

**Clemson University
Clemson, South Carolina**

OMB Circular A-133 Reports

For the year ended June 30, 2015

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Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER | | | |
| Department of Agriculture | | | |
| "Fastrack"- A Revolutionary Approach to Long-Generation Cycle Specialty Crop Breeding | 10.RD | 59-1931-0-033 | \$ 1,214 |
| Acquisition of Goods and Services | 10.RD | 58-6080-5-005 | 13,174 |
| Acquisition of Goods and Services | 10.RD | 58-6080-5-009 | 14,709 |
| Acquisition of Goods and Services | 10.RD | 58-6082-5-003 | 93,204 |
| Acquisition of Goods and Services | 10.RD | 58-6657-3-009 | 8,384 |
| Acquisition of Goods and Services | 10.RD | 58-6657-4-007 | 61,007 |
| Acquisition of Goods and Services | 10.RD | 58-6657-4-010 | 73,405 |
| Acquisition of Goods and Services | 10.RD | 58-6659-3-122 | 606 |
| Acquisition of Goods and Services | 10.RD | 58-6659-3-126 | 2,849 |
| Acquisition of Goods and Services | 10.RD | 58-6659-4-008 | 7,793 |
| Acquisition of Goods and Services | 10.RD | 58-6659-4-009 | 31,663 |
| Animal Health | 10.RD | | 21,484 |
| Assisting Farmers in SC to Adopt Modern Soil Moisture Sensing Technologies to Improve Irrigation Scheduling and to Enhance Environmental Quality and Farm Profits While Reducing Irrigation Water and Energy Consumption | 10.RD | 69-4639-14-0010 | 21,089 |
| Clean WaterR3 - Reduce, Remediate, Recycle: Informed Decision Making to Facilitate Use of Alternative Water Resources | 10.RD | 2014-51181-22372 | 636,076 |
| Clemson University Sustainable Community Project (CYFAR Sustainability) | 10.RD | 2011-41520-30408 | 146,063 |
| Consortium of Appalachian Fire Managers and Scientists (CAFMS) Measurement of Progress and Identification of Needed Improvements | 10.RD | 14-JV-11330136-033 | 15,503 |
| Contributions of Urban Parks and Green Space to Human Health and Well Being: An Ecosystem Services Approach | 10.RD | 14-JV-11330144-060 | 10,928 |
| Crop Protection and Pest Management Extension Implementation Program for South Carolina to Advance Stakeholder Adoption in Key Commodities | 10.RD | 2014-70006-22568 | 130,148 |
| Culicoides Sonorensis Transcriptome Project | 10.RD | 58-5430-2-313 | 16,450 |
| Demonstration of Deep-Rooted Cover Crop, Tillage, and Controlled Traffic on Eliminating Hardpan Layer in Coastal Plain Soils to Enhance Soil Health and Farm Profits | 10.RD | 69-4639-13-0019 | 10,086 |
| Demonstration of Innovative Nutrient Management Strategies Combined with Soil Amendments to Enhance Fertilizer Use Efficiency, Farm Profits and Environmental Quality | 10.RD | 69-3A75-14-268 | 25,440 |
| Demonstration of Innovative Sensor-Based Nitrogen Management and Interseeding Technology to Reduce Nutrient Inputs and Weed Populations While Enhancing Farm Profitability in South Carolina | 10.RD | 69-4639-12-0010 | 20,841 |
| Developing Molecular Resources Using Next Generation Sequencing and Evaluation of Peach NCGR Germplasm for Drought Resistance | 10.RD | 58-1931-2-307 | 1,462 |
| Development of Plant Materials Native to Longleaf Ecosystems Within the Atlantic Coastal Plain of North and South Carolina | 10.RD | 09-CS-11081209-002 | 15,111 |
| Enhancing the Sustainability of Livestock Production Systems on the Southeastern US | 10.RD | 2010-51160-21072 | 32,708 |
| Environmental Risk Assessment of Perennial Grasses Genetically Engineered for Abiotic Stress Tolerance | 10.RD | 2010-33522-21656 | 89,541 |
| Genomic and Breeding Foundations for Sorghum Bioenergy Hybrids | 10.RD | 2011-67009-23490 | 62,184 |
| Genotypic Specificity in Plant-Herbivore Interactions and its Application to Management of an Invasive Weed | 10.RD | 2015-67014-22956 | 77,741 |
| Hand Hygiene Promotion: An Essential Strategy for Preventing Foodborne Illness in Elementary Schools | 10.RD | 2011-51110-31020 | 186,763 |
| Hatch | 10.RD | | 4,293,120 |
| Hayman Fire Resample | 10.RD | 14-JV-11221634-108 | 20,707 |
| Identity and Ecology of Wiregrass-Infecting Smut and a Preliminary Investigation of the Relationship Between Time Since Burning and Infection Rates | 10.RD | 14-JV-11330123-123 | 22,004 |
| Impact of Fescue Toxicosis on Fetal Development and Postnatal Growth | 10.RD | 2015-67015-23218 | 6,867 |
| Impact of Prescribed Fire on Polycyclic Aromatic Hydrocarbon Production and Contaminant Photo-transformation Reductions in Coastal Plain | 10.RD | 2014-67019-21615 | 126,717 |
| Improving Mitigation of Phytophthora Ramorum in Water | 10.RD | 13-8130-0161-CA | 22,154 |
| Improving Mitigation of Phytophthora Ramorum in Water: Year 2 | 10.RD | 14-8130-0161-CA | 14,999 |
| Improving Soil Health in Peach Orchards: A Demonstration | 10.RD | 68-4639-14-0022 | 5,763 |
| Innovative Approaches to Manage and Reduce Feral Hog Damage to Agronomic Systems, Woodlands and Ecosystems Services | 10.RD | 69-4639-13-0025 | 37,732 |
| Innovative Nematode Management Strategies to Reduce Pesticide Usage While Enhancing Farm Profit and Environmental Quality | 10.RD | 2010-51101-21785 | 213,734 |
| Landscape-Scale Thresholds of Early Successional Habitat; Reconciling Biodiversity, Public Perception, and Timber Yield in Managed Forests | 10.RD | 12-CA-11330134-092 | 54,891 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Agriculture, continued | | | |
| McIntire Stennis | 10.RD | | 713,369 |
| Multivariate Analysis of Landscape-Level Fuels Data for the Southern Appalachian Mountains | 10.RD | 14-JV-11330136-105 | 26,409 |
| National Visitor Use Monitoring | 10.RD | AG-4670-C-12-0115 | 2,392 |
| Population Genomics of Streptococcus Agalactiae from Infected Bovine and Fish Sources | 10.RD | 2013-67012-23286 | 433 |
| Producing Biological Control Agents for Use in Hemlock Woolly Adelgid Management in the Southern Appalachians | 10.RD | 10-DG-11083150-031 | 84,364 |
| Repeated Prescribed Fires and Mechanical Fuel Treatments for Restoration in the Southern Appalachian Mountains | 10.RD | 12-CA-11330136-122 | 1,955 |
| Reptile, Amphibian and Invertebrate Response to Repeated Prescribed Fires and Mechanical Fuel Reduction Treatments in an Upland Hardwood Forest | 10.RD | 14-JV-11330136-018 | 105,629 |
| Screening and Cloning of Resistance Related Genes by RNA-SEQ in Huanglongbing (HLB) Resistant and Susceptible Citrus Breeding Lines | 10.RD | 59-6618-2-095 | 112,875 |
| Southeastern Budwood Program | 10.RD | 12-8100-1414-CA | 158 |
| Southeastern Budwood Program | 10.RD | 14-8130-0423-CA | 89,577 |
| Summer and Winter Roosting and Foraging Ecology of Southeastern Myotis | 10.RD | 14-JV-11330134-116 | 27,646 |
| Toward a Near Real-Time Agricultural Drought Monitoring and Forecasting | 10.RD | 2015-68007-23210 | 1,589 |
| Tracking and Managing Diseases of Floriculture Crops Caused by Oomycetes and Fungi | 10.RD | 58-1907-0-103 | 44,995 |
| Understanding How a Lipokine, Palmitoleic Acid (C16:1) and Stearyl-CoA Desaturase (SCD) Influence Fat Synthesis | 10.RD | 2012-67012-19907 | 8,267 |
| Use of Obed and Wild Scenic River Sport-Climbing Areas by Rare and Sensitive Bats | 10.RD | 14-JV-11330134-121 | 10,127 |
| Use of Wetland Systems to Treat Nursery Runoff | 10.RD | 58-6618-2-105 | 2,266 |
| Using Local Food Banks to Improve Sustainability of Small and Limited Resource Farms | 10.RD | 2011-67023-30124 | 43,703 |
| Water Use in the Propagation of Vegetative Animals | 10.RD | 58-3607-3-991 | 22,457 |
| Pass-through programs from: | | | |
| Cornell University | | | |
| Eastern Broccoli: Developing An Eastern Broccoli Industry | 10.RD | 61314-9362 | 34,534 |
| Georgia Forestry Commission | | | |
| Laboratory Analysis of Leaf Bait Samples from Streams in Georgia: 2014 - Sudden Oak Death Grant | 10.RD | | 2,800 |
| Kansas State University | | | |
| 2015 4-H Military Partnership Grant | 10.RD | S15048 | 7,473 |
| 2015 Military Connected Youth Local/Regional Program Support Project | 10.RD | S15038 | 9,949 |
| Michigan State University | | | |
| RosBREED: Enabling Marker Assisted Breeding in Rosaceae | 10.RD | 61-4296E | 906 |
| RosBREED: Combining Disease Resistance with Horticultural Quality in New Rosaceous Cultivars | 10.RD | RC104285B | 28,959 |
| Sun Grant Program - Northeast Region | 10.RD | RC103947A | 6,000 |
| Mississippi State University | | | |
| Comprehensive Field and Laboratory Studies on Cryphonectria Parasitica and Phytophthora Species Affecting American Chestnut, Chinese Chestnut and Backcross Hybrids In Field Plantings In the Southeastern United States | 10.RD | 011900.322497.01 | 16,689 |
| North Carolina Central University | | | |
| New Strategy and Method for Isolating and Concentrating Foodborne Pathogens | 10.RD | PO# USDA-NIFA-AFRI-003958 | 6,429 |
| North Carolina State University | | | |
| Development of Grafting Technology to Improve Sustainability and Competitiveness of the U S Fruiting Vegetable Industry | 10.RD | 2011-1609-08 | 123,131 |
| Development of Solid and Hollow-Core Cross-Laminated Timber Systems for Low- and Mid-Rise Construction | 10.RD | 2013-0043-01 | 84,955 |
| Dispersal and Life History of Megacocta Cribraria from Kudzu and Implications for Management in Soybean | 10.RD | 2013-2839-02 | 28,549 |
| Building Capacity to Control Viral Foodborne Disease: A Translational, Multidisciplinary Approach | 10.RD | 2011-0494-01 | 377,039 |
| Development of Grafting Technology to Improve Sustainability and Competitiveness of the U.S. Fruiting Vegetable Industry | 10.RD | 2011-1609-01 | 2,929 |
| Fellowship for Building Capacity to Control Viral Foodborne Disease: A Translational, Multidisciplinary Approach | 10.RD | 2011-0494-01 | 32,154 |
| Impact of Transgenic Bt Crops on Helicoverpa Zea Ecology and Subsequent Resistance Risk | 10.RD | 2014-2219-01 | 9,793 |
| Partnership to Manage Southern IPM Center | 10.RD | 2012-2604-27 | 18,920 |

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Clemson University, South Carolina

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For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Agriculture, continued | | | |
| Pass-through programs, continued: | | | |
| North Carolina State University, continued | | | |
| Predicting In-season Infection Risk of Cucurbit Downy Mildew and Validation of A Downy Mildew Forecasting System. | 10.RD | 2012-1968-01 | 16,592 |
| Reducing Beef Cattle Production Risks By Enhancing Soil Health, Drought Resilience, and Reducing Inputs Through Thoughtful Grazing Management. | 10.RD | 2013-2139-01 | 11,726 |
| Southern IPM Center Partnership | 10.RD | 2015-0085-07 | 5,316 |
| South Carolina Department of Agriculture | | | |
| Development of Peach Varieties with Superior Qualities for Enhanced Production, Increased Consumption, and a Competitive Advantage for the South Carolina Peach in the Global Market | 10.RD | | 1,600 |
| Economic Impact and Feasibility of a Horry County Food Hub | 10.RD | | 16,941 |
| Enabling Marker Assisted Breeding for Brown Rot Resistance/Tolerance in Peach | 10.RD | | 8,441 |
| Enabling Marker Assisted Breeding for Fruit Size in Peach | 10.RD | | 793 |
| Finding Ways to Control Fungicide Resistant Anthracnose Pathogens of Peach and Strawberry | 10.RD | | 19,557 |
| Improved Control of Powdery Mildew and Anthracnose in Watermelon | 10.RD | | 10,392 |
| Improving Control of Southern Blight and Minimizing Losses in Tomato Crops with Use of Effective Fungicides | 10.RD | | 213 |
| South Carolina Forestry Commission | | | |
| Impact of Laurel Wilt Disease on Redbay (<i>Persea borbonia</i>) Ecosystems | 10.RD | | 29,226 |
| Post-hurricane Fuel Dynamics and Its Implications to Fire Behavior | 10.RD | | 28,819 |
| Texas A&M University | | | |
| Improving Soil Quality to Increase Yield and Reduce Diseases in Organic Rice Production | 10.RD | 06-S130621 | 1,650 |
| University of Florida | | | |
| Climate Variability to Climate Change: Extension Challenges and Opportunities in the Southeast Area | 10.RD | UF11109 00094451 | 68,078 |
| Efficacy of Several Products and Rotations for Managing Whiteflies | 10.RD | PO# 1400281304 | 256 |
| Precision Disease Management for Sustainable Strawberry Production in the Eastern United States | 10.RD | UFDSP00010489 (00089088 UF10221) | 70,672 |
| Strategic Management of Multiple Diseases in Strawberry Nurseries and Production Fields in the Eastern United States | 10.RD | UFDSP00010493 | 94,739 |
| University of Georgia | | | |
| A System Approach to Improve Disease Management and Production of Watermelon In the Southeastern United States | 10.RD | RF332-692/5054176 | 8,148 |
| Carbon Dynamics in Management Intensive Grazing Dairy Systems | 10.RD | RC284-551/4895306 | 9,562 |
| Ecologically Driven Stink Bug Management in Commercial Farmscape | 10.RD | RF330-451/4893146 | 22,807 |
| Evaluation of Somatic Seedlings of American Chestnut for Resistance to Phytophthora Root Rot-Forest Health Initiative | 10.RD | RR272-333/4784886 | 165 |
| Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education (SARE) Program | 10.RD | RD309-129/8644747 | 17,787 |
| Sustainable Agriculture Research and Education (SARE) Professional | 10.RD | RE675-171/4942706 | 42,540 |
| Threshold Verification and Investigation of Border Sprays for Managing the Invasive <i>Megacopta Cribraria</i> in Commercial Soybean Production | 10.RD | RE330-483/4353698 | 27,844 |
| Weeds, Nitrogen and Yield: Measuring the Effectiveness of an Organic No-Till System | 10.RD | RD309-122/4944816 | 3,909 |
| University of Hawaii | | | |
| New Engineered Approaches for Recovering Disperse Populations of Low-Tolerance Pathogens from Food | 10.RD | 2014-67005-21702 | 55,874 |
| Washington State University | | | |
| Genome Database for Rosaceae: Empowering Specialty Crop Research Through Big-Data Driven Discovery and Application In Breeding | 10.RD | 123519-G003399 | 41,200 |
| Total Department of Agriculture | | | 9,350,581 |
| Department of Commerce | | | |
| Accelerate SC: Workforce Innovation Launch | 11.RD | 04-79-06838 | 42,113 |
| FY 2015 Summer Undergraduate Research Fellowship (SURF) | 11.RD | 70NANB15H109 | 8,542 |

