United States Department of Energy
Laboratory, Plant or Site Directed Research and Development Report
Project List -- Fiscal Year 2006

ANL - Argonne National Lab

Project ID	Project Name	FY Total
P/ANL2004-026	Science and Technology of a New TiAlO[x] Alloy Oxide and Its Application to a New Generation of Integrated Circuit Gate Dielectric	$109900
P/ANL2004-038	Time-Resolved Studies of Magnetization Dynamics in Nanostructured Materials	$137900
P/ANL2004-044	Palladium/Semiconductor Nanohybrids as Hydrogen Sensors for Fuel Cell Applications	$156600
P/ANL2004-057	Novel Integrated (On-Chip) Magnetic Field Sensors	$120800
P/ANL2004-063	Ferromagnetic Micro-Disks with Superior Properties for Biomedical Applications	$131900
P/ANL2004-095	Nanoporous Separation Membranes	$169900
P/ANL2004-115	Photosynthetic Reaction Center as a Novel Quantum Electronic Circuit Element	$196400
P/ANL2004-126	Novel Hydrogen Storage Media through Nano-Structured Polymer and Carbon Layer Materials	$158400
P/ANL2004-133	Ultra-High-Sensitive Miniature Calorimeter for Studies of Confinement Effects of Bio-Organic Structures	$97200
P/ANL2004-141	Environment for a Nanoscale Materials Virtual Fab Lab	$361900
P/ANL2004-142	Simulations of Spin Wave Excitations in Magnetic Nanoparticles	$82100
P/ANL2004-144	Near-Field Optical Investigations of Nanoscale Photochemistry and Photophysics	$173500
P/ANL2004-148	Discovery of Protein Space	$97400
P/ANL2004-157	High-Throughput Analysis of Low Abundance Protein Constituents in Complex Biological Mixtures	$452100
P/ANL2004-159	Molecular Recognition: Protein-Small Molecule Interactions	$82500
P/ANL2004-162	The Biogeochemical Cycle of Nitrogen: Effects on Climate Change	$224800
P/ANL2004-191	Multidimensional Flow and Heat Transport Natural Convection Test Capability	$181800
P/ANL2004-212	Superhard Coatings for Wear Reduction and Energy Saving Applications in Diesel Engines	$158300
P/ANL2004-213	Pressure Rate Controlled Compression Ignition (PRCCI)*	$121400
P/ANL2004-215	Investigation into Nano-Particulate Production from Homogeneous Charge Compression Ignition (HCCI) Combustion	$122200
P/ANL2004-226	Development of Ultrafast Laser Techniques for Advanced Accelerator Research	$158200
P/ANL2004-227	Advanced Heavy-Ion Beam Dynamics	$92000

