U.S. Department of Energy
LDRD Project List - FY 2013

Project ID	Project Name	FY Total
AMES - Ames Laboratory		
FY2013-AKI-0310	Demistifying the hydration layer on nano oxide in suspensions by liquid cell TEM	$50,758
FY2013-FAN-0313	In Situ, Real Time Imaging of Single Site Catalysts under Turnover Conditions	$94,056
FY2013-GOR-1218	Dynamic Whitelist Generation for Automated Intrusion Response	$69,043
FY2013-HUA-0413	Atomic and electronic level control of nanocluster catalysts encapsulated in MOFs	$100,073
FY2013-JON-0114	Rapid, Small-Scale, High-Purity Rare Earth Metal Preparation	$55,284
FY2013-WAN-0113	Femtosecond-Resolved Polarimetry Probes of Electronic Nematicity in Iron Pnictides	$48,391
	Total # of Projects for AMES: 6	
	Total Cost for AMES: $417,605	
	Total Administrative Cost: $34,763	
ANL - Argonne National Lab		
P/ANL2010-194	Acceleration of Cloud Microphysical Retrievals for Climate Models	$102,400
P/ANL2010-195	Simultaneous Ecological Assessment and Characterization of Novel Proteins from a Soil Microbial Community	$480,100
P/ANL2010-197	Controlled Heterogeneity of Materials for Energy Applications	$426,500
P/ANL2010-198	Molecular and Fluidic Transport in Nanostructured Soft Materials and Composites	$249,900
P/ANL2010-199	Open GATS: An Open Unified Framewor for Global Address and Task Space Computing in the Exascale Era	$96,800
P/ANL2010-201	Near-Term Spent Nuclear Fuel Disposal Using Accelerator Drive System	$246,500
P/ANL2010-202	The Rational Synthesis of Kinetically Stabilized, Higher Order Inorganic Materials for Catalysis	$61,700
P/ANL2010-204	Spin and Charge Dynamics in Oxide Heterostructures	$381,300
P/ANL2011-005	Tunnel-Diode Oscillator Detection Technique for Ultrasensitive Magnetometery and Resistivity Measurements of Microscopic Samples	$117,500
P/ANL2011-012	Synthesis, Characterization and Properties of Fast Acting Amorphous Drugs	$134,900
P/ANL2011-022	From Plastic Bags to High-performance Lubrication Additives: A Green Chemistry Solution to Energy Efficiency and Environmental Challenges in Transportation	$188,900
P/ANL2011-023	Tuning Electronic Structure at High Pressures: Ttowards Novel Materials Discovery from X-ray Science Under Extreme Conditions	$147,600

P/ANL2011-038	Runtime Support for Integrating MPI and Accelerator Programming Models for Exascale Systems	$101,900
P/ANL2011-052	Toward Understanding Cloud Processes and Uncertainty Modeling in Next-Generation High-Resolution Climate Models	$238,700
P/ANL2011-060	Soft Catalysts for Green Chemistry and Energy Applications	$595,900
P/ANL2011-063	Development of In Situ Radioactive Materials Probes using High-energy X-rays	$309,000
P/ANL2011-067	Fast X-Ray Detectors Based on Multichannel Plates	$111,700
P/ANL2011-071	Achieving Efficient Thermal Energy Transport with One-dimensional Polymer Nanofibres	$153,000
P/ANL2011-083	Guided Discovery of Crystalline Molecular Materials for Advanced Energy, Information and Communication Technologies	$354,200
P/ANL2011-093	New Technologies for Label-free Antibody-based Multiplexed Biosensors	$142,800
P/ANL2011-097	Dynamics of Spin-polarized Carriers in New Spin Electronic Materials and Devices	$142,600
P/ANL2011-101	Reactive Synthesis of Metastable Materials	$488,300
P/ANL2011-104	High-performance X-ray Optics Fabrication Using Self-assembled Nanostructures	$197,800
P/ANL2011-109	Architectures and Algorithms for Protecting Sensitive Information in Mobile Wireless and Sensing Environments	$186,900
P/ANL2011-110	Development of a Design Concept for a Ring Imaging Cherenkov Detector	$121,900
P/ANL2011-116	Synthesis of New Sodium Layered Oxide Cathode Materials for Ambient Temperature Sodium Batteries	$134,900
P/ANL2011-121	Multilevel Optimization Tools for the Simulation, Detection, and Mitigation of Cyber Attacks	$166,600
P/ANL2011-123	Next Generation Multicomponent Nanocatalysts: in situ Study of the Growth and Function	$271,900
P/ANL2011-126	Development of Software Infrastructure for the Simulation of Microbial Communities on HPC Architectures	$250,600
P/ANL2011-129	Evaluation of Microtopography Effects on the Terrestrial Biosphere and Hydrosphere Under Regional Climate Change	$98,700
P/ANL2011-134	Inorganic Synthons: Toward Scalable Materials Design, Discovery, and Creation	$488,900
P/ANL2011-140	Detailed and Reduced Chemical Kinetics of Green Fuels for Compression Ignition Engine Modeling	$234,500
P/ANL2011-147	Magnetomechanical Actuation of Membrane Channels and Cellular Signaling via Direct Energy Transfer	$227,500
P/ANL2011-149	Next Generation Data Exploration: Intelligence in Data Analysis, Visualization and Mining	$279,200

P/ANL2011-170	Development of Grating Interferometers for Quantitative High-energy X-ray Imaging and for Real-time Wavefront Monitoring	$230,500
P/ANL2011-188	Synthesis Science of Functional Layered Complex Oxides	$534,900
P/ANL2011-193	Ultra-small Nanoparticles: A New Opportunity for Discovery of Catalytic Materials for Energy	$218,200
P/ANL2011-196	Will Linking Ultra-large-scale Metagenomics with Models Representing Biogeochemical Cycling Improve Existing Carbon Flux Models?	$198,500
P/ANL2011-197	Multiscale Computational Molecular Science	$254,900
P/ANL2011-198	Fundamental Developments in Theory and Modeling of Nanoscale Systems and Phenomena	$168,800
P/ANL2011-199	Image Furnace Growth of Single Crystals	$104,500
P/ANL2011-200	Novel Materials for Active Nanostructures	$290,700
P/ANL2011-204	Development of Revolver Undulator for APS	$201,900
P/ANL2011-209	Rare Earth Elements	$379,500
P/ANL2011-210	Improved Catalytic Performance by Applying Electrochemical Control	$135,600
P/ANL2011-211	Beyond-petascale Monte Carlo Methods for Practical Nuclear Reactor Analyses	$188,300
P/ANL2011-213	Towards the Exascale Sky	$1,021,900
P/ANL2011-214	Mobile Device Vulnerability Research	$204,600
P/ANL2011-216	High-Performance Computation: Developing and Testing a 3-D Regional Scale Climate Model in the Ganges Valley, India	$19,800
P/ANL2011-217	Polyelectrolyte Brushes in Multi-Valent Ionic Media	$374,200
P/ANL2012-012	New High Energy Rechargeable Li Batteries Based on Selenium and Selenium-sulfur Composite (SexSy) Electrodes	$197,700
P/ANL2012-015	Mesoscale Elastic Problems	$205,000
P/ANL2012-016	Knowledge Discovery in Microbial Community Composition and Metabolite Turnover Using Satellite Remote Sensing Data	$94,000
P/ANL2012-052	Developing New Ce-based, High-efficiency Light-conversion Phosphors	$132,600
P/ANL2012-055	Development of a Close-Packed LaBr3(Ce) Detector Array for Nuclear Physics Applications	$115,400
P/ANL2012-061	Revealing Lithium-based Battery Performance by In Situ Characterization	$133,300
P/ANL2012-072	Graphene Enabled Superlubricity: Vanishing Friction and Wear in Static and Sliding Contacts	$161,700
P/ANL2012-074	Carbon Flux from Thawing Permafrost: Development of a Predictive Model Linking Microbial Activity and Biogeochemistry with Carbon Metabolism	$419,500
P/ANL2012-082	A Novel Low-Level Software Architecture for Exascale Nodes	$173,700
P/ANL2012-087	Rechargeable Nanofluids Technology for Electrical Energy Storage	$149,800

P/ANL2012-114	Extreme-Scale Electromagnetic Modeling with Nanoscience Applications	$149,500
P/ANL2012-180	Novel Non-Carbon Catalyst Support for PEMFCs	$253,000
P/ANL2012-181	Curing Cancer with the Power of Fireflies	$140,400
P/ANL2012-202	A Future for Energy-efficient General-purpose Computing Based on Heterogeneity	$143,100
P/ANL2012-203	Biofuel Chemical Kinetic Experiments to Advance the Modeling of Advanced IC Engine Combustion	$476,400
P/ANL2012-204	Membrane Bound, Broad Spectrum, Photo-driven Protein Devices	$95,700
P/ANL2012-205	Modeling the Interactions of Biophysical, Biogeochemical, and Microbial Dynamics in Permafrost-affected Soils: From Pore Scale to Regional Scale	$298,500
P/ANL2012-206	Developing, Improving, and Testing Methods for Predicting Spatial and Vertical Distributions of Soil Organic Carbon at Regional Scales	$288,100
P/ANL2012-207	Environmental Proteomics	$369,200
P/ANL2012-208	20kV/10A 4H-SiC Vertical Trench Field-Controlled Thyristor (VTFCT)	$518,000
P/ANL2012-209	Atomistically Informed Mesoscale Modeling for Advanced Electrical Energy Storage Systems	$122,100
P/ANL2013-013	Improving the Stability of Rubisco Activase, the Weak-link, In the Biological CO_2 Fixation Machinery	$223,400
P/ANL2013-016	Spin-based Thermal Power Generation	$172,000
P/ANL2013-022	Superlubricious Carbon Films Derived from Natural Gas for Home-refueling Applications	$128,400
P/ANL2013-035	Extreme Optomechanics	$216,500
P/ANL2013-036	Development of Near-Field Enhanced Terahertz Pump X-ray Probe Techniques for Ultrafast Control of Strongly Correlated Materials	$213,200
P/ANL2013-063	Visualization of Stress-induced Polarization Switching in Electromechanically Coupled Ferroelectric Polymers	$148,600
P/ANL2013-070	Imaging Ecological Engineers: A Novel Quantum Dots Approach to Map Microbes in Complex Soil Structures with X-rays	$211,100
P/ANL2013-080	Ultra-low Loss Superconducting Microstrip for Multi-chroic Cosmic Microwave Background Detectors	$235,300
P/ANL2013-096	Graphene Windows for Advancing Electron RF Guns	$79,400
P/ANL2013-100	3-D Compositional Control of Intermediate-Band Solar Cells	$153,800
P/ANL2013-111	Feasibility Study of Applying Thin Film High-Temperature Superconducting Films on Copper or Niobium-Sputtered-on-Copper for the Purpose of Achieving Helium-Free Operation with Cryocoolers	$173,200

P/ANL2013-114	Electromagnetic Variably Polarizing Undulator (EMVPU): Developments of the Test Model	$521,400
P/ANL2013-116	Nanolaminate Coatings for Improved Nuclear Fuel Cladding Performance	$105,600
P/ANL2013-129	Probing Magnetic Excitations in a Quantum Spin Liquid by Resonant Inelastic X-ray Scattering.	$294,500
P/ANL2013-143	Next-Generation Storage Ring Light Sources	$625,000
P/ANL2013-148	Development of Predictive Multi-dimensional Combustion Modeling Capability with Detailed Chemistry	$466,000
P/ANL2013-152	Nanolaminate Materials for Extreme Environments - A Demonstration of Argonne Capabilities for Design, Synthesis and Accelerated Testing of Radiation Tolerant NE Materials	$508,100
P/ANL2013-154	Atomic Layer Deposition System for Continuous, High Speed Thin Film Processing	$231,700
P/ANL2013-156	Fast High-Efficiency Process To Fabricate Aligned Nanotubes In Nano-Composite Membranes For High-Performance Filtration Applications	$526,900
P/ANL2013-165	Integrating Simulation and Observation: Discovery Engines for Big Data	$1,486,300
P/ANL2013-168	The Tao of Fusion: Pathways for Big-data Analysis of Energy Materials at Work	$474,300
P/ANL2013-171	Unconventional Signatures for Characterizing Culture Conditions	$170,800
P/ANL2013-173	Ratiometric Semiconductor Nanocrystal-Based Sensors for Threat Reduction Applications	$484,000
P/ANL2013-177	Identifying Novel Pathways for Anaerobic Microbial Oxidation of Methane	$249,500
P/ANL2013-178	Uranium and Plutonium Detection by Plasmonic Graphene-based Nanosensors	$124,300
P/ANL2013-184	Hierarchical Modeling of Self Assembly in Nanostructured Soft Materials at Equilibrium and Far from Equilibrium	$352,200
P/ANL2013-185	Electrochemical Materials Discovery: From Performance to Stability	$239,100
P/ANL2013-194	Annotating, Modeling, and Exploring Enzyme Promiscuity	$116,100
P/ANL2013-196	Bridging the RAST Annotation and the Structural Genomics Pipelines at Argonne	$49,700
P/ANL2013-199	MADNESS for Materials	$49,000
P/ANL2013-200	Exploring a New Approach for Parallel Programming at Exascale	$57,300
P/ANL2013-202	Computational Molecular Science	$283,400
P/ANL2013-206	Mathematical Techniques to Model Urban Data	$126,100
P/ANL2013-208	General-Purpose Technical Cloud Platforms	$199,600
P/ANL2013-212	Multiscale Materials Modeling using Accurate Ab Initio Approaches (M3A3)	$49,100

P/ANL2013-213	X-PECT: Performance Framework to Characterize and Transform Applications and Architectures at Extreme Scales	$99,100
P/ANL2013-214	Computational Mesoscale Materials Modeling	$350,000
P/ANL2013-215	Mesoscale Materials by Design from Assemblies of Ionic Polymers and Nanoparticles	$386,800
P/ANL2013-216	Directed Assembly and Three-Dimensional Characterization of Block Copolymers in Semi-Thick Films	$197,700
P/ANL2013-218	Urban Systems Integration Modeling and Analysis	$7,439
P/ANL2013-219	Transition Edge Sensors for Fundamental Physics	$514,000
	Total # of Projects for ANL: 112	
	Total Cost for ANL: $28,395,039	
	Total Administrative Cost: $31,200	

BNL - Brookhaven National Lab		
10-041	Simulation, Design, and Prototyping of an FEL, for Proof-of-Principle of Coherent Electron Cooling	$88,958
11-001	Cloud and Precipitation 4D Radar Science	$35,307
11-002	A Novel Approach to Parameterized Sub-Grid Processes in Climate Models	$84,563
11-008	Touchless Micro-Crystallography	$200,692
11-025	Protein Microcrystal Dynamics by Coherent X-Ray Scattering	$160,387
11-027	High-Resolution Biological Imaging by X-Ray Diffraction Microscopy	$114,974
11-030	Sub-10 nm Resolution Soft X-Ray Microscopy of Organic Nano-Materials by Novel Diffraction Methods	$53,918
11-032	2D Membrane Solution Scattering for Probing the Structures of Membrane Proteins	$158,361
11-033	Exploring the Role of Glue in Hadron Structure by an Electron Ion Collider	$228,004
11-036	CMOS-Pixel Vertex Detector for EIC	$130,961
11-040	Study of FEL Options for eRHIC	$166,063
11-050	Overcoming Electromagnetic Interference in Simultaneous PET and MRI for Biological and Clinical Imaging	$97,907
12-007	Complex Modeling: Leveraging Advanced Scattering Data with Computation to Push Back the Materials Complexity Frontier	$290,506
12-008	Early Deployment of Flagship Applications on BG-Q	$465,561
12-012	Inter-Individual Variation in Radiation-Induced Epigenetic Modifications and their Potential Impact on Carcinogenesis	$509,201
12-015	Developing an Integrated Atmosphere-Ecosystem Model for Investigating Interactions Between Atmospheric System and Ecosystem under a Warming Climate	$260,926

12-018	Conical Slit for Probing Buried Micron or Sub-Micron Volumes for Dynamic Measurements of Heterogeneous Materials	$103,276
12-021	In-Situ Transmission X-Ray Microscopy Studies of Structure and Function in Energy Storage	$127,620
12-022	MeV-UED for Ultrafast Science	$175,653
12-023	Femto-Second X-ray Pulse Generation by Electron Beam Slicing	$115,302
12-024	Thermochemical Conversion of Biomass to Fuels and Chemicals	$376,949
12-025	Flow-Based Battery Architectures for Large-Scale Electrical Energy Storage	$641,916
12-029	Demonstration of a Grid-Wide Measurement and Control Platform for Micro-Grids	$130,372
12-032	Laser-Driven Proton Accelerator	$235,554
12-033	Water-based Liquid Scintillator Detector for Neutrino and Proton Decay Experiments	$186,023
12-034	Quantum Electrodynamics for QCD Precision Studies at the EIC	$135,460
BNL13-003	Investigating eRHIC beam-beam effects with CeC linear accelerator	$328,916
BNL13-005	Permanent magnet solution of the eRHIC with the NON-SCALING FFAG	$199,740
BNL13-013	Electrochemical reduction of carbon dioxide on surface-modified metal electrodes	$55,507
BNL13-017	A NSLS-II Workflow Prototype System for Supporting Data Intensive Beamline Experiments	$409,636
BNL13-020	Synthetic Control of Lipid Biosynthesis in Plant Vegetative Tissue	$240,015
BNL13-022	Tracking lithium electrochemical reaction in individual nanoparticles at NSLS-II	$92,561
BNL13-024	Elucidating the Role of Nanostructured Domains in CIGS PV Device Performance	$147,600
BNL13-025	A Probabilistic Approach to Sizing Battery Energy Storage Systems for Improved Grid Inertial Response	$336,101
BNL13-027	In-situ Studies of Interfaces Under Extreme Environments	$231,798
BNL13-031	Modulation Enhanced Diffraction: a new tool for powder diffraction and total scattering studies	$67,123
BNL13-032	Development of At-Wavelength Metrology Tools	$24,143
BNL13-033	Multidimensional imaging data analysis: from images to science	$12,600
BNL13-034	Atomic resolution elemental mapping using x-ray assisted STM	$18,253

	Segmented Adaptive-Gap Undulator with different period lengths in segments for production of high flux and brightness Hard x-rays	
BNL13-036	at NSLS-II	$24,481
BNL13-038	Catalysis Program in Sustainable Fuels	$143,467
	Total # of Projects for BNL : 41	
	Total Cost for BNL : $7,606,355	
	Administrative Cost Paid by Laboratory Overhead	
INL - Idaho National Lab		
I10-031	Fickian and Thermal Diffusion in Nuclear Materials from Linear Response Theory and Multiscale Simulations	$18,465
I11-000	Haptic Tele-Operated End Effector for Hazardous Environments	$281,870
I11-005	Speciation Behavior of Americium Oxidation States for the Separation of Americium from Curium in Nuclear Processing	$300,508
I11-006	Supercritical Fluid Extraction of Actinides from TRISO Reactor Fuels	$166,695
I11-007	Integration of Renewable Energy Resources through Energy Storage and SuperGrid	$244,295
I11-023	Development of a simplified soft donor technique for trivalent lanthanide actinide separations	$243,896
I11-041	In-situ micro-Raman spectroscopy and modeling of breakaway oxidation of zircaloy cladding	$99,126
I11-042	Vulnerability Prediction, Discovery and Mitigation	$390,148
I11-043	Characterization of the Nanomechanical Response of Material to Determine Key Variables in Stress Corrosion Cracking	$113,485
I11-046	"Known Secure" Sensor Measurements For Detecting Unauthorized Process Manipulation and Falsification of State	$352,454
I11-051	Alternative Processing for Improved UO2 -Based Fuels	$634,808
I11-055	Spatially Resolved Positron Analysis of Hydride Formation in LWR Fuels with GE-Global Nuclear Fuels	$246,846
I11-059	Unconventional Radiation Detection Methods for Nuclear Nonproliferation,	$326,945
I11-060	SMC Advanced Armor Materials and Systems R&D and D&D	$398,717
I11-061	Advanced Modeling and Simulation Concepts for ATR	$509,382
I11-065	Development and Demonstration for National Fuel Efficiency	$103,525
I11-066	Targeted Energy Management Toolset for Comfort and Savings Based on Advanced Computational Intelligence Techniques	$109,422
I11-074	Uncertainty Analysis for Multiscale Models of Nuclear Fuel Performance	$174,446
I11-076	Exploratory Nuclear Reactor Safety Analysis and Visualization via Integrated Topological and Geometric Techniques	$213,666

I12-001	Long Term Evolution Wireless Cyber Security	$300,308
I12-007	Uncertainty Quantification of Safety Codes using A Bayesian Approach with Data from Separate- and Integral-Effects Tests	$140,304
I12-017	Polymer components in laminate armor systems for ballistic protection	$135,062
I12-026	Protectiveness and stability of the zirconium oxide in early-phase corrosion of zirconium alloys - predictive relations to surface structure and composition	$201,307
I12-031	2-D and 3-D EBSD Technique Development and Microstructure Reconstruction for Phase Field Microstructure Evolution Models	$174,026
I12-043	Science Based Simulation Model of Human Performance for Human Reliability Analysis	$193,362
I12-045	Development of An Uncertainty Quantification Method for MIR Facility	$302,137
I12-050	Cross Section Representations for Nuclear Nonproliferation	$100,177
I12-054	Treaty Verification with Photo-Induced Prompt Signatures	$200,755
I12-056	Recovery of Precious Metals from Used Nuclear Fuel and Electronic Waste Using Sulfur-Impregnated Nanoscaffolds.	$225,181
I12-059	Chemistry and Flowsheet Development for Lanthanide Separations	$271,284
I12-061	Development of a High Burn up Zr Based Fuel Cladding for LWRs	$145,008
I12-062	Development of Diamond Based Sensors for User Facility Capabilities at INL Advanced Test Reactor	$160,324
I12-066	Electronic Energetic Initiation	$154,180
I12-070	Separate Effects Fuels Development Capability	$174,992
I12-071	Battery Resilient Monitoring and Control	$139,193
I12-073	A Nonproliferation Focused Study and Comparison of the GEANT4 Simulation Toolkit and MCNP Functionality, Accuracy, and Development Needs	$100,051
I12-077	Observation of zirconium oxidation at atomic level using non-linear optical spectroscopy	$193,495
I12-082	Resilient Monitoring, Adaptation, and Control (ReMAC) System	$359,328
I12-086	Alert/Alarm Dashboard	$99,016
I12-089	Multi-agent Analysis to Characterize Complex Infrastructure Interdependencies	$199,223
I12-090	Development of emissivity-tuned, robust encapsulated radioisotope heat sources for NASA's new advanced Radioisotope Thermo-Photovoltaic (RTPV) power system.	$346,758
I12-093	Development of unique nanomaterials for selective replacement of strategic &critical materials	$241,918
I12-095	Power Line Field Wave Analysis	$198,383

I12-096	Isolation and purification of critical metals using ionic liquid based solvent extraction	$245,256
I12-099	Designing algal biofuel consortia for increased function and reduced nutrient costs	$243,304
I12-108	Bakken Hydraulic fracturing Water Needs and Potential Impacts to the Fox Hills/Hell Creek Aquifer- a Spatial-Temporal Approach	$210,379
I12-112	Reactor Coolant Pump Alternate Can Material Development Program	$161,879
I12-113	Coupled Smoothed Particle Hydrodynamics and Discrete Element Model (SPH-DEM) Simulations of Hydraulic Fracturing and Shale Gas Production	$245,126
I12-117	Feasibility of a Broad Application Test Reactor using LEU	$499,452
I12-118	A Leap Ahead in Energy Storage - An Integrated Approach to an Inorganic High Energy Lithium Battery	$401,856
I12-120	Modeling Guided Development of Nanostructured High Energy Electrode Materials for Li-Ion Batteries	$289,631
I12-121	State Awareness for Smart Grid Electrical Load Balancing, Distribution and Security	$200,868
I13-011	Integrated Approach to Algal Biofuel, Bio-power, and Agricultural Waste Management	$199,827
I13-013	Development a micromechanistic phase-field modeling approach for life estimation and risk assesment of reactor pressure vessels	$258,956
I13-014	Aluminum Electroplating from Low Temperature Molten Bromide Salts	$158,465
I13-023	Characterization and Modeling of High Burn-up Mixed-Oxide Fuel	$103,352
I13-024	Direct Electrochemical Stabilization (DECS) of Bio-Oils	$246,153
I13-027	Diagnostics of advanced energy storage materials	$244,251
I13-029	In-Pile Detection of Crack Growth in the ATR	$400,078
I13-032	Experimental and Computational Analysis of Hydride Microstructures in Zirconium in Dry Storage Conditions	$891,944
I13-033	Magnetic Separation Nanotechnology for Spent Nuclear Fuel Recycle	$195,298
I13-035	Development of New Molten Salt Sensor Technology for Application to Safeguarding Pyroprocessing	$97,252
I13-039	Induction Based Fluidics Mass Spectrometry for Characterizing Radioactive Extraction Solvents	$125,367
I13-040	Epistemic Uncertainty Quantification in Dynamic Probabilistic Risk Assessment	$188,886
I13-045	Direct Solar Hydrogen Production using High Temperature Solid Oxide Photoelectrochemical Cells	$201,056