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|----------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Commerce, continued | | | |
| NIST Summer Undergraduate Research Fellowship (SURF) Program - Gaithersburg | 11.RD | 70NANB14H119 | 2,275 |
| Pass-through programs from: | | | |
| GenWest | | | |
| Microplastic Marine Debris Research Support | 11.RD | GSI-CU-1505 | 1,701 |
| South Carolina Sea Grant Consortium | | | |
| Evaluating Wetland Function in Coastal South Carolina to Support Low Impact Development Decision-Making | 11.RD | N153 | 30,348 |
| Examining Capacity for a Cooperative Seafood Tourism Trail as a Value-Added Marine Resource-Based | 11.RD | M494 | 6,408 |
| Fishery-Related Working Waterfronts | 11.RD | A/E-SG5 | 8,741 |
| Green Infrastructure Design for Stormwater Management in Coastal South Carolina: An Assessment of Ecohydrological Function | 11.RD | M488 NA10OAR4170073-P/M-2N- | 823 |
| Microbial Ecology of a South Carolina Beach | 11.RD | M11N | 2,864 |
| Particle Contamination: Direct Effects on Salt Marsh-Tidal Creek Organisms and Indirect Effects on the Bioavailability and Toxicity of Polynuclear Aromatic Hydrocarbons (PAH) | 11.RD | N155 | 38,206 |
| Particle Contamination: Direct Effects on Salt Marsh-Tidal Creek Organisms and Indirect Effects on the Bioavailability and Toxicity of Polynuclear Aromatic Hydrocarbons (PAH) | 11.RD | N255 | 537 |
| Perceptions of Marine Aquaculture in Tourist Destinations on the Southeastern United States Coast - Year 2 | 11.RD | M414 - Year 2 | 49,721 |
| Understanding Demand for Value-Added Products and Services Associated with For-Hire Boat Trips on the South Carolina Coast | 11.RD | M490 | 1,965 |
| Wind and Rain Resistant Design for Coastal Cross Laminated Timber Building | 11.RD | N157 | 50,322 |
| Wind and Rain Resistant Design for Coastal Cross Laminated Timber Building | 11.RD | N257 | 6,210 |
| South Carolina Manufacturing Extension Partnership | | | |
| FY 13-14 SCMEP | 11.RD | 2014-002 | (1) |
| University Corporation for Atmospheric Research | | | |
| Climate Adaptation and Mitigation Program | 11.RD | Z14-15056 | 4,225 |
| University of Central Florida | | | |
| Evaluation of IC Interconnect Failure of Through Silicon Vias | 11.RD | 277240 | 29,533 |
| Total Department of Commerce | | | 284,533 |
| Department of Defense | | | |
| 2013 & 2014 Clemson Mini-Conference | 12.RD | H98230-13-1-0283 | 3,614 |
| A Multi-Function/Multi-Fuel ThermoAcoustic Generator/Heat Pump (TAG/HP) for Marine Expeditionary Forces | 12.RD | N00014-14-1-0227 | 380,546 |
| A Practical Approach for Modeling Matrix Diffusion Effects in REMChlor | 12.RD | W912HQ-14-C-0009 | 71,134 |
| Adaptive Multicarrier Transmission for Dynamic Spectrum Access in Tactical Cognitive Radio Networks with Fading Channels | 12.RD | N00014-12-1-0060 | 33,505 |
| Adaptive Reliable Unicast and Multicast Transmission in Tactical Packet Radio Networks | 12.RD | W911NF-11-1-0427 | 60,828 |
| Advanced Optical Fiber Development for Fiber Lasers with Sub-GHz Linewidth | 12.RD | W911NF-14-1-0647 | 283,082 |
| Advanced Optical Fiber Development for kW Fiber Lasers with Sub-GHz Linewidth | 12.RD | W911NF-14-1-0629 | 108,000 |
| Anthropomorphic Interfaces on Automation Trust, Dependence, and Performance in Younger and Older Adults | 12.RD | FA9550-12-1-0385 | 95,556 |
| Atomistic Molecular Simulation Methods to Predict CBW A-Surface Interactions | 12.RD | HDTRA1-10-1-0028 | 274,850 |
| Bi-Component Fiber Approach to Making Superomniphobic Textile Surfaces | 12.RD | W911QY-14-P-0413 | 32,147 |
| Carbon Fibers Derived from Sustainable Precursors | 12.RD | W911NF-10-2-0024 | 42,759 |
| Combined Biological and Chemical Mechanisms for Degradation of Insensitive Munitions in the Presence of Alternate Explosives | 12.RD | W912HQ-12-C-0058 | 102,980 |
| Concept Validation and Optimization for a Vent-based Mine-blast Mitigation System | 12.RD | W911NF-11-1-0518 | 125,318 |
| Develop Integrated Management Practices for the Control of Chinese Tallow (Triadica sebifera) in Coastal Forests for Natural Resources Program, MCRD Parris Island, South Carolina | 12.RD | W9126G-14-2-0042 | 23,896 |
| Development of Marine Antifouling Coatings Utilizing a Fouling Deterrence Strategy | 12.RD | N00014-11-1-0183 | 5,606 |

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Defense, continued | | | |
| DURIP: Acquisition of a Bi-static Fabry-Perot Interferometer System for Measuring the Thermospheric Winds and Temperatures Near the Geomagnetic Equator in the African Longitudinal Sector | 12.RD | FA2386-13-1-3011 | 52,315 |
| Experimental Investigation of Turbulence-Chemistry Interaction in High-Reynolds Number Turbulent Partially Premixed Flames | 12.RD | FA9550-14-1-0404 | 43,961 |
| Facilitating Soldier Receipt of Needed Mental Health Treatment | 12.RD | W81XWH-11-2-0010 | 271,871 |
| Friction Stir Welding Behavior of Selected 2000-series and 5000-series Aluminum Alloys | 12.RD | W911NF-11-1-0207 | 90,820 |
| Garment Modification and Production Support - Task Orders | 12.RD | 2008-1221204-022 | 7,819 |
| Gradient Films from Shape Memory Nanofoams for Waveguide Coating | 12.RD | HDTRA1-10-1-0101 | 323,586 |
| High Power, Single Frequency Broad-area Diode Laser Emitters/Arrays and Their Applications in Microresonator Based Frequency Combs Optoelectronics Program | 12.RD | W911NF-14-1-0640 | 64,055 |
| Identifying and Evaluating Impacts to Wetlands from the Savannah River Estuary | 12.RD | W912HZ-14-2-0002 | 270,498 |
| Innovation in Broad-Area Diode Laser Array Architecture: Coupling Grating-Confined Zigzag Modes for High Power, High Brightness Applications | 12.RD | W911NF-11-1-0519 | 40,723 |
| Iterative Decoding of q-ary Parity-check Codes and Related Problems | 12.RD | H98230-13-1-0232 | 9,863 |
| Liquid Sampling-Atmospheric Pressure Glow Discharge (LS-APGD) Microplasmas for Elemental, Isotopic, and Molecular Determinations | 12.RD | HDTRA1-14-1-0010 | 165,006 |
| Long-term Stable Conservative Multiscale Methods for Vortex Flows | 12.RD | W911NF-14-1-0480 | 70,642 |
| Magnetic Field Assisted Assembly of Ordered Multifunctional Ceramic Nanocomposites for Extreme Environments | 12.RD | FA9550-12-1-0459 | 196,923 |
| Military Uniform System Technology Program - MUST/DART DLA Assessment and Review Tool (DLA-MUST) | 12.RD | SP4701-14-D-7004/0001 | 14,750 |
| Multicharged Ion Promoted Desorption (MIPD) of Reaction Co-Products | 12.RD | W911NF-13-1-0042 | 71,198 |
| New Fouling Deterrent Strategies to Defeat Barnacle Biofouling | 12.RD | N00014-14-1-0488 | 146,700 |
| New Protein Modification under Nitrosative Stress | 12.RD | W81XWH-10-1-0385 | 77,300 |
| Optical Fibers with Elevated Threshold for Higher-Order Mode Instability | 12.RD | FA9451-15-D-0009/0001 | 3,498 |
| Optimization of TM-Doped Phosphosilicate Glass for High Power Fiber Lasers | 12.RD | FA9451-15-1-0030 | 84,494 |
| PANTS and SERMON Meetings in the Southeast | 12.RD | H98230-13-1-0296 | 5,264 |
| Preventing Infection by Surface Modification of Orthopaedic Fracture Fixation Implants for Improved Limb Salvage Outcomes | 12.RD | W81XWH-14-1-0438 | 139,011 |
| Production and Characterization of Third Generation Cut Resistant Fibers via Acrylic/Copolyaramid Bi-Component Wet Spinning with a Focus on Scaled Up Production and Product Enhancements | 12.RD | W911QY-13-C-0020 | 46,557 |
| Protections Methods for Dc Ship Power Systems Using the Z-Source Breaker | 12.RD | N00014-13-1-0612 | 3,926 |
| Reactive-Moiety Functionalization of Polyurea for Increased Shock-Mitigation Performance | 12.RD | N00014-14-1-0286 | 61,923 |
| Short Term Project (STP) - MUST/DART DLA Assessment and Review Tool (DLA-DART) | 12.RD | SP4701-14-D-7004/0002 | 27,849 |
| Spatial and Spectral Multiplexing of Optical Beams | 12.RD | N00014-14-1-0264 | 151,750 |
| Subsurface Thermal Energy Storage (STES) for Improved Heating and Air-Conditioning Efficiency | 12.RD | W912HQ-10-C-0027 | 53,233 |
| Technologies and Methodologies in Prevention of ASR in Concrete Pavements | 12.RD | N62583-09-C-0024 | 209,236 |
| Ultra-Trace Level Quantification of Alpha- and Beta- Emitting Radionuclides with Extractive Scintillating Resin | 12.RD | HDTRA1-12-1-0012 | 473,684 |
| Pass-through programs from: | | | |
| Clemson University Research Foundation | | | |
| 3D Meta-Optics for High Energy Lasers | 12.RD | 20100669-04-CRF | 142,505 |
| Advanced Optical Fibers for High Power Fiber Lasers | 12.RD | W911NF-10-1-0423 | 388,891 |
| Light Filamentation Science | 12.RD | 232897 | 40,656 |
| Novel Fiber Concepts for High Power Single Mode Fiber Lasers | 12.RD | W911NF-12-1-0332 | 367,921 |
| Corvid Technologies | | 14-006 FA9550-14-C-0029//CLIN 0001: Charge Code | |
| Physical Submodel Development for Turbulence Combustion Closure | 12.RD | 1041-253 | 33,737 |
| FlexTech Alliance, Incorporated | | | |
| Production of Large Area Energy Harvesting Devices via Roll-to-Roll Printing Processes | 12.RD | RFP14-169_Clemson | 194,590 |
| Huntington Ingalls Industries | | | |
| Power and Emerging Technologies Medium voltage Direct Current (MVDC) Z-Source Breaker Design & Functional Requirements Specifications | 12.RD | PO# 4500449324 | 122 |
| Leidos, Incorporated | | | |
| Polymer Kelp for Vessel Stopping | 12.RD | P010157849 | 108,548 |

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| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Defense, continued | | | |
| Pass-through programs, continued: | | | |
| Leidos, Incorporated, continued | | | |
| Polymer Kelp Year 2 | 12.RD | P010157850 | 134,736 |
| Lumany LLC | | | |
| Solid-State Fundamental Mode Green Laser for Ocean Mine Detection | 12.RD | N13A-023-0367 | 12,106 |
| Solid-State Fundamental Mode Green Laser for Ocean Mine Detection | 12.RD | | 89,227 |
| Massachusetts Institute of Technology | | | |
| Evaluation of Radiation-induced Photonic Defects in Si, Ge, Chalcogenides and Polymers | 12.RD | 5710003309 | 50,131 |
| Mote Marine Laboratory | | | |
| Novel Compounds from Shark and Stingray Epidermal Mucus with Antimicrobial Activity Against Wound Infection Pathogens | 12.RD | MML-107-547 | 27,023 |
| NextGen Aeronautics Incorporated | | | |
| Porous Hybrid Composite for Enhanced Thermal Protection Systems (ComTPS) PH2 | 12.RD | PO 13-099/ CPFF /COMTPS PH2/3080 | 105,359 |
| North Carolina A&T State University | | | |
| DNI S&T Center of Academic Excellence: Center for Academic Studies in Identity Sciences | 12.RD | 210096B | 25,464 |
| Rutgers, The State University of New Jersey | | | |
| Single Crystal Fiber Lasers | 12.RD | 4816 PO# S1762674 | 101,569 |
| Scientific Research Corporation | | | |
| Test Capabilities Development (TCD) | 12.RD | SR20140079 T214 Clemson-TRMCBOA-19 / TO# SR20141971 // SRC0044-BA97-CP-1 | 179,982 |
| Test Capabilities Development (TCD) for the Test Resource Management Center (TRMC) | 12.RD | | 180,551 |
| Structured Materials Industries, Incorporated | | | |
| Infrared-Transparent Electromagnetic Shield Coatings | 12.RD | 41985-070214-01 | 16,500 |
| Transparent Conductive AlGaIn/GaN Coatings for EMI/RFI Attenuation | 12.RD | 42000-062514-01 | 16,912 |
| The Boeing Company | | | |
| High Performance Stretch Polymer Fibers | 12.RD | 652218 PCC 08 | 66,129 |
| University of California Santa Barbara | | | |
| Bio-Inspired Synchronization and Sensors for Distributed Mobile Gunfire Detection | 12.RD | KK1524 | 22,384 |
| University of Central Florida | | | |
| Innovative Design and Manufacturing of Gradient-Index-Based Transformation Optics Components | 12.RD | 65018506 PO# 291964 | 47,088 |
| University of Dayton Research Institute | | | |
| Nanoenergetics-Fundamental Exploration and Technological Development | 12.RD | RCS14053 | 42,583 |
| University of Florida | | | |
| Mathematical Approaches to WMD Defense and Vulnerability Assessments on Dynamic Networks | 12.RD | UFDSP00010499 | 24,225 |
| University of Illinois | | | |
| Novel Optical Fiber Materials with Engineered Brillouin Gain Coefficients SSL-1: Novel Fiber Lasers | 12.RD | 2012-03919-01 | 128,481 |
| University of Michigan | | | |
| Control of Hub Motor Driven Multi-Axle Land Vehicles | 12.RD | 3003058759 | 7,712 |
| Hybrid Electric Vehicle Thermal Management System Design | 12.RD | 3003058759 | 57,737 |
| Metam-Materials Design for Tank Tread Backers Pads | 12.RD | 3003058759 | 53,696 |
| Modeling and Optimization of Electrified Propulsion Systems | 12.RD | 3002307587 (formerly F011680) | 1,463 |
| Modeling and Optimization of Electrified Propulsion Systems | 12.RD | 3003058759 | 63,733 |
| Powertrain Thermal Management | 12.RD | 3002307587 (formerly F011680) | 2,319 |
| Ultracapacitor Energy Storage for Improving Fuel Economy and Extending Battery Life in Heavy Vehicles | 12.RD | 3003058759 | 57,604 |
| Ultracapacitor Energy Storage for Improving Fuel Economy and Extending Battery Life in Heavy Vehicles | 12.RD | 3002307587 (formerly F011680) | 413 |
| University of Southern Mississippi | | | |
| Correlating Early Protective Coating Material Characterization and Properties with Corrosion Related Failures via Real and Accelerated Corrosion Testing in Model and Commercial Systems | 12.RD | USM-GR04695-001 | 74,296 |
| University of Texas at Dallas | | | |
| Search for Majorana Fermions In s-Wave Fermionics Super Fluids | 12.RD | 1301030 PO#S035654 | 84,965 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------------------------------|------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Defense, continued | | | |
| Pass-through programs, continued: | | | |
| University of Massachusetts - Dartmouth Photovoltaic Fabrics | 12.RD | 13938 | 16,309 |
| Total Department of Defense | | | 7,789,943 |
| Department of the Interior | | | |
| Administrative Histories of Fort Sumter National Monument and Charles Pinckney National Historic Site | 15.RD | P14AC01689 | 3,073 |
| Bat Assemblages at Big South Fork National River and Recreation Area (BISO): Potential Effects of Prescribed Fire | 15.RD | G14AC00049 | 22,859 |
| CESU: Building the Capacity to Monitor Coastal Marine Ecosystem Health: Reagent Development and Technical Applications of Novel Antibody and Molecular Tools | 15.RD | P12AC11053 | 2,155 |
| Conservation Corridors for Desert Tortoises | 15.RD | G13AC00019 | 2,056 |
| Conservation Leadership (Science Advisor to the Director, NPS) | 15.RD | P13AC01379 | 229,486 |
| Developing an Alligator Conservation Strategy for South Carolina | 15.RD | G12AC20329 | 694 |
| Dissolved and Particulate Anthropogenic Organic Pollutants in the Coastal Environments of the Southeastern US | 15.RD | P12AC11162 | 5,129 |
| Eastern Brown Pelicans: Dispersal, Seasonal Movements and Monitoring of PAH's and Other Contaminants in the Northern Gulf of Mexico | 15.RD | G12AC20367 P11AC91091 (formerly | 120,351 |
| Front-End Development for the Biodiversity Database of Great Smoky Mountains National Park | 15.RD | P11AT51069) | 3,273 |
| Historic Metals Conservation at Fort Moultrie and Fort Sumter | 15.RD | P13AC01410 | 13,408 |
| Implement Assessment Protocol for the Rare Carolina Bogmunt Population at Congaree National Park | 15.RD | P12AC11253 P08AC00215 (formerly | 3,183 |
| Internship Program for Fire and Fuels Management | 15.RD | J5500080012) | 30,008 |
| JFSP Project 14-1-06-19-- Forest Fire Alters Disinfection Byproduct Precursors from Forested Watersheds | 15.RD | L14AC00163 | 31,452 |
| Latin-American's Assigned Values to Natural and Historical Parks Case of Castillo de San Marcos & Fort Matanzas National Monument and Great Smoky Mountains National Park | 15.RD | P13AC01367 | 1,806 |
| Needs Assessment for Interpretation and Education | 15.RD | P13AC01020 | 54,230 |
| Needs Assessment for Visitor and Resource Protection and Three Specialty Career Fields in Collaboration of the CESU Network | 15.RD | P12AC11224 (H5000085050) | 27,329 |
| NPS Southeast Region Marine Science Support Center | 15.RD | P12AC11053 | 7,888 |
| Preservation of Historic Metal Architectural Elements of Battery Jasper | 15.RD | P14AC01484 | 14,350 |
| Program Management for the SC Water Resources Center | 15.RD | G11AP20105 | 74,130 |
| Real Time Monitoring to Support Environmental Impact Management Strategies for Road Construction Activities on Foothills Parkway: Wears Valley, Bridge Number 2 | 15.RD | P10AC00544 (formerly J5471100020) | 13,517 |
| Retreat of Tidally Influenced Freshwater Forested Wetlands in the Southeast: Biogeochemical Investigations and Field Support | 15.RD | G14AC00132 P11AC91099 (formerly | 43,645 |
| Scion and Seed Collection and Processing at Carl Sandburg Home National Historic Site | 15.RD | P11AT50774) | 251 |
| Shorebird Habitat Use During Migration in Cape Romain NWR | 15.RD | G15AC00231 P11AC91078 (formerly | 5,162 |
| Structural Integrity Assessments at Fort Sumter National Monument (FSNM)- CESU | 15.RD | P11AT50423) P11AP60979 (formerly MT-2210- | 85,246 |
| Structural Prognosis for the Effective Management of Nation's Cultural Heritage | 15.RD | 11-NC-02) | 4,535 |
| Student Internship to Collate Research Data and Develop Interactive Natural Resource Maps at Congaree National Park | 15.RD | P13AC01357 | 15,354 |
| The Effects of Management on Carbon Sequestration in Pocosin Wetlands of the Great Dismal Swamp, Virginia | 15.RD | G14AC00131 | 32,387 |
| Treatment of Museum Collection Objects from Fort Sumter and Fort Moultrie National Monuments | 15.RD | P12AC11169 (H5000085050) | 3,644 |
| Visitor Use Management Research of Delaware Water Gap National Recreation Area | 15.RD | P14AC01707 | 26,064 |
| Pass-through programs from: | | | |
| South Carolina Department of Natural Resources Carolinas Regional Acoustic Bat Surveys | 15.RD | SCDNR FY2015- SCDNR FY2015- | 12,682 |
| Determining Shorebird Utilization of Horseshoe Crab Spawning in Cape Romain NWR | 15.RD | 0022/P24019497215 | 8,772 |