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Project ID	Project Name	FY Total
P/ANL2004-228	Next-Generation Light-Source Storage Ring Design and Simulation	$85500
P/ANL2004-232	Improvement of FNAL Run II Performance: Optical Transition Radiation (OTR) Imaging for Protons and Antiprotons	$24100
P/ANL2004-242	Laser Surface Texturing for Friction Reduction	$97400
P/ANL2004-243	Innovations for Small Modular Fast Reactor	$363800
P/ANL2005-007	Motion of Nanoparticles in Nanofluids	$104600
P/ANL2005-024	ALD Stabilization of Nanoparticles Designed on the Atomic Scale	$154400
P/ANL2005-028	Fundamental and Applied Science of Hybrid Ferroelectric/Piezoelectric-Diamond Heterostructures for High-Performance MEMS/NEMS Devices	$143300
P/ANL2005-032	Uniform-Sized Biodegradable Nanospheres for Drug Delivery - Novel Synthesis Platform Can Revolutionize Targeted Drug Delivery	$93800
P/ANL2005-036	Investigating Ultra-Fast Catalysis and Electro-Catalysis Processes using Time-Resolved X-Ray Absorption Techniques	$150600
P/ANL2005-046	Nanosensors for Label-Free Detection of Protein-Ligand Binding at Biological Membrane Surfaces	$190500
P/ANL2005-065	Shock-Wave Desorption of Large Organic Molecules	$125200
P/ANL2005-067	Nano-Ionics: A Route to High Performance Fuel Cells, Membranes, and Sensors	$182200
P/ANL2005-086	Imaging Microbial Biofilms using Mass Spectrometry	$125600
P/ANL2005-089	Organic Light-Emitting Diodes Based on Nanostructured Non-Sandwich Electrodes	$146800
P/ANL2005-092	Enhancement of Battery and Ultracapacitor Performance through Novel Applications of Nanotechnology	$144700
P/ANL2005-127	Collectivity in Inorganic and Bio-Inspired Optical Nanosystems	$177000
P/ANL2005-140	Reducing Heavy Duty Vehicle Emissions through Coupling Diesel Reforming to Emissions Catalysts and Engine Control Devices	$108700
P/ANL2005-147	Manipulation of Biomolecules using Metal Oxide Nanoparticles (Formerly "Hybrid Nanostructures within Cell Machinery")	$123200
P/ANL2005-150	Metalloproteomics and Metalloregulation of Signaling	$248700
P/ANL2005-155	In Situ X-Ray, Electrochemical, and Modeling Investigation of High-Temperature Fuel Cell and Electrolysis Electrodes	$220100
P/ANL2005-157	High-Fidelity Integrated Simulation of Nuclear Energy Systems through Petascale Computing	$62600

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Project ID	Project Name	FY Total
P/ANL2005-160	Planning for a New Neutrino Experiment at a Nuclear Reactor	$116700
P/ANL2005-161	Femtosecond Pulses of Coherent Synchrotron Radiation from an Emittance-Sliced X-Ray FEL	$30500
P/ANL2005-166	Aligned Molecular Targets for Fourth Generation Sources	$98500
P/ANL2005-168	Lateral and Molecular Spintronic Structures	$151800
P/ANL2005-179	Fast Release ISOL Target Concept Based on Aerogels	$23000
P/ANL2005-187	Integrated Simulation Framework for National Security Decision Support	$271400
P/ANL2005-193	PDQuest: Investigations into Applications, Software and Architectures for Enabling Petascale Science	$877900
P/ANL2005-194	Computation and Informatics for Modeling and Analysis of Biological Systems	$69100
P/ANL2005-204	Universal Phylochip for Environmental Background Characterization and Monitoring	$235100
P/ANL2005-210	Nanoscale Materials Synthesis and Self-Assembly	$170300
P/ANL2005-213	Novel Magnetic Force Microscopy for Variable-Temperature Ultra-High-Vacuum Environments	$86000
P/ANL2005-214	A Hybrid Instrument - MISANS (Modulated Intensity Small-Angle Scattering)	$60000
P/ANL2005-215	High-Resolution Element-Selective Microscopy Using X-ray Enhanced Scanning Tunneling Microscopy	$108800
P/ANL2005-216	Quantum Critical Behavior in Nanostructured Materials	$133400
P/ANL2005-217	Precision Measurement of Hadronic Showers	$179300
P/ANL2005-221	Advancing Multidisciplinary Condensed Matter Theory	$122400
P/ANL2005-223	In-Situ Raman Spectroscopy of Catalysts	$450800
P/ANL2006-015	Development of a New Concept for a Solenoid Spectrometer for Nuclear Structure Studies	$155700
P/ANL2006-023	Ultra-Fast Phase-Enhanced X-Ray Imaging with Micrometer-Spatial and 150 Picosecond Temporal Resolutions	$174600
P/ANL2006-033	Quantum Wire Interconnects	$136500
P/ANL2006-035	Biocompatibility of Ultra-Nanocrystalline Diamond Thin Films	$145900
P/ANL2006-075	Large-Area Detectors with Pico-Second Time Resolution	$106800
P/ANL2006-088	Time-Resolved Optical Sensors for Biological Molecules with Ultra-High Sensitivity and Specificity	$127100
P/ANL2006-091	Adopting Photonic Concepts to THz Generation	$145000