I13-050	Concurrent atomistic to macroscale modeling of materials under irradiation using the phase field crystal model	$336,278
I13-059	Application of Facilitated Transport Membranes using Novel Stabilized Metal Complexes	$245,936
I13-060	Metal Fluoride Preparation for AMS Analysis	$162,644
I13-065	Multi-domain Modeling, Simulation, and Integration Tools for the Dynamic Analysis and Optimization of Hybrid Energy Systems	$392,274
I13-068	Cooling in Fractured Geothermal Reservoirs: Analyses of long-term cooling in typical geothermal reservoirs and application to geothermal resource potential assessments	$200,461
I13-071	Advanced Fracture Modeling for Nuclear Fuel	$352,239
I13-074	A Nanobioreactor for Cellulose Degradation Using in vitro Synthetic Biology	$149,139
I13-079	Diverse Biological Factories for Sustainable Manufacturing	$245,205
I13-092	Fission Product Standard Productoin	$71,396
I13-093	Spectrum Allocation and Communications in Dynamic Spectrum Access Channels	$752,747
I13-095	Development and Validation of a Societal-Risk Goal for Nuclear Power Plant Safety	$85,114
I13-097	MOOSE Capability Extension In Support of Full Core Modeling	$417,823
I13-100	An Efficient System for the Production and Harvesting of Lipids from Photosynthetic Microbes	$271,643
I13-105	Micro/Nano Scale AFM-based Thermal Conductivity Measurement and Atomistic Modeling for Oxide Fuel: the effects of grain boundary, fission gas and radiation damage	$219,220
I13-106	BUILDING ORGANIC-INORGANIC HYBRID MATERIALS TO PROTECT METAL ION SEQUESTERING AGENTS FROM RADIATION-INDUCED OXIDATIVE DAMAGE.	$149,947
I13-107	Application of Chemical Heat Pumps for Temperature Amplification in Nuclear Hybrid Energy Systems for Synthetic Transportation Fuel Production	$118,749
I13-110	Nuclear-Renewables-Oil Shale Hybrid Energy System	$116,258
I13-112	High-Temperature Nuclear Co-Electrolysis for Spacecraft Cabin Air Revitalization & Liquid Fuel Production	$124,024
I13-114	Multiphase Fluid Trapping in Propped Hydraulic Fractures	$192,021
I13-115	Multi-scale full core reactor physics simulation	$507,195
I13-118	Geomagnetic Disturbance Field Coupling Measurement	$400,566
I13-120	Improved Control System Resilience via Secure Machine Learning	$271,843
I13-121	Advanced In-Situ Measurement Techniques in Treat	$301,099

I13-122	Examination of the Impacts on Water Resources from Commercialization of Fossil Energy Development in an Arid Western Basin using Integrated Hydrologic Modeling	$148,896
I13-123	Experimental Verification of Predicted Chemical Transmutation of Cesium-137 to Barium-137 vi Beta Decay in CsCl Resulting in the Radioparagenetic Formation of Rocksalt BaCl.	$14,028
	Total # of Projects for INL: 90	
	Total Cost for INL: $21,739,852	
	Total Administrative Cost: $312,476	
KCP - Kansas City Plant		
12EDGE002-704189	NSMC PDRD Project	$443
12EDGE016-704311	NSMC PDRD Project	$22,054
12EDGE017-704305	NSMC PDRD Project	$42,998
12EDGE021-704303	NSMC PDRD Project	$84,654
12EDGE025-704998	NSMC Mid-Year Call	$933,844
12EDGE028-704312	NSMC PDRD Project	$257
12EDGE029-704319	NSMC PDRD Project	$1,264
13EDGE003-704406	NSMC Project	$55,032
13EDGE004-704408	NSMC PDRD Project	$159,179
13EDGE005-704409	NSMC PDRD Project	$17,878
13EDGE006-704411	NSMC PDRD Project	$106,050
13EDGE007-704412	NSMC PDRD Project	$69,676
13EDGE008-704413	NSMC PDRD Project	$33,623
13EDGE009-704414	NSMC PDRD Project	$22,434
13EDGE010-704415	NSMC PDRD Project	$44,865
13EDGE011-704416	NSMC PDRD Project	$23,006
13EDGE012-704417	NSMC PDRD Project	$227,193
13EDGE013-704418	NSMC PDRD Project	$80,400
13EDGE015-704420	NSMC PDRD Project	$107,722
13EDGE017-704422	NSMC PDRD Proposal	$17,730
13EDGE018-704723	NSMC PDRD Project	$419,005
13EDGE019-704424	NSMC PDRD Project	$119,740
13EDGE020-704425	NSMC PDRD Project	$64,614
13EDGE021-704426	NSMC PDRD Project	$41,755
13EDGE022-704430	NSMC PDRD Project	$112,741
13EDGE023-704577	NSMC PDRD Project	$34,097
704401	13EDGE001	$61,461
704405	13EDGE002	$144,340
704439	Test Equipment Additive Manufacturing	$41,438
704451	Initial Development of Process	$97,218
704576	HOB fiber optic switch calibration	$11,757
704579	SB Glass	$4,199

704581	NSMC Mid-Year PDRD Proposal	$514,166
KCP08781-703745	Rapid Response Technology Evaluation	$143,422
KCP111048-704010	Look Ahead Sensor Development	$73
KCP111140-704058	Wear-resistant Ceramic Evaluation	$10
KCP111141-704076	Alternate Foams & Encapsulents	$73,617
KCP111151-704007	Radar Rx w/Thin Film Passives	$338,328
KCP111175-704013	LDI for Precision Graphics	$365
KCP111176-704004	Hermetically Sealed F/O	$24,938
KCP111240-704075	Micro-reactors	$850
KCP120000-704181	High Frequency Thin Film LTCC	$333,604
KCP121286-704500	KO Short Term Projects	$422,510
KCP121313-704157	Sensitive Document Potability	$1,230
KCP121325-704171	Miniature Fastener Preload	$1,947
KCP121331-704166	Glass Crack Detection	$102,396
KCP121339-704173	Material Interface Modeling	$148,397
KCP121342-704174	LA UT Piston Mass Sensing	$764
KCP121350-704192	FEA of Casting Solidification	$49,092
KCP121354-704186	Nanoparticle Solubility, Dispersion and Processability	$414,177
KCP121359-704178	High Frequency Low Loss LTCC	$354,419
KCP121366-704161	Nanofibers for Advanced Composites	$132,157
KCP121377-704208	Variable Acceleration Evaluation	$35,753
KCP121379-704213	Forging Residual Stress	$84,629
KCP121395-704215	Model Based Definition	$2,861
KCP121403-704212	Evaluation of Cathode Luminescence	$1,466
KCP121417-704168	Solid Model Mapping	$785
KCP121419-704187	Fiber Optic Cable Modeling	$3,790
KCP121524-704251	Evaluation of Laser Fab Processes	$1,498
KCP131673-704375	Safety Project Maturation	$453,894
KCP131676-704348	Acceleration Characterization	$156,405
KCP131682-704343	Elastomeric Hollow Spheres	$177,886
KCP131684-704330	GTS Laser and DeepTIG	$340,542
KCP131688-704377	Advanced Mechanical Inspection	$196,062
KCP131691-704366	SOQPSK JTA Transmitter Test	$125,965
KCP131693-704338	PDRD Transmitter Design	$73,583
KCP131697-704356	Advanced Thin Films on LTCC	$281,703
KCP131698-704357	Thin Film / Ag TKN compatib-ty	$226,714
KCP131703-704332	Additive Mfg in Encap Dev	$70,622
KCP131706-704379	Advanced Glass-Ceramic Headers	$310,715
KCP131709-704345	Low Frequency Wave Analysis	$137,971
KCP131722-704369	Physics-Based Modeling	$88,544
KCP131723-704370	Additive Manufacturing of LACs	$59,489
KCP131724-704391	ERP Software as Service	$11,245
KCP131725-704390	Cloud Computing at KCP	$51,922
KCP131727-704395	316L and 21-6-9 SS Simulation	$90,660

KCP131732-704363	MCM Complex Material Analysis	$55,327
KCP131733-704331	Additive Mfng-Dir Ink Writing	$440,621
KCP131734-704388	Glass Seal via Local Heating	$164,677
KCP131740-704384	VBG Beam Combiner	$312,686
KCP131741-704352	Additive Manuf - Metals	$840,364
KCP131751-704336	Advanced Tube Weld	$63,658
KCP131752-704361	Reversible Large Mass Launcher	$161,434
KCP131756-704362	Common Tester Arch Technology	$34,401
KCP131757-704378	Shock Column Tester	$50,413
KCP131758-704381	PT3800 Server Upgrade Research	$93,457
KCP131768-704349	HV Dielectric Testing	$72,182
KCP131897-704400	FEA of Ceramic Col. Grid Array	$114,350
KCP132045-704368	Recoil Simulation System	$73,602
KCP132064-704393	Real-Time Computed Imaging	$160,090
KCP132085-704351	Surface Motion Radar Imaging	$135,838
KCP132086-704358	Damage Evaluation	$109,708
KCP132090-704337	Laser Detection and Characterization	$114,296
Total # of Projects for KCP: 93		
Total Cost for KCP: $12,240,937		
Total Administrative Cost: $323,358		

LANL - Los Alamos National Lab		
LANL-20100063DR	CLEAN Detection & Identification of Dark Matter	$1,961,498
LANL-20100601PRD2	Unique Semiconductor Nanowire Heterostructures in Physics and Applications	$22,206
LANL-20100603PRD2	Analysis of Protein Structure-Function Relations in Antibiotic Biosynthesis and Signal Transducing Receptors	$110,173
LANL-20100604PRD2	Quantitative Modeling of Cellular Noise	$109,589
LANL-20100611PRD2	Physics of Cosmic Ray Shocks and the High Energy Universe	$133,415
LANL-20100629PRD3	Non-Condon and State Interaction Effects in Carbon Nanotubes	$14,363
LANL-20100631PRD4	Modeling the Surface Mass Balance and Freshwater Runoff from the Greenland Ice Sheet in a Changing Climate	$5,644
LANL-20100632PRD4	A New Regime of Carrier Multiplication Using Intraband Re-Excitation of Nanocrystals	$10,925
LANL-20100633PRD4	Attosecond Probing of Dynamical States in Solids - Graphene	$8,251
LANL-20100635PRD4	Heavy quarks in Cold Nuclear Matter and in the Quark Gluon Plasma	$18,765
LANL-20100636PRD4	The Formation and Evolution of Black Holes in the Universe	$83,372
LANL-20110009DR	Radioparagenesis: Robust Nuclear Waste Form Design and Novel Materials Discovery	$1,479,380
LANL-20110011DR	Hydrogen Effects in Delta-Stabilized Pu Alloys: Fundamental Thermodynamics and Interactions at Reduced Dimensionality	$1,713,243

LANL-20110012DR	First Reactions: Simple Molecule Chemistry Behind the Shock Front	$1,519,367
LANL-20110014DR	Terrestrial Vegetation, CO2 Emissions, and Climate Dynamics	$1,658,147
LANL-20110027DR	Harnessing Nonlinearity for Transformative Metamaterial Technology	$1,608,295
LANL-20110029DR	Innovative and Validated Sub-micron to Meso-scale Modeling of the Evolution of Interface Structure and Properties under Extreme Strains	$1,618,817
LANL-20110032DR	Multi-Messenger Signals from Low-Mass Supernovae	$1,408,154
LANL-20110034DR	Advanced Metagenomic Analysis to Understand Dynamics of Soil Microbial Community under Conditions of Climate Change	$1,701,553
LANL-20110043DR	Probing New Interactions with Neutron Beta Decay	$1,484,092
LANL-20110046DR	Network-Centric Quantum Communications	$1,827,584
LANL-20110051DR	Illuminating the Dark Matter of the Genome: Small RNAs as Novel Targets for Bioterrorism Countermeasures	$1,776,508
LANL-20110067DR	Exploiting Hamiltonian Properties of Beams to Revolutionize X-Ray Free-Electron Laser Architectures	$1,504,932
LANL-20110081DR	Multi-Scale Science Framework for Climate Treaty Verification: Attributing and Tracking Greenhouse Gas Fluxes Using Co-Emitted Signatures	$1,659,416
LANL-20110083DR	Next Generation Ionic Liquids for Plutonium Science, Separation, and Production	$1,389,171
LANL-20110093DR	Multi-Perspective Network-Scale Modeling & Detection for Cyber Systems	$1,658,147
LANL-20110098ER	Jet Probes of New Physics at RHIC and at the LHC	$330,085
LANL-20110108ER	Daylight Imaging with Seismic Noise	$364,417
LANL-20110126ER	Rare Category Detection	$374,884
LANL-20110138ER	Superconducting Vortices in Magnetic Media	$383,401
LANL-20110139ER	Novel Anti-Perovskite Electrolytes for Superionic Lithium Transport	$373,329
LANL-20110141ER	Exploration of Megawatt Heat Pipe Reactor Concepts	$363,631
LANL-20110150ER	Balanced and Unbalanced Turbulent Cascades	$415,769
LANL-20110166ER	Grayscale Flow Cytometry - Multicoil NMR Sensors for Portable Flow Cytometry	$388,023
LANL-20110168ER	Biofuel from Magnetic Algae	$356,150
LANL-20110181ER	Exact Renormalization Method for Frustrated Systems and Optimization	$360,808
LANL-20110184ER	Understanding Thunderstorm Effects on the Ionosphere: a New Approach to Investigate Possible Convective and Electrical Coupling Mechanisms	$355,548
LANL-20110189ER	Computational Modeling of Topo-Taxis: Directing the Motion of Bacteria and Cells with Microfabricated Topologies	$343,275

LANL-20110190ER	Understanding Earth's Deep Water Cycle: Neutron Diffraction and Calorimetric Studies of Hydrous Minerals	$387,761
LANL-20110195ER	Algorithmic Co-Design: Paradigms for Unstructured Problems on Accelerated Architectures	$349,351
LANL-20110212ER	Quasiparticle Scattering for Multiscale Modeling of Electronic Materials	$330,986
LANL-20110228ER	Time-Dependent Quantum Molecular Dynamic Simulations of Dense Plasmas Supporting Thomson X-ray Scattering Experiments	$325,889
LANL-20110230ER	Extreme Quantum Simulation: Co-Design from Desktop to Exa-Scale	$409,759
LANL-20110236ER	Solving the Active Site Conundrum in Oxygen Reduction Catalysis	$360,566
LANL-20110246ER	Innovative Process for Making Ultra-thin Dielectrics	$414,404
LANL-20110258ER	Precision Measurement of Atomic Parity Violation in Trapped Yb+	$361,373
LANL-20110264ER	High Density Neuronal Recording Using Nanowire Capacitor Sensors	$344,175
LANL-20110267ER	Full-Frame Programmable Spectral Imagers Based on Micro-Mirror Arrays	$374,929
LANL-20110290ER	Embedding Plasmonic Nanostructures at Semiconductor Interfaces for Enhancing Photovoltaic Efficiency	$373,975
LANL-20110300ER	The Largest Cosmic Implosions: Formation of Supermassive Black Holes	$340,841
LANL-20110306ER	"Listening" to the Noise of a Single Electron Spin: Methods for Fast, Ultra-sensitive, Non-perturbative Noise Spectroscopy	$345,167
LANL-20110311ER	The Terahertz Quantum Hall Effect	$349,643
LANL-20110320ER	Novel Broadband Tera Hertz Sources for Remote Sensing, Security and Spectroscopic Applications	$371,728
LANL-20110338ER	Bio-analogue Catalysts: Evolved Aptazymes for the Hydrolysis of Organophosphorous Compounds	$374,040
LANL-20110341ER	A Compact, Brilliant, Coherent X-ray Source Based on a Dense Relativistic Electron Mirror	$385,866
LANL-20110356ER	Foundational Methods and Experiments in Ultracold Molecular Physics	$480,679
LANL-20110358ER	Developing a Mild Catalytic Route for the Reduction of N2 to NH3	$381,663
LANL-20110363ER	Determination of Fluid Properties at Carbonate Interfaces - An Integrated Experimental and Theoretical Approach	$376,754
LANL-20110411ER	Restoring Neurological Function with Self-assembled Lipid Bilayers	$348,675
LANL-20110412ER	Understanding the Mechanisms of Biological Transport for Nano-technology Applications	$374,976

LANL-20110421ER	Photo-triggerable Immolative Polymers: A New Modality for Radiation Dosimetry	$370,144
LANL-20110425ER	Pyroelectric Heat Engines: Highly Efficient, Environmentally Friendly Cooling	$418,847
LANL-20110434DR	Correlations and Dynamics in Information Science	$588,519
LANL-20110435DR	Multi-scale Dynamics of Biological Systems	$465,041
LANL-20110516ECR	Identifying, Creating, and Controlling Functional Hotspots in DNA	$175,545
LANL-20110535ECR	Mechanistic Studies Toward an Improved Carbonic Anhydrase for Biofuel Production	$107,148
LANL-20110537ECR	Exploiting Non-Innocent Ligands in Catalysis: New Base Metal Catalysts for the Reduction of Carbon Dioxide	$109,922
LANL-20110542PRD1	Mechanistic Investigation of C-C Bond Forming Reactions for the Production of Long Chain Hydrocarbons	$37,963
LANL-20110544PRD1	Auger-Recombination-Free Nanocrystals by Rational Design of Confinement Potential	$28,753
LANL-20110549PRD1	Exploiting the Fermi Surface to Understand Quantum Criticality in Complex Electronic Materials	$42,108
LANL-20110556ECR	Low-Frequency Acoustic Interferometry for Probing the Stratosphere	$84,663
LANL-20110573ECR	Development of an Interface-Dislocation Dynamics Model to Incorporate the Physics of Interfaces in Predicting the Macroscopic Mechanical Properties of Nanoscale Composites	$103,580
LANL-20110575PRD1	Optimization of Heterogeneous Sensing Systems for Risk-Minimized Decision Making	$175,506
LANL-20110580PRD2	Non-aqueous Organic Materials for Bio-defense	$135,883
LANL-20110581PRD2	Metal Catalysts for Oxidation of Lignocellulose and Reduction of Carbon Dioxide	$149,792
LANL-20110583PRD2	CP Violation in Scenarios Beyond the Standard Model	$168,735
LANL-20110633PRD2	Universal Physics with Ultracold Atoms	$89,824
LANL-20110710DR	Optimization Principles for Co-Design applied to Molecular Dynamics	$1,279,228
LANL-20110711PRD2	Quantum simulations: From superconductivity to nanoscale electronics	$206,517
LANL-20110716PRD2	Multiferroic Magnetoelectric Hybrid Inorganic-Organic Frameworks	$184,524
LANL-20110735PRD2	A New Drift Shell Integration Technique for Inner Magnetospheric Space Weather Models	$76,452
LANL-20110736PRD2	Shortcuts to Adiabaticity in Quantum Devices	$226,603
LANL-20110737DR	CoCoMANS: Computational Co-design for Multi-scale Applications in the Natural Sciences	$2,305,544
LANL-20110747PRD3	"Listening" to the Noise of a Single Electron Spin: Ultra-sensitive, Non-perturbative Spin Noise Spectroscopy	$120,135

LANL-20110748PRD3	Probing the Structure of Superconducting States with Rotating Magnetic Fields	$130,553
LANL-20110749PRD3	Determining the Origin of the Highest Energy Cosmic Rays with TeV Gamma-Ray Observations	$153,543
LANL-20110750PRD3	Influence of Velocity Shear on Turbulent Magnetic Reconnection at the Earth's Magnetopause	$153,388
LANL-20110751PRD3	Novel Laboratory and Field Observations to Model Climate Warming by Aged Absorbing Aerosols	$126,800
LANL-20110752PRD3	Catalysts Containing Earth Abundant Metals for Energy Applications	$166,656
LANL-20110753PRD4	Direct Tracking of Charge Carriers in Heterostructured Nanowires	$111,825
LANL-20110754PRD4	Investigation of the electronic structure of heavy fermions using ARPES and tr-ARPES	$146,417
LANL-20110755PRD4	Probing the Nucleon Structure via Spin Observables	$63,638
LANL-20110756PRD4	Determining Physiological Predictors of Climate-driven Forest Mortality	$192,691
LANL-20110757PRD4	Data Mining for the M-Sigma Relation	$35,215
LANL-20110758PRD4	Technological Development of Green Cements by Combining Total Scattering and Advanced Multiscale Simulations	$107,937
LANL-20110759PRD4	Controlled Synthesis and SERS Responses of Metal Nanostructures with Complex Morphologies	$106,198
LANL-20120003DR	Energy Storage	$1,834,702
LANL-20120007DR	Dynamic Earthquake Triggering, Granular Physics and Earthquake Forecasting: Determining the Physical Controls	$1,647,778
LANL-20120011DR	TeV Jets: Nature's Particle Accelerators	$1,645,810
LANL-20120019DR	Organic Electronic Materials: Designing and Creating Functional Interfaces	$2,038,532
LANL-20120024DR	Plutonium-242: A National Resource for the Fundamental Understanding of 5f Electrons	$1,828,563
LANL-20120029DR	Genetically Encoded Materials: Libraries of Stimuli-responsive Polymers	$1,724,924
LANL-20120036DR	IMPACT: Integrated Modeling of Perturbations in Atmospheres for Conjunction Tracking - A New Orbital Dynamics and Drag Model to Avoid Collisions in Space	$1,795,306
LANL-20120047ER	Next Generation Earth Models	$390,813
LANL-20120053ER	Developing Potentials for Atomistic Modeling of Defect Phenomena at Metal-Ceramic Interfaces	$375,264
LANL-20120068DR	Predicting Climate Impacts and Feedbacks in the Terrestrial Arctic	$1,792,796
LANL-20120072DR	Hydrodynamical Mix Studies at the National Ignition Facility (U)	$2,060,568
LANL-20120077DR	Advancing the Fundamental Understanding of Fission (U)	$2,247,919

LANL-20120101DR	Physics Beyond the Standard Model with the Long-Baseline Neutrino Experiment	$2,268,512
LANL-20120103DR	Hierarchical Sparse Models for Robust Analysis of Video Data.	$1,911,602
LANL-20120116ER	A Time Reversal Non Contact Acoustical Source for NEWS (Nonlinear Elastic Wave Spectroscopy)	$376,784
LANL-20120123ER	Uncertainty Quantification for Networks	$377,178
LANL-20120149ER	Non-Equilibrium Fluctuation-Induced Interactions	$363,369
LANL-20120153ER	Petascale Kinetic Plasma Simulation of the Interaction Among Laser Speckles in Nonlinear Optical Systems	$352,253
LANL-20120166DR	Elucidating Humankind's Evolving Environment: From the Earth's Core to the Cosmos	$1,687,887
LANL-20120167DR	Modern Challenges in Actinide Science	$1,625,989
LANL-20120190ER	Multiscale Spacecraft Charging Simulations in Support of New Space Missions	$381,076
LANL-20120197ER	From Waste to Fuels and Feedstocks: Reduction of CO_2 Using Main-Group Catalysts	$406,941
LANL-20120200ER	Laboratory Study of Cosmically-Relevant Collisionless Shocks	$521,203
LANL-20120206ER	Separation of Time Scales at High Latitudes: Fundamental Science and Numerical Method Development	$365,664
LANL-20120218ER	Nuclear Quadrupole Resonance: From no Field to Ultra-Low Field	$319,083
LANL-20120227ER	Time-gated Super Resolution Imaging	$379,652
LANL-20120232ER	First Principles Many-Body Approaches to Strongly Correlated Actinide Metals	$379,273
LANL-20120246ER	Lanthanum Bromide Glass Ceramics for Gamma-Ray Spectroscopy	$391,959
LANL-20120247ER	Measurement of Pressure and Temperature in Thermal Explosions	$381,449
LANL-20120250ER	Are Nanoscale Foams Radiations Resistant?	$375,844
LANL-20120255ER	A Novel Mo-99 Separation Process Designed for Next Generation Medical Isotope Production	$371,765
LANL-20120256ER	Biofuel Enzymes by Design	$393,951
LANL-20120259ER	Laser-Driven Relativistic Mechanics, Radiation, and Ion Acceleration	$465,215
LANL-20120266ER	Monte Carlo for Quantum Transport	$380,325
LANL-20120278ER	Ultrafast Spectro-microscopy for Nanoscale Magnetic Domain Imaging	$358,667
LANL-20120285ER	High-Energy Segregated Fuel-Oxidizer Solid Rocket Propulsion System	$334,749
LANL-20120293ER	Majorana Neutrinos	$150,360
LANL-20120300ER	Unlocking Plasmons in Graphene	$388,938
LANL-20120314ER	Probing BSM Discoveries at the Large Hadron Collider	$319,817

