE EXPLAINED IF THE EARLY SOLAR SYSTEM EVOLVED THROUGH A DYNAMICAL INSTABILITY FOLLOWED BY MIGRATION OF PLANETS IN THE PLANETESIMAL DISK. RECENTLY WE DEVELOPED THE LATEST GENERATION OF INSTABILITY/MIGRATION MODELS WHOSE INITIAL CONDITIONS ARE TIGHTLY LINKED TO OUR EXPECTATIONS FOR PLANET FORMATION IN THE	\$ 255,000
	NNX17AE83G	PLANET FORMATION AND ITS EFFECTS ON SMALL BODY RESERVOIRS THIS PROPOSAL EMPLOYS A SERIES OF STATE-OF-THE-ART NUMERICAL SIMULATIONS TO INVESTIGATE THE FUNDAMENTAL QUESTION OF WHY THE SOLAR SYSTEM DOES NOT HAVE PLANETS CLOSER TO THE SUN THAN MERCURY. SPECIFICALLY WE WILL STUDY THREE MECHANISMS THAT MIGHT BE RESPONSIBLE FOR THE REMOVAL OF A HYPOTHETICAL POPULATION OF INTRA-MERCURIAL PLANETS SUGGEST THAT THE SOLAR SYSTEM WAS BORN WITH 3 OR MORE PLANETS IN	\$ 137,000

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX17AF75G	SATURN'S MOONS TITAN AND ENCELADUS ARE TWO OF THE SOLAR SYSTEM'S MOST INTRIGUING BODIES. TITAN'S THICK ATMOSPHERE AND COMPLEX HYDROLOGIC AND CLIMATIC CYCLES ARE RIVALED ONLY BY EARTH'S WHILE ENCELADUS' VAST WATER PLUMES ARE A GEOPHYSICAL ENIGMA AND AN ASTROBIOLOGICAL OPPORTUNITY ROLLED INTO ONE. BOTH ARE EXAMPLES OF THE SOLAR SYSTEM'S "OCEAN WORLDS" AND STAND AS POTENTIAL TARGETS FOR FUTURE NEW FRONTIERS-CLASS MISSIONS DUE TO THEIR RELEVANCE TO	\$ 50,000
	NNX17AG16G	NEAR INFRARED SPECTRA OF SIZABLE OBJECTS IN THE KUIPER BELTWE PROPOSE TO STUDY THE SURFACE COMPOSITION OF DOZENS OF SIZABLE OBJECTS IN THE KUIPER BELT (AKA SIZABLE KBOS INCLUDING MOONS ANDDWARF PLANETS) WITH THE GOAL OF UNDERSTANDING HOW KBO DIVERSITY REFLECTS THEIR ORIGIN AND EVOLUTION (BROWN ET AL. 2011 APJ 739 L60; SCHALLER&BROWN APJ 659 L61; JOHNSON ET AL. 2015 APJ 809 43). THIS IS TIMELY BECAUSE OF NEW OR IMPROVED INSTRUMENTATION(IRTf DCT KECK) AND NEW INSIGHTS	\$ 219,337
	NNX17AH38G	TOTAL SOLAR ECLIPSES PROVIDE VALUABLE OPPORTUNITIES FOR SOLAR AND PLANETARY ASTROPHYSICS. OBJECTS NORMALLY OVERWHELMED BY THE SUN S GLARE BECOME OBSERVABLE ALLOWING MEASUREMENTS THAT ARE OTHERWISE IMPOSSIBLE. USING AIRCRAFT FLYING ALONG THE ECLIPSE TRACK AT HIGH ALTITUDE IT IS POSSIBLE TO EXTEND THE AVAILABLE OBSERVING TIME WHILE SIMULTANEOUSLY REDUCING CONFOUNDING EFFECTS FROM EARTH S ATMOSPHERE. WE PROPOSE TO OBSERVE THE 21 AUG 2017 ECLIPSE WITH NASA	\$ 150,962
	NNX17AH92G	STATEMENT OF WORK ACTIVITIES PROPOSED BY THE SOUTHWEST RESEARCH INSTITUTE WILL BE PERFORMED AT THE DEPARTMENT OF SPACE SCIENCE SPACE SCIENCE AND ENGINEERING DIVISION SAN ANTONIO TX. DR. MIHIR I. DESAI WILL PARTICIPATE IN DATA ANALYSIS ACTIVITIES AND INSTRUMENT SUPPORT AT THE SOUTHWEST RESEARCH INSTITUTE FOR THE SUPRATHERMAL THROUGH ENERGETIC PARTICLE (STEP) TELESCOPE (WHICH IS PART OF THE WIND EPACT INVESTIGATION. THE EPACT PRINCIPAL INVESTIGATOR IS DR. TYCHO VON	\$ 49,811