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Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of the Interior, continued | | | |
| Pass-through programs, continued: | | | |
| South Carolina Department of Natural Resources, continued | | | |
| Genetic Assessment of Eastern Brook Trout Populations in South Carolina | 15.RD | P24015405715 | 21,480 |
| South Carolina Small River Conservation Planning Project | 15.RD | SCDNR FY2015-11 | 2,504 |
| Status Assessment for Blue Ridge and Piedmont Herpetofauna of High Priority in South Carolina | 15.RD | SCDNR P24014306012/P24014406012 | 3 |
| Status Update for Bog Turtles (<i>Glyptemys muhlenbergii</i>) in South Carolina | 15.RD | SCDNR FY2014- 008/P24014406012 | 1,979 |
| University of Tennessee | | | |
| Cumberland Habitat Conservation Plan | 15.RD | 8500039771 | 3,516 |
| Wildlife Management Institute | | | |
| Assessing Priority Amphibian & Reptile Conservation Areas (PARCAs) and Vulnerability to Climate change in the North Atlantic Landscape Conservation Cooperative | 15.RD | NALCC-2011-16 | 1,569 |
| Interactive Conservation Planning for the Appalachian LCC (ALCC) | 15.RD | ALCC 2014-02 | 90,333 |
| Total Department of the Interior | | | <u>1,019,503</u> |
| Department of Justice | | | |
| Pass-through programs from: | | | |
| Chesterfield County School District | | | |
| Testing Integrative Models to Improve School Safety; Positive Behavior Interventions Support and the Olweus Bullying Prevention Program | 16.RD | 14CK-BK0012-CU | 117,768 |
| South Carolina Department of Public Safety | | | |
| Human Trafficking in South Carolina | 16.RD | FR #4100055692/4100053536/ 5400007375 | 10,656 |
| West Virginia Research Corporation | | | |
| Use of Periocular Features for Biometric Recognition | 16.RD | 09-0970-CU | 90,380 |
| Total Department of Justice | | | <u>218,804</u> |
| Department of Labor | | | |
| Pass-through programs from: | | | |
| Florence-Darlington Technical College | | | |
| Accessible Support Services and Instruction for Sustainable Transition (ASSIST) to Work | 17.RD | B0005504 | 29,726 |
| Greenville Technical College | | | |
| SC ACCELERATE - SC Adult College Completion Through E-Learning Resources and Academic Tracks to Employment | 17.RD | TC-23765-12-60-A-45 | 357,256 |
| Total Department of Labor | | | <u>386,982</u> |
| Department of State | | | |
| Internet Democracy Support for West Africa | 19.RD | S-LMAQM-12-GR-1033 | 146,946 |
| Confidential | 19.RD | SG-R-IR1516-7 m00 | 95,899 |
| Total Department of State | | | <u>242,845</u> |
| Department of Transportation | | | |
| 2013 Dwight David Eisenhower Transportation Fellowship Program | 20.RD | DTFH64-13-G-00023 | 1,653 |
| 2014 Dwight David Eisenhower Transportation Fellowship Program | 20.RD | DTFH6414G00055 | 4,228 |
| Pass-through programs from: | | | |
| South Carolina Department of Transportation | | | |
| Applying Successfully Proven Measures in Roadway Safety to Reduce Harmful Collisions in South Carolina | 20.RD | 1618; SPR No. 711 | 186,195 |
| Best Practices for Accessing Culvert Health and Determining Appropriate Rehabilitation Methods | 20.RD | 1694; SPR No. 718 | 31,699 |
| Compliance with the United State Environmental Protection Agency (USEPA) Effluent Limitation Guidelines-Turbidity Control and Surface Outlets | 20.RD | SPR No. 702 | 47,517 |
| Cost Effective Strategies for Estimating Statewide AADT | 20.RD | 1691; SPR No. 717 | 1,774 |
| Cross-Slope Verification using Mobile Scanning on SCDOT Interstates | 20.RD | 1714; SPR No. 719 | 2,594 |

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Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Transportation, continued | | | |
| Pass-through programs, continued: | | | |
| South Carolina Department of Transportation, continued | | | |
| Development of SC Databases and Calibration Factors for the Highway Safety Manual (HSM) | 20.RD | 1621; SPR No. 712 | 30,461 |
| Improvements to Acceleration Design Response Spectra for Seismic Design of Transportation Structures in South Carolina | 20.RD | 1623, Proj No. 686 | 37,912 |
| Integration of the Incident Command System (ICS) Protocol for Effective Coordination of Multi-Agency Response to Traffic Incidents | 20.RD | 1543; Proj No. 699 | 96,399 |
| Operational and Economical Analysis of Access Management | 20.RD | 1665; SPR No. 715 | 37,015 |
| Professional Services Contract Manager On-Demand Training and Best Practices | 20.RD | 1635; SPR 713 | 160,456 |
| Ranking of Pavement Preservation Methods and Practices | 20.RD | 1456; Proj No. 695 | 101 |
| Ranking of Pavement Preservation Methods and Practices | 20.RD | 1574; Proj No. 695 | 64,082 |
| Real Time Measurement of Scour Depths Around Bridge Piers and Abutments | 20.RD | 1417; Proj No. 692 | 111,039 |
| SCDOT Asset Collection | 20.RD | 1692; SPR No. 716 | 14,252 |
| Support for the Development and Implementation of an Access Management Program through Research and Analysis of Collision Data | 20.RD | 1591; Project No. 706 | 128,517 |
| Validation of Contractor HMA Testing Data in the Materials Acceptance Process - Phase II | 20.RD | 1508; Project No. 697 | 27,861 |
| TransAnalytics, LLC | | | |
| The Effects of Medical Conditions on Driving Performance | 20.RD | DTNH22-09-D-00135, Task Order No. 04 | 64,931 |
| University of Iowa | | | |
| Project V2V Safety Applications Study (miniSIM multi-site) | 20.RD | PO# 1001302881 W000547753 | 104,248 |
| University of North Carolina- Chapel Hill | | | |
| Older Drivers' Pedal Behavior | 20.RD | 5-55002 | 56,267 |
| University of Tennessee | | | |
| Automated Traffic Surveillance from an Aerial Camera Array | 20.RD | 8500039905 | 27,537 |
| STC - Educational Component | 20.RD | 8500037533 | 41,630 |
| Total Department of Transportation | | | <u>1,278,368</u> |
| Appalachian Regional Commission | | | |
| Science on the Move: STEM Engagement Opportunities to Rural Communities | 23.RD | SC-17835-14 | 13,198 |
| Total Appalachian Regional Commission | | | <u>13,198</u> |
| National Aeronautics and Space Administration | | | |
| A Sounding Rocket Investigation of Neutral Jets Associated with Auroral Arcs | 43.RD | NNX14AH09G | 15,353 |
| AZURE: Auroral Zone Upwelling Release Experiment | 43.RD | NNX15AL71G | 4,336 |
| BL LAC Objects at the Highest Redshifts | 43.RD | NNX14AK63G | 34,239 |
| BL LACERTAE OBJECTS AT HIGH REDSHIFTS | 43.RD | NNX14AK49G | 21,454 |
| Cosmic Chemical Memory and Importance for Cosmochemical Samples | 43.RD | NNX14AI25G | 52,030 |
| Cosmic Metal Abundances from Fermi-GRB Afterglow Spectroscopy | 43.RD | NNX10AO77G | 24,195 |
| Equatorial Vortex Experiment (EVEX): A Study of the Ionospheric Plasma Circulation and the Sunset Layer from Kwajalein (Clemson CO-I Proposal) | 43.RD | NNX10AL26G | 89,950 |
| Geospace Response to Lower Atmospheric Wave Variability Due to the El Nino - Southern Oscillation | 43.RD | NNX11AJ13G | 66,886 |
| Mesosphere-Lower Thermosphere Turbulence Experiment (MTEX) (Co-I Proposal Clemson University) | 43.RD | NNX13AE26G | 30,016 |
| MIST: Mesospheric Inversion-layer Stratified Turbulence Study | 43.RD | NNX14AH45G | 109,448 |
| NASA Space Technology Research Fellowships (NSTRF) - Fall 2014 | 43.RD | NNX14AN43H | 60,973 |
| Neutral-Ion Coupling and Wind Shear Effects in the Daytime Lower Ionosphere | 43.RD | NNX09AI20G | 418 |
| NRA / NASA Earth and Space Science Fellowship (NESSF) Program - 2014 | 43.RD | NNX13AM28H | 29,021 |
| NRI-Small: Long, Thin Continuum Robots for Space Applications | 43.RD | NNX12AM01G | 49,151 |
| Nucleosynthesis and Galactic Chemical Evolution of Cosmochemically Significant Isotopes | 43.RD | NNX10AH78G | 22,479 |
| Review of Multi-Team Systems Related to Long Duration Exploration Missions | 43.RD | NNJ15HK12P | 19,277 |
| Swift, Nustar and the Origin of the X-Ray Background | 43.RD | NNX14AH66G | 9,588 |
| The Role of Field Aligned Ion-drag in Driving Vertical Winds and Mass Density Enhancements Observed in the Cusp Region of Earth's Upper Thermosphere | 43.RD | NNX13AF29G | 198,647 |

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| National Aeronautics and Space Administration, continued | | | |
| Utilizing Space-Based Technology to Determine Hydrological Properties of Soils for Characterizing, Understanding, and Predicting Terrestrially Linked Components of the Hydrologic Cycle | 43.RD | NNX15AD47G | 45,785 |
| Waves and Instabilities from a Neutral Dynamo (WINDY) | 43.RD | | 2,767 |
| Pass-through programs from: | | | |
| College of Charleston | | | |
| Design and Characterization of Periodic Cellular Meta-Materials with Targeted Mechanical, Acoustic, and Effective Material Properties | 43.RD | 22-SG-Clemson | 14,162 |
| Design of Haptic Feedback Strategies within Human-Machine Interfaces for Unmanned Aerial Vehicles (UAVs) | 43.RD | 22-SG-Clemson | 11,386 |
| Development of an X-Ray Irradiation Port for Biomedical Samples at the CUEBIT Highly Charged Ion Facility | 43.RD | 21-SG-Clemson | 11,732 |
| Graduate Research Assistantship: Evolution of Corrosion Reactivity During Sliding Wear of Titanium Nitride/Titanium Nanolaminate Coatings | 43.RD | | 8,412 |
| Iron Binding as the Primary Mechanism for Polyphenol Antioxidant Prevention of Cell Death and DNA Damage | 43.RD | 22-NE-Clemson | 16,696 |
| Light-Weight Nanocomposites of Superior Thermal and Electrical Properties for Space Applications | 43.RD | 19-SG-Clemson | 15,316 |
| Portable Hardware for Sensorimotor Adaptation | 43.RD | 21-SG-Clemson | (2,398) |
| South Carolina Space Grant Consortium Campus Director Funds | 43.RD | 18-SG-Clemson | 2,661 |
| GATS, Incorporated | | | |
| Analysis of Short-Term Tidal Perturbations | 43.RD | GATS_SC_12005 | 25,557 |
| Smithsonian Astrophysical Observatory | | | |
| The Largest Complete Sample of Local AGN | 43.RD | GO4-15132X | 28,559 |
| University of Central Florida | | | |
| Leadership-Followership: Moving Beyond Traditional Leadership to Build Highly Functional Autonomous Teams | 43.RD | 64016352-01 | 30,196 |
| University of South Carolina | | | |
| Explore a Unified, Ultra-efficient, and Gravity-Insensitive Flow Boiling Regime for Space Missions | 43.RD | 15-2784 PO#91802(15540 FC75) | 26,449 |
| Total National Aeronautics and Space Administration | | | <u>1,074,741</u> |
| Institute of Museum & Library Services | | | |
| The Open Parks Grid: the Gateway to Parks Information | 45.RD | LG-05-10-0117-10 | 16,515 |
| Total Institute of Museum & Library Services | | | <u>16,515</u> |
| National Science Foundation | | | |
| A Novel Concept for Micro-Power Generation Using Flow-Induced Self-Excited Oscillations | 47.RD | CMMI-1000667 | (664) |
| Advanced Cyberinfrastructure - Research and Educational Facilitation: Campus-Based Computational Research Support | 47.RD | ACI-1341935 | 1,992,323 |
| AF: Medium: Collaborative Research: Sparse Polynomials, Complexity and Algorithms | 47.RD | CCF-1407623 | 73,359 |
| AIR Option 2: Research Alliance Situational Intelligence for Smart Grid Optimization and Intelligent Control | 47.RD | IIP-1312260 | 51,912 |
| Analysis and Stability of Dynamical System Models Over Networks | 47.RD | DMS-1211691 | 4,820 |
| Analysis of Stochastic Context-Free Grammars for RNA Secondary Structure Prediction | 47.RD | DMS-1312817 | 43,497 |
| Application Characterization for Adaptive Computing Platform Determination for Computational and Data-Enabled Science and Engineering | 47.RD | ACI-1404981 | 54,079 |
| ARRA - CAREER: Influence of Social Capital on Under-Represented Engineering Students' Academic and Career Decisions | 47.RD | EEC-0950710 | 98,605 |
| ARRA - Organized Materials for Plastic Electronics: Divided Pi-Ways and Platinum Energy Canopies | 47.RD | CHE-0847132 | (16,450) |
| ARRA - REU Site: Undergraduate Research in Human-Centered Computing | 47.RD | CNS-0850695 | 225 |
| BIGDATA: F: DKM: Collaborative Research: PXFS: ParalleX Based Transformative I/O System for Big Data | 47.RD | IIS-1447771 | 82,857 |
| Biomechanics of Self-Assembly of the Lepidopteran Feeding Device | 47.RD | PHY-1305338 | 178,375 |
| Broadband Dielectric Spectrometers with 1-10 nm Planar Nanofluidic Channels | 47.RD | ECCS-0925424 | 6,487 |
| Capillary-Channeled Polymer Fibers: Chemistries and Structures for Protein Separations and Analytics | 47.RD | CHE-1307078 | 143,617 |
| CAREER: A New Efficient and Cooperative Large-Scale Distributed Data Sharing System | 47.RD | CNS-1254006 | 45,968 |