LANL-20120330ER	Plasmon-Exciton Interactions in Single-Wall Carbon Nanotube – Metal Nanostructure Complexes	$426,834
LANL-20120340ER	Nonequilibrium Spin Noise in Semiconductors: Physics and Applications	$350,318
LANL-20120365ER	Novel Inverted Nanoshells for Multimodal Diagnostic Imaging and Cancer Therapy	$425,720
LANL-20120374ER	Flipping the (light) Switch on Nano-magnetism: Emergent Photomagnetization in Quantum-confined Semiconductors	$373,882
LANL-20120375ER	A Novel Exploration of Nature's Largest Explosions	$496,383
LANL-20120395ER	Transport by Thermodynamic Cross-terms in ICF Capsule Plasmas	$397,893
LANL-20120399ER	Co-Evolution of Protoplanets and Transitional Protoplanetary Disks - Pathway to Giant Exoplanet Formation	$387,703
LANL-20120400ER	Metabolic Engineering of an Algal Lipid Bioswitch	$341,954
LANL-20120443ER	Phylogenetic Classification and Analysis of Computer Malware	$409,095
LANL-20120449ER	A New Class of Antibody-like Molecules that Signal upon Binding	$455,607
LANL-20120459ER	Forensic Archaeology of a Manhattan Project Era Nuclear Site	$400,400
LANL-20120460ER	Spatial and Wavelength-diversity Lasercomm System	$42,735
LANL-20120464ER	Exploiting Metal/Organic Interfaces as Potential Bulk Heterojuntions: Unlocking the Efficiency of Organic Photovoltaics	$391,471
LANL-20120469ER	Combinatorial Approaches To Graphical Models: Theory & Applications	$367,605
LANL-20120502ECR	Advanced Materials for Exploring New Electronic and Optical Behav-iors in Single-Walled Carbon Nanotube Systems	$426,889
LANL-20120510ECR	Valence, Coordination and Reactivity at Interfaces	$187,761
LANL-20120516ECR	Plasmas of Magnetic Monopoles in Artificial Spin Ice: Designing Frustration, Engineering Magnetricity.	$213,353
LANL-20120522ECR	Gating and Emission Enhancement of Diamond Field-Emitter Arrays	$219,430
LANL-20120525ECR	Valence-Fluctuation-Mediated Superconductivity in Heavy-Fermion Materials	$240,554
LANL-20120530ECR	The Dynamic Environment of Iron Core Formation and Collapse	$142,880
LANL-20120535ER	Energy Efficient, Inducible Harvesting of Microalgae for Biofuels Production	$505,816
LANL-20120707DR	Accelerating Materials Certification through Co-Design	$1,596,939
LANL-20120708ER	Combining Information Theory and Game Theory	$267,918
LANL-20120715ECR	Understanding Energetic Ion Transport and Loss in Natural and Artificial Radiation Belts at Low Altitudes	$224,345
LANL-20120716ECR	Construction and Functionalization of Novel Biomimetic Human Liver	$276,753

LANL-20120721ECR	Enabling Temporal & Spatial Shaping of Ultra-Intense Laser Pulses for Next-Generation, Compact Particle and Radiation Sources	$275,847
LANL-20120732PRD1	Fabrication of an All-Carbon Solar Cell	$156,066
LANL-20120733PRD1	Modeling X-ray Bursts	$97,436
LANL-20120736ECR	Investigating the Itinerant to Localized Crossover of the 5f Electrons in Plutonium Alloys and Compounds	$220,437
LANL-20120737PRD1	Non-equilibrium Transport in Nanoscale Thermal Energy Harvesting	$143,328
LANL-20120738ECR	Deterministically Enhanced Monte Carlo for Radiative Transfer	$228,949
LANL-20120746PRD1	High Efficiency Upconversion of Infrared Radiation in Semiconductor-metal Nanostructures for Applications in Solar Energy	$253,212
LANL-20120747PRD1	Minority carrier devices based on concentric nanowires: Theory and Experiment	$184,891
LANL-20120748ER	Hyperspectral Intensity Correlation Interferometry	$9,681
LANL-20120749PRD2	Developing a Materials Strategy for d-electron Heavy Fermion Systems	$159,653
LANL-20120750PRD2	Chemically Modifying the Uranyl Ion	$182,156
LANL-20120751PRD2	Frustrated Materials	$209,227
LANL-20120752PRD2	Cyber Security of the Smart Grid	$136,942
LANL-20120753PRD2	Designing and Probing Novel Materials by Pressure Tuning of Nanocrystals	$227,520
LANL-20120754PRD2	Atomic Coherence with X-Ray Free-Electron Lasers	$156,984
LANL-20120755PRD2	Precision Fission Cross Section Measurements with a Time Projection Chamber (TPC)	$171,351
LANL-20120756PRD2	The Assembly of Primeval Galaxies and the Birth of the First Quasars	$152,445
LANL-20120757PRD2	Searching for Sterile Neutrinos with MircoBooNE	$158,613
LANL-20120758ECR	Large-Scale Simulations for Nuclei and Strongly-Correlated Matter	$160,896
LANL-20120759ECR	Precision Predictions for Jet Cross Sections	$163,036
LANL-20120760PRD2	Experimental and Computational Studies of Engineered Nanoparticle Aggregation in Human Tissue Models	$92,720
LANL-20120763PRD2	Quantum and Correlation Effects in High-Energy Density Plasmas.	$178,524
LANL-20120765PRD3	Functional Soft Materials by Assembling Metallo-Biopolymers	$153,022
LANL-20120766PRD3	nTuned Optical Properties of Low-Dimensional Carbon Nanomaterials for Energy Harvesting	$163,299
LANL-20120767PRD3	Edge Traffic Monitoring in Computer Networks	$144,221
LANL-20120768PRD3	3D Turbulent Magnetic Reconnection Experiments and Simulations	$187,608

LANL-20120769PRD3	Enhanced Structural Robustness in Metal/Nonmetal Nanocomposites using Bio-inspired Structure Design	$154,260
LANL-20120770PRD3	Nanoscopic Recrystalization Dynamics and Phase Behavior in Liquid Crystals and Polymers	$165,758
LANL-20120771PRD4	Measurement of Orthogonal Velocity Components using Photon Doppler Velocimetry	$138,388
LANL-20120772PRD4	The fate of the three dimensional electron far beyond the quantum limit	$135,558
LANL-20120773PRD4	The Role of Microscopic Eye Movements in Visual Perception	$126,225
LANL-20120774PRD4	Access to Industrially Important Chemical Compounds by Direct Hydrogenation of Biomass Derived Molecules Containing Carbonyl Fragments	$94,129
LANL-20120775PRD4	Using Jet Production to Investigate quark-Gluon Plasma at RHIC	$135,398
LANL-20120776PRD4	Catalytic Mechanism and Inhibition of Metallo-beta-lactamases (MBL), the Ultimate Threat Against Antibiotics.	$142,923
LANL-20130003DR	Using Microreactors for Efficient Plutonium Separations (U)	$1,688,479
LANL-20130005DR	Disruptive Innovation in Numerical Hydrodynamics	$1,353,493
LANL-20130006DR	Functional Materials by Design: Explosives with Tailored Optical Response Properties	$430,005
LANL-20130013DR	Empowering the Expert: Machine Learning with User Intelligence	$1,730,457
LANL-20130019DR	Illuminating the Origin of the Nucleon Spin	$434,521
LANL-20130026DR	Fighting Carbon with Carbon: All-Carbon Nanomaterial Photovoltaics	$1,854,154
LANL-20130030DR	Peta-scale Studies of Cosmic Explosions and Supernova Shock Breakout with Palomar Transient Factory	$1,713,660
LANL-20130052DR	Design Principles for Materials with Magnetic Functionality	$1,866,105
LANL-20130058DR	High Performance Atom-Based Sensors for Fields and Rotations	$1,740,444
LANL-20130065DR	Non-Precious Metal Electrocatalysts for Clean Energy	$1,759,175
LANL-20130082DR	First Direct Measurement of Particulate Evolution in Isochorically Heated Dense Plasma (U)	$450,096
LANL-20130086DR	Alternative Explosives Signatures for Detection	$200,072
LANL-20130091DR	Maximizing Flux through Engineered Metabolic Pathways	$1,757,070
LANL-20130118DR	Phase Stability of Multi-Component Nanocomposites under Irradiation	$1,753,896
LANL-20130121DR	Battlefield MRI	$1,718,592
LANL-20130150DR	Discovery Science of Hydraulic-fracturing: Developing Innovative Concepts for Novel Working Fluids and Their Interactions with Rocks, Fractures, and High Value Hydrocarbons	$442,012
LANL-20130183DR	Defeating Bacterial Multi-Drug Resistance: An Experimentally Driven Multi-Scale Study of Efflux Machinery	$459,290

LANL-20130232ER	3-Dimensional Characterization of Nuclear Fuels: Microstructural Evolution under Representative Temperature and Thermal Gradients	$366,959
LANL-20130239ER	Label-Free Measurement of Single Cells by Impedance Cytometry in a Microfluidic Device	$489,936
LANL-20130242ER	Quantum Hydrodynamics Approach to Non-equilibrium Modeling of Compressed Plasmas	$100,779
LANL-20130244ER	A Computationally Efficient Model for Warm Dense Mixtures	$324,621
LANL-20130252ER	Software/Hardware Mapping for Data Locality Optimization	$372,616
LANL-20130265ER	Contextual Learning and Recognition	$382,694
LANL-20130285ER	Very Low Temperature Scanning Point Contact Spectroscopy Investigation of Inhomogeneous States on the Nano-scale.	$490,497
LANL-20130297ER	A New Hypothesis to Explain the Variability of the Outer Radiation Belt: Can we Predict Post-storm Fluxes of Energetic Electrons Based only on Pre-storm Fluxes of the Lower-energy Population?	$357,625
LANL-20130309ER	Excited State Quantum Interactions in Carbon Nanotubes	$458,284
LANL-20130319ER	Multidisciplinary Studies of Long Non-coding RNAs: towards a Structural Basis for RNA in Epigenetics	$337,302
LANL-20130334ER	A New Approach to Multiscale Plasma Physics Simulations	$388,754
LANL-20130335ER	Microfluidic Uranium Enrichment through Electrochemically Driven Solvent Extraction	$199,512
LANL-20130348ER	Enhancing Thermoelectric Properties of Topological Insulators through Nanostructuring	$343,699
LANL-20130350ER	"Upscaling" Nanoscale Thermoelectrics: The Meso-macroscale Design Challenge for Real-World Energy Needs	$452,092
LANL-20130385ER	Giving Cold Atoms Weight: creating Heavy Fermions in Optical Lattices	$379,632
LANL-20130409ER	Topology in Superposition: Quantum Decoherence in Many-body Systems	$363,543
LANL-20130416ER	Threat Reduction via Nanomaterials: Engineering a Novel SERS Platform for Chemical Detection	$311,380
LANL-20130418ER	Physics-Based Data Models and Architecture-Optimized Backends for a Portable Data-Parallel Computation Library	$444,032
LANL-20130442ER	How Trees Die: Multi-scale Studies of Carbon Starvation and Hydraulic Failure during Drought	$382,016
LANL-20130457ER	Co-Design of Burst Buffer Hardware and Data Analysis/Visualization Software for Large-Scale Simulations	$390,980
LANL-20130463ER	Ultra-Bright Electron Beam Acceleration in Dielectric Wake Accelerators	$396,413
LANL-20130487ER	Pyrocumulus Collapse: Unpredicted Wildfire Dangers	$393,613
LANL-20130503ER	Toward Laser Manipulation and Quantum Control of Th-229 Nuclei Embedded in a Solid	$199,663

LANL-20130504ER	Validating Near-Ideal Data Throughput Using a Rate-Compatible Protocol	$266,972
LANL-20130517ER	Accurate Interfacial Structures for Atomistic Simulations: Minimizing the Grand-Canonical Free Energy	$345,906
LANL-20130525ER	Understanding and Controlling Magneto-Electric Coupling in Multiferroic Materials	$389,695
LANL-20130527ER	High Performance Thin Film Super Capacitors	$328,363
LANL-20130554ER	Utilization of Conducting Polymers for Embedded Electrical Circuits (U)	$271,013
LANL-20130558ER	Sparse, Distributed, and Robust Network Control	$390,287
LANL-20130564ER	Wide Field-of-View Plasma Spectrometer	$321,448
LANL-20130590ER	Biocatalysts for Remediation of Uranium Wastes	$386,105
LANL-20130601ER	Phase Transitions at Extremes: Emergence of Topological Defects	$461,028
LANL-20130620ER	Structure Determination of Large and Membrane-Bound Proteins by Nuclear Magnetic Resonance (NMR) Spectroscopy	$378,600
LANL-20130624ER	Magnetic Nanomarker Detection and Imaging with SQUIDs	$391,419
LANL-20130626ER	Beyond the Standard Halo	$372,977
LANL-20130632ER	Coherent Diffractive Imaging of Ultrafast Ejecta Processes	$441,836
LANL-20130637ER	In Search of Light WIMPs	$378,989
LANL-20130672ER	Redox active Catalysts for C-C Coupling Reactions Relevant to Renewable Energy	$374,570
LANL-20130679ER	Electron Capture Spectroscopy for Neutrino Mass: Isotopes, Science, and Technology Development	$512,948
LANL-20130681ER	Novel Chemical Architectures for Supercapacitor Electrolytes: Comparing In Situ Scattering Measurements to Theory and Simulation	$374,204
LANL-20130688ER	Emittance-Reduction System for Future Accelerator Solutions	$323,728
LANL-20130727DR	Quantum Chemistry, Information, Materials and Metrology	$639,848
LANL-20130728DR	Non-Equilibrium Phenomena in Materials, Fluids, and Climate	$920,175
LANL-20130733ECR	The World's First Drought and Insect Caused Global Tree Mortality Monitoring System	$149,339
LANL-20130737ECR	From Troposphere to Ionosphere: How Much do Thunderstorms Disturb the Total Electron Distribution?	$178,705
LANL-20130738ECR	Room Temperature Oxidation and Corrosion of Plutonium	$170,528
LANL-20130744ECR	First Principle Study of Relativistic Beam and Plasma Physics Enabled by Enhanced Particle-In-Cell Capability	$51,890
LANL-20130745ECR	Novel Mesoscale Modeling Approach for Investigating Energetically Driven Nanoscale Defect/Interface Interactions	$165,326
LANL-20130749ECR	Stochastic Modeling of Phase Transitions in Strongly Interacting Quantum Systems	$162,642

LANL-20130755ECR	Magnetic Field Effects on Convection-Modified Solid-Liquid Interfaces	$168,083
LANL-20130757ECR	Understanding The Catalytic Conversion of Oligosaccharides to Fuels and Chemical Feedstocks.	$164,186
LANL-20130758ECR	Answer to Heavy Element Production Puzzle by Measuring Neutron-induced Charged Particles at LANSCE	$170,787
LANL-20130764ECR	Effects of Joining Processes on Bimetal Interface Content and Radiation Damage Resistance	$172,146
LANL-20130765ER	Nonlinear Resonances between DNA and THz Radiation	$189,540
LANL-20130766ER	Smart Grid Control and Optimization	$189,007
LANL-20130767ER	Materials Study for Small Self-Regulating Fission Reactor System for Space Applications	$399,770
LANL-20130772ECR	Probing Interface Reactions of Calcite Nanocrystals at Elevated Temperatures and Pressures	$151,115
LANL-20130777PRD1	Extending the Time-Scale of Protein Simulations using Accelerated Molecular Dynamics Techniques	$89,314
LANL-20130778PRD1	Stimuli Responsive, Functional Biopolymers: Quinic Acid-Based Polymers and Their Assemblies	$113,041
LANL-20130779PRD1	Single Cell Genomics for Better Control of Plant Pathogens	$51,802
LANL-20130780PRD1	NMR Study of Quantum States of Matter	$40,714
LANL-20130781PRD1	Electronic and Photonic Transport in Chiral Materials and Nanostructures	$42,055
LANL-20130782PRD2	Exploring Doubly Parasitic Radioisotope Production Via Secondary Neutron Fluence From the 100 MeV IPF Irradiations	$139,861
LANL-20130783PRD2	Theoretical investigation of nucleon and nuclear structure at very high energies	$126,354
LANL-20130785PRD2	Efficient Carbon Nanotube Growth on Graphene-Metal Surfaces	$92,492
LANL-20130786ER	Development of a Novel Algorithm to Generate User-Defined Databases of Genomic Signatures	$95,538
LANL-20130787PRD2	Hybrid Nanostructures for Photoreduction of CO_2 to Hydrocarbons	$31,234
LANL-20130788PRD2	Alternating Positive-Negative Charge Systems: New Compounds and Synthetic Routes	$9,168
LANL-20130789PRD2	The Intersection of the Energy, the Intensity, and the Cosmic Frontiers in the era of the Large Hadron Collider and XENON experiments	$18,320
LANL-20130790PRD2	Graphene Quantum Dots for Carrier-Multiplication-Enhanced Solar Cells	$60,084
LANL-20130791ER	Toward Development of a Uniquely Specific and Sensitive Detection Technology	$100,000
LANL-20130792PRD2	Mixing and Diffusion in Granular Flows	$61,035
LANL-20130793ER	Stable Uranium Benzyne Complex	$139,130

LANL-20130794PRD2	Boosting New Physics Discoveries with Jet Substructure	$6,112
LANL-20130795ER	Neutron Sensor based on Integrated Scintillator and Photodiode	$106,308
LANL-20130796PRD2	Microstructured Biohybrid Synthesis of Photosynthetic Assemblies	$15,504
LANL-20130798ER	Multi-Phenomenology Explosion Monitoring (MultiPEM)	$103,343
LANL-20130799ER	Time Reversal Acoustic Communications for Rescue Operations	$105,947
LANL-20130800ER	Climate Impacts Research through Large Remote-Sensing Datasets	$96,121
LANL-20130801ER	Remote Raman-LIBS Spectroscopy: Preliminary Tests for the Next Mars Rover	$77,935
LANL-20130802ER	Biomarkers for the 'Signature Wound' of Iraq and Afghanistan: Traumatic Brain Injury	$119,601
LANL-20130803ER	Characterization of Products from Hydrolysis of UF6	$24,049
LANL-20130804PRD3	Photoactive energetic materials for quantum optical control	$25,866
LANL-20130806PRD3	Poly-Triphenylamine-Functionalized Graphene Quantum Dots for Flexible High-Performance Polymeric Memory Devices	$17,724
LANL-20130807PRD3	Joint Inversions of Seismic and Gravity Data in Volcanic Areas to Advance Hazards Assessment: A Focus on the Alaskan Subduction Zone and Kilauea, Hawaii	$6,740
LANL-20130809ER	Re-invigorating LANL Quantum Computing Research	$136,627
LANL-20130810ER	Integrated Biosurveillance	$280,580
LANL-20130811ER	pRad Measurements of Meteorites	$56,803
LANL-20130812PRD3	Understanding and Controlling Magnetism in Multiferroics with THz Pulses	$11,613
LANL-20139999ER	Post-project Debits and Credits	$637,659
	Total # of Projects for LANL: 301	
	Total Cost for LANL: $142,116,797	
	Total Administrative Cost: $3,508,655	
LBNL - L. Berkeley National Lab		
LB11004	Scientific Tools in Multi-Dimensional X-ray Spectroscopy and Coherent Diffractive Imaging	$350,133
LB11007	Effect of Secondary Mineral Coatings on Biogeochemical Processes	$268,170
LB11010	Lattice QCD Codes by Discretizing Time and Space	$297,796
LB11011	CyanoAlkanes: Engineering Cyanobacteria for Phototrophic Production of Advanced Biofuels	$232,995
LB11013	Attosecond XUV Condensed-Matter Science: Electronic Wavefunction Coherence &amp; Correlated Dynamics	$152,510
LB11016	Effects of low dose radiation on communities of epithelial cells as a function of age.	$254,723

LB11018	Next Generation Computing for X-Ray Science	$266,069
LB11019	Probing the Partonic Structure of Protons and Nuclei with Isolated Photons at the LHC	$172,586
LB11020	New Opportunities in Hard X-ray Tomography- High Temperature and Elemental Imaging	$172,335
LB11021	Guiding LBNL low-carbon technology development with life-cycle energy and impacts analyses	$625,703
LB11025	Nyx: The Lyman Alpha Forest Cosmology Simulator	$195,681
LB11033	Enabling Structural Systems Biology at NGLS	$409,002
LB11034	Testing a New Carbon Sequestration Strategy for Biofuel Crop Soils	$166,014
LB11035	Experimental realization of a high-harmonics-seeded, laser-plasma-accelerator driven free-electron laser	$292,604
LB11038	High voltage up and down converters for low power low density detector instrumentation	$139,164
LB11042	Feasibility and Development of Fluctuation Xray Scattering at the NGLS	$257,864
LB11043	Defining an Ecosystem to Support Data -Intensive Science	$149,445
LB11044	Interactions among Cloud Processes, Convection, and Climate Change	$295,943
LB11045	Modeling desert soil crust microbial community response to pulsed climate events.	$386,339
LB12001	Global transcriptome, deletome and proteome profiling of yeast exposed to radioactive metal ions: a tool to distinguish radiation-induced damage from chemical toxicity	$208,500
LB12002	Grazing Incident Soft X-ray Scattering of Organic Photovoltaics	$120,499
LB12004	Developing a mechanistic high-latitude biological soil carbon and nitrogen cycle module for site, regional and global land models	$129,279
LB12005	High-throughput isolation and functional screening (HIFS) of microbes relevant to today's carbon cycling and bioenergy needs	$109,032
LB12006	Photo-switchable Metal Organic Frameworks for CO2 Sequestration	$150,968
LB12007	Soft X-Ray Spectroscopy for In-situ Electronic Structure Study of Artificial Photosynthesis.	$124,812
LB12008	Measuring Vertical Profiles of Atmospheric Pollutants using High Altitude Meteorological Balloons	$124,593
LB12009	Optimization-based Strategy for Computational Design of Nanoporous Carbon-Zero Materials	$166,350
LB12010	Elementary Organometallic Reactions in a Protein Matrix	$208,486
LB12012	Simulating Astrophysical Explosions through High Performance Computing	$204,979

LB12015	Revolutionizing genome sequencing of unculturable microorganisms: Development of a high-throughput pipeline for targeted single-cell genome amplification	$112,043
LB12017	Computational, data management and analysis methods for the study of a rapidly expanding genome and metagenome sequence data space	$272,714
LB12019	Electron Microscopy With Vortex Beams Carrying Orbital Angular Momentum	$102,620
LB12020	Developing f-electron Soft X-ray Spectroscopy Simulation, Theory, and Experiment for Clean Energy Materials	$351,000
LB12021	Quantitative Image Analysis for Computational Modeling	$149,605
LB12023	Combining machine learning and high performance computing to discover novel enzymes	$186,517
LB12024	Numerical Algorithms and Mathematical Software Tools for Computational Material Science and Chemistry	$99,264
LB12025	X-ray Spectroscopy of Electrified Interfaces	$415,977
LB12026	Low Cost Aqueous Sodium Ion Cells for Grid Applications	$178,222
LB12027	DNA DIVA (Design, Implementation, Verification Automation) pipeline	$293,532
LB12028	Exploiting Nanowire Surface States for Solar-Spectrum-Matched Plasmon-Enhanced Water Splitting	$232,938
LB12029	A Multi-Investigator Approach Towards Chemoenzymatic Catalysis	$218,991
LB12030	Oxidative Transformations of Organic Aerosol	$169,761
LB12032	Ultrafast Spin and Magnetization Dynamics in Nanoscale Magnetic Structures	$125,126
LB12033	Template Assisted Assembly of Monodisperse Discotic Phases as Highly Tunable Electronic Materials	$131,464
LB12034	Computational Methods for X-ray Free-Electron Laser Studies of Solar Energy Converting Biocomplexes	$105,519
LB12035	Interlinkage of Cross-Disciplinary Mathematical Technologies	$460,724
LB12038	Free Electron Laser Soft X-ray Self-Seeding	$720,015
LB12040	New Monolithic CMOS Sensors on a Fully Isolated Substrate	$314,549
LB13001	Probing Point Defect Dynamics in Solids with Short Ion Beam Pulses	$445,029
LB13002	Magnetic-Field-Induced and Transient Quantum Phases in Correlated Materials	$249,092
LB13003	Studying the emergence of electronic correlations with time- and momentum-resolved RIXS	$182,944
LB13004	Next generation gratings for spectroscopy and pulse compression	$303,715
LB13005	Asymmetric responses of systems far from equilibrium	$177,615
LB13006	Ultrafast x-ray studies of interfacial charge transfer processes	$360,124

LB13007	High-Performance Parallel Graph-Analysis for Key Genomics Computations	$221,642
LB13008	Modeling Subsurface Reactive Transport Processes from Mineral Surface-to-Pore-to-Continuum	$279,715
LB13009	Towards an end-to-end solution for light source data	$378,068
LB13010	Computational approaches to understanding ultrafast science (Alvarez fellowship)	$183,843
LB13011	LIGTT Integrated LDRD Proposal Part 4. Saving Lives with Low-Power Medical Devices	$307,286
LB13012	Stick-on Electricity Meters: Low Installed Cost Building Sub-Meters for Commercial and Industrial Energy Efficiency	$189,493
LB13013	Integrated Assessment Capability for Sustainable Water-Energy Co-Management	$302,444
LB13014	LIGTT Integrated LDRD Proposal Part 1. The Design and Evaluation of an Inexpensive, Fuel-Efficient and Super Low-Emissions Biomass Cookstove	$197,492
LB13015	Urban Scale Energy Grid Modeling	$302,394
LB13016	A Novel Nanoscale Chemical Analysis System for Low-Cost Solar Materials	$142,140
LB13017	Integrative mapping of soil heterogeneity at the microbial scale	$646,231
LB13018	Isotopic Probe of Ion Migration Processes in Li-ion Batteries	$142,017
LB13019	Nanoparticles-Stabilized Supercritical CO_2 Microemulsions: Developing a New Technology for CO_2-Enhanced Oil Recovery	$155,938
LB13020	Development of biosensors for high-throughput functional screening of biosynthetic pathways	$110,234
LB13021	Function-Based Approaches for Distant-Acting Enhancer Discovery	$234,132
LB13022	Developing epigenomic technologies to interrogate genome functions relevant for environment and bioenergy	$187,630
LB13023	Integrated Imaging of Microbial Community Response to External Threats	$523,000
LB13024	Development of Protein (Co-)Localization Atlases at Multiple Scales in Eukaryotes	$546,500
LB13025	Exciton Visualization and Engineering in Organic Materials for Energy Conversion	$243,276
LB13026	Integrated Tools for Next Generation Bioimaging	$237,560
LB13027	Probing Dynamics of Electron Transfer for Microbial-based Energy Interconversion	$263,365
LB13028	Functional Genomic Encyclopedia of Bacteria and Archaea: Evidence-Based Annotation of the Microbial Tree of Life	$352,210
LB13029	Simultaneous Inverse Beam Anomalous Diffraction (SINBAD)	$167,445