	NNX17AI17G	ENHANCEMENTS OF>0.1 MEV/NUCLEON IONS NEAR 1 AU IN ASSOCIATION WITH THE PASSAGE OF AN INTERPLANETARY CORONAL MASS EJECTION (ICME) ARE OFTEN REFERRED TO AS ENERGETIC STORM PARTICLE (ESP) EVENTS. THESE EVENTS ARE THOUGHT TO OCCUR VIA DIFFUSIVE SHOCK ACCELERATION (DSA) AT SHOCKS DRIVEN BY FAST ICMES AS THEY PLOUGH THROUGH THE INTERPLANETARY MEDIUM. THE IONS AND ELECTRONS ENERGIZED IN THESE EVENTS CAN PRODUCE SIGNIFICANT INCREASES IN NEAR-EARTH PARTICULATE	\$ 394,816

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX17AI30G	SCIENCE GOALS AND OBJECTIVES THE SCIENCE GOAL OF THIS PROJECT IS TO DETERMINE THE STATISTICAL PROPERTIES OF MAGNETIC FLUX EMERGENCE IN THE QUIET SUN AND TO USE THESE PROPERTIES TO PROBE THE STRUCTURE OF MAGNETIC FLUX JUST BELOW THE SOLAR SURFACE. RELEVANCE TO DECADAL SURVEY THIS PROJECT IS RELEVANT TO THE DECADAL SURVEY GOAL 1) DETERMINE THE ORIGINS OF THE SUN S ACTIVITY AND 4) DISCOVER AND CHARACTERIZE FUNDAMENTAL PROCESSES THAT OCCUR BOTH WITHIN THE	\$ 413,625
	NNX17AI94G	GOALS: ALTHOUGH IN SITU OBSERVATIONS OF THE SOLAR WIND ARE INTRINSICALLY LOCAL WHEN YOU COMBINE PLASMA FIELD AND COMPOSITION OBSERVATIONS YOU CAN FIND INFORMATION ABOUT THE SOLAR WIND SOURCES ACCELERATION AND THE DYNAMIC INTERACTION THAT OCCURS IN TRANSIT FROM THE SUN TO POINT OF OBSERVATION. WE SEEK TO DIFFERENTIATE THE SOURCE ACCELERATION AND DYNAMIC PROCESSING FOR THE FAST-SLOW WIND BOUNDARIES. QUESTIONS: Q1) ARE THERE PLASMA AND	\$ 172,000
	NNX17AK32G	THE SOUTHWEST RESEARCH INSTITUTE (SWRI) IN COLLABORATION WITH NASA S JET PROPULSION LABORATORY (JPL) AND THE UNIVERSITY OF COLORADO S LABORATORY FOR ATMOSPHERIC AND SPACE PHYSICS (CU/LASP) IS PLEASED SUBMIT A PROPOSAL TITLED JUPITER MAGNETOSPHERIC BOUNDARY EXPLORER (JUMPER) . JUMPER IS A JUPITER ORBITING SMALLSAT CONCEPT TO EXPLORE THE PLANET S MAGNETOSPHERIC BOUNDARIES AND IMAGE ITS ENERGETIC NEUTRAL ATOM (ENA) EMISSIONS. ITS SCIENCE OBJECTIVES FOCUS ON HOW	\$ 369,561
	NNX17AK68G	THIS IS THE SWRI PORTION OF THE US CONTRIBUTION TO AN ESA FUNDED PROPOSAL THAT IS INCLUDED AS APPENDIX A. THIS PROJECT WAS ALREADY SOLICITED COMPETED PEER REVIEWED AND SELECTED BY ESA AND THE ESA AWARD LETTER AND EVALUATION ARE ALSO INCLUDED AS APPENDIX B AND C. AS STATED IN THE SPICE PROPOSAL TO ESA SWRI IS A US MEMBER OF THE SPICE OPERATIONS TEAM CONSORTIUM. TOP LEVEL TASKS TO BE PERFORMED BY THE SPICE OPERATIONS TEAM INCLUDE: PLANNING FOR SPICE OPERATIONS AS	\$ 318,089