ANL - Argonne National Lab

Project ID	Project Name	FY Total
P/ANL2006-096	Nanoscale Engineered Superconducting RF Cavities as Novel Accelerating Elements	$169400
P/ANL2006-105	Uncharacterized Gene with Putative Function in Bone	$171800
P/ANL2006-118	Plasmon Scanner for High-Resolution Surface-Enhanced Raman Spectroscopy of Biological Nanosamples	$147100
P/ANL2006-123	International Linear Collider R&D at Argonne: The Gamma-Ray Based Positron Source and Positron Emulator Study	$198900
P/ANL2006-126	Institutional Factors Analysis Tool for Energy Projects	$17900
P/ANL2006-127	Characterization of the Transportation Sector for Input to the ENPEP Model	$24400
P/ANL2006-128	Stationary Energy Demand: Characterization of Industrial, Residential, and Commercial Energy	$17800
P/ANL2006-129	Technology Assessment Financial Analysis Tool	$23900
P/ANL2006-132	Develop Electric Sector Characterization	$17800
P/ANL2006-134	Enhanced Energy and Emissions Analysis Linkage of GREET and ENPEP Models	$36300
P/ANL2006-136	Development of an Integrated Site-Specific Environmental Assessment Tool	$30100
P/ANL2006-137	Plug-In Hybrid Electric (P-HEV) Vehicle Optimization	$193200
P/ANL2006-139	Development of Cost Engineering and Technology Verification Tools	$23800
P/ANL2006-141	Renewable Bio-Fuel Combustion Characteristics in Automotive-Type Diesel Engines	$71600
P/ANL2006-145	Methodology and Model for Evaluating Advanced Energy and Environmental Technology R&D Options Considering Multiple Criteria and Multiple Perspectives under Conditions of Uncertainty	$30500
P/ANL2006-146	Advanced Beam Diagnostics Development and RF Photocathode Studies for Low Emittance Electron Beams: A International Linear Collider Study	$45100
P/ANL2006-147	Natural Gas Sector Characterization	$17800
P/ANL2006-148	Developing a Conventional Analysis Framework	$71900
P/ANL2006-149	Novel Nano-Architectures for High-Efficiency Solar Cells	$146800
P/ANL2006-150	Design and Develop an Advanced Analysis Framework	$59600
P/ANL2006-151	Fungible Fuels by Bioprocessing	$331900
P/ANL2006-152	Conversion of Solid Carbon Feedstocks into Liquid Hydrocarbons for Transportation Fuels through Gasification	$450300

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ANL - Argonne National Lab

Project ID	Project Name	FY Total
P/ANL2006-154	A Photoelectrochemical Cell for Integrated Production and Separation of High-Purity Hydrogen	$157700
P/ANL2006-156	Petroleum Sector Characterization	$23900
P/ANL2006-162	Toward Peak Performance on Petascale Machines for Nonlinear PDE Simulations	$75500
P/ANL2006-165	On-Vehicle Reforming of Ethanol/Water for Hydrogen-Fueled Vehicles and Auxiliary Power Units	$190000
P/ANL2006-166	Development of Nuclear Energy Sector Characterization	$16600
P/ANL2006-168	Interparticle Coupling and High Frequency Dynamic Response in Magnetic Nanocrystal Colloids and Assemblies	$220100
P/ANL2006-169	Nanophotonics Materials and Devices	$126000
P/ANL2006-170	Functionalization of Polarizable Surfaces for Nanofluidic Control	$131400
P/ANL2006-171	Biomolecule Directed Assembly of Nanostructures	$253100
P/ANL2006-180	Development and Spray Characterization of Micro-Orifice Diesel Injector Nozzles Fabricated using Electroless Nickel Coating	$65700
P/ANL2006-181	Prototype Design of a Low-Level RF Control System Utilizaing Software Defined Radio and Digital Signal Processing Techniques and Hardware	$41800
P/ANL2006-183	Development and Demonstration of a Prototype Omnivorous Engine	$178500
P/ANL2006-184	Superconducting Quantum Dot Solids	$123500
P/ANL2006-185	R&D of Control System Requirements for Future Accelerators	$60800
P/ANL2006-188	Development of Transition Radiation and Diffraction Radiation Diagnostics for GeV Electron Beams	$24900
P/ANL2006-190	Investigations of Coherent Synchrotron Radiation Effects on Bunch-Compressed Bright Electron Beams	$49900
P/ANL2006-191	Technical Assessment of the ILC Damping Rings	$34200
P/ANL2006-198	Liquid Metal Simulations for Fusion, Accelerator, and Astrophysical Applications	$143500
P/ANL2006-199	Theoretical Investigations of Atomic and Molecular Interactions with Ultrafast/Ultraintense X-Ray Radiation	$330300
P/ANL2006-201	Surface Discharge for ILC Fast Kicker	$15300
P/ANL2006-205	Advanced Simulation of Nuclear Fuel Cycle	$825600
P/ANL2006-209	Laser Spark Assisted HCCI	$60900
P/ANL2006-210	Developing International Energy Market Characterizations	$17800