LB13030	Optimizing plant-microbe interactions for sustainable supply of nitrogen for bioenergy crops	$370,601
LB13031	Synchrotron X-Ray Footprinting: A Step Beyond Standard Structural Techniques in Revealing Protein Interactions and Dynamics	$144,343
LB13032	Transforming Infrared Astronomy with Nanostructured IR Filters	$277,399
LB13033	Higher Performance CCDs for Next Generation Dark Energy Experiments	$245,893
LB13034	Electrostatic nanoscale-mesoscale coupling to discover design rules for energy materials	$213,767
LB13035	Rational Design Approach to the Formation of Hybrid Framework Materials	$440,239
LB13036	New algorithms for performing and analyzing large-scale electronic structure calculations	$281,273
LB13037	4D Dynamics of Epigenome Regulation in Response to Environmental Challenges	$481,057
LB13038	Ultra-high resolution microscopy of nano-materials by scanning x-ray diffraction microscopy	$85,993
LB13039	SOLVATION AND DESOLVATION WITH ARTIFICIAL SEI FILMS	$120,643
LB13040	Search and synthesis of the next generation of topological insulators	$35,642
LB13041	Using experiments and numerical models to examine ecosystem and land management interactions with atmosphere and climate	$240,715
LB13042	Superconductor Undulators for Light Sources	$335,978
LB13043	Generative Design Methods for Integration of Energy and Sustainability in Early-Stage Architectural Design	$77,550
LB13044	Tropical Forest Ecosystems under a Changing Climate	$109,994
LB13045	Creating the vehicle-to-grid simulation (V2G-Sim) platform for predicting the impact and optimally integrating plug-in electric vehicles on the electricity grid	$30,556
LB13046	Initial CNNS Measurements at the Spallation Neutron Source at ORNL	$64,448
	Total # of Projects for LBNL: 94	
	Total Cost for LBNL: $22,861,820	
	Administrative Cost Paid by Laboratory Overhead	
LLNL - L. Livermore National Lab		
10-ERD-057	Multi-Scale Polymer Flows and Drag Reduction	$63,900
10-ERD-058	Fundamental Research in Advanced Quantum Simulation Algorithms	$50,880

11-ERD-011	Fundamental Chemical Behavior of Superheavy Elements through Applications of Online Isotope Production and Automated Chemical Systems	$405,900
11-ERD-012	A Rapid Response System for Toxin Removal	$329,420
11-ERD-015	Coherence-Preserving X-Ray Adaptive Optics	$828,240
11-ERD-016	Innate Immunity for Biodefense: Targeted Immune-Modulation to Counter Emerging Threats	$875,480
11-ERD-017	Advanced Algorithm Technology for Exascale Multi-Physics Simulation	$1,096,000
11-ERD-022	Compressive Sensing for Wide-Area Surveillance	$329,370
11-ERD-023	Modeling of Microstructural Processes in Tungsten-Based Alloys for Fusion Applications	$582,320
11-ERD-026	Chemical-Vapor-Modified Laser-Based Damage Mitigation and Surface Shaping of Fused Silica	$1,488,370
11-ERD-027	Unraveling of Assembly and Structure¿Function Relationships of Poxviruses	$207,280
11-ERD-028	Data Abstractions for Portable High-Performance Computing	$378,670
11-ERD-030	Understanding the Stochastic Nature of Laser-Induced Damage	$902,860
11-ERD-033	Temperature-Dependent Lattice Dynamics and Stabilization of High-Temperature Phases from First-Principles Theory	$369,090
11-ERD-035	Adaptive Sampling Theory for Very-High-Throughput Data Streams	$331,450
11-ERD-036	Fundamentals of Figure Control and Fracture-Free Finishing for High-Aspect-Ratio Laser Optics	$1,333,470
11-ERD-037	Rapid Development and Generation of Affinity Reagents for Emerging Host¿Pathogen Interactions	$367,440
11-ERD-039	Hydrogen Melting and Metallization at High Density	$289,460
11-ERD-044	Quantification of Carbon-14 by Optical Spectrometry	$326,410
11-ERD-046	Pressure-Induced Melt, Nucleation, and Growth: Fundamental Science and Novel Technological Materials	$418,710
11-ERD-048	Images and Spectra of Extrasolar Planets from Advanced Adaptive Optics	$447,180
11-ERD-050	Dynamics of Ultrafast Heated Matter	$361,550
11-ERD-051	Imaging for Use in a Verification Regime	$324,380
11-ERD-052	Ultrafast, Sensitive Gamma and Neutron Detectors	$774,150
11-ERD-053	Land-Use Impacts on Belowground Carbon Turnover and Ecosystem Carbon Dioxide Source Attribution Using Radiocarbon	$399,530
11-ERD-054	Astrophysical Collision-less Shock Generation by Laser-Driven Laboratory Experiments	$238,260
11-ERD-058	Control of Impulsive Heat Loads in Tokamaks: Measurements and Modeling	$494,980
11-ERD-060	Targeted Drug Delivery for Treating Traumatic Bone Injury	$438,670

11-ERD-061	Resonantly Detected Photo-Acoustic Raman Spectroscopy as a New Analytical Method and Micro-Volume Probe	$234,770
11-ERD-063	Investigation of Fast Z-Pinches for Scalable, Large-Current and High-Gradient Particle Accelerators	$490,680
11-ERD-066	Accelerator and Secondary-Ion Mass Spectrometry for Analysis of Coastal Carbon Flux	$339,230
11-ERD-067	Detonation Performance of Improvised Explosives via Reactive Flow Simulations and Diamond Anvil Experiments	$310,140
11-ERD-069	Nuclear Plasma Physics	$480,640
11-ERD-073	Ab Initio Study of the Water¿Semiconductor Interface for Photo-Electrochemical Hydrogen Production	$253,300
11-ERD-075	The Role of Plasma Electromagnetic Fields in Anomalous Mass Diffusion: Applications to High-Energy-Density Science	$383,310
11-ERD-076	Large-Scale Energy System Models: Optimization Under Uncertainty	$1,196,670
11-LW-018	Prenatal Exposure to Endocrine-Disrupting Compounds Found in the Water Supply	$114,470
11-LW-019	Development of an Economically Viable Biological Hydrogen-Production System	$125,990
11-SI-002	Advanced Inertial Fusion Target Designs and Experiments for Transformative Energy Applications	$746,190
11-SI-004	Target Components for Ensuring Survival during Flight into a Laser Inertial Fusion Reaction Chamber	$1,188,280
11-SI-005	Scalable High-Volume Micro-Manufacturing Techniques for Three-Dimensional Mesoscale Components	$2,514,560
11-SI-006	Creating Optimal Fracture Networks for Energy Extraction	$1,757,870
12-ERD-005	Asteroid Deflection	$612,770
12-ERD-013	Novel Rare Earth Permanent Magnets	$576,930
12-ERD-016	Secure Virtual Network Enclaves	$162,450
12-ERD-020	First-Principles Materials Characterization and Optimization for Ultralow-Noise Superconducting Qubits	$272,630
12-ERD-021	Probing Atomic-Scale Transient Phenomena Using High-Intensity X Rays	$347,650
12-ERD-022	Computational Gyro-Landau Fluid Model for Tokamak Edge Plasmas	$444,460
12-ERD-023	High-Fluence, Multi-Pulse Laser Surface Damage: Absorbers, Mechanisms, and Mitigation	$1,372,550
12-ERD-024	Network Simulation and Its Applications	$900,810
12-ERD-026	An Open Framework to Explore Node-Level Programming Models for Exascale Architectures	$351,070
12-ERD-027	A Scalable Topological Quantum Device	$293,100
12-ERD-030	High-Order Curvilinear Arbitrary Lagrangian-Eulerian Hydrodynamics	$733,840
12-ERD-031	Dynamical Imaging of Biomolecular Interactions	$917,270

12-ERD-032	Hydrogen Ice Layers for Inertial-Confinement Fusion Targets	$1,057,700
12-ERD-033	Efficient and Accurate Meta-Genomics Search Using a k-mer Index Stored in Persistent Memory	$481,040
12-ERD-035	Dynamically Tunable Nanometer-Scale Materials: From Atomic-Scale Processes to Macroscopic Properties	$478,090
12-ERD-038	Automatic Complexity Reduction with Application to Electromagnetic Effects Simulation	$248,050
12-ERD-040	Novel Multiple-Gigahertz Electron Beams for Advanced X-Ray and Gamma-Ray Light Sources	$1,907,770
12-ERD-041	Ionic Dopant Pairs for High-Fluence Filters	$830,350
12-ERD-042	Strength in Metals at Ultrahigh Strain Rates	$390,270
12-ERD-043	A New Approach for Reducing Uncertainty in Biospheric Carbon Dioxide Flux	$304,390
12-ERD-046	Predicting Weapon Headspace Gas Atmosphere for Modeling Component Compatibility and Aging	$490,230
12-ERD-047	A Model-Reduction Approach to Line-By-Line Calculations for Opacity Codes	$326,740
12-ERD-048	A Linearly Scalable Algorithm for First-Principles Molecular Dynamics at Exascale	$348,660
12-ERD-049	Modulating Cellular Autophagy to Combat Bacterial Pathogens	$366,580
12-ERD-050	Laser Lethality Experimentation, Modeling, and Simulation Capability	$702,440
12-ERD-051	Forward Path to Discovery at the Large Hadron Collider	$227,510
12-ERD-052	Equation of State of Polymers under Extreme Conditions with Quantum Accuracy	$410,720
12-ERD-053	Multi-Scale Capabilities for Exploring Transport Phenomena in Batteries	$486,200
12-ERD-055	Multilayer Thin-Film Science for Core Missions	$430,690
12-ERD-057	Compton-Scattering Optimization for Ultra-Narrowband Nuclear Photonics Applications	$332,570
12-ERD-058	Early-Phase Hydrodynamic Instability Development in National Ignition Facility Capsules	$475,550
12-ERD-060	The Next Generation of Gamma-Ray Sources: Dual Isotope Notch Observation	$485,410
12-ERD-061	Theory and Simulation of Large-Amplitude Electron Plasma and Ion Acoustic Waves with an Innovative Vlasov Code	$906,140
12-ERD-062	Pair-Plasma Creation Using the National Ignition Facility	$411,240
12-ERD-064	Predictive Models for Target Response during Penetration	$386,230
12-ERD-065	Sub-Wavelength Plasmon Laser	$360,710
12-ERD-066	New Energetic Materials	$241,820
12-ERD-069	Forecasting and Uncertainty Quantification of Power from Intermittent Renewable Energy Sources	$613,690
12-ERD-071	OPSEC AWARE	$610,180

12-ERD-072	Determining the Coulomb Potential in Electronic Structure Calculations	$133,710
12-ERD-073	Carbon Nanometer-Scale Membrane Channels	$410,300
12-ERD-074	Applying High-Performance Computing and Simulation to Future Energy Challenges	$284,020
12-LW-008	Comprehensive Study and Treatment of Major Depressive Disorder Using Electrical and Chemical Methods	$262,170
12-LW-009	High-Precision Test of the Gravitational Inverse-Square Law with an Atom Interferometer	$264,170
12-LW-014	Volume Collapse: Finger on the Pulse of f-Type Electrons	$258,550
12-LW-026	Physics beyond Feynman	$257,990
12-LW-030	Increasing the Lifetime of Rechargeable Batteries	$251,390
12-LW-043	Super-Strained Three-Dimensional Semiconductors	$246,240
12-SI-002	Materials for Inertial Fusion Energy Reactors	$646,410
12-SI-004	Computational Advancements in Countermeasures for Emerging Bio-Threats	$1,687,670
12-SI-005	Transport Properties of Dense Plasmas and a New Hybrid Simulation Technique for Matter at Extreme Conditions	$1,921,460
12-SI-007	Extreme Compression Science	$1,594,260
12-SI-008	Ultrahigh Burn-Up Nuclear Fuels	$1,248,430
13-ERD-002	Coupled Segmentation of Industrial Computed Tomographic Images	$665,310
13-ERD-004	A Three-Dimensional Radioisotope Battery	$124,160
13-ERD-009	Micro-Reflector Array for High-Speed Directed Light-Field Projection	$261,610
13-ERD-016	Low-Energy-Threshold Phonon Detectors for Coherent Neutrino Scattering	$450,250
13-ERD-020	Detection of Novel Infectious Agents from Clinical Samples through Immunoglobulin M and Toll-Like Receptor Capture	$261,920
13-ERD-022	Rapid Synthesis, Functionalization, and Assembly of Nanometer-Scale Particles for Designer Materials	$298,340
13-ERD-023	Illuminating the Dark Universe with the Sequoia Supercomputer	$356,910
13-ERD-025	Data-Centric Computing Architecture	$1,143,360
13-ERD-029	Reactive Materials for Hydraulic Fracturing	$679,550
13-ERD-030	Unraveling the Physics of Nanometer-Scale Fluidic Phenomena at the Single-Molecule Level	$305,280
13-ERD-031	Fast Running Codes via High-Fidelity Reduced-Order Models	$396,130
13-ERD-032	Selecting Better Models for Climate Change Detection and Attribution	$198,110
13-ERD-033	Neutron Star Science with the Nuclear Spectroscopic Telescope Array	$232,950
13-ERD-035	Whole-Heart Modeling on High-Performance Computing Systems	$481,670

13-ERD-036	Radiochemical Measurements of Nuclear Reactions at the National Ignition Facility	$708,670
13-ERD-037	Optimized Diode-Pumped Alkali Lasers for National Security Applications	$469,360
13-ERD-038	Complex Electronic Structure of Rare Earth Activators in Scintillators	$598,870
13-ERD-040	Specialty Optical Fibers for Unique National Missions	$100,200
13-ERD-042	Optimizing Drug Efficacy through Pharmacogenomics-Driven Personalized Therapy	$585,810
13-ERD-043	Large-Scale Integrated Electric Transmission and Distribution Grid Dynamic Simulation	$787,960
13-ERD-044	Theoretical and Computational Studies of Rare Earth Substitutes: A Test Bed for Accelerated Materials Development	$454,100
13-ERD-045	In Vitro Chip-Based Human Brain Investigational Platform (iCHIP)	$1,595,950
13-ERD-046	A Hybrid Content- and Concept-Based Approach to Large-Scale Video Analytics	$863,280
13-ERD-047	Simulation of Engineering Fracture and Fragmentation	$131,690
13-ERD-048	Hard X-Ray Mirrors for Nuclear Security	$453,200
13-ERD-051	High-Explosive Components Using Advanced Manufacturing Methods	$627,350
13-ERD-055	Task Mapping on Complex Computer Network Topologies for Improved Performance	$344,630
13-ERD-056	Next Generation Process for Tritium Recovery from Fusion Power Plant Blankets	$210,170
13-ERD-057	Optimized Three-Dimensional Electrodes for Energy Storage	$372,460
13-ERD-058	Transient Loading Effects on Structural Materials for Laser Inertial Fusion Energy	$745,640
13-ERD-059	Miniaturized Satellite Constellations for Intelligence, Surveillance, and Reconnaissance Applications	$1,159,890
13-ERD-062	Dynamic Predictive Analytics Approach to Comprehensive Nuclear Forensic Analysis	$693,300
13-ERD-063	Measuring Dark Energy with the Large Synoptic Survey Telescope	$325,550
13-ERD-067	Quantum Monte Carlo Benchmarks for Materials on Demand	$272,960
13-ERD-072	Scalable, Revealing Factorizations of Directed Graphs and Hypergraphs	$593,890
13-ERD-073	Generation and Characterization of Matter at Extreme Gigabar Pressures at the National Ignition Facility	$337,390
13-ERD-078	Strength and Phase Transformation Kinetics under Dynamic Compression	$313,110
13-FS-002	Leveraging Computer Log Analytics to Understand Application Input/Output	$99,770

13-FS-005	First Measurement of Low-Energy Nuclear Recoils In Liquid Argon?Enabling a New Technique for Nuclear Reactor Monitoring	$96,370
13-FS-006	Enhancing Laser-Driven Ion Beams by Self-Guiding of Intense and Ultrashort Laser Pulses in Plasma	$79,210
13-FS-007	Determining Capabilities of Natural-Abundance Radiocarbon Carbon Dioxide Analyses in Biogeochemistry Research	$99,590
13-FS-008	Demonstrating a Laser Beam Combiner for Simulating High-Yield Nuclear Events	$84,540
13-FS-010	Dual-Volume Cryogenic Hydrogen Storage for Automobiles	$123,840
13-FS-011	Coupled Computer Code for Modeling Ultrahigh-Intensity X-Ray Interactions with Matter	$52,870
13-LW-003	Why Is Nuclear Matter So Red?	$69,620
13-LW-004	Search for Metallic Hydrogen: An Advanced First-Principles Study	$281,730
13-LW-031	Nanometer-Scale Porous Designer Materials	$244,570
13-LW-032	Wonder-Bugs and the Carbon Cycle: Characterizing the Carbon Metabolism of Thaumarchaeota	$183,150
13-LW-048	Experimental and Ab Initio Theoretical Search for Lanthanide Covalency for Enhanced Rare Earth Separations	$283,450
13-LW-065	Electromagnetic Manipulation of Nuclear Decay	$263,720
13-LW-066	Manipulation of Surface Plasmon Resonance by Programmable Nanometer-Scale Particle Assemblies	$259,480
13-LW-076	A Compact, Femtosecond Hard X-Ray Source for Materials Characterization and High-Energy-Density Science	$264,030
13-LW-085	Simulated Opening of the Glutamate Receptor for Enabling Alzheimer's Treatment	$254,880
13-LW-099	Transformative Catalysts for Nonconventional Feedstocks	$237,500
13-SI-001	Giga-Shot Optical Laser Damage	$1,559,750
13-SI-002	Accelerated Certification for Additively Manufactured Metals	$3,011,830
13-SI-004	Continuous Network Cartography	$1,789,730
	Total # of Projects for LLNL: 152	
	Total Cost for LLNL: $83,293,400	
	Total Administrative Cost: $1,946,030	

NNSS - Nevada National Security Site		
J1701023	Ultrafast All-Optical Framing Technology	$239,887
J1701063	Electron Mobility Measurements in Scintillator Materials	$202,212
J1701083	Study of Radiation-Induced Refractive Index Change in GaN for Ultrafast Scintillator Applications	$184,890
J1701093	Development of an X-ray Radar Imaging Technique for 3-D Scene Scanning	$263,184
J1701142	Independently Triggerable Linear-Transformer Driver for Short, Multi-Pulse Radiography	$26,328

J1701172	Passive Imaging of Warhead-like Configurations with Cosmic-Ray Muon Tracking Scanners	$4,702
J1701191	Ultrafast Electron Diffraction for Shock Physics Phase Transition Studies	$14,394
J1701223	Solid-state Neutron Detectors using Uranium Oxides	$191,495
J1701303	DPF Magnetic Mirror Experiment	$251,806
J1701322	Back-Thinned Silicon Radiation Detector Readout	$84,727
J1701332	Advanced high-speed 16-bit digitizer system	$3,135
J1701342	Pulse-Mode Spiral Neutron Detector	$26,785
J1701382	Electron Mobility Study in Scintillator Material	$1,249
J1702012	Ultrafast High-Quantum Efficiency Microstructured Photocathodes for Advanced Sensors	$6,240
J1702033	Quantification for Signals with Poisson-Gaussian Mixed Noise	$275,361
J1702072	Radiation Hard AlGaN Imager and Electronics	$771
J1702142	High-Efficiency Solid-State Thermal Neutron Detector and Imaging System	$17,598
J1703013	MPDV and Large Data-set Statistics	$242,041
J1703113	Quantifying Uncertainty and Error Propagation in Radiography Image Processing	$241,755
J1703212	Uncertainty estimation techniques for high-density 1-D mPDV imaging diagnostic	$5,332
J1703223	Neutron Resonance Spectroscopy	$244,681
J1703333	Plastic Deformation Study Using Light Gas Gun	$267,982
J1704083	Hand-held Directional Gamma Ray Radioisotope Identifier	$206,912
J1704102	Electronic Veto and Software Partitioning of Cosmic Neutrons	$3,129
J1705033	Ejecta Breakup Dynamics	$192,524
J1705053	Understanding Damage Anomalies in Shocked Metals	$251,966
J1705081	Three Dimensional Nanoparticle Enhancement of Scintillation	$17,035
J1705082	Ejecta Transport Chemistry	$4,660
J1705093	Detection of Phase Transitions and Effusivity Changes through Isobaric Heating of Shock Compressed Materials	$260,466
J1705103	Passive Method to Characterize Atmospheric Turbulence	$169,160
J1705193	An Experimental and Theoretical Investigation into the Chemical Properties of Uranium and Thorium Ions in the Gas-Phase and on Surfaces	$217,678
J1705253	Chemically Activated Quiescent Persistent Sensors	$229,168
J1705333	Secure Sensor Networks using Direct-Sequence Spread-Spectrum	$381,511
J1705412	Time-resolved Hyperspectral Fluorescence Spectroscopy using Frequency Modulated Excitation--Applications	$5,478

J1705433	Covariance Processing of Asymmetry of Compton Crosstalk for Directional Sensing	$129,016
J1705513	Time-resolved Hyperspectral Frequency Modulated Spectroscopy: Raman Scattering and DFT of Excited States	$151,276
J1705592	Wi-Fi Exploitation From An Embedded System	$2,520
J1705622	Large Area Graphene PANI Neutron Detector	$19,595
J1706012	New Hybrid TDMA/CSMA Wireless Mesh Networks (WMN) for Secure Smart Grid Communication	$2,730
J1706042	Miniaturized Multi-Band Antenna Design via Element Colocation and Inductive Feed Loading	$7,836
J1706043	Power Automation System (PAS) Vulnerability Assessment in Smart Grid	$218,551
J1706063	Novel Deployment of Elpasolites as a Dual Gamma Neutron Directional Detector	$214,718
J1706182	Low Cost Cerium Bromide Alloys	$36,315
J1707013	Solid-state IR Fast Streak Based on Beam Deflection	$186,426
J170FS13	Feasibility Study - FY13 - Ionosphere model development	$26,420
	Total # of Projects for NNSS : 45	
	Total Cost for NNSS : $5,731,645	
	Total Administrative Cost: $864,140	
NREL - National Renewable Energy Lab		
6001001	Program Management	$183,414
6001099	Program Peer Reviews	$26,647
6271201	A Genetic Engineering Approach to Improve Flocculation of Green Algae for Biofuel Production	$276,936
6271202	An Integrated Biohybrid Approach for Photocatalytic Production of Higher Alcohols	$189,127
6271301	Synthetic TCA Cycle for Photobiological Production of Ethylene from Cyanobacteria	$80,268
062C1201	High-Fidelity Computational Modeling of Wind-Turbine Structural Dynamics	$232,913
062C1301	Integrated Energy Management and Analysis for the ESIF's Computational Systems	$224,781
062C1302	Novel Visualization and Analysis for Extreme-Scale Wind Turbine Array Simulations	$238,630
6501101	Wind Turbine Array Fluid Dynamic and Aero-Elastic Simulations	$266,077
6511003	Comprehensive Pyrolysis Oil and Pyrolysis Oil-Based Fuels Characterization Using 2-Dimensional GC/GC/MS	$52,210
6511101	Computational and Experimental Design of Catalysts for Lignin Depolymerization	$264,580
6511201	Engineering Zymomonas mobilis for Anaerobic Production of Hydrocarbons from Lignocellulosic Biomass	$359,466