	NNX17AL04G	GOALS AND/OR OBJECTIVES THE VENUS EXPRESS (VEX) ANALYZER OF SPACE PLASMAS AND ENERGETIC ATOMS (ASPERA-4) EXPERIMENT PACKAGE INCLUDED AN ELECTRON SPECTROMETER (ELS) CONTRIBUTED BY NASA AND BUILT BY OUR GROUP AT SOUTHWEST RESEARCH INSTITUTE (SWRI). DATA FROM THIS INSTRUMENT ARE USED TO STUDY THE PLASMA ENVIRONMENT AROUND VENUS. THE ELS INSTRUMENT DATA ARE PUBLICLY AVAILABLE ON THE EUROPEAN SPACE AGENCY (ESA) PLANETARY SCIENCE ARCHIVE (PSA) AND CAN	\$ 136,518

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX17AL05G	SCIENCE AND DATABASE BACKGROUND: IMPACT CRATERS ARE ARGUABLY THE MAIN EXOGENIC PROCESS THAT MAKES A SIGNIFICANT CONTRIBUTION TO THE POST-FORMATION EVOLUTION OF SOLID BODIES IN THE SOLAR SYSTEM. CRATERS SPAN THE ENTIRE OBSERVABLE HISTORY OF THE MOON AND UNDERSTANDING THEIR POPULATIONS IS A MAJOR TOOL FOR UNRAVELING THE HISTORY OF ITS SURFACE THE IMPACTOR POPULATION THAT AFFECTED IT AND UNDERSTANDING HOW CRATERS FORM. THERE IS NO BROAD PUBLICLY	\$ 170,840
	NNX17AL28G	MICROORGANISMS FOUND IN GLACIERS SEA ICE AND PERMAFROST CAN REMAIN VIABLE OR EVEN METABOLICALLY ACTIVE AT TEMPERATURES WELL BELOW 0 C. THESE ORGANISMS CAN LIVE WITHIN THE SALTY LIQUID-VEIN NETWORKS THAT EXIST BETWEEN ICE CRYSTALS. IN THIS PROPOSAL WE WILL STUDY THE EXTRACELLULAR ICE BINDING PROTEIN (IBP) THAT INHIBITS ICE RECRYSTALLIZATION FROM COLD-TOLERANT MICROORGANISMS ISOLATED FROM THE BASAL ICE OF AN ANTARCTIC ICE CORE. SIMILAR EXTANT LIFE COULD	\$ 126,823
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY	70NANB16H007	HIGH-DEGREE OF FREEDOM PLANNING FOR ASSEMBLY PROCESSES	\$ 86,812
	70NANB17H275	COST EFFECTIVE COORDINATED AND COOPERATIVE ROBOTICS ENABLED BY OPEN TECHNOLOGIES	\$ 322,171
NATIONAL SCIENCE FOUNDATION	1616115	OCCULTATIONS BY PLUTO, TRITON AND LARGE TRANS-NEPTUNIAN OBJECTS	\$ 322,415
	1834451	GEM: COLD DENSE AND/OR HEAVY PLASMA CONTROLLING THE	\$ 182,464
UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES	HU00011710083	PROTOTYPE OF OLFACTORY-BASED TBI KIT	\$ 35,000
<b>Grand Total</b>			<b>\$ 27,515,008</b>

source: USASPENDING.gov Grants and Assistance Sub-Awards to Southwest Research Institute Since Dec 31, 2015

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DEPARTMENT OF DEFENSE	W911NF1220022	JOHNS HOPKINS UNIVERSITY, THE	IMPACT DAMAGE AND DEFORMATION CHARACTERIZATION OF GLASS	\$ 50,780
			MATERIALS IN EXTREME DYNAMIC ENVIRONMENTS (MEDE) COLLABORATIVE RESEARCH ALLIANCE (CRA).	\$ 574,444
DEPARTMENT OF ENERGY	DEEE0006250	UNITED STATES ADVANCED BATTERY CONSORTIUM, LL	ELECTRIFIED VEHICLE BENCHMARKING STUDY FOR 2017 AUDI SPORT ETRON.	\$ 150,000