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ANL - Argonne National Lab

Project ID	Project Name	FY Total
P/ANL2006-211	Develop Renewable Energy Sector Characterization (Wind Energy, Bioenergy, and Solar Energy)	$18300
P/ANL2006-212	Developing A Minimal-Organism Platform for Systems Biology	$738900
P/ANL2006-213	Energy Conversion at Bio-Hybrid Interfaces	$333000
P/ANL2006-214	Characterization of the Candidate Damping Ring Designs of the International Linear Collider	$52300
P/ANL2006-216	Advanced Electron Accelerator Simulation	$296900
P/ANL2006-219	Large Solid Angle Multielement Fluorescence Detector	$62500
P/ANL2006-220	Condensed Matter Theory: Nanoscale Superconductivity and Magnetism Studies	$221100
P/ANL2006-223	Secure Database Access Technologies for Large-Scale Data Management	$152600
P/ANL2006-224	Development of High Intensity/Thermal Energy Positron Source Utilizing the Chemistry Division 20 MeV Electron Linac	$64800
P/ANL2006-225	Ultimate Limit for Hard X-Ray Focusing	$237000
P/ANL2006-226	Nanomagnetics	$92400
P/ANL2006-227	Towards A Model-Driven Accelerator	$161800
P/ANL2006-228	Gas Cell Development	$137300
P/ANL2006-232	Demonstration of a Full Power Mass 238, 1+ RFQ for a Radioactive Beam Post-Accelerator	$128200
P/ANL2006-233	Demonstrate a Heavy Ion Driver Front End	$225900
P/ANL2006-234	Phase Control of High-Gradient Superconducting Spoke-Loaded Cavities	$215800
P/ANL2006-235	Develop Electropolishing Techniques for 1.3 GHz 9-Cell Elliptical-Cell Superconducting Cavities	$201900
P/ANL2006-236	Development of Diagnostics for Lithium Thin Film Strippers	$107600
P/ANL2006-237	Ultrashort X-Ray Pulse Generation	$138700
P/ANL2006-238	Development of a Rad-Hard, High-Speed, Rotary Vacuum Feed-Through Drive	$39300
P/ANL2006-240	Biomimetic Nanostructures for Efficient Solar to Electrical Energy Conversion	$105100
P/ANL2006-243	Parallel Computation for Laser Plasma Interactions at Relativistic Intensities	$101300
P/ANL2006-245	High Throughput Nano-Array for Comprehensive Protein Characterization	$267000
P/ANL2006-246	Single-Molecule Interrogation of Photosynthetic Nano-Architectures	$160300
P/ANL2006-248	Beam Physics Topics for Compact Accelerators	$170200