6511202	Hydrocarbon and Coke Forming Reactions of Biomass Oxygenates on Zeolites and Hierarchical Zeolites	$192,270
6511203	Low-Temperature High Selectivity Process for Gasoline Synthesis via Biomass Gasification	$232,519
6511301	Two-Component Signal Systems in Nitrogen Assimilation: Increasing Algal Lipid Productivities through Pathway Engineering	$315,220
6511302	Computational Glycobiology and Glycomics: A New Frontier for Protein Engineering	$128,506
6511303	Computational-Experimental Approach towards Shape-Controlled Metal Carbide and Metal Nitride Nanocrystal Catalysts for Deoxygenation and Upgrading of Biomass Intermediates	$180,328
6511304	Selective and Efficient Deoxygenation of Biomass-Derived Intermediates to Produce Hydrocarbons Using a Novel Electrochemical Reactor and Electrocatalysts	$278,505
6511305	Enhanced Computational Approaches to Elucidate Mechanisms of Enzyme Catalysis	$134,430
6521201	Cu2ZnSn(S,Se)4 Photovoltaic Devices Developed with Atomic Layer Deposition	$286,153
6521202	Engineering Nanoionic Interfaces by PLD for Energy Conversion and Storage	$241,699
6521301	Low-Cost Silicon Carbide on Compliant Substrates by Hot-Wire Chemical Vapor Deposition	$163,559
6521302	Lattice-Matched III-Vs on Si for Low-Cost, High-Efficiency Concentrating Photovoltaics	$225,332
6521303	Enhanced Photovoltaic Performance of Cu2ZnSnS4 (CZTS) Heterojunctions: An Interfacial Engineering Approach	$73,288
6541102	Improving Performance of Lithium-Ion Batteries Using Nanostructured Electrode	$98,890
6541201	Life Monitoring and Control Technologies for Vehicle- and Grid-Integrated Energy Storage Systems	$270,864
6551201	Modeling and Experimental Studies of the Interfacial Effects of Confined and Suspended Nanoparticles	$195,684
6551202	Toward Building Design Optimization under Uncertainty	$125,908
6551301	Community-Scale Residential Energy Analysis	$158,418
6591102	Synthesis of Uniform Graphene Based Materials with Controlled Electronic Structure for Catalyst and Photovoltaic Applications	$239,436
6591103	Ionic Liquid Electrodeposition Process of Cu-Sn-Zn-S-Se Thin Films for Solar Cells	$268,041
6591201	Direct Morphological and Compositional Control of Platinum Group Metal Thin-Film Catalysts by Atomic Layer Deposition	$344,509
6591202	New Concept for Hot Carrier Solar Cell	$186,383

6591203	Photomaterials by Design for Photoelectrochemical Water Splitting	$374,207
6591204	Stretch Catalysis: Electrochemistry and Electrocatalysts of Stretched Transition Metal Complexes and Clusters	$237,417
6591301	Light-Stimulated Epitaxy of Amber LEDs	$324,813
6591302	Developing Polymeric Nanocomposites for Inexpensive Thermoelectricity Generation	$304,635
6591303	Structure Prediction for Improving Charge Transport Through Electronic Materials Formed from Nanoparticles	$193,670
6591304	Heterometallic Polynuclear Clusters for Catalytic Water Oxidation	$162,768
6591305	Linear Multicomponent Nanoparticle Chains for Water Splitting Applications	$229,743
6591306	Spectroscopy of conduction Band States of Quantum Dots	$91,191
6641201	Automated Analysis of Renewable Energy Datasets	$163,157
6641203	Incorporating Water Resource(s) Availability as a Constraint for Modeling Energy Generation in Capacity Expansion Models	$189,605
6641204	Campus Energy Models for Control and Performance Validation	$533,843
6641301	Fundamentally Accelerating the Simulation of Bulk Power System Operation	$267,176
6671201	Consumer Behavior Change in the Federal Fleet	$159,408
06RF1201	Advancing Solar Photoconversion through a Study of Long-Range Energy Transfer	$359,158
	Total # of Projects for NREL: 47	
	Total Cost for NREL: $10,325,782	
	Total Administrative Cost: 190,288	
ORNL - Oak Ridge National Lab		
5594	Direct catalytic conversion of ethanol to hydrocarbons - a first principles theoretical and experimental study	$59,997
5604	Novel Resistive Plate Avalanche Chamber for Neutron Detection	$30,367
5608	Fundamentals of ionic conductivity in polymeric materials for energy storage applications: How to decouple ionic motions from segmental dynamics	$71,270
5641	Advanced Bioprocessing for Sustainable Biorefinery Technology Development	$49,865
5659	Real-Time Simulation of Power Grid Disruptions	$315,222
5665	Distributed Computational Framework for Massive Heterogeneous Data Fusion	$11,208
5685	Modeling Long-term Population Resettlement under Climate Change Scenarios	$47,913

5699	Incorporating Molecular-Scale Mechanisms Stabilizing Soil Organic Carbon into Terrestrial Carbon Cycle Models	$64,988
5716	Why coatings work: Nanoscale view of high voltage cathode surfaces	$39,993
5740	Material Degradation Phenomena and Mitigation For Nuclear Energy Systems	$59,750
5801	Unraveling the molecular and biochemical basis of crassulacean acid metabolism (CAM) in Agave for sustainable biofuel production	$55,629
5913	Studies of charge particle emitters at the limits of bound nuclei	$4,155
5957	Separation of Carbon Dioxide from Flue Gases	$2,986
5965	Thermopower at the Atomic Scale	$109,700
5977	Bacterial Iron and Uranium Redox Cycling in the Contaminated Subsurface	$544,473
5982	Adaptive Target-Tracking in Multipath Scenarios	$86,792
5983	Novel nanotoxicology studies using noninvasive real-time microscopy and spectroscopy for physical and chemical characterization of materials and live	$126,369
6008	Novel Covalent Organic Frameworks with Tailored Carbon Capture Functionality	$330,517
6026	Optimization of ORNL Neutron Sources to Meet National Mission Needs	$341,404
6041	Fully-virtualized Computational Energy Infrastructure Model for Improved Cyber Resilience	$876,210
6055	Automated Software Tools for Engineering Quantum Computers	$325,092
6060	A hierarchical regional modeling framework for decadal-scale hydro-climatic predictions and impact assessments	$368,862
6068	Data-Driven Grid Threat Radar for Local-to-Regional Energy-Grid Stability	$908,593
6070	Synthetic metabolic pathways for bioconversion of lignin and biomass inhibitors	$425,448
6073	Lignin-based High Performance Li-Ion Anode Materials Synthesized from Low-Cost Renewable Resources	$357,533
6085	Experimental Test of an Innovative Intense RF-Plasma Source	$480,696
6090	Conversion of lignin feedstock into an economic automotive grade carbon fiber	$350,522
6105	Understanding Used Nuclear Fuel Cladding Performance Characteristics During Very Long-Term Storage Through Coupled Experiments and Simulations	$377,966
6129	An Hydraulically Isolated Fuels and Materials Irradiation Capability for HFIR	$541,794

6146	Science of the Plasma-Materials Interface at Extreme Conditions	$350,106
6160	Integrated Computational Modeling and Innovative Processing to Eliminate Rare Earths from Wrought Magnesium Alloys	$340,132
6172	Improving energy efficiency in thermoelectric materials by integrating neutron scattering with supercomputing and modeling.	$329,208
6175	Template Assisted Bicontinuous 3D Electrode Architecture for Energy Storage Materials	$397,542
6195	Coupled Simulation of Surface-Subsurface Hydrologic Processes and Ecosystem and Climate Feedbacks: From Arctic Landscapes to the Continental U.S.	$373,419
6217	High-Throughput Transcriptomics for Microbial Bioforensic Analysis	$334,554
6232	Integrative Signaling Modules Guiding Plants Response To Environmental Stresses	$62,821
6233	Development of the Neutron Based Biomembranes Initiative at NScD	$78,359
6234	A New Current-Source Boost Inverter Based Smart Power Electronic Interface for Connected Photovoltaic Applications	$71,111
6237	Development Approach for Linking Glass Composition and Structure to Long-Term Performance	$116,941
6241	High Energy Rechargeable Magnesium Batteries Based on Nanostructured Materials	$279,555
6244	Demonstration of Electric Vehicle Dynamic On-Road Wireless Power Charging	$438,296
6245	An Accurate and Efficient Computational Methodology for Simulating Disordered Nanoscale Materials	$191,369
6256	Development of a Thermal-Hydraulics Simulation Tool for High-Fidelity Analysis of Transients in Small Modular Reactors	$94,589
6257	Zeolite Membranes for the capture of Krypton and Recovery of Xenon from Voloxidation and Dissolver Off-Gas	$74,555
6259	Determination of Coating Mechanical Properties using In-Situ High Temperature Digital Holographic Imaging	$79,638
6262	Electrochemical Energy Storage in Solutions of Renewable Organic Quinonoid Species for Energy Dense Flow Batteries	$85,554
6267	A Generalized Mathematical and Computational Framework for Predictive Simulation of Complex Stochastic Systems	$159,381
6268	Perception-Driven Decision Support in Medical Imaging	$363,961
6271	New Capabilities for Neutron-Based Biomembrane Research at ORNL	$377,789
6345	Rare Earth Free Magnets: Compute, Create, Characterize	$44,422

6347	Quantum Monte Carlo Development and Applications in Materials Science	$228,905
6348	Universal Sensing Platform for Autonomous Data Correction in Building Technologies	$61,844
6352	A Fast Neutron Strategy for Creating Deletion Mutant Populations of Sphagnum Spp.	$28,940
6353	Secondary Coordination Sphere Effects in Catalyst Design	$339,658
6361	Toward Scalable Algorithms for Kinetic Equations: A New Hybrid Approach to Capturing Multiscale Phenomena	$385,368
6362	Probing the Structure-Function Relationship of Protein Kinase A	$261,568
6368	A novel uncertainty quantification paradigm for enabling massively scalable predictions of complex stochastic simulations	$375,720
6380	A comprehensive theoretical/numerical tool for electron transport in mesoscale-heterostructures	$312,397
6384	Distributed Enterprise-Level cyber-PHysical Intelligence (DELPHI	$377,815
6389	Advanced Mitigation of Ion Beam Space-Charge	$243,781
6404	Hybridizing HPC: Modern Cray Architectures for Big Data Problems	$695,335
6408	Hardware/Software Resilience Co-Design Tools for Extreme-scale High-Performance Computing	$409,565
6414	Assembly of functional microbial communities	$364,368
6420	Detecting Malicious Network Behaviors At Scale	$354,884
6427	Interactive Analysis of High Throughput, Unstructured Information Streams	$511,914
6428	Structural Biology of Metabolic and Signaling Pathways in Plants	$371,158
6436	Developing Grazing Incident Small-Angle Neutron Scattering for Studying the Interplay between Amyloid-beta Peptide and Cholesterol in Lipid Bilayers	$291,308
6442	Lignin Fractionation and Purification with Nanoporous Inorganic Membranes for High Strength Structural Carbon Fiber and Value-Added Co-Products	$249,943
6450	Stochastic parameterization of the influence of subgrid scale land heterogeneity on convection in a climate model.	$356,128
6463	Development Testing and Evaluation of Resilient Control Techniques for Cyber-Defense of Real-Time Control Systems	$320,489
6468	Development of carbon fiber based products from natural and modified plant lignin	$209,537
6469	New Measurement Technology for Physical and Biological Characterization of Fundamental Carbon Cycle Processes in the Subsurface Environment	$379,855

6471	Diabatic Void Fraction Measurements in Channels with Small Hydraulic Diameters using Neutron Imaging	$296,146
6472	High-voltage Electrode Development for a neutron Electric Dipole Moment Experiment at the SNS	$345,268
6477	Model-Inspired Science Priorities for Evaluating Tropical Ecosystem Response to Climate Change	$304,790
6481	Improved Metagenomic Analysis with Confidence Quantification for Biosurveillance of Novel and Man-made Threats	$319,568
6500	High-Flux Nanoporous Graphene Membranes for the Desalination of Water	$332,007
6502	Nondestructive Evaluation on Hydrided Zr Cladding by In-situ Neutron Scattering and Tomography of Hydrogen	$266,700
6508	Quantum state stabilization for unbiased random number generation	$334,697
6509	Single-Crystal and Single-Crystal-Like Graphene in Large-Areas for Electronic and Energy Applications	$428,797
6512	Automated Computation of Microchip Behavior	$389,912
6521	Synthesis and Characterization of Novel Two-Dimensional Mesoscale Organic Nanomembranes	$321,088
6528	Advanced Modeling & Simulation to Support High Performance Research Reactor Conversions to Low Enriched Uranium	$360,537
6544	Understanding and controlling the nano- to mesoscale evolution of structure and function in electroactive molecules during thin film formation	$589,163
6546	Process Control and Optimization for Additive Manufacturing by Integrated Computational Materials Engineering	$310,433
6551	Lignin-Based Carbon Fiber Composites Manufacturing Processes Investigation	$271,799
6552	Meso-scale Liquid Confinement Systems for Enhanced Bioseparations and Bioconversion Strategies	$274,637
6558	Low-Cost, Multi-Sensor Wireless Platform for Smart Buildings	$413,010
6562	Low-cost tailored carbon nanocomposite for polymer additive manufacturing	$379,858
6565	Towards a Resilient and Scalable Infrastructure for Big Data	$338,599
6566	Thermonuclear Supernova Simulation: Towards Increased Physical Fidelity to Calibrate the Dark Energy Standard Candle	$41,547
6567	High Spatial and Temporal Resolution Particle Detectors	$100,158
6576	Emergent quasi-particles and their detection through neutron scattering	$192,420
6581	High-throughput, Energy-Efficient System for Obtaining Highly Textured, Large-Crystal Materials	$379,963

6584	Elucidating & Developing Spillover Catalysis: A New Paradigm for Predictive Catalysis	$351,358
6587	Experimental Studies and Theoretical Modeling of the Spin Dynamics in a Multiferroic Material	$129,795
6616	High Throughput Genetic System Development	$79,640
6618	I/O Coordination to Improve Application Performance Stability on Exa-scale Platforms	$85,505
6619	Strigolactones in the Woody Bioenergy Crop Populus	$69,902
6620	Biofuel Production from Multiple Agave Species	$57,591
6621	Optimization of Light Collection Efficiency from Liquefied Noble Gases	$30,019
6623	Joining Neutron Scattering and Simulations towards Improved Lipid Models Ring	$93,760
6624	High-Rate High-Capacity Reversible Multielectron Cathodes	$39,952
6625	Multigrid Algorithm for K-Version Finite Element Method"	$132,989
6627	Systems Approach to Steganalysis	$106,396
6630	Inexpensive Efficient Hybrid Neutron Sensor	$6,498
6631	Towards High Performance, Earth Abundant, Thin Film Cu2O-based Solar Cells	$99,996
6632	In situ Study of Magnetoelastic Coupling in Magnetic Shape Memory Alloys	$110,297
6633	Digital Hydraulic Actuator	$116,600
6634	Image Analysis for Calibration and Comparison of Hyperspectral Retina Fundus Camera Data and Ocular Phenomena	$39,137
6635	Prototype of Compact Calorimeter Module for Beam Test	$89,934
6636	The role of geometric structures and hydrodynamics on microbial adhesion and colonization	$67,049
6637	High-Performance Computer Simulation Study of the Mechanism of Nerve Agent Degradation by an Enzymatic Bioscavenger	$117,426
6638	Blue-Energy Harvesting by ORNL Mesoporous Carbon Electrodes	$4,957
6639	Detection and characterization of meso- and nanoscopic bubbles on patterned and native metal surfaces using neutron small-angle scattering and reflectivity techniques	$73,828
6640	Development of high performance lithium-ion hybrid ultracapacitors	$124,303
6641	Adaptive Emissivity Surface using Sub-Pixel Averaging	$169,987
6642	Machine Vision for Underwater Explosive Ordinance Detection	$14,948
6644	Fabrication of Self-Assembled Superstructures of Opto-Electronic Polymers in	$114,250

6645	Inverse Sensitivity/Uncertainty Methods Development for Nuclear Fuel Cycle	$159,868
6646	Development of fiber reinforced composite thermoelectric materials with enhanced reliability and performance	$162,333
6649	Titanium/Graphite/Graphene Composite Friction Materials	$169,946
6654	Advancing Lignin-based Carbon Fibers from Lab Scale into the Commercial Market	$402,307
6655	Synthesis of the Heaviest Atomic Nuclei in Experiments Using Californium Targets	$355,820
6668	Stimuli-responsive polymer materials with switchable interfaces	$206,927
6669	Printed Engines to Enable Characterization of Combustion Processes of Small-scale Internal Combustion Engines	$185,388
6671	Artificial Antennae: Investigating the Optical Properties of Fluorescent Metallic Nanocluster Assemblies in order to Harvest Solar Energy	$229,574
6673	Secure two factor authentication using quantum random numbers and enhanced hashing	$119,940
6674	A Distribution-Oblivious Scalable Approach for Large-Scale Scientific Data Processing	$122,397
6675	Attacking the Supernova Problem: Nonlinear Moment Models for Simulated Neutrino Radiation	$190,288
6676	Enabling GPU and Multithreaded Concurrency in Denovoa's Method of Characteristics Solver for Reactor Analysis and Nuclear Applications	$189,995
6677	Synthesis & Wire Development of Iron-based Selenide Superconductors	$185,385
6678	Method for Fiber Path Length Alignment to Enable Coherent Combination of High-Power Fiber Laser Sources	$29,577
6679	Performance and Reliability Enhancement of Concrete Confinement Structures for Nuclear Applications through Improved Concrete/Steel Interfacial Bonding	$120,486
6680	Hardware Implementation of Space-time coding for WiMAX Protocol	$30,021
6684	Corrosion prevention of magnesium alloys via surface conversion treatments using ionic liquids	$130,337
6685	Lanthanide separations for industry applications of rare earth radioisotopes	$72,385
6715	Synthesis of Tin-Doped Indium Oxide Nanofibers	$80,212
6717	NEMO Code Enhancement for Vector Sensor Towed Array Signal Processing	$46,301
6735	Reducing Environmental Impacts of Hydrofracturing by Subsurface Co-Precipitation of Barium and Radium.	$220,385
6736	Pulsed Magnetic fields for Neutron Measurements	$66,442

6741	Exploration of Superconductivity in Non-layered Three-dimensional (3D) Materials for Potential High-field Magnet Applications	$139,531
6743	Computational Design of Soft Matter Materials	$56,725
6745	Expanding ORNL neutron capabilities by increasing spatial resolution at the HFIR CG-1D neutron imaging prototype beamline and co-registering imaging and diffraction data	$242,845
6746	Butanol Production from Multiple Agave Species	$34,030
6757	Intelligent Supervisory Power Management Control in PEVs	$69,956
6761	Large Scale, Out of the Oven Additive Manufacturing	$374,566
6762	Materials under extreme conditions: ion beam irradiation	$64,565
6763	Development of ultrafast high peak power mode-locked broad-area diode laser	$29,997
6764	Renewable Hydrogen Production from Biomass Pyrolysis Waste	$188,653
6765	Superconductor shielded triangular magnets for spin encoding in elastic neutron scattering applications	$27,990
6766	High-Throughput, Super-Selective Membranes to Improve Biofuel Economics	$129,852
6767	Toward Improved Understanding of HGMS Separation for Aerosol Particle Collection	$157,818
6768	Effect of high static magnetic fields on the microstructure of heat-treated, nodular cast iron	$19,818
6781	A New Integrated Signaling-Encryption Technique to Reduce Error Propagation in Wireless Communications	$34,968
6782	Complexity Reduction Code Package for Reactor Physics Modeling and Simulation of Reactor Systems	$143,377
6783	Application of Plenoptic Computational Photography to Improve Off-Axis Iris Recognition	$29,975
6784	A sacrificial coating system for Mg alloys	$107,559
6788	Passive impact resistant battery electrolytes	$30,031
6791	Investigation of Underwater Bulk Detection of Explosives Using Neutron Interrogation	$24,244
6901	Laser based diagnostics for characterizing materials exposed to a plasma environment.	$138,000
6917	To the Nation's Health: Computational Na	$282,319
7041	Rapid and Highly Fieldable Viral Diagnostics	$155,454
7042	Algorithm Resilience with Respect to Hardware Error	$55,375
7043	Operationally Focused Active Learning in Cyber-Security	$39,985
7044	Chaotic Controller Enabling High-Power Scalability of Fiber Sources	$46,702
7054	Novel tubular battery with solid electrolyte membrane	$81,590
7055	Adaptive OFDM Radar Waveform Design for Enhanced Target Detection and Discrimination	$109,837

7066	Shaping High Power Diode Laser for High Efficiency Spin Exchange Optical Pumping (SEOP)	$27,101
7069	The role of surface oxygen vacancies in perovskite oxide catalysis	$6,986
7073	New protocols for user authentication and key distribution for Smart Grid applications using Physical Unclonable Functions	$4,987
7074	Oxygen stabilized flame propogation to improve SI engine efficiency and performance	$4,995
7075	A new approach to electrochemical noise analysis to understand and monitor localized corrosion	$22,053
7076	Standoff Trace Chemical Sensing using Two-Dimensional Ion Dip Spectroscopy	$33,300
7077	Sulfur Trioxide Point Measurements Via Regenerable Fiber Tip Luminescence	$34,172
7085	Scalable Malware Repository (Pico) and Analysis Platform (Concordia)	$14,952
7088	Mechanical Testing and Characterization of Irradiated Concrete Structures for Light Water Reactor Life Extension Analysis	$3,029
7105	Large Time Scale Atomistic Modeling of Metallic Glasses Deformation	$41,985
7115	First principles study of the influence of disordered dopants on the electronic structure of materials	$15,379
7149	Production of renewable hydrocarbon fuels from Saccharomyces cerevisiae	$183,650
7150	Revealing the Functionality of Nanomaterials for Energy Applications at the Atomic Scale	$188,029
7177	Selectively Probing Femtosecond Excited State Dynamics at the Surface of Semiconductor Nanowires using Time-Resolved Sum Frequency Generation	$4,384
	Total # of Projects for ORNL: 182	
	Total Cost for ORNL: $35,333,388	
	Total Administrative Cost: $229,661	
PNNL - Pacific Northwest National Lab		
PN10011/2253	Combining Proteomic Technologies to Create a Platform for Spatiotemporal Enzyme Activity Profiling	$246,349
PN10026/2268	Development of Preparative Mass Spectrometry for the Creation of Novel Catalyst Materials	$59,893
PN10038/2280	Fundamentals of Carbonate Formation: Interactions of Carbon Dioxide with Supported Metal Oxide Clusters	$127,707
PN10050/2292	Light Source Photocathode Performance and Development	$168,340

PN10055/2297	Micro-Fluidic Models for Studying Microbial Communities-- Integration of Micro-Fluidic Model Experimentation, Multimodal Imaging, and Modeling	$261,500
PN10058/2300	Molecular Structure and Interaction at Aqueous, Non-Aqueous Liquid Interfaces and Catalytic Solid Surfaces	$127,618
PN10067/2309	Predicting the Feasibility of Geologic Co-Sequestration of CO_2, SOx and NOx Under a Broad Range of Conditions	$119,161
PN10069/2311	Proteomics Measurements of Functional Redundancy and Stability Testing of Cellulose Degrading Anaerobic Microbial Communities Within Engineered Bioreactors	$32,943
PN10079/2321	Visualizing Uncertainty in Conceptual and Numerical Models for Geological Sequestration	$99,172
PN11001/2323	A Multi-Modal Integration Framework for Chemical Imaging	$511,377
PN11002/2324	A Distributed Systems Architecture for the Power Grid	$223,699
PN11004/2326	A Statistical State Prediction Methodology to Improve Reliability and Efficiency of Power System Operation	$196,304
PN11011/2333	Characterization of Signaling Networks in Single Cells	$214,742
PN11012/2334	Chemical Imaging Analysis of Environmental Particles	$302,462
PN11013/2335	Compressive Sensing for Threat Detection	$57,681
PN11014/2336	Conversion of Biomass to Jet Fuels	$10,079
PN11015/2337	Correlative High Resolution Imaging and Spectroscopy to Characterize the Structure and Biogeochemical Function of Microbial Biofilms	$298,094
PN11019/2341	Data-Intensive Algorithms for Bioinformatics-Inspired Signal Detection	$36,842
PN11020/2342	Decision Support for Future Power Grid Organizations	$210,955
PN11021/2343	Developing Functionality and Performance Enhancements to the Global Array Toolkit	$211,440
PN11025/2347	Development of Coupled Flow, Thermal and Geomechanical Capability for Carbon Sequestration	$240,420
PN11028/2350	Development of New Soft Ionization Mass Spectrometry Approaches for Spatial Imaging of Complex Chemical and Biological Systems	$390,259
PN11030/2352	Development of Parallel Multi-Reference Coupled Cluster Capabilities	$255,225
PN11032/2354	Enabling the Meaningful Exploitation of Integrated Regional Earth Systems Data	$231,948
PN11035/2357	Facet Specific Chemistry of Noble Metal Nanoparticles Using an Enhanced Scattering Infrared Scattering Near-Field Optical Microscope	$334,986
PN11036/2358	Geological Sequestration Software Suite Framework	$299,883
PN11040/2362	In Situ Molecular-Scale Investigations of Reactions between Supercritical CO_2 and Minerals Relevant to Geological Carbon Storage	$369,754