	DEEE0006844	EATON CORPORATION	CONDUCT TESTING TO STUDY THE PERFORMANCE AND DURABILITY IMPACT OF EGR FOULING ON EATON'S SUPERCHARGER.	\$ 211,200
	DEEE0008233	UNIVERSITY OF HOUSTON SYSTEM	DESIGN AND OPTIMIZATION OF STRUCTURED MULTI-FUNCTIONAL ADSORPTIVE CATALYSTS FOR CONVERSION OF HYDROCARBONS AND NOX FROM DIESEL AND ADVANCED COMBUSTION ENGINES	\$ 45,000
	DEFE0028979	INSTITUTE OF GAS TECHNOLOGY	DESIGN, CONSTRUCTION AND OPERATION OF A SUPERCRITICAL CARBON DIOXIDE PILOT PLANT TEST FACILITY. OPERATION OF THE DEVELOPED TEST FACILITY/TEST PROGRAM WILL SUPPORT THE FOLLOWING PROJECT OBJECTIVES: - DEMONSTRATE THE OPERABILITY OF THE SCO2 POWER CYCLES - VERIFY THE PERFORMANCE OF COMPONENTS (TURBOMACHINERY, RECUPERATORS AND COMPRESSORS, ETC.) - DEMONSTRATE AT LEAST A 700 DEGREE CENTIGRADE TURBINE INLET TEMPERATURE - OPERATION OF A RECOMPRESSION CLOSED BRAYTON CYCLE (RCBC) CONFIGURATION THAT DEMONSTRATES SYSTEM AND COMPONENT DESIGN AND PERFORMANCE.	\$ 47,068,947
DEPARTMENT OF THE ARMY	W81XWH1320054	WAKE FOREST UNIVERSITY	ARMED FORCES INSTITUTE OF REGENERATIVE MEDICINE WARRIOR RESTORATION CONSORTIUM - SR FOCUS AREA	\$ 4,129,896
DEPARTMENT OF THE NAVY	N000141612163	UNIVERSITY OF ARIZONA	SUPPORT OF "INNOVATIVE DEPLOYABLE REFLECTOR ANTENNA FOR RF COMMUNICATIONS ON SMALL SATELLITES" PROPOSAL TO THE OFFICE OF NAVAL RESEARCH (ONR) TO DESIGN, BUILD AND TEST A DEPLOYABLE 1-2 METER SPHERICAL REFLECTOR SUITABLE FOR USE ON A CUBESAT.	\$ 141,427
			SUPPORT OF "INNOVATIVE DEPLOYABLE REFLECTOR ANTENNA FOR RF COMMUNICATIONS ON SMALL SATELLITES" PROPOSAL TO THE OFFICE OF NAVAL RESEARCH (ONR) TO DESIGN, BUILD AND TEST A DEPLOYABLE 1-2 METER SPHERICAL REFLECTOR SUITABLE FOR USE ON A CUBESAT.	\$ 293,436

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	80NSSC17K0009	UNIVERSITY SYSTEM OF NEW HAMPSHIRE	OUR OVERALL RESPONSIBILITY WILL BE TO SUPPORT AND ASSIST IN THE ANALYSIS OF SUPRATHERMAL-THROUGH-ENERGETIC PARTICLE DATA OBTAINED BY THE WIND/STEP, STEREO/PLATISIC, STEREO/SIT, AND ACE/ULEIS INSTRUMENTS AND STUDY THE COMPOSITION AND SPECTRA OF ENERGETIC PARTICLES ACCELERATED IN COROTATING INTERACTION REGIONS, SOLAR CLIMATE CONTROL OF EXPLOSIVE VOLCANISM ON MARS	\$ 198,341
	80NSSC17K0059	UNIVERSITY OF ARIZONA		\$ 41,321
			DR. SOTO WILL CONDUCT THE GCM EXPERIMENTS AND WILL DERIVE THE PARAMETERIZATIONS FOR THE SURFACE ICE CONCENTRATION AS A FUNCTION OF OBLIQUITY AND LOCATION ON THE SURFACE OF MARS. HE HAS EXTENSIVE EXPERIENCE WITH APPLYING THIS GCM TO PALEOCLIMATE STUDIES, PARTICULARLY THOSE INVOLVING ORBITAL VARIATIONS. THE WORK IS BROKEN UP OVER TWO YEARS TO ALLOW MODIFICATIONS TO THE PARAMETERIZATION AND TO THE SUITE OF	\$ 41,759