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|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| National Science Foundation, continued | | | |
| CAREER: Advancing the Mechanistic Understanding of Field-Scale Preferential Flow and Transport Processes in Soils Using Geophysics | 47.RD | EAR-1151294 | 97,801 |
| CAREER: Algorithmic Aspects of Ordinal Matching Problems | 47.RD | CCF-0845593 | 30,502 |
| CAREER: Computational Modeling of Protein Evolvability | 47.RD | MCB-0953783 | 111,627 |
| CAREER: Creating Effective, Sustainable Inquiry-Based Instruction in Middle School Science Classrooms | 47.RD | DRL-0952160 | 132,746 |
| CAREER: Electromechanical Transduction of Vibratory Energy Harvesters in Random and Non-Stationary Environments | 47.RD | CMMI-1055419 | 17,910 |
| CAREER: Harnessing Hybrid Computing Resources in PetaScale Computing and Beyond | 47.RD | OCI-1149644 | 88,423 |
| CAREER: Hierarchical Mechanical Models of Cell Constructs | 47.RD | CBET-1254609 | 90,529 |
| CAREER: High Resolution Spectrochemical Imaging Through Tissue | 47.RD | CHE-1255535 | 145,689 |
| CAREER: Integrated Materials-Mechanics-Manufacturing Approach to Hot Blank - Cold Die (HB-CD) Forming of Lightweight Alloy Sheets | 47.RD | CMMI-1254670 | 78,586 |
| CAREER: Modeling Irrationalities of Designers to Support their Decisions for Net-Zero Energy Buildings | 47.RD | CMMI-1054122 | 103,289 |
| CAREER: Models for Supply Chain Design and Logistics Management of Biofuels | 47.RD | CMMI-1462420 | 65,597 |
| CAREER: Multiscale Thermomechanical Analysis of Nanomaterials and Nanostructures | 47.RD | CBET-0955096 | 55,970 |
| CAREER: Particle Magnetophoresis in Ferrofluid Microflows for Lab-on-a-Chip Applications | 47.RD | CBET-1150670 | 71,314 |
| CAREER: Student Motivation and Learning in Engineering | 47.RD | EEC-1055950 | 88,698 |
| CAREER: Supporting Patterns for Embedded Network Systems | 47.RD | CNS-0745846 | 58,118 |
| CAREER: The Evolution of Gas in Disks - Setting the Stage for Planet Formation | 47.RD | AST-0954811 | 100,127 |
| CAREER: Understanding Carbon Nanoassembly in Biological and Environmental Systems | 47.RD | CBET-0744040 | (42) |
| CAREER: Cooperative Control and Decision-Making for Human-Agent Collaborative Teams | 47.RD | 1454139 | 839 |
| CAREER: Student Motivation and Learning in Engineering | 47.RD | EEC-1055950 | 3,597 |
| CC*IE IAM: FeduShare: Bridging Campus and Research Identity and Access Management for Self-Managed Collaboration | 47.RD | ACI-1440609 | 70,026 |
| CC*IE Region: Southern Partnership in Advanced Networking (SPAN) | 47.RD | ACI-1440659 | 24,047 |
| CC-NIE Integration: Clemson-NextNet | 47.RD | OCI-1245936 | 308,364 |
| Center for Aviation and Automotive Technology Education Using Virtual E-School [CA2VES] | 47.RD | DUE-1104181 | 953,236 |
| CGV: Large: Collaborative Research: Coupling Simulation and Mesh Generation using Computational Topology. | 47.RD | IIS-1314757 | 32,011 |
| CGV: Large: Collaborative Research: Modeling, Display, and Understanding Uncertainty in Simulations for Policy Decision Making | 47.RD | IIS-1212501 | 76,176 |
| CHS: Small: Looking Across the Uncanny Valley: Procedural and Data-Driven Methods for Gaze Modeling | 47.RD | IIS-1423189 | 102,704 |
| CI SEEDS: Seeding the Next Generation Cyberinfrastructure Ecosystem | 47.RD | 1212680 | 11,240 |
| CI-P: Collaborative Research: HomeSHARE - Home-Based Smart Health Applications Across Research Environments | 47.RD | CNS-1405723 | 9,138 |
| CI-SEEDS: Seeding the Next Generation Cyberinfrastructure Ecosystem | 47.RD | ACI-1212680 | 406,352 |
| Collaborative Research: "Hands-On" Collaborative Reasoning Across the Curriculum | 47.RD | DUE-1022941 | 56,364 |
| Collaborative Research: CEDAR--A Focused Study of Sustained Upward Vertical Winds in the Auroral Zone | 47.RD | AGS-1243077 | 29,229 |
| Collaborative Research: CEDAR--Development and Application of a Multi-site Observing Network to Study Mid-latitude Thermospheric Dynamics | 47.RD | 1138931 | 16,813 |
| Collaborative Research: CEDAR--Development and Application of a Multi-site Observing Network to Study Mid-latitude Thermospheric Dynamics | 47.RD | AGS-1138931 | 18,330 |
| Collaborative Research: CEDAR--Observational and Numerical Studies of Tide-planetary Wave Coupling | 47.RD | AGS-1139048 | 8,784 |
| Collaborative Research: Characterizing Climate-Induced Qualitative Changes in Plant Biopolymer Composition and Their Influence on Soil Processes | 47.RD | DEB-1145993 | 161,861 |
| Collaborative Research: Comprehensive Investigation of Midlatitude Ionospheric Irregularities | 47.RD | AGS-1007539 | 13,000 |
| Collaborative Research: Data Selection for Unique Model Identification | 47.RD | DMS-1419038 | 7,263 |
| Collaborative Research: Developing Engineer of 2020 Traits: How Do Non-curricular Activities Impact African American Students? | 47.RD | EEC-1159813 | 30,927 |
| Collaborative Research: Do Diverse Members of the Epsilonproteobacteria Employ a Novel Nitrate Reduction Pathway? | 47.RD | MCB-1265410 | 29,934 |
| Collaborative Research: Effects of Hydrologic Processes on In Situ Stress Transients | 47.RD | EAR-0944315 | 45,971 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| National Science Foundation, continued | | | |
| Collaborative Research: Engineering Education Research Leader NetWorkshops: Mentoring, Communicating, and Power Brokering for the Next Generation | 47.RD | EEC-1314725 | 3,691 |
| Collaborative Research: Fabry-Perot Interferometer (FPI) to Study Ion-Neutral Coupling Near the Southern Crest of the Equatorial Ionization Anomaly in the American Sector | 47.RD | AGS-1153294 | 17,138 |
| Collaborative Research: Fluid Dynamics Foundations of Cell Printing | 47.RD | CBET-0936235 | 3,537 |
| Collaborative Research: G-SESAME Cloud: A Dynamically Scalable Collaboration Community for Biological Knowledge Discovery | 47.RD | DBI-0960586 | 95,119 |
| Collaborative Research: Hybrid Integration of Plasmonic Interferometer Sensors and Active Optoelectronic Devices on a Single Microfluidic Chip | 47.RD | ECCS-1127957 | 79,008 |
| Collaborative Research: Hybrid Modeling of Reactive Transport in Porous and Fractured Media | 47.RD | EAR-1246297 | 27,066 |
| Collaborative Research: Intracellular Localization of Biosynthetic Pathways for Conversion of Lipids to Dicarboxylic Acids in Oleaginous Yeast | 47.RD | CBET-1403099 | 115,429 |
| Collaborative Research: Jicamarca Radar Studies of Gravity Waves from D Region to Lower F Region | 47.RD | AGS-1143514 | 64,938 |
| Collaborative Research: Kinetics of Autonomous Catalytic Nanomotors in Confined and Crowded Environments | 47.RD | ECCS-1303099 | 2,692 |
| Collaborative Research: PFISR Ion-Neutral Observations in the Thermosphere (PINOT) | 47.RD | AGS-1243467 | 51,244 |
| Collaborative Research: Processing and Properties of Cellulose Films for MEMS Applications | 47.RD | CMMI-1130825 | 2,343 |
| Collaborative Research: Research Initiation Grant: Influence of Motivation on Learning Outcomes in an Engineering Service Course | 47.RD | EEC-1240327 | 8,055 |
| Collaborative Research: REU Site: Computational Algebraic Geometry, Combinatorics, and Number Theory | 47.RD | DMS-1156761 | 3,485 |
| Collaborative Research: Systematic Review of Studies to Improve Success in STEM Degree Programs of Hispanic Students Matriculating through Two-Year Institutions | 47.RD | DUE-1446323 | 19,436 |
| Collaborative Research: Topological States and Quantum Information in Semiconductors and Cold Atom Superfluids | 47.RD | PHY-1104527 | 18,386 |
| Collaborative Research: An Intelligent Restoration System for a Self-healing Smart Grid (IRS-SG) | 47.RD | ECCS-1408141 | 10,245 |
| Collaborative Research: G-SESAME Cloud: A Dynamically Scalable Collaboration Community for Biological Knowledge Discovery | 47.RD | DBI-0960586 | 6,991 |
| Collaborative Research: Planning Grant: I/UCRC for Advanced Mammalian Biomanufacturing Innovation Center (AMBIC) | 47.RD | 1464459 | 3,706 |
| Collaborative Research: Planning Grant: I/UCRC for Real-Time Intelligence for Smart Electric Grid Operations (RISE) | 47.RD | 1464637 | 462 |
| Collaborative Research: REU Site: Computational Algebraic Geometry, Combinatorics, and Number Theory | 47.RD | DMS-1156761 | 268 |
| Conjugated Polymer Nanoparticles for Nanoscale Chemical Microscopy | 47.RD | CHE-1058885 | 124,053 |
| Controlling and Enhancing Optical Gradient Forces in Integrated Optomechanical Devices | 47.RD | ECCS-1101845 | 46 |
| Coupling Small-Particle Adsorbents with Membranes for Trace-Containment Removal in Water Treatment | 47.RD | CBET-1236070 | 79,441 |
| Critical Raindrop Characteristics: Fall Speed, Shape, and Size Distributions | 47.RD | AGS-1144846 | 128,761 |
| CSBR: Natural History: Expanding the footprint and the reach of the Clemson University Arthropod Collection | 47.RD | 1457909 | 151 |
| CSR: EAGER: A Scalable and Efficient Resource Discovery System for Large-Scale Distributed Systems | 47.RD | CNS-1249603 | 200,630 |
| CSR: Large: Collaborative Research: Computational Jewelry for Mobile Health | 47.RD | CNS-1314342 | 192,449 |
| CSR: Small: Collaborative Research: An Architecture for the Emergency Retasking of Wireless Sensors Networks (ALERT) | 47.RD | CNS-1116976 | 25,185 |
| CSR: Small: Efficient and Reciprocal File Replication and Consistency Maintenance in Pervasive Distributed Computing | 47.RD | CNS-0917056 | 51,734 |
| Development of Performance-Based Design Guidelines for Integrating Phase Change Materials in Buildings | 47.RD | CMMI-0927962 | 11,624 |
| Digitization TCN: Collaborative Research: The Key to the Cabinets: Building and Sustaining a Research Database for a Global Biodiversity Hotspot | 47.RD | EF-1410094 | 30,508 |
| Dimensions: Collaborative Research: Functional Diversity of Chemosymbiosis in Lucinid Bivalves from Coastal Biomes | 47.RD | DEB-1342763 | 27,103 |
| DISSERTATION RESEARCH: Linking Genomics, Oceanography and Ecology in Understanding Adaptive Variation in Space and Time in Amphidromous Gobies of the Hawaiian Islands | 47.RD | DEB-1310962 | 16,101 |
| EAGER: An Efficient and Effective Distributed Information System | 47.RD | IIS-1354123 | 22,905 |
| EAGER: Coupled Optomechanical Resonators and Arrays | 47.RD | ECCS-1331728 | 94,841 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| National Science Foundation, continued | | | |
| EAGER: Developing a Framework for a Cyber-Infrastructure General Practitioner Program | 47.RD | OCI-1251544 | 76,774 |
| EAGER: Ecosystem Modeling for Infrastructure Evaluation | 47.RD | ACI-1343033 | 110,537 |
| EAGER: Novel Photoacoustic Sensor Using Piezoresistive GaN Microcantilever | 47.RD | ECCS-1500007 | 33,102 |
| EAGER: Prototype Tool for Visualizing Online Polarization | 47.RD | IIS-1247198 | 76,246 |
| EAGER: PXFS - A Persistent Storage Model for Extreme Scale | 47.RD | CCF-1142905 | 15,340 |
| EAGER: Report on International Data Exchange Requirements (RIDER) | 47.RD | OCI-1223688 | 60,387 |
| EAGER: Transcriptome Analysis of CHO Cells to Improve Productivity and Control Protein Aggregation | 47.RD | CBET-1218345 | 73,496 |
| EAGER: Building a Framework to Advance Research through Undergraduate Participation: Investigating pH in 3D Tissue Test Systems | 47.RD | CBET-1451319 | 42,541 |
| EAGER: Collaborative Research: SciWiNet: A Science Wireless Network for the Research Community | 47.RD | CNS-1346632 | 58,355 |
| EFRI-BSBA: Multifunctional Materials and Devices for Distributed Actuation and Sensing | 47.RD | EFRI-0937985 | 23,371 |
| EFRI-CBE: Emerging Frontiers in 3-D Breast Cancer Tissue Test System | 47.RD | EFRI-0736007 | 29,695 |
| EFRI-COPN: Neuroscience and Neural Networks for Engineering the Future Intelligent Electric Power | 47.RD | EFRI-1238097 | 57,467 |
| Emphasizing Core Calculus Concepts Using Biomedical Applications to Engage, Mentor and Retain STEM Students | 47.RD | DUE-1044265 | 3,496 |
| Enhanced Production of Advancing Biofuels Through Model Guided Synthetic Biology | 47.RD | CBET-1437836 | 56,227 |
| Evaluation of Nanoparticle Behavior During Transitions from Engineered to Natural Systems | 47.RD | CMMI-1057633 | 15,007 |
| Experimental and Modeling Study of Risk from Ember Storms | 47.RD | CMMI-1200560 | 45,786 |
| Experimental Investigation of Multiscalar Subgrid-Scale Mixing and Turbulence-Chemistry Interaction | 47.RD | CBET-1333489 | 43,735 |
| Exploiting Liquid-State Transduction Materials in Vibratory Energy Harvesting | 47.RD | CMMI-1335049 | 123,222 |
| Exploring Non-Normative Forms of Capital, Wealth and Knowledge Used by Engineering Students | 47.RD | 1463808 | 1,475 |
| Extrapolating the Concept of Protein Corona for Understanding Nanoparticles at Large | 47.RD | CBET-1232724 | 120,642 |
| Fluorescent Polymer Nanoparticles for Nano-Imaging and Sensing | 47.RD | CHE-1412694 | 8,654 |
| Formation of Halonitromethanes and Nitrosamines During Ozonation in Drinking Water Treatment | 47.RD | CBET-1066567 | 86,334 |
| Fundamental Study of Carbon Dots for Fluorescence Bio-imaging/sensing | 47.RD | CBET-0967423 | 43,408 |
| GOALI: Low-Ash Lignin Biofuel from Black-Liquor Streams | 47.RD | CBET-1236759 | 45,706 |
| GOALI: Tuning Renewable Solvent Systems for Lignin Purification and Fractionation | 47.RD | CBET-1403873 | 128,320 |
| Graduate Research Fellowship | 47.RD | DGE-1246875 | (1,343) |
| Graduate Research Fellowship Program | 47.RD | 1246875 | 106,176 |
| Graduate Research Fellowship Program | 47.RD | DGE-1246875 | 159,346 |
| Graduate Research Fellowship Program - Biofabrication of Cellular Microspheroids for Organ Printing | 47.RD | DGE-1246875 | 1,331 |
| Graduate Research Fellowship Program (GRFP) | 47.RD | 1246875 | 92,916 |
| Graduate Research Fellowship Program: Use of Mobile Shaker for In Situ Liquefaction Resistance and Dynamic Behavior of Natural Sand Deposits Near Charleston | 47.RD | DGE-1246875 | 623 |
| Growth Rates of Bacterial Taxa in Coastal Marine Ecosystems | 47.RD | OCE-1261359 | 268,960 |
| GSE/RES: Impact of Single-Sex Public Educational Environments on Mathematics and Science Classroom Environment, Student Academic Performance, and Student Self-Concept | 47.RD | HRD-1136248 | 95,302 |
| Hilbert Spaces of Analytic Functions and Their Applications | 47.RD | DMS-1304208 | 7,442 |
| How Does the Plant Say-No More?: A Molecular Genetic Approach to Nodule Number Regulation | 47.RD | IOS-1146014 | 168,419 |
| I/UCRC CGI: I/UCRC for the Ceramic, Composite and Optical Materials Center | 47.RD | IIP-1034979 | 112,179 |
| I/UCRC FRP: Collaborative Research: The Physical Internet for a Sustainable Logistics Future - Advancing CELDi's Leadership Position | 47.RD | IIP-1332007 | 19,827 |
| I/UCRC: Collaborative Research: Center for Excellence in Logistics and Distribution, Phase II | 47.RD | IIP-1266013 | 68,699 |
| I-Corps Team: Ultra Dielectric Probes | 47.RD | 1539688 | 17,019 |
| I-Corps: Advanced Optical Disdrometer for Precipitation Observations | 47.RD | IIP-1449705 | 27,746 |
| I-Corps: Novel Natural Antioxidants Extracted from Animal Blood | 47.RD | IIP-1402387 | 1,764 |
| I-Corps: A Novel Functional Shoulder Brace to Limit Dislocation | 47.RD | IIP-1265279 | 4,285 |
| II NEW: Infrastructure to Support Research in Network-Aware Data-Intensive Computing | 47.RD | CNS-1405767 | 282,582 |
| II-NEW: Robot Arms for Interactive Perception of Highly Non-Rigid Objects | 47.RD | CNS-1305267 | 48,531 |
| Impact of Nonmigrating Tides on the Thermospheric Energy Budget and Constituents | 47.RD | AGS-1112704 | 68,583 |
| Improved Methods for Incompressible Viscous Flow Simulation | 47.RD | DMS-1112593 | 3,217 |
| INSPIRE: Evaluating the Effect of Cyberinfrastructure on Universities Production Process | 47.RD | SMA-1243436 | 166,379 |