PN11041/2363	Increased Sensitivity and Improved Quantification of Th and U in Particles by SIMS	$150,355
PN11043/2365	Integrated Nano-Scale Imaging for Investigating Applications and Implications of Nanomaterials	$200,425
PN11045/2367	Intelligent Networked Sensors Capable of Autonomous, Adaptive Operations in the Electric Power System	$248,821
PN11046/2368	Linear Algebra Solvers and Associated Matrix-Vector Kernels for Power Grid Simulations	$65,437
PN11049/2371	Mapping Molecular Dynamics Algorithmic Parallelism to Heterogeneous Architectures	$159,824
PN11052/2374	Microbial Processes Accompanying Deep Geologic CO2 Sequestration	$139,245
PN11053/2375	Modeling of Distributed Energy Resources in the Smart Grid	$220,589
PN11054/2376	Multi-Resolution Data Model and Directed Data Reduction, Reconstruction and Aggregation	$188,694
PN11056/2378	Nanoscale-Macroscale Three-Dimensional Integration Using High Performance Computing	$219,315
PN11061/2383	Photocathode Development for Next-Generation Light Sources	$392,926
PN11065/2387	Real-time High-Performance Computing Infrastructure for Next-Generation Power Grid Analysis	$73,546
PN11066/2388	Scalable Sensor Data Management Middleware	$151,026
PN11067/2389	Signature Discovery Analytic Framework	$300,061
PN11068/2390	Signature Quality Metrics	$327,373
PN11069/2391	Single Node Optimizations for Extreme Scale Systems	$259,636
PN11070/2392	Site Specific Atomic Resolution Probing of Structure-Property Relationship Under Dynamic and/or Operando Conditions Using In Situ and Ex Situ Chemical Imaging Based on Multi-Instrument Approach	$330,538
PN11074/2396	Synergistic Integration of Feature Recognition and Analysis for Chemical Imaging Data	$152,185
PN11075/2397	The Statistical Mechanics of Complex Process in Bulk and Interfacial Environments	$246,035
PN11077/2399	Uncertainty Quantification and Risk Assessment Pipeline for Carbon Sequestration	$250,237
PN11078/2400	Understanding the Processes that Govern Subsurface Microbial Communities	$269,732
PN12001/2402	A Multi-Layer Data-Driven Advanced Reasoning Tool for Smart Grid Integrated Information Systems	$325,443
PN12002/2403	Absolute Gas Counting Measurement Techniques	$349,658
PN12003/2404	Actionable Visualization Tools For Power Grid Situation Awareness	$279,303
PN12005/2406	Optofluidics and Microfluidics for Exploring Biofuel Production at the Single Cell and Molecule Levels	$228,148

PN12006/2407	Advanced Optimizations for Extreme-Scale Homogeneous Systems	$343,677
PN12007/2408	Advanced Surface Mass Spectrometry for Characterization of Explosives	$109,399
PN12008/2409	Analysis of Functional Potential from Metagenome Data	$273,207
PN12009/2410	Argon-39 Measurement	$154,460
PN12012/2413	BazookaSPECT Neutron Imager	$264,907
PN12014/2415	Characterization of a 14 MeV Neutron Generator and Measurement of Fission Products Produced	$99,840
PN12015/2416	Characterization of Catalyst Materials in the Electron and Atom-Probe Microscopes	$282,136
PN12016/2417	Computational Optimization and Predictive Simulation for Synthetic Biology	$237,536
PN12019/2420	Decision Support Research for Integrated Regional Earth System Modeling	$355,070
PN12023/2424	Development of Graphene/Ionic Liquid Hybrid Material for Ultracapacitors	$217,667
PN12024/2425	Development of Hard X-Ray Emission Spectroscopy Nanoprobe	$180,205
PN12025/2426	Directed Strain Evolution through Riboswitch-Controlled Regulatory Circuit	$49,895
PN12026/2427	Encrypted CPU Instruction Stream	$44,976
PN12028/2429	Experts Inundated with Data: the Biomarker Problem	$217,584
PN12029/2430	Exploitation of Kinetic Processes in Gas Separations	$115,233
PN12030/2431	Exploiting Correlated Radiographic and Passive Signatures for Threat Detection in Cargo	$123,278
PN12031/2432	Exploration of Human and Environmental System Interactions due to Renewable Technology Penetration in the Midwest Pilot Region	$947,763
PN12035/2436	Future Power Grid Control Paradigm	$264,874
PN12037/2438	GRADIENT: Graph Analytic Approach for Discovering Irregular Events - Nascent and Temporal	$295,722
PN12038/2439	Highly Efficient and Cost Effective Gamma Detection Arrays for FRIB	$15,703
PN12039/2440	Hybrid Electrodes for Next Generation High Energy Ultracapacitors	$223,353
PN12041/2442	Imaging the Nucleation and Growth of Nanoparticles in Solution	$199,989
PN12042/2443	Immense Social Media Stream Analytics	$166,091
PN12043/2444	Integrating Advanced Optimizations for Extreme Scale Systems	$127,157
PN12045/2446	Low Energy Threshold Germanium Detectors and Science	$439,968
PN12047/2448	Mapping and Characterization of Organic Matter in Soil Aggregates using Laser-Ablation Sampling	$212,488

PN12048/2449	Microscale Reconstruction of Biogeochemical Substrates Using Combined X-ray Tomography and Scanning Electron Microscopy	$161,142
PN12050/2451	Multimedia Analysis of Cyber Data	$168,742
PN12052/2453	Multiscale Simulation of Microbial Carbon Transformation in Soils: Connecting Intra- and Inter-Aggregate Scales	$234,054
PN12053/2454	Multi-Source Signatures of Nuclear Programs	$298,201
PN12054/2455	Next Generation Network Simulations for Power System Applications	$383,217
PN12059/2460	Numerically Robust Climate Simulation Through Improved Interaction between Model Components	$196,441
PN12061/2462	Predicting the Response of Complex Biological Systems	$325,406
PN12062/2463	Probing Composition and Structure of Polarizable Reaction Mixtures Inside the Pores of Supported Metal-oxo Catalysts	$302,721
PN12063/2464	Probing Structural Dynamics with High Spatial and Temporal Resolution	$312,419
PN12064/2465	Prototype Fast Neutron Detector	$125,282
PN12065/2466	Pulmonary Injury from Acute Events Related to Nuclear Energy Production	$220,032
PN12067/2468	Quantitative Imaging of Atomic Scale Chemistry Changes at Interfaces	$427,471
PN12069/2470	Search for New Physics at the Intensity Frontier	$206,038
PN12070/2471	Semantic Workflows for Signature Discovery	$283,978
PN12071/2472	Simultaneous 14C and T Dating: A Case Study Using Soil Organic Matter	$315,943
PN12073/2474	Tank Residual Waste Stabilization to Reduce Contaminant Release	$73,840
PN12074/2475	Targeting Extreme Scale Computational Challenges with Heterogeneous Systems	$209,849
PN12075/2476	TASCEL: An Execution Model for Task-Based Optimizations	$256,862
PN12076/2477	Three Dimensional Neutronics Analysis Capabilities for Nuclear Archeology Applications	$175,179
PN12078/2479	Ultra-Low-Background Gas Measurement: Building an Advanced Capability	$426,854
PN12079/2480	Ultra-Precise Electron Spectroscopy to Measure the Neutrino Mass	$220,016
PN12080/2481	Uranium Enrichment Facility Signature Exploitation	$196,866
PN13001/2482	The Integration of Water in iRESM	$513,666
PN13002/2483	Developing a Dynamic LULCC Model for Spatially-explicit Future Realizations of Projected Land Use under an Integrated Regional Earth System Modeling Framework.	$477,111
PN13003/2484	Scalable Solvers for Uncertainty Quantification of Large-scale Stochastic Partial Differential Systems	$96,586

PN13004/2485	Directed Mesoscale Synthesis of Tunnel Structured Materials for Energy Applications	$220,086
PN13005/2486	Novel Alloy Nanoparticle Materials for Catalysis and Energy Storage	$223,792
PN13006/2487	Novel CO2-Selective Polymer/Double Salt Composite Membranes for Continuous CO2 Removal from Warm Syngas	$210,227
PN13007/2488	Developing A Next Generation Biogeochemical Module for Earth System Models	$219,973
PN13008/2489	Resolving the Reactor Neutrino Anomaly by Precision Beta Spectrometry	$219,911
PN13009/2490	Structure and Dynamics of Biological Systems	$414,858
PN13010/2491	Probing Structure-Property Relationship of Energy Storage Materials Using Ex Situ and In Situ Dynamic Microscopy and Spectroscopy with High Spatial and Fast Temporal Resolution	$348,634
PN13011/2492	Manifold Learning for Accurate Search and Locate Tasks in Image Datasets	$157,074
PN13012/2493	Network Analysis and Modeling of Illicit Nuclear Trafficking	$221,374
PN13013/2494	Improving the Performance of Li-Air and Li-S Batteries Using Polymeric and Metallic Nanomaterials	$252,290
PN13014/2495	Hierarchical Signature Detection in High-Throughput Environments	$344,045
PN13015/2496	Atomic Mass Separation for Enhanced Radiation Detection Measurements	$403,072
PN13016/2497	GridOPTICS	$366,797
PN13017/2498	GridPACK: Grid Parallel Advanced Computational Kernels	$91,367
PN13018/2499	Enhanced Sediment Geochronology Achieved Using Ultra-Low Background Materials and Ultra-Sensitive Detection Capability	$667,317
PN13019/2500	Alpha Coincidence Techniques for Actinide Assay	$218,709
PN13020/2501	Analytic Framework: Signature Discovery Workbench	$298,183
PN13021/2502	Controlled Datasets to Inform the Study of Sensor Degradation for CBRNE Signature	$315,556
PN13022/2503	Elucidating the Natural Spore Phenotype	$197,826
PN13023/2504	High Energy Density Non-aqueous Metal-Organic Redox Flow Battery	$95,646
PN13024/2505	Secondary Signatures for Provenance Attribution	$154,460
PN13025/2506	Fungal Siderophore Production for Recognition of Uranium Compounds	$164,892
PN13026/2507	Multimedia Information Fusion	$109,031
PN13027/2508	Anthropogenic Uranium Detection with X-ray Microscopy	$331,297
PN13028/2509	Establishing a Strategic Goods Testbed to Disrupt Illicit Nuclear Trafficking	$157,218
PN13029/2510	Market Design Analysis Tool	$290,937

PN13030/2511	Fishing for Features: Discovering Signatures when the Underlying Phenomenon is Poorly Understood	$259,242
PN13031/2512	Miniaturization of Multi-Modal Regenerative Feedback Sensor	$194,791
PN13032/2513	Mössbauer Spectral Imaging	$309,866
PN13033/2514	Developing Next-Generation Multimodal Chemical Imaging Capability by Combining STEM/APT/STXM/HIM	$364,377
PN13034/2515	Novel Window Coatings for Dynamic Thermal Control via Infrared Switching	$99,960
PN13035/2516	Simultaneous Electrochemical and Nuclear Magnetic Resonance Techniques for the Study of Electrochemically Active Biofilms	$230,910
PN13036/2517	Novel Inorganic Complexes for Tc management in the Tank Waste	$124,967
PN13037/2518	M&Ms4Graphs: A Multi-scale, Multi-Dimensional Graph Analytics Framework for Cyber Security	$282,828
PN13038/2519	Discrete Mathematical Foundations for Cyber Systems Analysis	$180,803
PN13039/2520	Kritikos: Identifying Cyber Assets and Assessing Criticality in Terms of Business Processes	$152,613
PN13040/2521	Battery Manufacturing Cost Model Tool - Flow Battery	$97,940
PN13041/2522	Impedance Spectroscopy: Next Generation Tool for Waste Form Characterization	$36,066
PN13042/2523	A New Non-aqueous Fracturing Technology for Eliminating Water Requirements for Fracturing Liquid-Sensitive and Non-Liquid-Sensitive Reservoirs	$99,899
PN13043/2524	Design, Synthesis, and Activity Measurements of Monodispersed Multifunctional Catalysts for CO_2 Reduction	$499,884
PN13044/2525	Towards understanding interfacial chemistry at reactive solid/liquid interphases	$160,010
PN13045/2526	Development of the Capability for Assessing Benefits of the Smart Grid to Building Owners	$94,492
PN13046/2527	Manufacturable Gel-based Membranes for Gas Separations	$99,332
PN13047/2528	Multi-Zone Dynamic Commercial Load Modeling	$71,145
PN13048/2529	Genome-Enabled Systems Approach to Predict Immobilization of Technetium in the Subsurface	$158,174
PN13049/2530	Recyclable Methane Hydrate Inhibitors	$95,032
PN13050/2531	Understanding and Control of SEI Layer (Solid -Electrolyte Interface and Interphases) in Multivalent Energy Storage Systems	$150,760
PN13051/2532	Cyber Security Testbed and Dataset Generation	$298,207
PN13052/2533	Engineering of Oleaginous Yeast for Production of Advanced Hydrocarbon Biofuels	$105,917

PN13053/2534	Reactor Materials Degradation During Plastic Deformation and Creep: High-resolution experiments and integrated models of microstructural evolution and materials response	$198,358
PN13054/2535	Upgrading of Hydroprocessed Pyrolysis Bio-Oils by Selective Ring Opening of the Aromatics and Cycloparaffins to Paraffins for Diesel and Jet Markets	$94,887
PN13055/2536	Ultra Low Noise Detectors: Building an Advanced Capability	$255,915
PN13056/2537	A New Modeling Approach for Biology: Combining Natural Selection and Thermodynamics for Biodesign and Natural Systems	$243,796
PN13057/2538	Scire: Scientific Process for Validation and Verification	$204,455
PN13058/2539	Super CDMS Initial Engagement	$139,377
PN13059/2540	Optical Fiber Sensing system for Process and Health Monitoring (Stain and Strikes)	$48,860
PN13060/2541	Knowledge-based Automated DIDSON Data Extraction for the Assessment of Smolt Sized Salmon	$49,236
PN13061/2542	Meso-scale Science and Technology: Manufacturing of Nanostructured Soft Magnetic Materials	$265,101
PN13062/2543	Electric System Intra-hour Operation Simulator	$124,759
PN13063/2544	Theory of Resilience	$154,768
PN13064/2545	Multimodal Imaging of Cellulytic Microbial Activity in Oxygen-constrained Microenvironments	$297,711
PN13065/2546	Robustness	$114,512
PN13066/2547	Scalable Knowledge Extraction on Extreme Scale Scientific Data	$126,888
PN13067/2548	Imaging and Monitoring the Initial Stages of Biofilm Formation	$153,157
PN13068/2549	Quantitative Modeling of the Metabolism of Technologically Important Fungal Systems	$157,950
PN13069/2550	Freeze Frame and Cyber Technology	$154,239
PN13070/2551	Bio-Inspired Actinides Recognition for Separation Science	$76,526
PN13071/2552	Enhancing EMSL Mass Spectrometry Capabilities for Characterization of Soil Organic Matter	$109,371
PN13072/2553	Improving magnetoelectric coupling in novel single-phase multiferroic thin films of the MTiO3 (M = Fe, Mn, Ni, ?) family	$24,666
PN13073/2554	Measuring and Modeling the Climatic Effects of Brown Carbon Atmospheric Aerosols: Developing an Integrated Capability	$196,644
PN13074/2555	Platform for high-throughput determination of enzyme kinetic parameters for hemicellulose saccharification	$74,984
PN13075/2556	Numerical Simulator for the Utilization and Storage of CO2 in Natural Gas and Petroleum Reservoirs	$99,923
PN13076/2557	Hardware in the loop testing and power system simulation of high penetration levels of PV	$97,787

PN13077/2558	NMR Spectroscopy of Pu-Containing Materials	$50,433
PN13078/2559	Isotope Enrichment using a Structure for Lossless Ion Manipulation (SLIM) Device	$149,882
PN13079/2560	Millimeter-wave Shoe Scanner	$187,821
PN13080/2561	Molecular-level Analysis and Microscopy Studies of Brown Carbon	$79,635
PN13081/2562	Advanced Visual Analytic for the Power Grid	$124,021
PN13082/2563	Development of Bromotyrosine Antibody Assay for blood and sputum samples	$83,533
PN13083/2564	Predictive Chemical Bond Information in Living Cells	$63,741
PN13084/2565	Metal Hydrides for Thermal Energy Storage	$67,388
PN13085/2566	Rare Earth-Free Phosphors for Lighting Applications	$95,431
PN13086/2567	Design and synthesis of peptoid-based functional materials	$168,793
PN13087/2568	Super resolution fluorescence barcoding and high throughput microfluidics for quantifying the expression of multiple genes in individual intact cells	$60,125
PN13088/2569	ZnS Scintillators	$73,909
PN13089/2570	Novel phase selective (drygel) synthesis of Metal-Organic Frameworks	$70,850
PN13090/2571	Advanced Switching Concepts applied to a Structures for Lossless Ion Manipulations (SLIM)	$94,722
PN13091/2572	Operations and Planning Fusion	$57,524
PN13092/2573	Localized Surface Plasmon Resonance Spectroscopy, Microscopy, and Sensing	$90,529
PN13093/2574	Perfecting Atom Counting: 100% Efficient Mass Spectrometry	$114,991
PN13094/2575	Monitoring Sorbed and Reacting Species of Lignin Fragments in Zeolites in an Aqueous Environment	$32,347
PN13095/2576	A Compressive Sampling Framework for Interactive Visualization of Massive Datasets	$64,993
PN13096/2577	Optimal Sizing Tool for Energy Storage in Grid Applications	$47,450
PN13097/2578	Laser Ablation Capillary Absorption Spectrometer for Trace Isotopic Sampling and Imaging	$102,384
PN13098/2579	Sn Project	$190,577
PN13099/2580	Optically Stimulated Luminescence Data Storage	$67,260
PN13100/2581	Optical properties modification in complex oxide epitaxial films via alloy formation	$74,812
PN13101/2582	Exploring and Engineering Phototrophic-Heterotrophic Partnerships	$59,465
PN13102/2583	Signatures of Environmental Perturbation - Microbial Community and Organic Matter Resilience	$80,297
PN13103/2584	Hybrid Load Control Strategy for Demand Response System	$49,793
	Total # of Projects for PNNL: 202	
	Total Cost for PNNL: $40,465,842	
	Total Administrative Cost: -$12,942	

PRINCE - Princeton Plasma Physics Lab		
PPPL-022	Developing a Prototype Gyrokinetic Code Using Advanced Algorithms for Non-axisymmetric and Edge Plasmas	$53,670
PPPL-023	High Density Plasma Capsule for Raman Backscatter	$51,829
PPPL-026	Magnetic Fusion Energy (MFE) Pilot Plant Study	$53,049
PPPL-029	Development of Next Step Experiments for Plasma Astrophysics	$149,090
PPPL-031	2D Linear Mode Conversion Calculations for Solar and Heliospheric Radio Emissions	$84,236
PPPL-032	Mission and Configuration of a Spherical Tokamak Fusion Nuclear Science Facility	$300,602
PPPL-033	High-Throughput Mass Filter	$147,506
PPPL-034	Prototype of a Scalable Flowing Liquid Lithium System	$313,279
PPPL-035	Next Step Development of an Actively-cooled and Wetted Liquid Metal Divertor Target and Test Components	$116,722
PPPL-036	Fundamental Studies of Deuterium Retention in Solid and Liquid Metals	$241,092
PPPL-037	Liquid Lithium Test Stand and Textured Surface Test	$100,670
PPPL-038	Imaging x-ray spectroscopy for x-ray synchrotron radiation (SR) and high energy density (HED) experiments	$94,216
PPPL-039	Development of the Advanced Annular Couette Centrifuge	$62,954
PPPL-040	Improved Stellarators for Fusion Nuclear Missions	$187,409
PPPL-042	Assessment of methodology used in estimating power plant economics	$41,578
	Total # of Projects for PRINCE: 15	
	Total Cost for PRINCE: $1,997,902	
	Administrative Cost Paid by Laboratory Overhead	

PTX - Pantex Plant		
PX07008	Composition and Strength of Ta-Based Welds for Storing SNM Materials	$6,465
PX09002	Gas Reactions Within Sealed Volume of LANL and LLNL Weapons	$12,029
PX09003	Optimization of High Explosive Molecular Weight Binder Analysis in Core Surveillance	$49,096
PX09013	Severe Insults to High Explosives	$20,352
PX09015	Fracture Mechanics of HMX Based High Explosive Components	$1,642
PX10002	Effects of Temperature on Explosives	$60,827
PX11001	Gas Gun Firing Mechanism	$194,334
PX11004	Ignition Properties of Energetic Materials	$48,284
PX11005	Micro-focus Computed Tomography Scanner	$617,622
PX11008	Holding Fixture for Non-Destructive Evaluation	$230,198

PX11009	3-Dimensional High Definition Video Capture System	$465,635
PX11013	System Dynamic Modeling	$79,066
PX11014	Adiprene Replacement	$111,837
PX12001	Economic Model to Justify New Production Capacity	$421
PX12002	Material Qualification for Nuclear Explosives Processes	$120,079
PX12004	High Explosive Machining Hazards Evaluation	$128,181
PX12005	Gas Phase Kinetic Reactions of HFE-71IPA	$3,029
PX13001	Decomposition and Material Effects of High Explosives	$121,791
PX13002	Laser Welding Process Monitor	$80,683
PX13003	Optical System Design	$95,928
PX13004	Laser Ultrasonics of Laser Welds	$36,098
PX13005	LIMS & Robotic Sample Preparation	$163,078
PX13006	Simultaneous Multiple Sample Light	$75,809
PX13007	Ionic Liquids for Mass Spectrometric Analysis	$650
PX13009	Classified Wireless Network	$34,644
PX13010	Ultra-Performance Gel Permeation Chromatography	$5,312
PX13012	Epoxy Removal - PBX 9501 & DAP	$53,037
PX13018	Systems Dynamics and Economic Analysis Modeling for HRO	$3,396
	Total # of Projects for PTX: 28	
	Total Cost for PTX: $2,819,523	
	Total Administrative Cost: $276,214	

SLAC - SLAC National Accelerator Laboratory

13-001	Functional Polymers for Lithium-Ion Batteries	$112,963
13-002	Advance the Performance of Ultimate Storage Rings	$148,994
13-003	Understanding Controlling Elevated-Temperature Charge Transfer	$99,671
13-004	Data Acquisition Improvement for the LBNE Experiment	$141,800
13-005	In-Situ Single Particle Plasmon Catalysis	$136,628
13-006	New Initiative for Synchrotron Radiation-based Catalysis and Energy Research	$313,939
13-007	Towards in-Situ Growth and Spectroscopy of Complex Oxide Thin Films Heterostructures	$337,477
13-008	X-Band Gun Evaluation	$498,510
13-009	X-Ray Scattering from Solution-Cast Films for Organic Solar Cells	$241,985
13-010	X-Ray Studies of Water and Aqueous Solutions	$44,260
13-011	Experimental Screening of Electrocatalysts for CO2 Reduction	$189,108
13-012	Correlated Electron Physics at Oxide Interfaces	$71,390
13-013	Towards the SLAC Femtosecond Macromolecular Micro & Nanocrystallography Facilities	$345,920
13-014	Modeling Conformational Ensembles of Proteins and Complexes	$133,632

13-015	An Automated Pipeline for Cosmological Mock Sky Survey Production	$202,747
13-016	An End-to-end Simulation Toolset for X-ray Photon Science Experiment and Facility Planning	$149,452
13-017	PolyUbiquitin Structural Biology	$252,146
	Total # of Projects for SLAC : 17	
	Total Cost for SLAC : $3,420,622	
	Administrative Cost Paid by Laboratory Overhead	
SNL - Sandia National Lab		
142441	Genetic Engineering of Cyanobacteria as Biodiesel Feedstock	$88,523
151263	First Principles Prediction of Radio Frequency Directed Energy Effects	$294,640
151264	Polarimetric Change Detection Exploitation of Synthetic Aperture Radar Data	$483,425
151266	Ultra-Thin, Temperature Stable, Low Power Frequency References	$297,663
151270	Trusted Execution Methodology · Payload / Operating System (TEM·P/OS)	$355,769
151275	Matterwave Interferometer for Seismic Sensing and Inertial Navigation	$384,145
151276	Spectro-Temporal Data Application & Exploitation	$574,070
151277	Adaptive Automation for Supervisory Control of Streaming Sensors	$376,835
151284	Automated Severity Assignment for Software Vulnerabilities	$246,403
151285	Command Intent on the Future Battlefield: One-to-Many Unmanned System Control	$410,467
151286	Multi-Mission Software-Defined RF Spectrum Processing	$246,227
151287	A Scalable Emulytics Platform for Observation of Windows-centric Network Phenomena	$354,453
151288	Quantifiably Secure Power Grid Operation, Management, and Evolution	$693,426
151289	Predicting Structure-Property Relationships for Interfacial Thermal Transport	$528,984
151291	Physics-Based Multiscale Stochastic Methods for Computational Mechanics of Heterogeneous Materials	$672,939
151292	Network and Ensemble Enabled Entity Extraction in Informal Text (NEEEEIT)	$512,069
151293	Kalman-Filtered Compressive Sensing for High Resolution Estimation of Anthropogenic Greenhouse Gas Emissions from Sparse Measurements at Global Scale	$580,983
151294	Multiscale Modeling for Fluid Transport in Nanosystems	$388,123
151295	Statistically Significant Relational Data Mining	$596,078