	80NSSC17K0452	ARIZONA STATE UNIVERSITY	INVESTIGATING AQUEOUS AND IGNEOUS MINERALOGY IN THE COLUMBIA HILLS OF GUSEV CRATER	\$ 61,106
	80NSSC17K0597	TRUSTEES OF PRINCETON UNIVERSITY THE	SUBRECIPIENT WILL BE RESPONSIBLE FOR THE REDUCTION AND ANALYSIS OF IBEX ENERGETIC NEUTRAL ATOM DATA AND FOR PERFORMING THE CHI-SQUARE AND FOR COMPARATIVE ANALYSIS OF SIMULATED/OBSERVED RIBBON OBSERVABLES AND ASSIST IN THE INTERPRETATION OF RESULTS.	\$ 29,758
	80NSSC18K0237	TRUSTEES OF PRINCETON UNIVERSITY THE	SUBRECIPIENT WILL ANALYZE AND PUBLISH IBEX INVESTIGATION SCIENCE DATA; RECEIVE, ANALYZE AND ARCHIVE PAYLOAD SCIENCE DATA; WORK WITH THE IBEX TEAM TO DEVELOP MODELS, ALGORITHMS ETC TO ANALYZE SCIENCE DATA AND PUBLISH IBEX SCIENCE RESULTS.	\$ 201,500



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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	80NSSC18K0247	UNIVERSITY SYSTEM OF NEW HAMPSHIRE	SWRI WILL PURCHASE SINGLE CRYSTAL DIAMOND DETECTORS WITH CROSS-STRIP ELECTRODES AND DEVELOP HOUSING, ASIC BASED READOUT, TIME OF FLIGHT CIRCUIT, AND FPGA BASED PATTERN DETECTION ALGORITHM TO BE APPLIED FOR THE FULL COMPTON TELESCOPE ELECTRONICS.	\$ 405,516
	80NSSC18K0359	TRUSTEES OF PRINCETON UNIVERSITY THE	SUBRECIPIENT WILL DIRECT THE MISSION OPERATIONS, INSTRUMENT OPERATIONS, DATA PROCESSING AND DATA ANALYSIS EFFORTS FOR TWINS, MONITOR THE INSTRUMENTS STATE-OF-HEALTH, REMOVE BACKGROUND AND CONTAMINATION FROM THE ENERGETIC NEUTRAL ATOM (ENA) DATA, INTEGRATE THE STEREO NEUTRAL ATOM DATA, CONDUCT STUDIES AND ANALYSIS TO UNDERSTAND THE GLOBAL STRUCTURE AND EVOLUTION OF THE TERRESTRIAL	\$ 54,000
	NNA14AB05A	UNIVERSITY OF CENTRAL FLORIDA	ATTEND UCF/CLASS - SSERVI SCIENCE TEAM MEETINGS AT UNIVERSITY OF CENTRAL FLORIDA AND ELSEWHERE AS CALLED UPON BY THE PI.  WORK CLOSELY WITH UCF/CLASS SCIENCE TEAM MEMBERS AND PARTNERS TO CREATE, REVIEW, TEST, MODIFY AND DISTRIBUTE EPE CURRICULA AND ACTIVITIES ACCORDING TO THE TIMELINE IN THE	\$ 186,268
	NNX12AJ40G	ARIZONA STATE UNIVERSITY	MAXIMIZING MINI-TES: A CONTINUING INVESTIGATION OF THE MINERALOGY OF GUSEV CRATER	\$ (20,000)
	NNX14A083G	GEORGIA STATE UNIVERSITY RESEARCH FOUNDATION INC.	DR. MUÑOZ-JARAMILLO WILL CONTINUE SUPERVISING SUSHANT MAHAJAN ON THE MEASUREMENT OF 40 YEARS OF MERIDIONAL FLOW, ZACHARY WERGINZ ON THE CROSS-CALIBRATION OF KPVT/512, KPVT/SPMG, SOHO/MDI, AND SDO/HMI MAGNETOGRAMS, AND JUAN PABLO VARGAS ACOSTA IN THE FINALIZATION OF THE BIPOLAR MAGNETIC REGION DATABASE SPANNING THOSE INSTRUMENTS. ADDITIONALLY, IN COLLABORATION WITH JOHN	\$ 53,000