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ANL - Argonne National Lab

Project ID	Project Name	FY Total
P/ANL2006-249	A Novel Hybrid Detection System for National Security to Counter Seaborne Container Terrorism	$179200
P/ANL2006-251	Molecular-Scale and Nano-Scale Theoretical Chemistry Studies	$229700
P/ANL2006-254	Photoacoustic Techniques for Remote Sensing of Explosives	$220300
P/ANL2006-256	Coal Sector Characterization	$29900
P/ANL2006-257	Nanoscale Studies of Metal/Oxide/Metal Tunnel Junction Structures: Development of Novel Characterization Tools	$182500
P/ANL2006-258	Nanoscience Theory	$112900
P/ANL2006-259	High Field Surface Studies	$37300
P/ANL2006-260	Advancing Nuclear Theory for a Rare Isotope Accelerator: Nuclear Structure and Reactions by Astrophysics	$124000
P/ANL2006-262	Nuclear Theory for Supernovas	$187300
P/ANL2006-263	Synthesis, Characterization, and Electrocatalytic Activity of Bimetallic Nanoclusters	$184800
P/ANL2006-264	Development and Applications of Theoretical and Computational Approaches for Biomolecular Systems	$352900
P/ANL2006-265	Development of a High Resolution Accelerator Alignment Technique using X-Ray Optics	$31900
P/ANL2006-266	Undulator for the ILC Positron Source	$33400
P/ANL2006-267	Beam Dynamics in High-Brightness Photoinjectors	$115300
P/ANL2006-268	Novel Hybrid Nanomaterials via Uniting Top-Down and Bottom-Up Assembly Methods	$84800

Total # of Projects for ANL:	**152**	**Total Cost for ANL:**	**$22837900**

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BNL - Brookhaven National Lab

Project ID	Project Name	FY Total
03-104	Hydrogen Atom Transfer from Carbon to Metal - Relevance of a Novel Reaction to Catalyzed Hydrocarbon Conversions	$32516
04-011	Femtosecond Photoinitiated Nanoparticle Surface Chemistry	$54737
04-013	Chirped Pulse Amplification at the DUV-FEL	$54633
04-025	Overcoming Coherent Instabilities at Medium-Energy Storage Rings	$53795
04-033	Layered Cobaltates with High Thermoelectric Power	$25616
04-038	Complex Thin Films and Nanomaterial Properties	$370772
04-041	Physics of Quark Gluon Plasma (QGP)	$48156
04-043	Very Long Baseline Neutrino Oscillation Experiment	$46012
04-046	Advanced 3He Detectors for the Spallation Neutron Source	$50173
04-055	Genetic NanoTags	$135077
04-060	The Use of Singular Point Genome Sequence Tags to Analyze Community Composition and Metabolic Potential	$77544
04-061	3-D Electronic Wave Functions from EM Images	$67144
04-062	Functional MRI Studies in Rats using Implanted Brain Electrodes	$56135
04-063	Optimizing Functional Neuroimaging Techniques to Study Brain Function in Health and Disease States	$69277
04-066	Technological Development of a Fluorescence Probe for Optical Detection of Brain Functional Activation in vivo	$121180
04-069	Nuclear Control Room Unfiltered Air In-Leakage by Atmospheric Tracer Depletion (ATD)	$41167
04-073	Perfluorocarbon Tracer Sampling, Tagging and Monitoring Techniques for use at the Urban Atmospheric Observatory	$45056
04-079	Development of an Aerosol Mobility Size Spectrometer and an Aerosol Hygroscopicity Spectrometer	$53471
04-086	Exploration of Thermal Diffusion Processes in CdZnTe for Improved Nuclear Radiation Detectors	$60502
04-088	An Integrated Approach of High Power Target concept Validation for Accelerator-Driven Systems	$53954
04-104	Hydrogen Storage Using Complex Metal Hydrides for Fuel Cell Vehicles	$36891
05-003	Full Power Test of the Amplifier for the Optical Stochastic Cooling using JLAB FEL	$160571
05-005	Study of Photon Coupling to an Electromagnetic Field Gradient	$175406