151297	Integrated Nano- and Quantum Electronic Device Simulation Toolkit	$606,438
151299	Control and Optimization of Open Quantum Systems for Information Processing and Computer Security	$452,419
151300	CO2 Reuse Innovation - Novel Approach to CO2 Conversion Using an Adduct-Mediated Route	$475,013
151301	Development of Alkaline Fuel Cells	$360,577
151302	Constitutive Framework for Simulating Coupled Clay/Shale Multiphysics	$482,623
151303	In-Situ Diagnostics for Fuels Model Validation with ACRR	$454,335
151304	Tier 2 Development of Sandia's Air Bearing Heat Exchanger Technology	$241,873
151305	Fundamental Study of CO2-H2O-Mineral Interactions for Carbon Sequestration, with Emphasis on the Nature of the Supercritical Fluid-Mineral Interface	$586,805
151307	Development and Deployment of a Field Instrument for Measurements of Black Carbon Aerosols	$660,346
151308	Tailoring Next-Generation Biofuels and their Combustion in Next-Generation Engines	$1,116,872
151310	Simulation of Component Transport and Segregation in Nuclear Fuels	$407,227
151313	Development of a Modeling Framework for Infrastructures in Multi-Hazard Environments	$448,730
151314	Energy Security Assessment Tools	$499,592
151315	Using Fast Neutron Signatures for Improved UF6 Cylinder Enrichment Measurements	$307,550
151321	Predictive Modeling of Non-Ideal Explosives	$819,656
151323	Advanced High Security Command and Control Interface (AHSC2I)	$383,230
151324	Genomics-Enabled Sensor Platform for Rapid Detection of Viruses Related to Disease Outbreak	$444,009
151325	High Energy Resonance Radiography by Double Scatter Spectroscopy	$439,483
151328	Nanoscale Mechanisms in Advanced Aging of Materials During Storage of Spent "High Burnup" Nuclear Fuel	$498,800
151329	Active Infrared Plasmonics	$641,101
151332	Monolithically-Integrated Coherent Mid-Infrared Receiver	$505,547
151333	Non-Abelian Fractional Quantum Hall Effect for Fault-Resistant Topological Quantum Computation	$405,036
151334	Germanium on Silicon Optoelectronics	$640,335
151335	Fundamental Investigation of Chip-Scale Vacuum Micropumping (CSVMP)	$377,944

151336	Coherent Phonon Generation Through Nanoscale Enhanced Light-Matter Interaction: Towards Novel Silicon Lasers, Broadband Phononic Signal Processing and Optically Powered Micromechanics	$553,770
151337	Photodefined Micro/Nanostructures for Sensing Applications	$491,466
151338	Theoretical and Experimental Studies of Electrified Interfaces Relevant to Energy Storage	$762,613
151339	Developing Thermoelectric Cryo-Cooling	$1,044,490
151340	Improving the Electrical and Thermal Resistance of Nanoscale Contacts	$717,785
151341	Advanced High Z NanoScintillators	$612,195
151343	Tailoring Thermal and Electric Transport Properties Through Solid-State Self-Assembly	$537,652
151344	Understanding and Controlling Low-Temperature Aging of Nanocrystalline Materials	$712,728
151345	From Neurons to Algorithms	$601,311
151346	Incremental Learning for Automated Knowledge Capture	$290,803
151347	A Comprehensive Approach to Decipher Biological Computation to Achieve Next Generation High-performance Exascale Computing	$703,120
151348	Systems Biology in 3D: Monitoring and Modeling the Dynamics of Francisella tularensis-associated Granuloma Formation	$546,774
151349	Host-Virus Interaction Using an Artificial Host Cell System	$513,758
151350	Biomimetic Lung Toxicity Screening Platform (bioMIMIC)	$532,951
151351	Development of Ab Initio Techniques Critical for Future Science-Based Explosives R&D	$437,988
151352	Metal-Insulator Transition Based Limiters	$580,127
151353	Thermoelectric Materials: Mechanistic Basis for Predictive Aging Models and Materials Design	$908,181
151354	Software-Defined Telemetry Using a Programmable Fuzing Radar	$361,186
151355	Non-destructive Gas Pressure Measurements in Neutron Tubes and Generators	$370,125
151356	All Optical Fiber Architecture for Optical Firesets	$493,414
151357	MEMS Photoacoustic Spectroscopy	$530,844
151358	AF&F Fail Safe Feature for Abnormal Thermal Environments Using Shape Memory Alloys	$509,936
151359	New Composite Separator Pellet to Increase Power Density And Reduce Size Of Thermal Batteries	$510,695
151360	Multi-Phase Laminates: A Study of Prompt Transformations in Abnormal Environments	$507,738
151361	Liquid Metal Environment Sensing Devices (ESDs)	$394,500
151362	Low Energy Electron-Photon Transport	$321,067

151363	Modeling Electron Transport in the Presence of Electric and Magnetic Fields	$413,281
151364	Mesoscale Modeling of Dynamic Loading of Heterogeneous Materials	$361,574
151365	Dynamic Temperature Measurements with Embedded Optical Sensors	$410,564
151366	Spectral Line-Broadening in White Dwarf Photospheres	$299,807
151367	Z-Petawatt Driven Ion Beam Radiography Development	$275,316
151369	Development of Novel Nanoarchitectures to Enhance High-Temperature Thermoelectric Oxides for Clean Energy Harvesting	$26,325
151370	Reconstruction of a High-Resolution Late Holocene Arctic Paleoclimate Record from Colville River Delta Sediments	$26,325
151374	Relational Decision Making	$29,955
151375	CVD Encapsulation of Mammalian Cells for Hazardous Agent Detection	$47,096
151377	Fundamental Investigation of CVD Graphene Synthesis	$47,907
151379	Biodefense and Emerging Infectious Disease (BEID) Applications of Engineered Nanoparticles	$259,663
152501	AQUARIUS: Adiabatic Quantum Architectures in Ultracold Systems	$5,894,681
152503	Enabling Secure, Scalable Microgrids with High Penetration Renewables	$3,904,324
153236	Formation of Algae Growth and Lipid Production Constitutive Relations for Improved Algae Modeling	$63,947
154060	New Strategies for Pulsed Power Transmission Lines: From Repetitive to Replaceable to Recyclable	$879,127
154195	On-Chip Coherent Qubit Operations with Microfabricated Surface Ion Traps	$23,763
154197	Hybrid Methods for Cyber Security Analysis	$572,409
154199	Leveraging Complexity for Unpredictable yet Robust Cyber Systems	$480,697
154693	Reliable PUFs for Supply Chain Assurance	$152,860
154763	Coaxial Microwave Neutron Interrogation Source	$45,948
154813	Ultrafast Laser Diagnostics to Investigate Initiation Fundamentals in Energetic Materials	$77,005
154815	Uncertainty Quantification and Substantiation for Machine Learning in the Context of Cyber-Security	$55,983
154936	Exploring the Development of Large Area Geiger-mode Avalanche Photodiodes	$57,233
155065	Polymer-MOF Nanocomposites for High Performance Dielectric Materials	$69,242
155298	Time-Resolved Broadband Cavity-Enhanced Absorption Spectrometry for Chemical Kinetics	$71,371

155327	Interface-Tracking Hydrodynamic Model for Droplet Electro-coalescence	$173,112
155408	Leveraging Safety Applications for Global Revocation and Congestion Control in Vehicular ad hoc Networks	$79,923
155409	Ion-Induced Secondary Electron Emission and Vacuum Surface Flashover for High Gradient Ion Beam Accelerators	$84,725
155458	Integration of MHD Load Models With Detailed Circuit Representations of Pulsed Power Drivers	$50,250
155550	Accelerating the Development of Transparent Graphene Electrodes through Basic Science Driven Chemical Functionalization	$96,813
155551	Automated Generation of Spatially Varying Stochastic Expansions for Embedded Uncertainty Quantification	$71,025
155554	Hybrid Optics for Broadband Optical Systems	$76,855
155797	Solar Fuel Cell for Photocatalysis of Organic Pollutants with Simultaneous H2 Production	$106,156
155798	Softening Behavior of Post-Damage Quasi-Brittle Porous Materials	$104,191
155799	Identifying Dynamic Patterns in Network Traffic to Predict and Mitigate Cyberattacks	$89,965
155802	Alternative Waveforms for New Capabilities in Radar Systems	$99,415
155804	Aerosol Characterization Study Using Multi-Spectrum Remote Sensing Measurement Techniques	$105,770
156135	Use of Limited Data to Construct Bayesian Networks for Probabilistic Risk Assessment	$89,941
156137	Improving Shallow Tunnel Detection from Surface Seismic Methods	$115,051
156138	Dynamics of Point Source Signal Detection on Infrared Focal Plane Arrays	$125,441
156158	New Methods Of Uncertainty Quantification for Mixed Discrete-Continuous Variable Models	$108,249
156251	Developing Highly Scalable Fluid Solvers for Enabling Multiphysics Simulation	$115,625
156252	Richtymer-Meshkov Instabilities in Cylindrical and Planar Geometries on Z	$112,330
156400	Characterization of Atmospheric Ionization Techniques for the Identification of New Chemical Signatures from Home-made Explosives in Complex Matrices	$132,131
156435	Peering Through the Haze: Privacy and Monitoring in the Cloud Computing Paradigm	$126,805
156436	Secure and Efficient Privacy Preserving Program Obfuscation	$123,262
156702	Smart Adaptive Wind Turbines and Smart Adaptive Wind Farms	$175,114

156703	Simulation of Primary Fuel Atomization Processes at Subcritical Pressures	$115,684
156704	Determination of Reaction Zone Length in Vapor-deposited Explosive Films	$127,462
157145	Fluid Flow Measurement of High Temperature Molten Nitrate Salts	$131,061
157310	Optical Refrigeration in Semiconductors for Next Generation Cryocooling	$154,605
157311	Hydrological Characterization of Karst Phenomenon in a Semi-Arid Region using In-situ Geophysical Technologies	$107,639
157633	Silicon Photonics for Ultra-Linear RF Photonic Devices and Links	$166,339
157688	Multilevel Summation Methods for Efficient Evaluation of Long-Range Pairwise Interactions in Atomistic and Coarse-Grained Molecular Simulation	$138,543
157690	Luminescent Lanthanide Reporters for High-Sensitivity Novel Bioassays	$217,508
157693	Kinetics of Radiation-Driven Phase Transformations in PZT Ceramics	$92,702
157694	Beyond the Ideal Nanostructure: Local Environmental Effects on the Electronic and Optical Properties of Carbon Nanotubes	$156,035
157957	Predicting the Future Trajectory of Arctic Sea Ice: Reducing Uncertainty in High-Resolution Sea Ice Models	$172,100
158181	Micro-scale Heat Exchangers for Cryogenic Micro-cooling Applications	$75,103
158182	High Performance Graphics Processor based Computed Tomography Reconstruction Algorithms for Nuclear and Other Large Scale Applications	$197,407
158183	Gas Permeation Properties of Graphene Membranes	$175,517
158185	Pathogenicity Island Mobility and Gene Content	$176,269
158186	Production of Extremophilic Bacterial Cellulase Enzymes in Aspergillus Niger	$188,525
158410	Intra-membrane Molecular Interactions of K+ Channel Proteins: Application to Problems in Biodefense and Bioenergy	$189,990
158477	Sublinear Algorithms for Massive Data Sets	$205,851
158478	Functional and Robust Asymmetric Polymer Vesicles	$161,845
158479	Instrumenting Nation-Scale Networks with Hierarchical, Peer-to-Peer Communications	$355,303
158481	Cubic Organic Scintillators as Improved Materials for Fast Neutron Detection	$182,302
158482	Accurate Model Development for Large Eddy Simulation of Turbulent Compressible Flow Problems	$179,440

158698	A High Voltage, High Current Thyristor Stack Command Triggered by dV/dt - An Improved MOS-Controlled Thyristor-like Nanosecond Closing Switch	$207,048
158699	Atomistic Modeling of Memristive Switching Mechanisms in Transition Metal Oxides	$209,504
158700	Explosives Detection with Neutrons from a Short Pulse High Intensity Neutron Source	$179,756
158701	Laser-Ablated Active Doping Technique for Visible Spectroscopy Measurements on Z	$70,038
158702	Surface Electrochemistry of Perovskite Fuel-cell Cathodes Understood In-Operando	$177,092
158740	Memristor Evaluation and Optimization for Cyber Security	$541,504
158742	A Thin Hypervisor for Dynamic Analysis and Reverse Engineering of ARM Based Embedded Systems	$440,765
158743	Encryption using Electrochemical Keys (EEK)	$491,382
158747	An Adaptive Web Spider for Multi-Modal Data	$226,183
158748	Vulnerability Analysis of LTE-Capable Devices	$317,124
158749	System Level Cyber Analysis of Cellular Network Infrastructure	$300,326
158751	Assessment of Windows Integrity Levels for Sandboxed Systems	$351,647
158752	PLC Backplane Analyzer for Field Forensics and Intrusion Detection	$249,129
158753	SAR and Multispectral SWaP Reduction via Compressive Sensing	$310,688
158754	2-color nBn FPA	$627,165
158755	Advanced Imaging Optics Utilizing Wavefront Coding	$344,760
158756	Nanoantenna Enabled Focal Plane Array	$677,603
158757	Applying Discrimination Methods to Collected and Synthetically Modeled Explosive Signatures	$500,669
158759	Remote Optical Sensing of Ionizing Radiation	$465,131
158764	Training Adaptive Decision Making	$324,991
158765	A Complexity Science-Based Framework for Global Joint Operations Analysis to Support Force Projection	$534,226
158766	Validating Agent Based Models Through Virtual Worlds	$353,947
158767	Quantitative Adaptation Analytics for Assessing Dynamic Systems of Systems	$457,674
158768	Ultra-Stable Oscillators for RF Systems	$299,869
158770	Moving Target Detection and Location in Terrain Using Radar	$626,590
158772	Acoustic Tag for Maritime Location and Tracking Applications	$227,009
158773	Electronic Battle Damage Assessment (eBDA)	$588,755
158774	Ablation Chemistry Effects on Boundary-Layer Transition	$493,864
158775	Developing Deeply Integrated GPS/INS Navigation System for High Dynamic Applications	$254,427

158776	Structural Kinetic Energy Warhead for Scaled and Multi-Platform Applications	$425,766
158777	Borazine-Based Structural Materials	$274,018
158779	Novel Memory Analyses	$148,602
158780	Inferring Organizational Structure from Behavior	$333,250
158781	Breaking the Language Barrier	$239,644
158782	Frequency Translation to Demonstrate a ?Hybrid? Quantum Architecture	$518,433
158783	Cross-Domain Situational Awareness in Computing Networks	$367,160
158784	Non-linear Decision Theory Applied to Co-Hosting Analysis for National Security Space Payloads	$62,945
158785	Learning From Nature: Biomimetic Polarimetry for Imaging in Obscuring Environments	$55,943
158787	Scheduling Irregular Algorithms	$46,292
158789	Breaking Computational Barriers: Real-time Analysis and Optimization with Large-scale Nonlinear Models via Model Reduction	$284,504
158792	Exploring Heterogeneous Multicore Architectures for Advanced Embedded Uncertainty Quantification	$448,477
158793	Architecture- and Resource-Aware Partitioning and Mapping for Dynamic Applications	$616,417
158794	Automated Algorithms for Achieving Quantum-level Accuracy in Atomistic Simulations	$695,474
158795	Electromagnetic Extended Finite Elements for High-Fidelity Multimaterial Problems	$374,196
158801	Ultrafast Laser Diagnostics for Energetic-Material Ignition Mechanisms: Tools for Physics-Based Model Development	$781,034
158802	Fault Survivability of Lightweight Operating Systems for Exascale	$710,606
158803	Effect of Varying Convection on Dendrite Morphology and Macrosegregation	$27,245
158804	Next-Generation Algorithms for Assessing Infrastructure Vulnerability and Optimizing System Resilience	$57,117
158805	Next Generation Suspension Dynamics Algorithms	$48,816
158806	Multi-scale Modeling of Brittle Heterogeneous Materials	$58,250
158808	Advanced Materials for Next-Generation High-Efficiency Thermochemistry	$846,215
158809	Designing Greenhouse Gas Monitoring Systems and Reducing Their Uncertainties	$753,547
158810	The Science of Battery Degradation	$1,022,340
158811	Optimization of Distributed Waste Water/Water Reuse Systems	$29,820
158813	Development of a Sustainable Anthrax Diagnostic Test for Countering the Biological Threat	$451,204

158814	Advanced Diagnostic and Sample Preparation Platform for Early Threat Surveillance	$889,326
158819	Multi-Target Camera Tracking, Hand-off and Display	$428,646
158820	Rapid Affinity Reagent Development for Emerging Pathogen Detection	$320,267
158821	Intrinsic Material Elements Seal	$473,611
158822	In-situ Study of Dynamic Phenomena at Metal Nanosolder Interfaces Using Aberration-Corrected Scanning Transmission Electron Microscopy	$643,263
158823	Deciphering Adsorption Structure on Insulators at the Atomic Scale	$364,643
158825	Crystalline Nanoporous Frameworks: a Nanolaboratory for Probing Excitonic Device Concepts	$599,038
158826	Electrically Tunable Metamaterials for Agile Filtering in the Infrared	$627,031
158828	Understanding Tantalum Oxide Memristors: An Atoms Up Approach	$694,240
158829	Understanding and Exploiting Bilayer Graphene for Electronics and Optoelectronics	$693,938
158830	GaN Unipolar Optical Modulators	$636,746
158832	Mechanism of Fusion of Pathogenic Enveloped Viruses with the Endosomal Membrane	$725,236
158835	Utilizing Biocomplexity to Propagate Stable Algal Blooms in Open System ? Keeping the Bloom Going	$783,542
158836	Using High Performance Computing to Examine the Processes of Neurogenesis Underlying Pattern Separation/Completion of Episodic Information	$395,009
158850	Miniature Tritium Free Neutron Generator	$588,767
158853	Chemical Enhancement of Surface Kinetics in Hydrogen Storage Materials	$532,545
158854	Advances in High Dynamic Range Resonant Accelerometers	$390,113
158855	Impact of Crystallization on Glass-ceramic to Metal Bonding	$495,806
158856	Synthesis of Wear-Resistant Electrical Contact Materials by Physical Vapor Deposition	$599,135
158857	Extension of Semiconductor Laser Diodes to New Wavelengths for Novel Applications	$726,437
158858	Fundamental Studies on Initiation and Evolution of Multi Channel Discharges and their Application to Next Generation Pulsed Power Machines	$633,695
158859	New Radiation-Resistant Materials	$655,693
158860	A New Capability to Model Defects in InGaAs and InGaP Alloys	$544,716

158861	Investigate Emerging Material Technologies for the Development of Next Generation Magnetic Core Inductors for LTD Pulsed Power Drivers	$519,968
158997	Heterogeneous Scalable Framework for Multiphase Flows	$207,201
158998	Nuclear Fuel Cycle System Simulation Tool Based on High-Fidelity Component Modeling	$215,483
158999	Development of a System Model for a Small Modular Reactor Operating with a S-CO2 Cycle on a DoD Installation that Utilizes a Smart/Micro-Grid	$215,214
159005	Interaction-driven Learning Approaches to Complex Systems Modeling	$219,884
159006	Transactions for Resilience and Consistency in Integrated Application Workflows for High Performance Computing	$210,369
159054	Solution Methods for Network-based Scheduling Problems	$26,325
159056	Intrinsically Radiation-Hard Nonvolatile Memory: SnO2 Memristor Arrays	$95,918
159167	Measuring the Microscopic Mechanics of Individual Intermolecular Systems	$262,849
159184	Coupling of Quantum Dots to Nanoplasmonic Structures	$70,127
159256	Applications of Microwave Frequency Nano-Optomechanical Systems: Oscillators, Circuits, and Sensors	$275,513
159257	Science-enabled Next Generation Photovoltaics for Disruptive Advances in Solar Power and Global Energy Safety and Security	$5,434,419
159258	Extreme Scale Computing Grand Challenge	$4,963,950
159259	Toward a Predictive Understanding of Low Emission Fuel-Flexible Distributed Energy Turbine Systems	$26,276
159299	Using a Nonlinear Crystal to Optically Measure Pulsed Electric Fields in Radiation Environments	$110,905
159300	Superconductive Silicon Nanowires Using Gallium Beam Lithography	$200,228
159302	Opportunities for Waste and Energy	$135,245
159303	Modeling and Development of Non-Destructive Forensic Techniques for Manufacturer Attribution	$255,722
159304	Enhanced Methods for the Compression of SAR Video Products	$220,034
159305	Analysis of Defect Clustering in Semiconductors using Kinetic Monte Carlo Methods	$180,965
159749	Deciphering the Role of Residual Stresses on the Strength of Adhesive Joints	$215,093
160400	Enhancing National Security to Rare Earth Element Shortages through Uncertainty Analysis	$241,900
161139	Processor Modeling for use in Large-Scale Systems Models	$94,418

161862	Inherent Secure Communication Using Lattice Based Waveform Design	$250,777
161863	Optimal Adaptive Control Strategies for Hypersonic Vehicle Applications	$110,053
161864	Theoretical Foundations for Measuring the Groundwater Age Distribution	$256,494
161865	A Micro to Macro Approach to Polymer Matrix Composites Damage Modeling	$188,875
161866	Chloride-Insertion Electrodes for Rechargeable Aluminum Batteries	$165,011
161867	Digital Holography for Quantification of Fragment Size and Velocity from High Weber Number Impacts	$252,274
161868	Hybrid-renewable Processes for Biofuels Production: Concentrated Solar Pyrolysis of Biomass Residues	$210,875
161869	Modeling the Contents of Nuclear Weapons in Real-Time	$64,717
161870	Compressive Sensing for Nuclear Security Applications	$248,091
161871	A Cognitive and Economic Decision Theory for Examining Cyber Defense Strategies	$234,565
161873	Aerosol Aging Processes and their Relevance to Human and Environmental Hazards	$248,387
162034	Genomic Functionalization: The Next Revolution In Biology	$263,229
162299	Integration of SD and PRA to Create a Time-Dependent Prediction of the Risk Profile of a Nuclear Power Plant	$208,889
162522	Impact of Materials Processing on Microstructural Evolution and Hydrogen Isotope Storage Properties of Pd-Rh Alloy Powders	$36,718
162907	Temperature Dependence of the Electronic and Optoelectronic Properties of Carbon Nanotube Devices	$76,872
164183	Defect Localization, Characterization and Acceleration Factor Assessment in Emerging Photovoltaic and Power Electronic Materials	$248,712
164661	Developing Software Systems for High-Assurance Applications	$301,371
164662	Self-Deconstructing Algal Biomass as Feedstock for Transportation Fuels	$196,841
164667	Heavy Duty Vehicle and Infrastructure Futures	$243,378
164668	Advanced Diagnostics for High Pressure Spray Combustion	$265,568
164670	Athermal Spectro-Polarimetric ENhancement (ASPEN)	$138,907
164671	Investigating Dynamic Hardware and Software Checking Techniques to Enhance Trusted Computing	$247,769
164672	Nano-Structured Silicon Phononic Crystals with Metal Inclusions for ZT Enhancement Proof-of-Concept	$258,835

164676	Gate-Controlled Diode Structure to Investigate Leakage Current and Early Breakdown in Graded InGaAsP/InP Junctions	$207,758
164677	Alloys and Composites for Strong and Tough Freeform Nanomaterials	$253,344
164678	Reduced Order Modeling for Prediction and Control of Large-Scale Systems	$213,151
164759	Time-Dependent Resistivity of Millimeter-Gap Magnetically Insulated Transmission Lines Operated at Megampere/Centimeter Current Densities	$258,752
164764	An Empirical Assessment of the Factors Underlying Phishing	$220,446
164869	Flexible and Scalable Data Fusion using Proactive, Schemaless Information Services	$211,867
164892	Mission Capability Analysis Environment for End-to-End Performance Assessment of Space Systems	$219,669
165464	Nanoscale Piezoelectric Effect Induced Surface Electrochemical Catalysis in Aqueous Environment	$251,831
165535	Pattern ANalytics To Support High-performance Exploitation and Reasoning (PANTHER)	$4,398,635
165536	Robust Decision Making Despite Compromised Data	$283,496
165537	Composing Formally Verified Modules to Analyze Security and Reliability Properties of Large-Scale High-Consequence Systems	$544,721
165539	Line Element Electron Source for High-Speed Electron Microscopy	$211,611
165541	Cyber Graph Queries for Geographically Distributed Data Centers	$267,930
165542	Applying Cognitively Inspired Computing Systems to Create a Robust Cyber Protection Architecture	$420,834
165543	Nested Narratives	$490,659
165544	Active Learning for Alert Triage	$402,438
165545	Precision Laser Annealing of Focal Plane Arrays	$424,848
165546	Bus Assessment	$47,335
165547	Computer Network Deception	$283,263
165548	Electrically Biased Mesh for Electron Patterning	$199,929
165549	Precise and Persistent RF Detection, Tracking, and Location	$224,330
165550	Hardware Solution to Flash Memory Accessibility Problems	$53,270
165551	Graphene Survivability	$215,449
165552	Combination Bearing/Flexure Joint for Large Coarse Motions and Fine Jitter Control	$446,568
165553	Advanced Prototyping Using Composite Materials	$74,784
165554	Wound Ballistics Modeling for Blast Loading, Blunt Force Impact, and Projectile Penetration	$344,992
165555	Ground Moving Target Extraction, Tracking, and Image Fusion	$473,738