			DR. MUNOZ-JARAMILLO WILL BE IN CHARGE OF THE HUMAN VERIFICATION OF LARGE-SCALE STRUCTURES DETECTED BY SWAMIS USING THE BARD MODULE. AFTER THE CATALOG HAS BEEN CREATED, VETTED AND VERIFIED, DR. MUNOZ JARAMILLO WILL PERFORM IN-DEPTH STATISTICAL ANALYSES OF THE DATA WITH AIMS TO ANSWERING THE MAIN SCIENTIFIC QUESTIONS ADDRESSED BY THE PROJECT AND WILL HELP WRITE THE PAPERS REPORTING THE	\$ 20,000

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX14AP94G	REGENTS OF THE UNIVERSITY OF COLORADO THE	DR. TSANG WILL EXECUTE AND MAINTAIN THE VENUS RADIATIVE TRANSFER MODEL, NON-LINEAR OPTIMAL ESTIMATOR FOR MULTIVARIATE SPECTRAL ANALYSIS (NEMESIS). IN COORDINATION WITH PI MCGOULDRIK, DR. TSANG WILL VALIDATE BAND-RATIO METHODS AS APPLICABLE FOR THE RETRIEVAL OF CO, H2O AND OTHER GASES. IF THE BAND-RATIO IS NOT ACCURATE ENOUGH, DR. TSANG WILL DO FULL OPTIMAL	\$ 65,682
			DR. TSANG WILL EXECUTE AND MAINTAIN THE VENUS RADIATIVE TRANSFER MODEL, NON-LINEAR OPTIMAL ESTIMATOR FOR MULTIVARIATE SPECTRAL ANALYSIS (NEMESIS). IN COORDINATION WITH PI MCGOULDRIK, DR. TSANG WILL	\$ 67,461
	NNX15AG09G	REGENTS OF THE UNIVERSITY OF CALIFORNIA THE	DR. MIHIR I. DESAI WILL PARTICIPATE IN DATA ANALYSIS ACTIVITIES AND INSTRUMENT SUPPORT AT THE SOUTHWEST RESEARCH INSTITUTE FOR THE SUPRATHERMAL ION TELESCOPE (SIN WHICH IS PART OF THE STEREO/IMPACT INVESTIGATION. THE IMPACT PRINCIPAL INVESTIGATOR IS DR. JANET LUHMANN OF THE UNIVERSITY OF CALIFORNIA, BERKELEY. SPECIFIC ACTIVITIES PROPOSED INCLUDE: MONITORING OF HEALTH AND	\$ 99,219
	NNX15AI70G	UNIVERSITY SYSTEM OF NEW HAMPSHIRE	THESE FUNDS WILL COVER TIME FOR THE PROJECT PI (MARK MCCONNELL) TO CONTINUE WITH THE ANALYSIS OF CGRO/COMPTEL DATA. THESE STUDIES WILL BE FOCUSED ON POLARIMETRY OF GAMMA-RAY BURSTS AND SOLAR FLARES. THE GOAL WILL BE TO IDENTIFY SOLAR FLARES AND GAMMA-RAY BURSTS AS CANDIDATES FOR MORE DETAILED ANALYSIS AND THEN TO FOLLOW WITH THE DETAILED ANALYSIS OF THOSE EVENTS. THE OUTCOME OF THIS	\$ 65,000
	NNX15AL08G	UNIVERSITY OF IOWA THE	SOUTHWEST RESEARCH INSTITUTE, SHALL OVERSEE ALL WORK REQUIRED TO DEVELOP TWO IDENTICAL LARGE GEOMETRIC FACTOR, PITCH-ANGLE IMAGING ION DETECTORS FOR THE TWO ROCKET PAYLOADS. SWRI SHALL SUPPORT DESIGN REVIEWS, INTEGRATION AND TEST OF THE PAYLOAD, AND LAUNCH OPERATIONS.	\$ 555,418
			SOUTHWEST RESEARCH INSTITUTE, UNDER THE DIRECTION OF CO-INVESTIGATORS, SHALL OVERSEE ALL WORK REQUIRED TO DEVELOP TWO IDENTICAL LARGE GEOMETRIC FACTOR, PITCH-ANGLE IMAGING ION DETECTORS FOR THE TWO ROCKET PAYLOADS.	\$ 428,076