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Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| National Science Foundation, continued | | | |
| Instrument Development: Ultra-Sensitive, Single-Pass Electron Paramagnetic Resonance Spectrometers | 47.RD | CHE-1152892 | (964) |
| International Collaboration in Chemistry: Preparation and Utilization of SF5-Containing Building Blocks | 47.RD | CHE-1124859 | 17,066 |
| IUSE: EHR: Enabling Field Experiences in Introductory Geoscience Classes Through the Use of Virtual Reality | 47.RD | 1504619 | 8,121 |
| Materials World Network: Switchable Polymer Interfaces for Bottom-Up Stimulation of Mammalian Cells | 47.RD | DMR-1107786 | 142,311 |
| Mathematics Partnering With Computer Science to Improve Calculus Instruction and Learning Mechanism for Heterogeneously Catalyzed Sugar Alcohol Reactions: Hierarchical Modeling and Experimental Studies | 47.RD | DUE-0817442 | 38,161 |
| Mechanisms of Fluid Feeding in Insects, from Nanoscale to Organism | 47.RD | CBET-1438325 | 48,721 |
| Modeling of the Subgrid-Scale Pressure-Strain-Rate Correlation in the Atmospheric Surface Layer | 47.RD | IOS-1354956 | 50,126 |
| Molecular Dynamics Simulations and Small Angle Neutron Scattering Studies of Light-Emitting Polymeric Nanoparticles | 47.RD | AGS-1335995 | 122,211 |
| MRI: Acquisition of High Performance Computing Instrument for Collaborative Data-Enabled Science | 47.RD | CHE-1308298 | 65,031 |
| MRI: Development of the Intelligent River (R), A Basin-Scale Monitoring Instrument | 47.RD | CNS-1228312 | 66,110 |
| Multimodal Membranes for High-Throughput Bioseparations | 47.RD | CNS-1126344 | 257,170 |
| Multi-Scale Fundamental Investigation of Sintering Anisotropy | 47.RD | CBET-1159622 | 70,341 |
| Network Target Coordination for Complex System Optimization | 47.RD | CMMI-1502392 | 78,479 |
| New Methods for Studying the Time-Dependent and Steady-State Behavior of Markov Chains | 47.RD | CMMI-1129969 | 112,499 |
| Novel Optical Hosts: chemistry, Single Crystal Growth and Applications | 47.RD | CMMI-1435261 | 51,594 |
| National Science Foundation Intergovernmental Personnel Act | 47.RD | DMR-1410727 | 144,612 |
| NSF/DOE Partnership on Advanced Combustion Engines: Thermal Barrier Coatings for the LTC Engine - Heat Loss, Combustion, Thermal vs. Catalytic Effects, Emissions, Exhaust Heat | 47.RD | 1523314 | 87,350 |
| Numerical Approximations of Non-Newtonian Fluid Flows With Applications | 47.RD | 1258714 | 298,122 |
| Numerical Methods for Non-Newtonian Fluid Structure Interaction Problems | 47.RD | DMS-1016182 | 4,404 |
| On a General Class of Count Time Series Models | 47.RD | DMS-1418960 | 45,934 |
| Optical Carrier Based Microwave Interferometry for Spatially Continuous Distributed Monitoring of Structural Health | 47.RD | DMS-1407480 | 60,366 |
| PFI: AIR Technology Translation - Functionalized III-V Nitride Based Microelectromechanical Sensors for Neutron Detection | 47.RD | CMMI-1359716 | 1,114 |
| Quantitative Structure-Adsorbability Relationships for the Adsorption of Organic Chemicals by Carbon Nanotubes | 47.RD | IIP-1512342 | 43,313 |
| RAPID: Impact of Earthquakes on the Electricity Infrastructure Technology | 47.RD | CBET-0967425 | 38,799 |
| RAPID: Inputs of Polycyclic Aromatic Hydrocarbon to Drinking Water Sources from the Yosemite Wildfire | 47.RD | ECCS-1216298 | 1,733 |
| RAPID: Response to the MTBE Spill, Port of Houston, Texas, March 2015 | 47.RD | CBET-1361678 | 28,950 |
| RAPID: Responses of Different Tree Species to a Severe Ice Storm in the Southeastern United States | 47.RD | 1542727 | 15,563 |
| REU Site: Interfaces and Surfaces: Exploring and Experiencing Science (I SEE Science) | 47.RD | DEB-1442131 | 67,211 |
| REU Site: Solid-State Devices for Electronics, Photonics, and Magnetics Technology | 47.RD | DMR-1062873 | 566 |
| REU Site: Undergraduate Research in Collaborative Data Visualization Applications | 47.RD | EEC-1262991 | 95,432 |
| REU Site: Data-Intensive Computing | 47.RD | ACI-1359223 | 89,364 |
| REU Site: Interfaces and Surfaces | 47.RD | OCI-1263180 | 41,176 |
| RI: Medium: Collaborative Research: Real-Time Continuum Manipulation | 47.RD | 1460863 | 46,866 |
| RI: Small: Interactive Perception for Manipulating Non-Rigid Objects | 47.RD | IIS-0904116 | 29,149 |
| Role of Cell Volume Changes in Mechanotransduction of Hydrostatic Pressure | 47.RD | IIS-1017007 | 34,805 |
| Scalable Intelligent Power Monitoring and Optimal Control of Distributed Energy Systems Using Adaptive Critics | 47.RD | CBET-1264579 | 83,326 |
| Selenium Antioxidant Mechanisms: Metal Binding vs. Reactive Oxygen Species Scavenging | 47.RD | ECCS-1308192 | 138,912 |
| Self-Healing Photochromic Polymeric Coatings | 47.RD | CHE-1213912 | 119,939 |
| Semi Fluorinated Polymers: Forming Energy Controlled Responsive Interfaces | 47.RD | CMMI-1332964 | 34,826 |
| SHB: Small: An Assistive, Robotic Table [ART] Promoting Independent Living | 47.RD | DMR-0907390 | 2,855 |
| SHB: Type II (INT): Collaborative Research: Creating Learning Systems with Mobile Technology to Improve Perioperative Services | 47.RD | IIS-1116075 | 44,329 |
| SHF: Medium: Collaborative Research: Specification and Mathematics Engineering for the Verified Software End-Game | 47.RD | IIS-1237077 | 153,244 |
| | 47.RD | CCF-1161916 | 23,446 |

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Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| National Science Foundation, continued | | | |
| Short Course on Multi-Scale Computational Approaches for Simulating Polymers and Soft Matter: From Atomistic to Mesoscale | 47.RD | DMR-1411174 | 800 |
| SNM: Defect-Engineered Nanocarbons for Electrochemical Energy Storage | 47.RD | CMMI-1246800 | 406,586 |
| Southeast Number Theory Meetings | 47.RD | DMS-1303254 | 3,327 |
| Spider Orb-Web Inspired Cognitive, Fault-Tolerant Fiber Optic Sensor Network for SHM Under Harsh Conditions | 47.RD | CMMI-1360664 | 31,551 |
| Student Travel Scholarships for Telluride Science Research Meeting on Frontiers in Biomagnetic Particles IV, in Telluride CO June 23-26, 2015 | 47.RD | 1462064 | 4,000 |
| Supporting a Community Building Workshop in Computer Education Research | 47.RD | DUE-1355395 | 20,003 |
| Topics in Algebraic Geometry Codes | 47.RD | DMS-1403062 | 24,297 |
| Topics on Computational Algebra | 47.RD | DMS-1005369 | 822 |
| Transforming Robust Design Concept into a Novel Geotechnical Design Tool | 47.RD | CMMI-1200117 | 110,833 |
| TUES Type 1: Robots in Business and Society - A Hands-On Learning Experience | 47.RD | DUE-1245250 | 16,716 |
| Ultrasonic Particle Scrubbing With Drops | 47.RD | 1336632 | 78,235 |
| Understanding and Manipulating Charge and Entropy Flows in Layered Structured Transition Metal Dichalcogenides by and for Thermoelectricity: A Multi-Scale Materials Chem. Approach | 47.RD | DMR-1307740 | 92,131 |
| Understanding the Macroscopic Dynamics of Ultrasonic Consolidation | 47.RD | CMMI-1068977 | 9,525 |
| Virtual Environment Interactions: Exploring Grounded Embodied Pedagogy in Support of Computational Thinking | 47.RD | CNS-1344228 | 145,553 |
| Pass-through programs from: | | | |
| BBN Technologies | | | |
| GENI WiMAX at Clemson | 47.RD | 1843A/PO# 9500011083 | 93,095 |
| GENI WiMAX at Clemson - REU Supplement | 47.RD | 1843/PO#9500011083 | 14,706 |
| GENI: Experimenting with Persistent Live Video Streaming Service | 47.RD | 14303/PO# 9500012170/1931B | 45,246 |
| Clemson University Research Foundation | | | |
| CAREER: Control of Processes Actuated with Mobile Radiant Sources | 47.RD | CMMI-1055254 | 67,232 |
| CAREER: Model-Based Control of Machining Processes and Scalability for Manufacturing System Control. | 47.RD | CMMI-0954318 | 51,100 |
| Collaborative Research: Pattern Transfer Nanomanufacturing with Magnetically-Recorded Nanotemplates | 47.RD | CMMI-1130819 | 3,006 |
| Synthesis-Microstructure-Performance Relations in Oxide Ceramic Scintillators | 47.RD | DMR-1207080 | 130,375 |
| Colorado State University | | | |
| NEESR-CR: NEESoft: Seismic Risk Reduction for Soft-Story Woodframe Buildings | 47.RD | G-4948-2 | 17,392 |
| Del Mar College | | | |
| Stamp project NSF DUE # | | | |
| Simulations to Support FAA Part 147 Aviation Maintenance Training | 47.RD | 1205021 | 22,699 |
| Fayetteville State University | | | |
| Broadening Participation Research Project: Advancing Interest and Motivation (AIM) for STEM Careers | 47.RD | NSF AIM for STEM Careers | 12,861 |
| Florida Atlantic University | | | |
| MRI - Development of the Intelligent River, A Basin-Scale Monitoring Instrument | 47.RD | RJ85 | 91,532 |
| Indiana University | | | |
| SHB: Small Privacy-Enhanced Technologies to Support Underserved Older Adults Age In Place | 47.RD | BL-4848754-CLEM PO 1346972 | 34,885 |
| TWC SBES: Medium: Collaborative: Crowdsourcing Security | 47.RD | BL-4848775-CLEM PO#1346549 | 59,571 |
| Lumany LLC | | | |
| STTR Phase I: Diode pumped Modelocked Titanium Sapphire Fiber Laser | 47.RD | | 64,868 |
| Macomb Community College | | | |
| An Investigation of the Effectiveness of Virtual Reality Based Simulations to Enhance Electrical Vehicle Safety Curriculum | 47.RD | ATE-CAAT-01 | 34,980 |
| Medical University of South Carolina | | | |
| Structure and Dynamics of the Spider Dragline Silk Assembly Process | 47.RD | MUSC11-106 | 49,615 |
| North Georgia College and State University | | | |
| Discovery Learning Projects in Statistics | 47.RD | DUE-1021584-01 | 15,230 |
| Northwestern University | | | |
| DMREF: Simulation-Driven Design of Highly Efficient MOF/ Nanoparticle Hybrid Catalyst Materials | 47.RD | SP0023246-PROJ0006614 | 61,745 |
| Pennsylvania State University | | | |
| REU: Participant Support TRPGR: Comparative Genomics of Environmental Stress Responses in North American Hardwoods | 47.RD | 4730-CU-NSF-5974 | 8,023 |

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|-------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| National Science Foundation, continued | | | |
| Pass-through programs, continued: | | | |
| TRPGR: Comparative Genomics of Environmental Stress Responses in North American Hardwoods Purdue University | 47.RD | 4375-CU-NSF-5974 | 63,614 |
| Characterizing and Modeling the Experience of Transfer Students in Engineering South Carolina State University | 47.RD | 4101-38563 | 63,297 |
| Louis Stokes Alliance for Minority Participation Program (SCAMP) - Year One | 47.RD | 13-581099-SCAMP-CU-SC | 56,518 |
| A Partnership in Observational and Computational Astronomy (POCA) The Ohio State University | 47.RD | 08-586009-BAPS-CU-SC | 45,912 |
| GOALI: Aging Propagation & Model Based Prognosis for Interconnected Systems University of California Davis | 47.RD | 60041737 (RF01359641) | 15,000 |
| Geoinformatics: Facility Support: Computational Infrastructure for Geodynamics University of North Carolina - Chapel Hill | 47.RD | 200911281-06 | 78,552 |
| Statistical and Applied Mathematical Sciences Institute University of San Diego | 47.RD | 5037064 | 20,892 |
| Collaborative Research: Military Veteran Students' Pathways in Engineering Education University of South Carolina | 47.RD | 140065-U2015-001 | 759 |
| The South Carolina Project for Organ Biofabrication - Bioprinting Pre-Vascularized Tissue Engineering Constructs | 47.RD | 15-2838 22410-Z142 | 4,429 |
| The South Carolina Project for Organ Biofabrication - Research Infrastructure Improvement (RII) Track Grant University of Tennessee | 47.RD | 13-2357 22410-Z117 PO#52297L | 149,599 |
| MIDGE: A Collaborative Effort to Increase Taxonomic Expertise in Understudied Families of Nematocerosus Diptera University of Texas Austin | 47.RD | 8500012914 | (1,294) |
| Campus Bridging for Stamped Sequencing a Reference-grade Genome of the Domesticated Allotetraploid Cotton University of Utah | 47.RD | UTA13-000068 | 62,653 |
| CloudLab: Flexible Scientific Infrastructure to Support Fundamental Advances in Cloud Architectures and Applications University of Washington | 47.RD | UTA15-000467 (1444552) | 19,065 |
| CREATIV:Tools, Models and Innovation Platforms for Research on Social Media VentureWell | 47.RD | 7425278 | 41,009 |
| Pathways to Innovation Program Washington State University | 47.RD | 123507_G003405 | 1,800 |
| CF21 DIBBS Tripal Gateway: Platform for Next Generation Data Analysis and Sharing Washington University | 47.RD | WU-12-243 PO# 2917766T | 39,036 |
| Gordon Research Conference on Visualization in Science and Education | 47.RD | | 400 |
| Total National Science Foundation | | | <u>17,471,233</u> |
| Department of Veterans Affairs | | | |
| Nanoparticle Coupled Antioxidants for Respiratory Illness in Veterans | 64.RD | VA 247-P-1705 PO#534-D47000 | 7,491 |
| Total Department of Veterans Affairs | | | <u>7,491</u> |
| Environmental Protection Agency | | | |
| Defining Significant Nexus with Navigable Waters for Small, Relatively Isolated Wetlands in the Piedmont Ecoregion | 66.RD | CD95488711 | 5,034 |
| Dendritic Polymers as Biocompatible Dispersants for Oil Spill Remediation | 66.RD | RD-83518201 | 129,567 |
| Partnerships for Sustainability: P2 Education and Assessment | 66.RD | NP00D22514 | 14,067 |
| Pass-through programs from: | | | |
| North Carolina State University | | | |
| Achieving New Milestones For Stormwater Runoff Reductions in Black Creek Watershed | 66.RD | 2012-2709-01 | 5,614 |
| William Marsh Rice University | | | |
| EPA/STAR - Environmental Impact of Nanox | 66.RD | R16992 | 31,739 |
| Total Environmental Protection Agency | | | <u>186,021</u> |