165557	Dynamic Invariant Inference for Binary Analysis	$200,429
165559	Board and System Level Spectral Analysis	$204,878
165562	Tomographic Range Imaging	$436,373
165563	Radio Frequency Environment Characterization through Novel Machine Learning Techniques	$200,171
165565	Sintering Kinetics and Latency of Silver Nanoparticle Conducting Layers	$104,380
165566	Electromagnetic-Wave Probing of Electrical Circuits	$253,088
165570	Exploration of the Thunderbolt Bus Protocol	$124,746
165571	A Thermo-Optic Propagation Capability for Reducing Design-Cycle Time, Improving Performance Margins, and Lowering Realization Costs	$653,759
165572	Self-Powered Thin Electronic Systems	$258,280
165574	Large Motion High Cycle High Speed Optical Fibers for Space Based Applications	$502,549
165577	Quantum Graph Analysis: Engineering and Experiment	$679,020
165578	Distributed Receiver Approach to Robust Satellite Signal Reception	$210,737
165579	Chemical Stability and Reliability of Petroleum Based Products	$247,372
165580	Enabling Technologies for the Development of Very Small Low-Cost Interceptors	$248,822
165581	Turbocharging Quantum Tomography	$245,158
165607	Unknown Pathogen Detection in Clinical Samples: A Novel Hyperspectral Imaging and Single Cell Sequencing Approach	$791,635
165608	Understanding and Regulation of Microbial Lignolysis for Renewable Platform Chemicals	$612,944
165609	The Engineering and Understanding of Nanoparticle/Cellular Interactions	$672,121
165611	Operationally-Relevant Cyber Situational Awareness Tool Development	$366,535
165612	Does Solution Adaptivity Help or Hinder Solution Verification?	$100,290
165613	Cognitive Computing for Security	$506,388
165614	Situational Awareness of Topic Drift and Birth-Death in Cybersecurity	$514,223
165615	Sublinear Algorithms for In-situ and In-transit Data Analysis at Exascale	$419,378
165616	Strong Local-Nonlocal Coupling for Integrated Fracture Modeling	$479,298
165617	Efficient Probability of Failure Calculations for QMU using Computational Geometry	$678,552

165618	A Universal Quantum Transport Computational Capability for Cross-Technology Comparisons of Beyond-CMOS Nano-electronic Devices	$253,938
165619	Advanced SMRs Using S-CO2 Power Conversion with Dry Cooling	$499,952
165620	Active Suppression of Drilling System Vibrations For Deep Drilling	$750,176
165630	Climate Induced Spillover and Implications for US Security	$467,811
165631	Natural Gas Value-Chain and Network Assessments	$591,599
165632	Novel Metal-organic Frameworks for Efficient Stationary Energy Sources via Oxyfuel Combustion	$599,689
165633	Sandia's Twistact Technology: The Key to Proliferation of Wind Power	$545,153
165634	Timing is Everything: Along the Fossil Fuel Transition Pathway	$124,621
165635	Calibration, Validation, and Uncertainty Quantification for Turbulence Simulations of Gas Turbine Engines	$443,948
165636	Developing Next Generation Graphene-based Catalysts	$200,839
165637	Coating Strategies for High Energy Lithium-Ion	$48,452
165638	Synthesis of Heterometallic Manganese oxo Clusters as Small Molecule Models of the Oxygen-evolving Complex of Photosystem II	$72,022
165644	Enabling Novel Nuclear Reactors with Advanced Life-time Modeling and Simulation	$251,168
165646	Quantitative Imaging of Turbulent Mixing Dynamics in High-Pressure Fuel Injection to Enable Predictive Simulations of Engine Combustion	$808,654
165649	A Process and Environment Aware Sierra/SM Cohesive Zone Modeling Capability for Polymer/Solid Interfaces	$554,146
165652	Prediction of Spark Discharge Paths & Voltages	$448,737
165656	Time-Resolved Optical Measurements of Shock-Induced Chemistry in Energetic Materials	$721,014
165659	Development of Non-Intrusive Methods to Measure Static and Dynamic Forces and Motions in Mechanical Joints	$161,775
165661	3D Deformation Field Throughout the Interior of Materials	$166,732
165667	Determining Constitutive Material Properties From Full-Field Experiments Using the Virtual Fields Method	$177,229
165668	Methane Hydrate Formation on Clay Mineral Surfaces: Thermodynamic Stability and Heterogeneous Nucleation Mechanisms	$465,327
165669	Determination of Aerosol Scattering Characteristics for Atmospheric Measurements	$265,383
165670	Appraisal of Hydraulic Fractures Using Natural Tracers	$400,758

165676	Development and Field-testing of a Diagnostics Platform for Global Syndromic Disease Surveillance	$543,907
165679	Processing Radiation Images Behind an Information Barrier for Automatic Warhead Authentication	$448,994
165680	Bubble Masks for Time-Encoded Imaging of Fast Neutrons	$210,334
165681	RGB+D for Biometrics and Physical Security	$183,052
165682	Radiography Signature Science of Homemade Explosives	$443,702
165683	Distinguishing Bioengineering from Natural Emergence in Biothreat Genomes	$465,271
165685	Jam-Proof Wireless Communications	$461,148
165686	Using EEG to Understand Domain-Specific Visual Search	$313,057
165687	Improved Pulse Shape Discrimination in a Multicomponent Water/Organic System	$530,563
165692	LEEM-PEEM Studies of Localization Mechanisms in InGaN-based Heterostructures	$498,465
165694	Oxide-Based Proton-Conducting Membranes for Energy Conversion and Utilization	$269,511
165695	Controlled Polarization Reversal for Ferroelectric Opening Switches (CPR for FEOS)	$190,728
165696	Programmable Nanocomposite Membranes for Ion-Based Electrical Energy Storage	$502,730
165697	Science-Based Design of Stable Quantum Dots for Energy-Efficient Lighting	$532,838
165698	Predicting Growth of Graphene Nanostructures Using High-Fidelity Atomistic Simulations	$495,729
165699	Spin-based Field Effect Transistor using Topological Insulators for ?Beyond Moore? Information Technology	$153,433
165700	Tunable Quantum Dot Solids: Impact of Interparticle Interactions on Bulk Properties	$473,390
165701	Nonlinear Response Materials for Radiation Detection	$343,497
165702	Active Plasmonics from the Weak to Strong Coupling Regime	$709,758
165703	Minority Carrier Lifetime Characterization and Analysis for Infrared Detectors	$150,526
165704	Electrically Injected UV-Visible Nanowire Lasers	$547,600
165705	Efficient Heat Removal from Power-Semiconductor Devices Using Carbon Nanotube Arrays and Graphene	$525,156
165706	Fabrication and Characterization of a Single Hole Transistor in p-type GaAs/AlGaAs Heterostructures	$243,414
165707	Optical Polarization Based Genomic Sensor	$435,588
165708	Programmable Piezoelectric RF Filters	$460,590
165711	Computational and Experimental Characterization of Aluminum Nitride-Silicon Carbide Thin Film Composites for High Temperature Sensor Applications	$251,853

165713	Exploring the Possibility of Exotic Ground States in Twisted Bilayer Graphene	$225,100
165714	Closing the Nutrient Utilization Loop in Algal Production	$270,150
165715	Testing the Effects of Transcranial Direct Current Stimulation on Human Learning	$53,984
165717	Searching for Majorana Fermions in Topological Superconductors	$183,999
165724	Understanding H Isotope Adsorption and Absorption of Al-Alloys Using Modeling and Experiments	$393,192
165725	Carbon Composite MEMS Accelerometer	$519,961
165726	Organosilicon-based Electrolytes for Long-Life Li Primary Batteries	$525,476
165728	Electromechanical Performance of Electronic Components in Harsh Environments	$227,597
165729	The Use of Degradation Measures to Design Reliability Test Plans	$161,359
165731	Non-Equlibrium Electron-Ion Dynamics under Extreme Conditions via Time-Dependent Density Functional Theory	$335,363
165732	Electrical Breakdown Physics in Photoconductive Semiconductor Switches (PCSS)	$223,646
165733	Z-pinch X-ray Sources for 15-60keV	$448,251
165734	Exponentially Convergent Monte Carlo for Electron Transport	$99,743
165736	Implementing and Diagnosing Magnetic Flux Compression on Z	$398,438
165738	Evaluation of Warm x-ray Bremsstrahlung Diodes on Z	$295,546
165739	High Pressure Pre-Compression Cells for Planetary and Stellar Science	$351,253
165740	Assessment of Load Current Multipliers to Increase Load Magnetic Pressures for Dynamic Materials and Fusion Experiments	$132,133
165741	Radiation Susceptibility of Memristive Technologies in Hostile Environments	$356,216
165746	Exploring New Frontiers in Wave-Particle Physics in Nonstationary, ICF-related Plasmas	$247,020
165767	Identification of Nucleic Acid Biomarkers of Infection in Blood	$982,532
165822	Consolidated Bioprocessing and Biofuels Production Platform	$81,918
165823	Development of a MEMS Dual-Axis Differential Capacitance	$29,902
165824	Crossing the Membrane Barrier: Implications for Developing Medical Therapuetics	$240,450
165825	The Role of Grain Boundary Energy on Grain Boundary Complexion Transitions	$42,464
166140	Adaptive Multimodel Simulation Infrastructure (AMSI)	$26,227

166141	Kernel and Meshless Methods for Partial Differential Equations	$57,081
166143	Time-varying, Multi-scale Adaptive System Reliability Analysis of Lifeline Infrastructure Networks	$46,986
166148	Lithium Thiophosphate Compounds as Stable, High Rate Li-Ion Separators: Moving Solid Electrolytes into High Rate Applications	$41,963
166149	Structural Health Monitoring for Impact Damage in Advanced Composite Structures Using Virtual Sensor Grid	$48,403
166151	Highly Efficient Entangled Photon Source for High-speed Secure Quantum Communication Network	$288,850
166152	High Precision Testing and Structural Analysis of Li-ion Batteries	$61,813
166153	Upscaling Ab-Initio Quantum Chemistry Models for Nonequilibrium Reacting Flow Simulations	$44,068
166154	In-situ Techniques to Characterize Creep and Fatigue in Freestanding Metal Thin Films	$49,139
166536	Removal of Abundant Nucleic Acid Sequences from Complex Mixtures via Isotachophoresis	$59,060
166537	Enabling Bidirectional Modality Transitions in Collaborative Virtual Environments	$41,268
166538	A Compact Single-camera System for High-speed, Simultaneous 3-D Velocity and Temperature Measurements	$46,720
166539	A Modular Nanoparticle Platform for Treatment of Emerging Viral Pathogens	$250,023
166636	Multiscale Modeling of Hybrid Composites	$51,542
167008	Toward Interactive Scenario Analysis and Exploration: A Study on Simulation Technology Optimization and Scalability with Big-Data Analysis and their Applications	$196,115
168506	Quantum-Confinement Effects on Seebeck Coefficient	$103,108
168507	Advanced Digital Microfluidic Interface for Sample Prep Automation	$84,606
168763	Creating a Novel Silicon Substrate for the MOCVD Growth of Low Defect GaN	$26,227
169249	Modeling the Coupled Chemo-Thermo-Mechanical Behavior of Amorphous Polymer Networks	$54,316
169300	Non-Linear T-Lines for Fire-Set/EBW Drivers	$49,822
170798	Development of a Rapid Field Response Sensor for Characterizing Nuclear Detonation (NUDET) Debris	$139,604
170800	Real-Time Case-Based Reasoning using Large High-Dimensional Data	$84,439
170801	Recombinant Vesicular Stomatitis Virus for Therapeutic Antibody Epitope Mapping and Vaccine Development	$176,517
170802	Modeling Tin Whisker Growth	$116,946

170803	Integration of a Neutron Sensor with Commercial CMOS	$128,703
170804	Systems-Level Synthetic Biology for Advanced Biofuel Production	$125,317
170805	C2R2: Compact Compound Recirculator/Recuperator for Renewable Energy and Energy Efficient Thermochemical Processing	$126,886
170806	Liquid Metal Embrittled Structures for Fragmenting Warheads	$129,461
170973	Model Reduction for Quantum Technologies	$133,062
170974	Determination of Surface-Mediated Degradation Products in Energetic Materials at Critical Interfaces	$117,507
170975	Development of High-Fidelity Models for Liquid Fuel Spray Atomization and Mixing Processes in Transportation and Energy Systems	$126,317
170976	Development of Quality Assessment Techniques for Large Eddy Simulation of Propulsion and Power Systems in Complex Geometries	$125,887
170977	Fiber Optic Streak Spectroscopy of Gas Cells in Extreme Radiation Environments	$127,534
170979	Quantifying Confidence in Complex Systems Models Having Structural Uncertainties	$115,722
170983	Experimental Validation of a High Voltage Pulse Measurement Method	$50,216
170985	Reconfigurable Threat Emulation Attitude Control Strategy	$50,184
170986	In-situ TEM Study of LiMn2O4 Stability	$49,518
170995	High Fidelity Forward Model Development for Nuclear Reactor Spent Fuel Technical Nuclear Forensics	$125,048
170996	Radar Detection of Personnel Obscured by Foliage	$120,199
171001	Pathogen Capture: Using Sandia Technology to Understand Host-Pathogen Interactions	$56,480
171054	Revisiting the Applied Mechanics Paradigm: Multi-scale Modeling of Transport Processes in Complex Materials	$501,491
171055	Breaking Antibiotic Resistance: Use of High-Throughput, Multi-Dimensional Data Analyses and Revolutionary Advances in Engineered Nanoparticles to Design and Deliver Antisense RNA	$501,398
171056	Flexible, Adaptable, Full-spectrum Imaging via Nanoantenna Enabled Two-dimensional Detectors	$520,970
171057	Comparative Approach for a Physics-based Understanding of Power Spectrum Analysis Signatures	$294,564
171059	Counter-Adversarial Data Analytics	$471,235
171060	Beyond Moore's Law Computer Architecture	$509,612
171061	First to High Yield Fusion	$469,232
171069	Polyfunctional Desorption of Oil from Shales	$436,725

171074	Modeling the Chelyabinsk Airburst: a New Benchmark for Radiation Hydrocodes	$56,139
171117	Numerical Methods for Efficient Simulations and Analysis of Circuits with Separated Time Scales	$116,751
171128	Graphene Liquid Crystals: Novel Building Block for Anisotropic Oriented Materials	$55,190
171129	A Micro-Engineered Human Blood-Brain Barrier (u-BBB) to Study Host-Pathogen Interactions	$54,423
171381	Detecting Seasonal Changes in Permafrost Using in situ Seismic Velocities, Near-Field Soil Moisture Monitoring, and Remote Sensing	$451,277
171525	Use of Slurries for Salt Caverns Abandonment	$73,037
171926	Study of Gallium Nitride High Electron Mobility Transistor Degradation through Comprehensive Characterization	$58,646
172316	Carbon Nanotube Thermal Interface Materials for Satellite Systems	$48,629
172334	Decoupling Superconducting Transmon Qubits from their Quantum Bus/Readout Resonators to Enable Scaling	$72,631
172335	Supply Chain Lifecycle Analytics	$291,371
173297	Exploring Graphene Field Effect Transistor Devices to Improve Spectral Resolution of Semiconductor Radiation Detectors	$43,719
173302	Enabling the First Ever Measurement of Coherent Neutrino Scattering Through Background Neutron Measurements	$50,010
	Total # of Projects for SNL: 447	
	Total Cost for SNL: $165,062,958	
	Total Administrative Cost: $3,019,382	

SRNL - Savannah River National Lab		
LDRD-2012-00016	Implementation and Testing of SKPM-based Photo-induced Charge Spectroscopy Method for Measuring Energy and Lifetimes of Stored Charge in Organic Thin Film Systems	$258
LDRD-2012-00021	Characterization of chemical changes observed for uranium and plutonium particulate materials	$353,191
LDRD-2012-00030	15 MW Hardware-in-the-Loop Grid Simulation	$135,250
LDRD-2012-00038	Non-Aqueous Electrochemical Fluorination of Used Nuclear Fuel as an Advanced Separation Process	$248,860
LDRD-2012-00053	Application of Cooling Towers for Collection, Concentration, and Detection of Chemical and Radiological Agents	$11,437
LDRD-2012-00066	Redox Catalyst Development for Improving Electrolytic Cells	$2,085
LDRD-2012-00069	New Materials for Hybrid Lithium-Ion Battery	$15,669
LDRD-2012-00072	Novel Materials for Actinide Separations	$8
LDRD-2012-00077	Evaluation of Hydrogen Isotope Exchange Methodology on Adsorbents for Tritium Removal	$38

LDRD-2012-00081	Sensor Development for In-situ Non-interrupted Chemical Speciation for Structural Health Monitoring and Functional Release Detection of Radionuclides	$215,277
LDRD-2012-00084	Smart Nanophase Extractors for Environmental Remediation and Liquid Waste Clean-up	$5,257
LDRD-2012-00099	GrayQb	$1,674
LDRD-2012-00101	Construction of High Performance Infared Absorption Gas Sensor	$4
LDRD-2012-00104	Alignment of Nano-rods into Coherent Structures Using Evanescent Electric Fields	$1,951
LDRD-2013-00007	Conversion of TENORM-containing Gas Shale Well Drill Cuttings into High Performance Proppants Via Ionic Liquid Separation, Flame Spheroidization, and Devitrification Processing	$279,574
LDRD-2013-00010	Identifying Optimal Applications for Low-Cost, Highly Effective Sorbents for Cs, I, and Tc	$251,769
LDRD-2013-00012	Novel Materials for Actinide Separations	$224,519
LDRD-2013-00016	Long-term, In-situ Monitoring for Subsurface Contaminant Stability	$344,479
LDRD-2013-00018	Detection of fluoride and uranium exposure in terrestrial plants	$220,270
LDRD-2013-00021	Source attribution of atmospheric radionuclide emissions from signatures embedded within varying background signals	$253,940
LDRD-2013-00029	Spectroscopic Techniques for the Characterization of Particulates from Proliferation Activities	$388,402
LDRD-2013-00038	Photonic Crystals for Enhanced Light Outcoupling of Scintillation Based Detectors	$267,581
LDRD-2013-00040	A new technology in alpha-gamma and beta-gamma coincidence counting	$186,213
LDRD-2013-00046	Optical Monitoring of Canister Environments in Dry Cask Fuel Storage Systems	$171,360
LDRD-2013-00052	Actinide/Lanthanide Separation with Magnetic Fields	$191,601
LDRD-2013-00053	Determining Distribution Coefficients by Surface Enhanced Raman Spectroscopy (SERS)	$173,199
LDRD-2013-00065	Porous Rhenium Nano-Structures for TIMS Filament Enhancement	$202,725
LDRD-2013-00080	Authenticated Sensor Interface Device	$226,890
LDRD-2013-00082	Spent Fuel Cask Fissile Material Assay by Collimated Gamma Neutron Sensing and Modeling	$221,085
LDRD-2013-00084	Fast Neutron Directional Detection Via Innovative Moderator Design	$170,356
LDRD-2013-00087	Solid Oxide Reduction of UNF	$258,732
LDRD-2013-00090	Ternary Carbide Clad Coatings, and High-Conductivity Fuel System, for Accident Tolerant Light Water Reactor Fuel	$269,629

LDRD-2013-00092	Structural Integrity of Dual-Purpose Canister for Used Nuclear Fuel Under Extended Storage and Transportation	$313,843
LDRD-SI-2011-001	Reactive Gas Reprocessing of Spent Nuclear Fuel	$4,362
LDRD-SI-2011-003	Risk Reduction and Process Optimization for Engineered Algae Production Systems	$6,054
LDRD-SI-2011-004	Nano-Photocatalysts for Solar Fuels Applications: Conversion of CO_2 to Hydrocarbons	$5,139
	Total # of Projects for SRNL: 36	
	Total Cost for SRNL: $5,622,681	
	Total Administrative Cost: $139,129	
SRP - Savannah River Plant		
SR09034	Evaluate Pt-based catalysts for tritium oxidation reaction	$2,218
SR12022	Tritium Sensor Technology Development Roadmap and Tritium Instrument Demonstration Station	$585,325
SR12025	Alternative to Monthly Source Check for Facility Electrometers	$58,043
SR13001	Continuous Feed Plant Configured Mini-TCAP	$594,826
SR13007	Nuclear Magnetic Resonance (NMR) characterization of polymer and graphite degradation by tritium exposure	$106,138
SR13020	Tritium Secure Wireless Air Monitoring Cart	$166,297
SR13034	Normetex Pump Replacement	$25,972
SR13035	Initiate Tritium Aging Studies in LANA.85 Hydride	$143,658
SR13044	Study to Identify Magnesium Bed Elimination / Replacement Technology	$80,011
SR13046	Support to PNNL & Texas A&M Tritium Production Studies	$165,232
	Total # of Projects for SRP: 10	
	Total Cost for SRP: $1,927,720	
	Total Administrative Cost: $93,294	
Y-12 - Y-12 Plant		
PD110221	Advanced Integrated Machining System (AIMS) Prototype	$850,299
PD110516	Direct Electrolytic Reduction and Electrorefining of Uranium (DER/ER)	$3,827,240
PD110661	Reduced Exposure Manufacturing Operations Technologies (REMOTE)	$427,959
PD110668	Direct Manufacturing Evaluation	$286,811
PD110670	Measurements and Standards for the NDSTC	$222,001
PD110684	Spark Source Time-of-Flight Mass Spectrometry	$102,857
PD110720	Compatibility Testing and Center for Advanced Nuclear Fuels	$299,081
PD110738	Enhanced Alloy Processing in MW castings	$553,112
PD110755	Small Scale Lithium Wet Chemistry	$1,231,280
PD110794	Standoff Detection Feasibility Study	$129,541
PD110839	Methods of making U-Mo powder	$800,242

PD110843	Demonstration of Special Material Production Flowsheet	$200,206
PD110864	Janus Spindle Evaluation	$306,466
PD110881	UO2 Fuel Processing Parameters	$136,468
PD110909	Video-based detection for UPF	$84,256
PD110974	Alternative Uranium Compound Synthesis	$300,006
PD121330	Induction Brazing Application	$70,099
PD121331	Brush Electropolish Evaluation	$24,492
PD121346	High Accuracy/Precision 235U Enrichment Verification Station for LEU Alloys	$170,831
PD121356	Reduced carbon levels on uranium chips	$63,643
PD121365	Improvement of Plant Metal Quality	$27,832
PD121369	Enriched Uranium Concentration Measurements	$1,002,550
PD121376	Continued Development and Fielding of Ultra-Wide Band Technologies at Y-12	$140,947
PD121389	Multi-Material Experimental Corrosion Study	$236,581
PD121392	Chip Cleaning Optimization Studies	$91,487
PD121393	Direct Material Manufacturing Process Improvement Studies	$307,765
PD121394	Radiological NMR Studies	$280,356
PD121396	Semiconductor Radiation Detectors	$336,182
PD121404	Special Material Purification Parameter Study	$327,122
PD121405	New Explosives Sensors Based on Magnetic Wires and Molecular Recognition Phases	$298,813
PD121408	Special Material Characterization and Recovery	$173,287
PD121409	Thermal Decomposition & Distillation	$662,061
PD121412	Low Concentration Uranium Measurements in the Presence of Radioactive Impurities	$102,851
PD121427	Metallographic Process Development	$421,021
PD121428	Optimization of BP thin film detector	$172,515
PD121435	Neutron Scattering Studies of Aging Effects in Y-12 Materials	$281,134
PD121436	Density Evaluation by Gas Pycnometry	$11,838
PD121468	Uranium Detection in Molten Salts Using Cyclic Voltammetry	$110,531
PD121470	System Health Monitoring for Production Facilities	$236,661
PD121492	Advanced Modeling and Simulation for System Optimization	$241,848
PD121523	Predictive Human Resource Model	$163,639
PD130001	Direct Recycle of Machine Dust	$64,167
PD130002	Zone Refinement of LiH	$176,304
PD130003	Small Scale Lithium Electrolytic Cell	$121,806
PD130005	Determination of Thermodynamic Properties II	$294,318
PD130006	Tank PLC System Calibration & Test	$244,891
PD130007	Calcination of impure UNH using rotary calciner	$224,770
PD130008	Separation Technology Improvements	$279,239
PD130009	SDOR reaction rates	$104,227
PD130010	Process Improvement of Fuel Manufacture	$94,464
PD130020	UV Raman Spectroscopy Studies	$305,598

PD130021	Determination of hydriding in uranium	$166,338
PD130022	Obsolete Software Replacement	$301,924
PD130023	Salt Conditioning System	$271,101
PD130024	Pulse Calibration Method for Mass Spectrometry	$300,254
PD130025	Advanced Modeling of Y-12's Microwave Operations	$326,562
PD130030	Mechanical Testing and Property Comparison of Non-Metal Pieces	$92,586
PD130031	Laser Processing Improvements	$126,433
PD130032	Productionize Crimp Welder	$26,108
PD130033	Improved Depleted Uranium Welding	$33,063
PD130034	Robust MW Insulation	$669,147
PD130040	Recovery Solution Sampler	$177,036
PD130041	Dual YZ Controller Validation	$391,087
PD130042	CMM controller equipment	$673,844
PD130050	Film Replacement MeV Digital Radiography	$260,724
PD130051	Gamma-Ray Imaging for Casting Stack Inspections	$151,766
PD130060	Profilometry for U-Mo Production Quality Assurance	$327,297
PD130061	Gesture-Based Computing	$60,036
PD131234	Rapid Response PDRD	$108,879
	Total # of Projects for Y-12: 69	
	Total Cost for Y-12: $22,087,880	
	Total Administrative Cost: $1,329,657	