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX15AM22G	RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK THE	SWRI WILL MEASURE THE RESPONSE OF METEORITES AND CAREFULLY SELECTED ANALOG MATERIALS TO HYPERVELOCITY IMPACT AT, THE NASA AMES VERTICAL GUN RANGE (A VQR), AND USE Å-THOSE RESULTS TO CONSTRAIN CRATERING, DISRUPTION, RECOIL, AND METEORITE AND DUST PRODUCTION RESULTING FROM COLLISIONS	\$ 126,907
	NNX16AG77G	UNIVERSITY SYSTEM OF NEW HAMPSHIRE	AN UNTAPPED SOURCE OF DATA ON NEUTRAL ATMOSPHERIC ALBEDO RADIATIONS IS THE COMPTTEL EXPERIMENT THAT WAS ON THE COMPTON GAMMA RAY OBSERVATORY (CGRO), WHICH OPERATED FROM APRIL 1991 UNTIL JUNE 2000. THE COMPTTEL EXPERIMENT WAS A COMPTON IMAGING TELESCOPE, DESIGNED TO STUDY Å-RAY SOURCES IN THE COSMOS, BUT WITH A UNIQUE CAPABILITY FOR MEASURING FAST NEUTRONS. CONSIDERABLE DATA	\$ 60,000
	NNX16AG83G	UNIVERSITY OF ALABAMA IN HUNTSVILLE	STATEMENT OF WORK FOR CO-INVESTIGATORS: DR. DESAI AND DR. ZIRNSTEIN:  LEAD THE SPACECRAFT DATA REDUCTION AND ANALYSIS COMPONENTS OF THE PROJECT; PROVIDE IBEX DATA; PROVIDE ASSISTANCE WITH THE STATISTICAL TECHNIQUES	\$ 20,266
			CONTINUATION OF WORK FOR CO-INVESTIGATORS: DR. DESAI AND DR. ZIRNSTEIN:  LEAD THE SPACECRAFT DATA REDUCTION AND ANALYSIS COMPONENTS OF THE PROJECT; PROVIDE IBEX DATA; PROVIDE ASSISTANCE WITH THE STATISTICAL TECHNIQUES	\$ 31,490
			STATEMENT OF WORK FOR CO-INVESTIGATORS: DR. DESAI AND DR. ZIRNSTEIN:  LEAD THE SPACECRAFT DATA REDUCTION AND ANALYSIS COMPONENTS OF THE PROJECT; PROVIDE IBEX DATA; PROVIDE ASSISTANCE WITH THE STATISTICAL TECHNIQUES	\$ 18,127
	NNX16ANS6G	REGENTS OF THE UNIVERSITY OF CALIFORNIA THE	DURING THE THREE-YEAR DURATION OF THIS PROJECT, CO-I GRIMM WILL 1. PROVIDE PARAMETERIZATIONS FOR THE ELECTRICAL CONDUCTIVITY STRUCTURE OF THE MOON AS FUNCTIONS OF TEMPERATURE AND COMPOSITION THAT ARE SUITABLE FOR DATAINVERSION USING COMSOL MODELING. THIS WILL INCLUDE UNIFORM RADIAL STRUCTURE, REGIONAL SEPARATION OF PKT, AND 3D DISCRETIZATION. 2. WORKWITHUCB TEAM IN DEVELOPING	\$ 43,940

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION	NNX17AB04G	TRUSTEES OF PRINCETON UNIVERSITY THE	SUBRECIPIENT WILL HELP DEVELOP ALGORITHMS AND/OR SOFTWARE AS REQUESTED IN SUPPORT OF THE IBEX DATA ANALYSIS OR THEORY EFFORTS; ANALYZE AND PUBLISH IBEX INVESTIGATION SCIENCE DATA; RECEIVE, ANALYZE AND ARCHIVE PAYLOAD SCIENCE DATA AND PUBLISH RESULTS.	\$ 938,484
	NNX17AB07G	PENNSYLVANIA STATE UNIVERSITY THE	IN COLLABORATION, "US CONTRIBUTION TO THE ATHENA WIDE FIELD IMAGER."	\$ 150,128
	NNX17AB15G	TRUSTEES OF PRINCETON UNIVERSITY THE	SUBRECIPIENT WILL DIRECT THE MISSION OPERATIONS, INSTRUMENT OPERATIONS, DATA PROCESSING AND DATA ANALYSIS EFFORTS FOR TWINS, MONITOR THE INSTRUMENTS STATE-OF-HEALTH, REMOVE BACKGROUND AND CONTAMINATION FROM THE ENERGETIC NEUTRAL ATOM (ENA) DATA, INTEGRATE THE STEREO NEUTRAL ATOM DATA, CONDUCT STUDIES AND ANALYSIS TO UNDERSTAND THE GLOBAL STRUCTURE AND EVOLUTION OF THE TERRESTRIAL	\$ 564,192