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Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Nuclear Regulatory Commission | | | |
| Clemson University Nuclear Engineering and Radiological Sciences Scholarship Program | 77.RD | NRC-HQ-84-14-G-0021 | 24,736 |
| Junior Nuclear Environmental Engineering and Science Faculty Support | 77.RD | NRC-38-10-921 | 96,331 |
| Probabilistic Risk Assessment Faculty Development in Nuclear Engineering and Science Program at Clemson University | 77.RD | NRC-HQ-13-G-38-0002 | 159,517 |
| US NRC Fellowship Grant at Clemson University | 77.RD | NRC-HQ-12-G-38-0016 | 12,867 |
| Total Nuclear Regulatory Commission | | | 293,451 |
| Department of Energy | | | |
| A New Paradigm for Understanding Multi Phase Ceramic Waste Form Performance | 81.RD | DE-NE0008260 | 113,933 |
| Asymmetric Hybrid Nanoparticles (AHNs) | 81.RD | DE-FG02-06ER46342 | 2,548 |
| Alternative Sample Loading Preparation for Thermal Ionization Mass Spectrometry | 81.RD | DE-NA0001735 | 233,958 |
| Characterizing and Interpreting the In Situ Strain Tensor During CO2 Injection | 81.RD | DE-FE0023313 | 106,753 |
| Clemson University's Solar Decathlon 2015: A Techno-Local Solar House for South Carolina | 81.RD | DE-EE0006559 | 2,148 |
| Clemson University's Synchrophasor Engineering Education Program (CU-ShEEP) | 81.RD | DE-OE0000660 | 141,405 |
| Examination of Actinide Chemistry at Solid-Water Interfaces to Support Advanced Actinide Separations | 81.RD | DE-SC0010355 | 172,818 |
| First-Principles Calculation of Vibrational Mode in Complex Materials | 81.RD | DE-SC0008487 | 112,669 |
| From Interfaces to Bulk: Experimental - Computational Studies Across Time and Length Scales of Multi Functional Ionic Polymer | 81.RD | DE-SC0007908 | 182,864 |
| Lower Length Scale Characterization and Validation of Formation and Stability of Helium Bubbles in Nano-structured Ferritic Alloys Under Irradiation | 81.RD | DE-NE0000728 | 67,155 |
| Novel High Temperature and Radiation Resistant Infrared Glasses and Optical Fibers for Sensing in Advanced Small Modular Reactors | 81.RD | DE-NE0000727 | 229,809 |
| Proof of Feasibility of Using Well Bore Deformation As A Diagnostic Tool To Improve Co2 Sequestration | 81.RD | DE-FE0004542 | 137,077 |
| Radionuclide Waste Disposal: Development of Multi-scale Experimental and Modeling Capabilities | 81.RD | DE-SC0012530 | 682,315 |
| Rigid Nanostructured Organic Polymer Monolith for In Situ Collection and Analysis of Plant Metabolites from Soil | 81.RD | DE-SC0010832 | 47,444 |
| Pass-through programs from: | | | |
| Battelle | | | |
| R&D of the Liquid-Sampling Atmospheric-Pressure Glow Discharge (LS-APGD) | 81.RD | 228064 | 35,164 |
| Battelle Energy Alliance, LLC | | | |
| Precursor Derived Nanostructured Si-C-X Materials for Nuclear Applications | 81.RD | 00145027 | 67,721 |
| Predictive Maturity of Multi-Scale Simulation Models for Fuel Performance | 81.RD | 00101999 | 111,593 |
| Clemson University Research Foundation | | | |
| Development of a Self-Consistent Model of Plutonium Sorption: Quantification of Sorption Enthalpy and Ligand-Promoted Dissolution | 81.RD | DE-SC0004883 | 21,521 |
| Fluoropolymers, Electrolytes, Composites and Electrodes | 81.RD | DE-FG02-05ER15718 | 89,588 |
| GATE Center of Excellence in Sustainable Vehicle Systems | 81.RD | DE-EE0005571 | 135,458 |
| Quantification of Cation Sorption to Engineered Barrier Materials Under Extreme Conditions | 81.RD | 120716 | 248,840 |
| Stabilization of Pu Surface Complexes on Mineral Colloids by Natural Organic Matter | 81.RD | B597372 | 38,769 |
| Lawrence Livermore National Laboratory | | | |
| Stabilization of Pu Surface Complexes on Mineral Colloids by Natural Organic Matter | 81.RD | B610134 | 56,681 |
| Los Alamos National Laboratory | | | |
| Advanced Storage - High Performance File System Research | 81.RD | 238866-1 | 124,110 |
| Evaluate, Develop and Implement Robust and Scalable Approaches for Computing both Explicit and Compact Finite Differences for Computational Fluid Dynamics (CFD) | 81.RD | 325755 // BOA# 284874 | 36,412 |
| Louisiana State University | | | |
| Computational Catalysis and Atomic-level Synthesis of Materials: Building Effective Catalysts from First Principles | 81.RD | 41924 | 5,608 |
| Missouri University of Science and Technology | | | |
| Additive Manufacture of Smart Parts with Embedded Sensors for In-Situ Monitoring in Advanced Energy Systems | 81.RD | 00042083-01 | 109,499 |
| Micro-Structured Sapphire Fiber Sensors for Simultaneous Measurements of High Temperature and Dynamic Gas Pressure in Harsh Environments | 81.RD | 00026229-02 (00045401 - Hai-Lung Tsai) | 9,844 |
| Robust Ceramic Coaxial Cable Down-Hole Sensors for Long-Term In Situ Monitoring of Geologic CO2 Injection and Storage | 81.RD | 00046435-01 | 359,763 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------|------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Energy, continued | | | |
| Pass-through programs, continued: | | | |
| MWH Americas, Incorporated | | | |
| Laboratory Evaluation of Biostimulation to Treat Chlorinated Ethenes in the Chatsworth Formation, Santa Susana Field Laboratory, Ventura Co., CA | 81.RD | S10504105-101050-OF // MWH Job Number 10506443 | 11,566 |
| Robert Bosch, LLC | | | |
| Recirculated Exhaust Gas Intake Sensor (REGIS) Enabling Cost-Effective Fuel Efficiency Improvement | 81.RD | DE-EE0005975-001 | 190,314 |
| Sandia National Laboratories | | | |
| Biaxial Orientation Studies of Nitrated PET-based films | 81.RD | 1553215 | 4,038 |
| Sandia Small Grant | 81.RD | 1556303 | 4,477 |
| SCURF | | | |
| Anion Exchange Membranes Application | 81.RD | B139012 | 31,343 |
| ARML Imaging Instrument Access | 81.RD | B139003 | 8,833 |
| Ceramic Materials Synthesis and Characterization | 81.RD | B139015 | 27,070 |
| Ceramic Materials Synthesis and Characterization | 81.RD | B139010 | 42,990 |
| Examination of the Electrical Properties of Micro- and Nano-Scale Properties in Weak Electrostatic Fields | 81.RD | B139002 | 69,679 |
| Fabrication and Characterization of Graphene Membranes | 81.RD | B139021 | 31,746 |
| Implement On-Line or In-Line Process Technology for Analysis of Measurement Radiation Detection Research and Development in Accordance with SOW No. G-SOW-A-01422, REV. 0 | 81.RD | B139019 | 25,417 |
| SRNL-Graduate Course on Nuclear Safeguards | 81.RD | B139005 | 2,917 |
| SRNS SCM Asset Management Operational Improvements | 81.RD | B139009 | 131,394 |
| SRR Technical Support Provided by Clemson University | 81.RD | SRRA001 | 51,062 |
| SRR Technical Support Provided by Clemson University | 81.RD | SRRA002 // TOA# SRRA042328 | 76,589 |
| Support on Performance and Limitations of Electron Backscatter Diffraction | 81.RD | B139007 | 19,165 |
| Tritium Supply Chain Modeling & Analysis | 81.RD | B139020 | 41,787 |
| University of Cincinnati | | | |
| Robust Metal-Ceramic Coaxial Cable Sensors for Distributed Temperature Monitoring in Fossil Energy Power Systems | 81.RD | 009170-002 PO#4500082057 | 10,489 |
| University of Minnesota | | | |
| Energy Frontier Research Center for Inorganometallic Catalyst Design | 81.RD | A004527501 | 83,570 |
| University of South Carolina | | | |
| A Novel Intermediate-Temperature Bifunctional Ceramic Fuel Cell Energy System | 81.RD | 15-2796 15540 FC77/PO#91865L | 22,511 |
| University of Washington | | | |
| TA(A) Precursor-Derived Nanostructured Si-C-X Materials from MHD Electrode Application | 81.RD | 763094 | 38,432 |
| US Automotive Materials Partnership LLC | | | |
| Development of Advanced Steel for Lightweight Vehicles | 81.RD | 13-2825-AMP | 235,958 |
| UT-Battelle, LLC | | | |
| R&D Building Reliable Data Transfer Tool | 81.RD | 4000108178 | 20,238 |
| Wireless Power Transfer (WPT) and Charging of Plug-In Electric Vehicles | 81.RD | 4000119528 4000127400 / Vendor # | 254,348 |
| Robust Network Fusion Algorithms for Detection and Localization of Radiation Sources | 81.RD | 0000062498 | 52,818 |
| Total Department of Energy | | | 5,190,350 |
| Department of Education | | | |
| Graduate Fellowships in Electrical and Computer Engineering | 84.RD | P200A120224-13 | 139,337 |
| Graduate Training in Engineering and Managing Resilient and Sustainable Civil Infrastructure | 84.RD | P200A120222-14 | 312,856 |
| Pass-through programs from: | | | |
| Iowa State University | | | |
| Professional Development for Algebra Progress Monitoring | 84.RD | 432-28-07 | 21,446 |
| SC Commission on Higher Education | | | |
| Improving Middle Grades Teacher Quality through the Clemson Mathematics Institute and Video Club | 84.RD | ITQ FY2013-14 | 56,390 |
| Project HOMES: Hands-On, Making Science | 84.RD | | 34,454 |
| Project RES: Reform-Based Environmental Science - ITQ FY 2015-16 | 84.RD | ITQ 2015-16 | 19,405 |
| The Clemson Integrated Mathematics and Science Technology Institute - ITQ FY2013-14 | 84.RD | ITQ FY2013-14 Supplemental Grants Summer 2014 | 66,505 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-----------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Education, continued | | | |
| Total Department of Education | | | 650,393 |
| Vietnam Education Foundation | | | |
| Vietnam Education Foundation Fellowship | 85.RD | | 1,256 |
| Total Vietnam Education Foundation | | | 1,256 |
| Department of Health and Human Services | | | |
| A Multi-Level, Cohort-Sequential Study of Rural Adolescent Dating Violence Victimization and Perpetration | 93.RD | 5R01HD067505-03 | 464,070 |
| Adaptive Wavefront Generation and Correction for Super-high Resolution Microscopy | 93.RD | 7R21GM104683-02 | 76,328 |
| Biomechanical Characterization and Modeling of Human TMJ Disc - Fellowship | 93.RD | 5F31DE023482-02 | 28,321 |
| Cardiac-Cell Mechanics at the Single-Cell Level: Properties & Interactions | 93.RD | 5K25HL092228-04 | 9,572 |
| Center of Biomaterials for Tissue Regeneration (CBTR) | 93.RD | 5P20GM103444-07 | 2,141,626 |
| Center of Biomaterials for Tissue Regeneration (CBTR) | 93.RD | 5P20GM103444-07 | 31,162 |
| Center of Biomaterials for Tissue Regeneration (CBTR) | 93.RD | 5P20GM103444-07 | 18,419 |
| Center of Biomaterials for Tissue Regeneration (CBTR) | 93.RD | 5P20GM103444-07 | 24,400 |
| Center of Biomaterials for Tissue Regeneration (CBTR) | 93.RD | 5P20GM103444-07 | 10,480 |
| Center of Biomaterials for Tissue Regeneration (CBTR) | 93.RD | 5P20GM103444-07 | 21,637 |
| DelPhi: Software for Electrostatic Modeling of Biomolecules | 93.RD | 5R01GM093937-05 | 307,537 |
| Does Arsenic Target Border Specific Cells During Embryogenesis? | 93.RD | 5R03ES023065-02 | 69,447 |
| Elastin-derived Scaffolds for Tissue Engineered Small Diameter Vascular Grafts | 93.RD | 5R03TW008941-02 | 45,811 |
| Embryonic Arsenic Exposure Impacts Satellite Cells | 93.RD | 1R03ES023930-01A1 | 15,437 |
| High-Performance Membrane Chromatography for Protein Purification | 93.RD | 1R15GM094676-01 | 14,628 |
| Integrating Biomechanics & Cell Biology to Understand TMJ Pathology | 93.RD | 5R01DE021134-04 | 388,738 |
| Investigating Mechanism of Intracellular Rotational Transport with Optical T | 93.RD | 1R15EB014560-01A1 | 72,363 |
| Investigation of Effective Training of "promotoras" in Oral Rehydration Therapy | 93.RD | 1R03NR013228-01A1 | 13,935 |
| Label Free RF Imaging of Cell Membrane Heterogeneity in Liquid | 93.RD | 5K25GM100480-03 | 180,071 |
| Microfabricated Coculture Model: Myocyte Rescue by TNT-Transfer Mitochondria | 93.RD | 1R01HL124782-01 | 317,864 |
| Naturally Occurring Dog Model for Juvenile Dermatomyositis | 93.RD | 1R15AR062868-01A1 | 158,051 |
| Nutrient Sensing and Hexokinases in T. brucei | 93.RD | 2R15AI075326-02 revised | 104,247 |
| pH and Glucose Sensing in Trypanosoma Brucei Glycosomes | 93.RD | 5R21AI105656-02 | 81,488 |
| Phage Display Selection of Antiangiogenic CMG2 Cyclic Peptide Antagonists | 93.RD | 1R21EY024734-01 | 111,238 |
| Predicting the Toxicity of Nanomaterials by a Transforming Protein Corona | 93.RD | 1R15ES022766-01A1 | 63,029 |
| Probe Identification by HTS for Plasmodium Falci-parum Hexokinase | 93.RD | 1R03HD081723-01 | 1,455 |
| Role of Mei5-Sae3 in Meiotic Homologous Recombination | 93.RD | 5R01GM098510-03 | 194,508 |
| Stress Induced Control of Protein Translation in Entamoeba Histolytica | 93.RD | 1R03AI107950-01A1 | 55,003 |
| Telluride Science Research Meeting on Frontiers in Biomagnetic Particles IV | 93.RD | 1R13EB020516-01 | 6,000 |
| The Role of CAR and PXR in Gender Predominant P450 Expression and Induction | 93.RD | 2R15ES017321-02 | 125,563 |
| Tissue Engineered Aortic Heart Valves: Scaffolds & Stem Cells | 93.RD | 5R01HL093399-04 | 44,722 |
| Tissue Engineered Repair of Cranial Facial Muscle | 93.RD | 5F31DE022224-02 | 41,174 |
| Undergraduate Education and Device Innovation Through Clinical and Translational | 93.RD | 1R25EB016589-01A1 | 34,218 |
| Using Context to Validate and Improve Wrist-Tracking | 93.RD | 1R01HL118181-01A1 | 39,779 |
| Pass-through programs from: | | | |
| Bite Technologies, LLC | | | |
| Assessing the Bite Counter as a Tool for Food Intake Monitoring: Phase II | 93.RD | CU-02 | 149,416 |
| Cell & Tissue Systems, Incorporated | | | |
| Cartilage Storage Solution for Chondrocyte Viability and Biomaterial Preservation | 93.RD | 1R43AR064033-01 | 1,693 |
| Greenville Health System | | | |
| Evaluation Birth and Maternal Outcomes of SC Centering Pregnancy Expansion Project | 93.RD | A201510666A // Grant # G001615 | 34,309 |
| Neonatal Abstinence Syndrome: Analysis of Cost, Safety, and Efficacy of a Palliative | | | |
| Approach to Treating Narcotic-Dependent Newborns | 93.RD | A20161164A-01GHS // G001215 | 220,950 |
| Medical University of South Carolina | | | |
| Delaware CTR Program: A Virtual Environment for Stroke Rehabilitation | 93.RD | MUSC14-022 | 24,925 |
| Methods for Retrospective Multi-Site Research | 93.RD | MUSC12-046 | 62,085 |
| Missouri University of Science and Technology | | | |
| Development of a Novel Multi-functional Single Cell Analyzer | 93.RD | 00044240-01 | 26,520 |
| NUBAD, LLC. | | | |
| A Rapid Assay for RNA Targeted Drugs | 93.RD | 2013000548; F-Neo II (5R42GM097917-03) | 116,651 |

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Schedule of Expenditures of Federal Awards

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|-------------------|
| RESEARCH AND DEVELOPMENT CLUSTER, Continued | | | |
| Department of Health and Human Services, continued | | | |
| Pass-through programs, continued: | | | |
| Development of Peptide Antibiotic Nucleic Acids Rutgers, The State University of New Jersey | 93.RD | Prime # 5R41A1114114-02 | 99,809 |
| Multiscale Molecular Modeling as Guide for Bioactive Polymer Design Optimization | 93.RD | | 8,349 |
| RESBIO: The Technology Resource for Polymeric Biomaterials | 93.RD | 437075/5347 PO# S2063296 | 87,838 |
| South Carolina Department of Social Services ICSS Employment and Training | 93.RD | Task Order #4 | 1,395,527 |
| South Carolina Department of Agriculture South Carolina Farm to School Evaluation | 93.RD | | 6,811 |
| South Carolina Farm to School Evaluation | 93.RD | P16010CPPW11/ FR #4000028282 | 8,582 |
| University of Colorado - Denver Nanoparticle Protein Corona Structural Changes and Immunoreactivity | 93.RD | FY15.714.001/2-5-55932 | 21,721 |
| University of South Carolina Increasing Dietary Self-Monitoring and Weight Loss in an mHealth Intervention | 93.RD | 15-2826 11570-FB22 | 9,628 |
| Palmetto State Geriatric Education Center | 93.RD | PO#91635(18190-FJ33)/15-2753 | 20,644 |
| South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) | 93.RD | 22050-Z172/PO#81534 | 11,555 |
| South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) | 93.RD | 22050-Z180 | 194,000 |
| South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) - Use of High Throughput Sequencing to Understand Protein Evolution | 93.RD | 15-2740 (18060-FB05)/PO #91570 | 576 |
| South Carolina INBRE Program: Postdoctoral Academic Career Development Scholar Agreement | 93.RD | 15-2787 18020-FB29/PO#91797 | 36,545 |
| University of South Florida Sunshine Education Research Center | 93.RD | 6402-1074-03-D | 12,294 |
| University of Texas Austin A Novel Approach for the Design and Development of Valvular Replacement Biomaterials | 93.RD | UTA12-000570 | 62,177 |
| Virginia Polytechnic Institute DPM Research: Monitoring Responses to Ventilation and Control by Water Sprays, and Capacity Building for Mine Ventilation Expertise | 93.RD | 431827-19244 | 14,548 |
| Widmeyer Communications Phase V, Option Year III (previously Option Year II) of HRSA's Bullying Prevention Campaign | 93.RD | | 77,796 |
| Total Department of Health and Human Services | | | <u>8,017,270</u> |
| Department of Homeland Security | | | |
| Pass-through programs from: | | | |
| Federal Alliance for Safe Homes College Education for Building Codes: Current Status and Best Practices | 97.RD | | 15,000 |
| University of South Carolina Coupling Experiments and Atomistic Modeling to Characterize Actinide Oxides in Support of Nuclear Forensics | 97.RD | 14-2646/17110 FA45 PO#82368 | 84,176 |
| Total Department of Homeland Security | | | <u>99,176</u> |
| United States Agency for International Development | | | |
| Pass-through programs from: | | | |
| Various Federal Sponsors Subcontract SG-R-IR1426-7 m00 | 98.RD | SG-R-IR1426-7 m00 | 27,615 |
| Virginia Polytechnic Institute Building Local Capacity in IPM Solutions | 98.RD | 451071-19244 | 69,291 |
| Ecologically-Based Participatory IPM-SE Asia | 98.RD | 425976-19244 | 217,199 |
| Total United States Agency for International Development | | | <u>314,105</u> |
| Central Intelligence Agency | | | |
| Ear Feature Analysis, Extraction Tools, and Classification for Improved Recognition | 99.RD | 2011-11071400004 | 100,211 |
| Total Central Intelligence Agency | | | <u>100,211</u> |
| Total Research and Development Cluster | | | <u>54,006,970</u> |

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Schedule of Expenditures of Federal Awards