	NNX17AD24G	REGENTS OF THE UNIVERSITY OF MICHIGAN	YEAR 1 INSTRUMENT REQUIREMENTS TRADE SPACE STUDY. GPS L1, L5 AND GALILEO E1 ALGORITHM DESIGN AND TESTING IN C. ASSIST IN GPS L1 INTEGRATION ON FPGA DEVELOPMENT BOARDS. YEAR 2 FINISH GPS L5 AND GALILEO E1 ALGO DESIGN AND TESTING IN C. ASSIST IN GPS L5 AND GALILEO E5 INTEGRATION ON FPGA DEVELOPMENT BOARDS. SUPPORT GSS UPGRADE AND TESTING. YEAR 3 ASSIST WITH INTEGRATING NAVIGATION RECEIVER TO CO-	\$ 50,984
	NNX17AJ86A	ARIZONA STATE UNIVERSITY	ASU HAS REQUESTED THAT SWRI CONTRIBUTE TO THIS PROJECT THROUGH THE FOLLOWING TASKS: UNCERTAINTY MANAGEMENT AND RISK ASSESSMENT; INTEGRATED EDUCATION, RESEARCH, AND DEMONSTRATION; AND PROJECT MANAGEMENT, WHICH ARE DESCRIBED HERE. TASK 1: UNCERTAINTY MANAGEMENT AND RISK ASSESSMENT	\$ 250,000
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY	70NANB16H317	NORTH CAROLINA STATE UNIVERSITY	TMAC WILL PARTNER WITH THE NCMEP TO SUPPORT THE CONNECTIVITY OF THE POWERAMERICA NNMI WITH THE TEXAS ELECTRICAL AND ELECTRONICS INDUSTRY.	\$ 150,000

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NATIONAL INSTITUTES OF HEALTH	R21NS102782	UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER OF SAN ANTONIO	AS PART OF THE NIH R21 PROPOSAL ENTITLED "IMPROVING OMEGA-3 FATTY ACID SUPPLEMENTATION WITH MICROENCAPSULATION", SOUTHWEST RESEARCH INSTITUTE (SWRI) WILL PERFORM THE FOLLOWING TASKS. SYNTHESIS OF A LINOLENIC ACID (ALA), 9S-HYDROPEROXY -10E,12Z,15Z-OCTADECATRIENOIC ACID (9(S)-HPOTRE), AND 13S-HYDROPEROXY-9Z, 11E, 15Z-OCTADECATRIENOIC ACID (13(S) HPOTRE) FOLLOWING CGMP PRACTICES.	\$ 37,992
NATIONAL SCIENCE FOUNDATION	1140196	TEXAS A&M UNIVERSITY-CORPUS CHRISTI	FUNDING WILL PROVIDE GRADUATE STUDENTS WITH A RESEARCH EXPERIENCE AT SOUTHWEST RESEARCH INSTITUTE (SWRI). THE PROPOSED PROGRAM WOULD DIRECTLY SUPPORT THE OBJECTIVES OF THE NATIONAL SCIENCE FOUNDATION (NSF)-FUNDED RESEARCH COORDINATION NETWORK FOR CLIMATE, ENERGY, ENVIRONMENT AND ENGAGEMENT IN SEMIARID REGIONS (RCN-CE3SAR). CANDIDATES CONSIDERED FOR THE PROGRAM WOULD BE SELECTED	\$ 50,004
	1450342	PURDUE UNIVERSITY	COLLABORATION ON: MRI DEVELOPMENT: HETEROGENEOUS, AUTONOMIC WIRELESS CONTROL NETWORKS FOR SCALABLE CYBER-PHYSICAL SYSTEMS	\$ 243,146
<b>Grand Total</b>				<b>\$ 57,954,215</b>

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Witness signature

7/12/2018

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Date