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-----------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|--------------------|
| STUDENT FINANCIAL ASSISTANCE CLUSTER | | | |
| Department of Education | | | |
| Federal Supplemental Educational Opportunity Grants | 84.007 | | 288,022 |
| Federal Work Study Program | 84.033 | | 659,983 |
| Federal Work Study Program - Federal Job Location and Development | 84.033 | | 50,000 |
| Federal Perkins Loan Program Federal Capital Contributions | 84.038 | | 908,558 |
| Federal Pell Grant Program | 84.063 | | 13,346,020 |
| Federal Direct Student Loans | 84.268 | | <u>89,539,053</u> |
| Total Department of Education | | | <u>104,791,636</u> |
| Total Student Financial Assistance Cluster | | | <u>104,791,636</u> |
| SNAP CLUSTER | | | |
| Department of Agriculture | | | |
| Pass-through programs from: | | | |
| South Carolina Department of Social Services | | | |
| SCDSS SNAP Outreach Grant | 10.561 | 4400009903 | 93,769 |
| SNAP-ED Nutrition Education and Obesity Prevention Grant | 10.561 | 44400009904 | 147,800 |
| SNAPOCUP-SNAP Outreach Community-University Partnerships | 10.561 | 4400007572 | 135,790 |
| Supplemental Nutrition Assistance Program (SNAP-ED) for Clemson University | 10.561 | 5000013900 | <u>99,233</u> |
| Total Department of Agriculture | | | <u>476,592</u> |
| Total SNAP Cluster | | | <u>476,592</u> |
| HIGHWAY PLANNING AND CONSTRUCTION CLUSTER | | | |
| Department of Transportation | | | |
| Pass-through programs from: | | | |
| South Carolina Department of Transportation | | | |
| State Work Zone Safety Training Program | 20.205 | CBSA-002 | 15,334 |
| Transportation Technology Transfer Service (T3S) | 20.205 | 1671; Proj No. 88P028095A0M560 | 189,960 |
| Transportation Technology Transfer Service (T3S) | 20.205 | 1630; Proj No. 88L56EP026860 | 178,632 |
| Total Department of Transportation | | | <u>383,926</u> |
| Total Highway Planning and Construction Cluster | | | <u>383,926</u> |
| SPECIAL EDUCATION CLUSTER | | | |
| Department of Education | | | |
| Pass-through programs from: | | | |
| South Carolina Department of Education | | | |
| Project CREATE: Center for ReEducation and Advancement of Teachers in Special Education | 84.027 | 14CO302-01 | 270 |
| Project CREATE: Center for ReEducation and Advancement of Teachers in Special Education | 84.027 | 15CO302-01 | <u>14,740</u> |
| Total Department of Education | | | <u>15,010</u> |
| Total Special Education Cluster | | | <u>15,010</u> |
| OTHER PROGRAMS | | | |
| Department of Agriculture | | | |
| 2014 Farm Bill- Producer Education- Clemson University Extension Service | 10.UNK | 58-0510-4-056 N | 500 |
| CEAH-Disease Spread Modeling Data Deidentification Support | 10.UNK | 13-9208-0328-CA | 4,989 |
| The Planning for Growth and Open Space Conservation Webinar Series | 10.UNK | 13-CS-11083150-028 | 11,028 |
| Animal Disease Traceability | 10.025 | 14-9745-1175-CA | 95,059 |
| Animal Disease Traceability | 10.025 | 15-9745-1175-CA | 230 |
| Animal Health Surveillance and Response Activities | 10.025 | 14-9745-1276-CA | 293,656 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

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| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|----------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------|--------------|
| OTHER PROGRAMS | | | |
| Department of Agriculture, continued | | | |
| Animal Health Surveillance and Response Activities | 10.025 | 15-9745-1276-CA | 16,134 |
| Building Screening Capacity for Plant Pathogenic Phytoplasmas for the CAPS Program | 10.025 | 14-8130-0242-CA | 18,801 |
| Building Screening Capacity for Plant Pathogenic Phytoplasmas for the CAPS Program | 10.025 | 13-8130-0242-CA | 4,977 |
| CAPS - Pests of National Concern | 10.025 | 15-8245-0380-CA | 10,942 |
| CAPS - Tier 1 and Pests of National Concern | 10.025 | 14-8245-0380-CA | 61,378 |
| CAPS - Tier I | 10.025 | 15-8245-0380-CA | 29,754 |
| Emerald Ash Borer National Survey | 10.025 | 14-8245-0648-CA | 45,775 |
| Emerald Ash Borer Survey | 10.025 | 15-8245-0648-CA | 21,660 |
| Farm Bill - Junior Invasives Inspectors | 10.025 | 13-8245-0907-CA | 15,285 |
| Farm Bill - Stone Fruit Survey | 10.025 | 13-8245-0891- CA | 13,632 |
| Farm Bill - Thousand Cankers/Walnut Twig Beetle Survey | 10.025 | 15-8245-0964-CA | 3,716 |
| Farm Bill Forest Pest Outreach | 10.025 | 14-8245-1006-CA | 36,299 |
| Farm Bill Honey Bee National Survey | 10.025 | 15-8245-0829-CA | 1,373 |
| Farm Bill- Honey Bee Survey | 10.025 | 13-8245-0829-CA | 5,868 |
| Farm Bill Junior Invasive Inspectors | 10.025 | 14-8245-0907-CA | 43,713 |
| Farm Bill- Solanaceous Commodity (Tomato) Survey | 10.025 | 15-8245-1048-CA | 1,831 |
| Farm Bill- Stone Fruit Commodity Survey | 10.025 | 15-8245-0891-CA | 1,878 |
| Farm Bill Thousand Cankers Survey | 10.025 | 14-8245-0964-CA | 18,780 |
| Imported Fire Ant | 10.025 | 14-8245-0178-CA | 28,033 |
| Imported Fire Ant | 10.025 | 15-8245-0178-CA | 23,966 |
| NAHLN LIMS Integration | 10.025 | 14-9419-0095-CA | 59,238 |
| NAHLN Member Lab Assistance | 10.025 | 14-9419-0164-CA | 55,000 |
| National Animal Health Network, Laboratory Management Systems Infrastructure | 10.025 | 15-9419-0095-CA | 2,248 |
| Slow Sand Filtration System for P. ramorum Phase 4 | 10.025 | 14-8245-0794-CA | 2,750 |
| Swine Enteric Coronavirus Disease | 10.025 | 14-9745-1304-CA | 18,235 |
| Witchweed | 10.025 | 14-8245-0028-CA | 13,010 |
| Witchweed | 10.025 | 15-8245-0028-CA | 263 |
| Bundling of Culinology, Nutrition and Packaging in Undergraduate Applied Niche Research | 10.217 | 2012-70003-19969 | 48,731 |
| Technical College Scholars for Food Science Careers | 10.220 | 2012-38413-19411 | (236) |
| Public Health Data Communications Infrastructure System | 10.475 | | 3,549 |
| SC Meat Inspection- Cross Utilization FY2015 | 10.475 | Cross Utilization FY2015 | 173,079 |
| South Carolina Meat-Poultry Inspection Department - (All Other) | 10.475 | BASE14 (12-37-A307) | 70,004 |
| South Carolina Meat-Poultry Inspection Department - (Compliance) | 10.475 | BASE14 (12-37-A307) | 33,053 |
| South Carolina Meat-Poultry Inspection Department - (In-Plant) | 10.475 | BASE14 (12-37-A307) | 290,658 |
| South Carolina Meat-Poultry Inspection Department - (Laboratory) | 10.475 | BASE14 (12-37-A307) | 3,549 |
| South Carolina Meat-Poultry Inspection Department - Cross Utilization | 10.475 | Cross Util 12-37-A-427 | 146,750 |
| South Carolina Meat-Poultry Inspection Department- (All Other) | 10.475 | BASE15 (12-37-A307) | 212,852 |
| South Carolina Meat-Poultry Inspection Department- (Compliance) | 10.475 | BASE15 (12-37-A307) | 89,086 |
| South Carolina Meat-Poultry Inspection Department- (In-Plant) | 10.475 | BASE15 (12-37-A307) | 777,359 |
| South Carolina Meat-Poultry Inspection Department- (Laboratory) | 10.475 | BASE15 (12-37-A307) | 17,806 |
| South Carolina Meat-Poultry Inspection Department (PHDCIS/FAIM14) | 10.475 | FAIM14 (12-37-A307) | 1,157 |
| A Coordinated Program of Extension IPM Training in South Carolina to Advance Stakeholder Adoption in Key Commodities | 10.500 | 2013-41534-21058 | 46,613 |
| A Social Ecological Approach to Encourage and Assist Residents to Eat Smart and Move More in Rural Colleton County | 10.500 | 2014-46100-22343 | 116,584 |
| Clemson Sustainable Community Project | 10.500 | 2013-41520-21027 | 74,572 |
| | | 2014-41100-04100; 2015-41100-04100; 2015-41310-04100; 2015-41300-04100; 2015-41510-04100; | |
| Cooperative Extension Service - Smith Lever | 10.500 | 2015-46000-04100 | 6,309,769 |
| Web Based Nutrition Education and Evaluation Reporting System (webNEERS) | 10.500 | 2012-41510-20085 | 178,416 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|------------------|
| OTHER PROGRAMS, Continued | | | |
| Department of Agriculture, continued | | | |
| Demonstration of Innovative Interseeding Technology for Crop Rotations to Enhance Soil Properties and Reduce Energy Consumption and Pest Occurrence While Optimizing Farm Profits | 10.912 | 69-3A75-12-212 | 62,953 |
| Demonstration of Innovative Water Conservation Technologies to Enhance Resilience to Drought While Optimizing Farm Profits | 10.912 | 69-3A75-13-88 | 76,914 |
| Pass-through programs from: | | | |
| South Carolina Forestry Commission | | | |
| Forest Pests Detection and Education and Cogongrass Detection, Education, and Eradication Project | 10.UNK | | 57,617 |
| North Carolina State University | | | |
| Quantifying the Multiplier Effect: What Sustainable Local Food Systems Can Mean to Local Communities | 10.215 | 2012-1136-01 | (291) |
| University of Georgia | | | |
| Implement Plan of Work for the Southern Region Sustainable Agriculture Research and Education Professional Development (PDP) Program | 10.215 | RD309-129/5054766 | 9,119 |
| Sustainable Agriculture Research & Education (SARE) Program - CH 1 | 10.215 | RD309-125/4940966 | 6,469 |
| University of Florida | | | |
| Southern Plant Diagnostic Network | 10.304 | UFDSP00010248 (formerly UF12230) | 24,973 |
| Purdue University | | | |
| Stronger Economies Together: USDA RD Cooperative Agreement RBS-10-39 | 10.350 | 8000058198 | 1,637 |
| University of Florida | | | |
| Annie's Project Risk Management Training for Farm Women in Florida, Alabama, South Carolina and Georgia | 10.460 | UFDSP00010504 | 7,072 |
| Kansas State University | | | |
| 2014 4-H Military Partnership Grant | 10.500 | S14070 | 18,870 |
| 2014 DoD Deployment Support Camp Grant | 10.500 | S14126 | 12,711 |
| 2015 DoD Child and Youth Reintegration Support Camps | 10.500 | S15135 | 20,336 |
| North Carolina State University | | | |
| Moving the NC Local Food System Toward Sustainability: A Comprehensive Graduate Course in Local Food Systems for Cooperative Extension" | 10.500 | 2014-1131-02 | 384 |
| Pennsylvania State University | | | |
| AMS Grant Writing Workshop and Technical Assistance | 10.500 | 5154-CU-USDA-2628 | 4,697 |
| Purdue University | | | |
| DOD/USDA Extension Military Partnership overall Leadership | 10.500 | 8000059377 | 108,377 |
| University of Georgia | | | |
| Sustainable Agriculture Research & Education (SARE) Professional Development Program CH 3 | 10.500 | RE675-171/4944706 | 7,426 |
| Total Department of Agriculture | | | <u>9,972,616</u> |
| Department of Defense | | | |
| South Carolina Operation: Military Kids (OMK) | 12.UNK | NAFBA1-13-M-0190 | 1,134 |
| South Carolina Operation: Military Kids (OMK) | 12.UNK | NAFBA1-13-M-0339 | 59,911 |
| Total Department of Defense | | | <u>61,045</u> |
| Department of the Interior | | | |
| Akers Mill Point Cloud Scanning and Structural Evaluation | 15.945 | P13AC00294 | 3,299 |
| The Open Parks Grid Project Part III | 15.945 | P14AC01735 | 40,887 |
| Pass-through programs from: | | | |
| South Carolina Department of Archives & History | | | |
| Preserving Pompion Hill Chapel Towards Digital Approaches to Monitoring Historic Structures | 15.904 | | 1,560 |
| Total Department of the Interior | | | <u>45,746</u> |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|----------------|
| OTHER PROGRAMS, Continued | | | |
| Department of Justice | | | |
| Pass-through programs from: | | | |
| National 4-H Council | | | |
| National Mentoring NMPIV (FY13) | 16.726 | 2013-OJJDP-NMPIV-441 | 124,944 |
| National Mentoring Program Year 5 | 16.726 | 2014-OJJDP-NMPV-541 | 67,363 |
| Total Department of Justice | | | <u>192,307</u> |
| Department of State | | | |
| Pass-through programs from: | | | |
| International Research & Exchanges Board | | | |
| Clemson University International Leaders in Education Program | 19.408 | FY14-ILEP-Clemson-01 | (159) |
| Clemson University International Leaders in Education Program 2015 | 19.408 | FY15-ILEP-Clemson-01 | 180,695 |
| Total Department of State | | | <u>180,536</u> |
| Department of Transportation | | | |
| Pass-through programs from: | | | |
| South Carolina Department of Transportation | | | |
| State Work Zone Safety Training Program | 20.UNK | PO #369014/377336 | 232,293 |
| Total Department of Transportation | | | <u>232,293</u> |
| National Endowment for the Arts | | | |
| Pass-through programs from: | | | |
| South Arts | | | |
| 2014 - 2015 Southern Circuit Film Festival | 45.025 | 4754 | 2,000 |
| Total National Endowment for the Arts | | | <u>2,000</u> |
| National Science Foundation | | | |
| Collaborative Research: Computational Intelligence Methods for Dynamic Stochastic Optimization of Smart Grid Operation with High Penetration of Renewable Energy | | | |
| | 47.041 | ECCS-1232070 | 68,670 |
| Broadening Participation in Visualization (BPViz) Workshop | | | |
| | 47.070 | ACI-1419415 | 41 |
| EAGER: The LIT ROOM - A Networked Suite of Architectural-Robotic Artifacts Embedded in the Library for Advancing Literacy in Children | | | |
| | 47.070 | IIS-1352992 | 132,536 |
| Southeastern Regional Noyce Conference | | | |
| | 47.076 | DUE-1062155 | 6,587 |
| Tigers Teach Noyce Scholarship | | | |
| | 47.076 | DUE-1136293 | 254,824 |
| Total National Science Foundation | | | <u>462,658</u> |
| Small Business Administration | | | |
| Pass-through programs from: | | | |
| University of South Carolina | | | |
| Small Business Administration 2013 Carry Over Funding | 59.037 | SBA 2013 Carry Over | 17,582 |
| Small Business Development Center - Operating Grant (Federal) | 59.037 | Federal | 55,550 |
| Small Business Development Center - Operating Grant (Federal) | 59.037 | Federal | 313,565 |
| Total Small Business Administration | | | <u>386,697</u> |
| Environmental Protection Agency | | | |
| 2014-2016 Certification and Training Pesticide Programs Cooperative Agreement | | | |
| | 66.700 | E-98463814 | 121,281 |
| 2014-2016 Special Programs Pesticides | | | |
| | 66.700 | E-98463714 | 161,169 |
| 614.2014-2016 Enforcement Pesticide Programs Cooperative Agreement | | | |
| | 66.700 | E-98463614 | 183,809 |
| Pass-through programs from: | | | |
| Commonwealth of Virginia | | | |
| Animal Waste Analysis for the Commonwealth of Virginia | 66.460 | 319-2013-P02V | 41,556 |
| Community Environmental Company (CEC) | | | |
| Graniteville Mill-Community Development & Improvement Corporation | 66.818 | 2014000366 | 12,400 |
| Total Environmental Protection Agency | | | <u>520,215</u> |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------|--------------|
| OTHER PROGRAMS, Continued | | | |
| Department of Energy | | | |
| Department of Energy for CETL | 81.087 | | 9,791 |
| Department of Energy for Grid Simulator | 81.087 | | 17,945 |
| Pass-through programs from: | | | |
| Southeastern Coastal Wind Coalition | | | |
| Southeast Wind Energy Regional Resource Center | 81.UNK | | 9,998 |
| Total Department of Energy | | | 37,734 |
| Department of Education | | | |
| Exemplary Personnel for Education, Research, and Teaching in Special Education (EXPERTISE) | 84.325 | | 14,921 |
| National Dropout Prevention Center for Students with Disabilities | 84.326 | | 421,960 |
| Pass-through programs from: | | | |
| South Carolina Department of Education | | | |
| Agricultural Education Professional Development | 84.UNK | 4000028303 | 1 |
| Agricultural Education Professional Development | 84.UNK | 4000029631 | 54,638 |
| South Carolina Department of Education | | | |
| Cherry Grove FFA Camp Caretaker | 84.048 | 14VA302-42 | 7,518 |
| Cherry Grove FFA Camp Caretaker | 84.048 | 15VA302-42 | 10,378 |
| South Carolina Department of Education | | | |
| 21st CCLC Bridge Project at Cedar Grove Elementary School, LaFrance Elementary School, Pendleton Elementary School, and Townville Elementary School | 84.287 | 13CL302-92 | 11,222 |
| 21st CCLC Bridge Project at Spearman Elementary School and West Pelzer Elementary School | 84.287 | 13CL302-90 | 11,384 |
| 21st Century Community Learning Center Bridge Project at Cedar Grove Elementary School, Palmetto Elementary School, LaFrance Elementary School, Pendleton Elementary School, and Townville Elementary School | 84.287 | 15CL302-92 | 784 |
| 21st Century Community Learning Grant: Cedar Grove Elementary School, LaFrance Elementary School, Pendleton Elementary School and Townville Elementary School - GoalPOST II (Goal-oriented Performance in Out of School Time) | 84.287 | 14CL302-02 | 4,641 |
| 21st Century Community Learning Grant: Cedar Grove Elementary School, Palmetto Elementary School, LaFrance Elementary School, Pendleton Elementary School and Townville Elementary School -GoalPOST (Goal-Oriented Performance in Out of School Time) | 84.287 | 15CL302-40 | 257,608 |
| 21st Century Community Learning Grant: Spearman Elementary School & West Pelzer Elementary School - GoalPOST III (Goal-Oriented Performance in Out of School Time) | 84.287 | 15CL302-20 | 113,662 |
| 21st Century Community Learning Grant: Spearman Elementary School & West Pelzer Elementary School-GoalPOST III (Goal-Oriented Performance in Out of School Time) | 84.287 | 14CL302-20 | 2,849 |
| 21st Century Community Learning Grant: St. James-Santee Elementary School and Lincoln Middle-High School (Charleston County School District - A.I.M. Achieve, Inspire, Motivate) | 84.287 | 14CL302-21 | 8,416 |
| South Carolina Department of Education | | | |
| Learning Mathematics and Science with Technology (LMaST) | 84.366 | 14MS302-01 | 63,319 |
| Learning Mathematics and Science with Technology (LMaST) | 84.366 | 15MS302-01 | 41,470 |
| National Writing Project | | | |
| | | 01-SC11-SEED2012 // 2014-2016 SEED Teacher Leadership Development Grant | 7,975 |
| 2014-2016 SEED Teacher Leadership Development Grant | 84.367 | | |
| SEED Grant 2 Brook Glenn Elementary | 84.367 | 01-SC11-SEED2012 | 248 |

The accompanying notes are an integral part of this schedule.

Clemson University, South Carolina

Schedule of Expenditures of Federal Awards

For the year ending June 30, 2015

| Federal Grantor/Pass-Through Grantor/Program Title | Federal CFDA Number | Grantor's/Pass-Through Grantor's Number | Expenditures |
|----------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------|------------------------------|
| OTHER PROGRAMS, Continued | | | |
| Department of Education, continued | | | |
| Pass-through programs, continued: | | | |
| National Writing Project, continued | | | |
| SEED Grant 2 LaFrance Elementary | 84.367 | 01-SC11-SEED2012 | 248 |
| SEED Grant 2 Welcome Elementary | 84.367 | 01-SC11-SEED2012 | 124 |
| South Carolina Commission on Higher Education | | | |
| Project RES: Reform-Based Environmental Science - FY 2013-14 | 84.367 | ITQ 2013-14 | 39,658 |
| The Ohio State University | | | |
| ARRA - Reading Recovery: Scaling Up What Works | 84.396 | 60029187 PO# RF01359641 | 484,627 |
| National Writing Project | | | |
| Investing in Innovation (i3): NWP College-Ready Writers Program - Florence 02 | 84.411 | 01-SC11-i32013 | 19,348 |
| Investing in Innovation (i3): NWP College-Ready Writers Program - Florence 02 | 84.411 | 01-SC11-i32013 | 76,947 |
| Investing in Innovation (i3): NWP College-Ready Writers Program - Greenwood 51 | 84.411 | 01-SC11-i32013 | 85,024 |
| Investing in innovation (i3): NWP College-Ready Writers Program - Union | 84.411 | 01-SC11-i32013 | 152,790 |
| NWP i3 2015-2016 Professional Development Grant /Delayed Start District: Orangeburg 04 School District | 84.411 | 01-SC11-i3DP2015 | 278 |
| NWP i3 CRWP 2015-2016 Professional Development Grant/Delayed Start District: Anderson 03 School District | 84.411 | 01-SC11-i3DP2015 | 556 |
| NWP i3 CRWP 2015-2016 Professional Development Grant/Delayed Start District: Bamberg 02 School District | 84.411 | 01-SC11-i3DP2015 | 278 |
| The Ohio State University | | | |
| Improving Literacy Outcomes for Beginning Readers with Disabilities | 84.411 | 60046517 | 200 |
| Total Department of Education | | | <u>1,893,072</u> |
| Department of Health and Human Services | | | |
| Clemson Care: A Campus-Wide Comprehensive Suicide Prevention Strategy | 92.243 | 5U79SM061785-02 | 52,733 |
| Pass-through programs from: | | | |
| University of South Carolina | | | |
| Faith, Activity, and Nutrition: Dissemination in Underserved Communities (Applied Research Project) | 93.135 | 15-2714 11570 FB18/PO#91219 | 9,522 |
| Children's Trust of South Carolina | | | |
| Comprehensive Wellness Collaborative to Promote Academic Success in Young Parents | 93.500 | S-OAH-2014-3-1 | 121,987 |
| Live Well Greenville-YMCA of Greenville | | | |
| Momentum Bike Clubs-Community Transportation Grant | 93.737 | Prime # 1H75DP004224-01 | 13,690 |
| Total Department of Health and Human Services | | | <u>197,932</u> |
| Total Other Programs | | | <u>14,184,851</u> |
| Total Federal Expenditures | | | <u><u>\$ 173,858,985</u></u> |

The accompanying notes are an integral part of this schedule.

Clemson University

Clemson, South Carolina

Notes to the Schedule of Expenditures of Federal Awards

June 30, 2015

Note 1. Basis of Presentation

The accompanying schedule of expenditures of federal awards (the schedule) includes the federal grant activity of Clemson University (the University) and is presented on the accrual basis of accounting. The information in the schedule is presented in accordance with the requirements of Office of Management and Budget (OMB) Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Therefore, some amounts presented in the schedule may differ from amounts presented in, or used in the preparation of, the basic financial statements.

Note 2. Summary of Significant Accounting Policies for Federal Award Expenditures

Expenditures for student financial aid programs include the federal share of students' Federal Supplemental Educational Opportunity Grant (FSEOG) program grants and Federal Work Study (FWS) program earnings, certain other federal financial aid for students and administrative cost allowances, where applicable.

Expenditures for federal research and development programs are determined using the cost accounting principles and procedures set forth in OMB Circular A-21, *Cost Principles for Educational Institutions*. Under these cost principles, certain expenditures are not allowable or are limited as to reimbursement.

Negative amounts shown on the Schedule represent adjustments or credits made in the normal course of business to amounts reported as expenditures in prior years.

Expenditures for nonfinancial aid awards include indirect costs, related primarily to facilities operation and maintenance and general, divisional and departmental administrative services, which are allocated to direct cost objectives (including federal awards) based on negotiated formulas commonly referred to as facilities and administrative cost rates. Facilities and administrative costs allocated to such awards for the year ended June 30, 2015, were based on predetermined fixed rates negotiated with the University's cognizant federal agency.

Note 3. Federal Perkins Loan Program (CFDA Number 84.038)

The Federal Perkins Loan Program is administered directly by the University and balances and transactions relating to the program are included in the University's financial statements. The balance of loans outstanding under the Federal Perkins Loan Program was \$8,323,293 as of June 30, 2015.

Note 4. Matching

Under the FWS program, the University matched \$213,016 in total compensation for the year ended June 30, 2015 in addition to the federal share of expenditures in the accompanying schedule of expenditures of federal awards.

Under the FSEOG program, the University matched \$1,180,934 in funds awarded to students for the year ended June 30, 2015, in addition to the federal share of expenditures in the accompanying schedule of expenditures of federal awards.

Clemson University**Clemson, South Carolina***Notes to the Schedule of Expenditures of Federal Awards**June 30, 2015*

Note 5. Contingencies

The University receives funds under various federal grant programs and such awards are to be expended in accordance with the provisions of the various grants. Compliance with the grants is subject to audit by various government agencies which may impose sanctions in the event of non-compliance. Management believes that they have complied with all aspects of the various grant provisions and the results of adjustments, if any, relating to such audits would not have any material financial impact.

Note 6. Subrecipients

Of the federal expenditures presented in the schedule, the University provided federal awards to subrecipients as follows for the year ended June 30, 2015:

| | <u>Federal CFDA Number</u> | <u>Amount Provided to Subrecipients</u> |
|-----------------------------------|------------------------------------|-------------------------------------------------|
| Department of Agriculture | | |
| | 10.303 | \$ 134,262 |
| | 10.309 | 402,012 |
| | 10.500 | 8,630 |
| | 10.561 | <u>196,017</u> |
| Total Department of Agriculture | | <u>740,921</u> |
| Department of Commerce | | |
| | 11.417 | <u>28,766</u> |
| Total Department of Commerce | | <u>28,766</u> |
| Department of Defense | | |
| | 12.UNK | 94,121 |
| | 12.351 | 159,722 |
| | 12.420 | 58,131 |
| | 12.431 | <u>95,219</u> |
| Total Department of Defense | | <u>407,193</u> |
| Department of the Interior | | |
| | 15.805 | <u>672</u> |
| Total Department of the Interior | | <u>672</u> |
| Department of State | | |
| | 19.345 | <u>36,242</u> |
| Total Department of State | | <u>36,242</u> |

Clemson University**Clemson, South Carolina***Notes to the Schedule of Expenditures of Federal Awards**June 30, 2015*

Note 6. Subrecipients, Continued

| | Federal CFDA Number | Amount Provided to Subrecipients |
|--------------------------------------------------------------------|------------------------------------|-------------------------------------------------|
| Department of Transportation | | |
| | 20.UNK | 132,976 |
| | 20.205 | <u>92,515</u> |
| Total Department of Transportation | | <u>225,491</u> |
| Department of National Aeronautics and Space Administration | | |
| | 43.001 | <u>12,509</u> |
| Total Department of National Aeronautics and Space Administration | | <u>12,509</u> |
| National Science Foundation | | |
| | 47.041 | 258,455 |
| | 47.049 | 143,740 |
| | 47.050 | 182,627 |
| | 47.070 | 1,384,200 |
| | 47.074 | 32,363 |
| | 47.076 | <u>13,587</u> |
| Total National Science Foundation | | <u>2,014,972</u> |
| Environmental Protection Agency | | |
| | 66.509 | <u>59,282</u> |
| Total Environmental Protection Agency | | <u>59,282</u> |
| Department of Energy | | |
| | 81.UNK | 251,865 |
| | 81.049 | 166,244 |
| | 81.089 | 103,861 |
| | 81.113 | 80,000 |
| | 81.121 | <u>122,332</u> |
| Total Department of Energy | | <u>724,302</u> |

Clemson University
Clemson, South Carolina
Notes to the Schedule of Expenditures of Federal Awards
June 30, 2015

Note 6. Subrecipients, Continued

| | Federal CFDA Number | Amount Provided to Subrecipients |
|------------------------------------------------|------------------------------------|-------------------------------------------------|
| Department of Education | | |
| | 84.287 | 8,416 |
| Department of Education | 84.411 | <u>29,878</u> |
| Total Department of Education | | <u>38,294</u> |
| Department of Health and Human Services | | |
| | 93.UNK | 144,896 |
| | 93.113 | 9,578 |
| | 93.121 | 194,402 |
| | 93.361 | 11,601 |
| | 93.500 | 38,514 |
| | 93.520 | 3,893 |
| | 93.837 | 118,035 |
| | 93-859 | 295,360 |
| | 93.865 | 108,981 |
| | 93.867 | 72,225 |
| | 93.989 | <u>45,000</u> |
| Total Department of Health and Human Services | | <u>1,042,485</u> |
| Agency for International Development | | |
| | 98.001 | <u>117,855</u> |
| Total Agency for International Development | | <u>117,855</u> |
| Total Provided to Subrecipients | | <u>\$ 5,448,984</u> |

**Independent Auditor's Report on Internal Control Over Financial Reporting
and on Compliance and Other Matters Based on an Audit of
Financial Statements Performed in Accordance with
*Government Auditing Standards***

Members of the Board of Trustees
Clemson University
Clemson, South Carolina

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the business-type activities and discretely presented component units of Clemson University (the University), as of and for the year ended June 30, 2015, and the related notes to the financial statements, which collectively comprise the University's basic financial statements, and have issued our report thereon dated October 1, 2015. Our report includes a reference to other auditors who audited the financial statements of Clemson University Research Foundation, the Clemson University Foundation, the Clemson University Land Stewardship Foundation and IPTAY, as described in our report on Clemson University's financial statements. This report does not include the results of other auditors' testing of internal control over financial reporting or compliance and other matters that are reported on separately by those auditors. The financial statements of Clemson University Foundation and IPTAY were not audited in accordance with *Government Auditing Standards*.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the University's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we do not express an opinion on the effectiveness of the University's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the University's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

A handwritten signature in black ink that reads "Elliott Davis Decosimo, LLC". The signature is written in a cursive style with a large, sweeping initial 'E'.

Greenville, South Carolina
October 1, 2015

**Independent Auditor's Report on Compliance for
Each Major Federal Program; Report on Internal Control Over
Compliance; and Report on the Schedule of Expenditures of
Federal Awards Required by OMB Circular A-133**

Members of the Board of Trustees
Clemson University
Clemson, South Carolina

Report on Compliance for Each Major Federal Program

We have audited Clemson University's (the University) compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the University's major federal programs for the year ended June 30, 2015. The University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

The University's basic financial statements include the operations of the Clemson University Research Foundation (CURF) and Clemson University Land Stewardship Foundation (CULSF), discretely presented component units which received \$2,397,987 and \$858,382, respectively, in federal awards which are not included in the University's schedule for the year ended June 30, 2015. Our audit, described below, did not include the operations of CURF and CULSF because the discretely presented component units engaged other auditors to perform an audit in accordance with OMB Circular A-133.

Management's Responsibility

Management is responsible for compliance with the requirements of laws, regulations, contracts, and grants applicable to its federal programs.

Auditor's Responsibility

Our responsibility is to express an opinion on compliance for each of the University's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the University's compliance.

Opinion on Each Major Federal Program

In our opinion, the University complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2015.

Report on Internal Control Over Compliance

Management of the University is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the University's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with OMB Circular A-133, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the University's internal control over compliance.

A deficiency in internal control over compliance exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. *A material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that were not identified. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of OMB Circular A-133. Accordingly, this report is not suitable for any other purpose.

Report on Schedule of Expenditures of Federal Awards Required by OMB Circular A-133

We have audited the financial statements of the business type activities and the aggregate discretely presented components of the University, a component unit of the State of South Carolina, as of and for the year ended June 30, 2015, and the related notes to the financial statements, which collectively comprise the University's basic financial statements. We issued our report thereon dated October 1, 2015, which contained unmodified opinions on those financial statements. Our audit was conducted for the purpose of forming opinions on the

financial statements as a whole. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by OMB Circular A-133 and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditure of federal awards is fairly stated in all material respects in relation to the basic financial statements as a whole.

Elliott Davis Decosimo, LLC

Greenville, South Carolina
October 1, 2015

Clemson University
Clemson, South Carolina
Schedule of Findings and Questioned Costs
For the year ended June 30, 2015

Section I. Summary of Auditor's Results

Financial Statements

Type of auditor's report issued: Unmodified
 Internal control over financial reporting:

- Material weakness identified? _____ yes X no
- Significant deficiency identified? _____ yes X none reported

Noncompliance material to financial statements noted _____ yes X no

Federal Awards

Internal control over major federal programs:

- Material weakness identified? _____ yes X no
- Significant deficiency identified? _____ yes X none reported

Type of auditor's report issued on compliance for major federal programs: Unmodified

Any audit findings disclosed that are required to be reported in accordance with Section 510(a) of Circular A-133 _____ yes X no

Identification of major federal programs:

| <u>CFDA Numbers</u> | <u>Name of federal program or cluster</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| 10.RD; 11.RD; 12.RD; 15.RD; 16.RD; 17.RD; 19.RD; 20.RD; 23.RD; 43.RD; 45.RD; 47.RD; 64.RD; 66.RD; 77.RD; 81.RD; 84.RD; 85.RD; 93.RD; 97.RD; 98.RD; 99.RD | Research and Development Cluster |
| 10.500 | Cooperative Extension Service – Smith Lever |

Dollar threshold used to distinguish between Type A and Type B Programs \$3,000,000

Auditee qualified as low-risk auditee? X yes _____ no

Clemson University
Clemson, South Carolina
Schedule of Findings and Questioned Costs
For the year ended June 30, 2015

Section II. Financial Statement Findings

None reported

Section III. Federal Award Questioned Costs & Findings

None reported

Clemson University
Clemson, South Carolina
Summary Schedule of Prior Audit Findings
For the year ended June 30, 2015

In accordance with *Government Auditing Standards*, issued by the Comptroller General of the United States, the following is the status of known material findings and recommendations from prior year audits:

Finding 2014-1

Program: CFDA No. 84.268 - Federal Direct Loans; CFDA No. 84.063 - Federal Pell Grant Program

Condition: The University did not include all necessary parameters in queries used to identify students who unofficially withdrew and would require Return of Title IV calculations to be performed.

Current Action

Taken/Current Status: Staff in the Office of Student Financial Aid (SFA) met with Records and Registration staff after the initial findings to ensure that all non-passing grades were identified. All student records from the initial findings were corrected, and funds were returned to the required federal programs. The new parameters have been used in subsequent semesters.

An additional review was performed in February 2015 by the Clemson University Office of Internal Auditing to ensure that appropriate corrective actions were taken. The internal review did not identify any concerns related to Title IV aid refund calculations. The internal audit found that "Student Financial Aid has implemented procedures to help ensure all appropriate refund calculations are performed."

Finding 2014-2

Program: CFDA 84.268 – Federal Direct Loans

Condition: The University did not consistently provide exit counseling materials for certain groups of students during the 2013-2014 academic year.

Current Action

Taken/Current Status: The Exit Counseling process and procedures have been reviewed to verify that all appropriate students receive Exit Counseling materials. All students affected by the exit counseling issue from 2013-14 were identified and notified of the situation. A separate email address was created and is used to send Exit Counseling information to the appropriate students. This website is monitored by SFA Loan Staff who respond to any questions or concerns about loan issues.