BNL - Brookhaven National Lab

Project ID	Project Name	FY Total
05-006	Heavy Ion Physics with the ATLAS Detector	$124143
05-017	Superconducting Lead Photoinjector	$156480
05-020	Controlled Formation of Nanostructured RuO2 Catalysts	$148357
05-021	Hydrogen Storage in Complex Metal Hydrides	$167271
05-028	Behavior of Water on Chemically Modified Semiconductor Surfaces: Toward Photochemical Hydrogen Production	$159760
05-030	Assembling of Biological and Hybrid Complexes on Surfaces	$188818
05-033	Ultra High Resolution Photoelectron Spectrometer	$81592
05-038	Metal-Metal Oxide Electrocatalysts for Oxygen Reduction	$137025
05-041	Multifunctional Nanomaterials for Biology	$145480
05-042	Polariton-Enhanced FRET for Device-Integration of Plasma Membranes from Rhodobacter Sphaeroides	$103218
05-044	Intense THz Source & Application to Magnetization Dynamics	$131904
05-048	Nano-Imaging of Whole Cells with Hard X-Ray Microscopy	$91159
05-050	Study to Convert NSLS VUV Ring to Coherent IR Source	$16600
05-051	Superconducting Undulator Technology	$228264
05-057	Characterization and Imaging of Amyloid Plaques Using Diffraction Enhanced Imaging	$131955
05-058	Development of Methodologies for Analyzing Transcription Factor Binding in Whole Genomes	$143704
05-063	Application of Endophytic Bacteria to Improve the Phytoremediation of TCE and BTEX using Hybrid Poplar	$281627
05-064	Design and Build Two Dimensional Proten-Lipid Thin Film: A First Step Toward Novel Biochips	$76898
05-068	Positron Labeled Stem Cells for Non-Invasive PET Imaging Studies of In-Vivo Trafficking and Biodistribution	$140374
05-069	Breaking the Millimeter Resolution Barrier in fMRI	$146891
05-070	Novel Multi-Modality MRI and Transcranial Magnetic Stimulation to Study Brain Connectivity	$145397
05-071	Ovarian Hormone Modulation of ICP: MRI Studies	$144973
05-072	Feasibility of CZT for Next-Generation PET Performance	$135784
05-074	Biology on Massively Parallel Computers	$222345

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BNL - Brookhaven National Lab

Project ID	Project Name	FY Total
05-078	Ionic Liquids in Biocatalysis and Environmental Persistence	$120049
05-082	Single Particle Laser Ablation Time-of-Flight Mass Spectrometer (SPLAT-MS) Enhancements: Aerosol Optical Properties and Increased Particle Detectivity	$132696
05-088	Transition Metals in Oil and Gas Exploration	$163631
05-092	An Innovative Infiltrated Kernel Nuclear Fuel (IKNF) for High-Efficiency Hydrogen Production with Nuclear Power Plants	$172648
05-094	Development of Green Processes: Catalytic Hydrogenation in Water Utilizing In Situ Biologically-Produced Hydrogen	$358800
05-098	Fast Neutron Imaging Detector	$190989
05-104	Giant Proximity Effect in High-Temperature Superconductors	$366753
05-105	Development of an Observation-based Photochemical-Aerosol Modeling System	$106242
05-110	Computational Science	$87284
05-114	Study of High-Tc Nanostructures	$367090
06-001	Lattice Studies of QCD Thermodynamics on the QCDOC	$158792
06-004	Detector Development for Very Long Baseline Neutrino Exp.	$66230
06-012	Detector for High Quality Images of Electron Microscopy	$70180
06-017	Transmission Photocathode Development	$67470
06-021	Synthesis and Characterization of Band-Gap-Narrowed TiO2 Thin Films and Nanoparticles for Solar Energy Conversion	$69484
06-026	Multiscale Analysis of In Vivo Nanoparticle Exposure	$192178
06-030	Development of Gadolinium-Loaded Liquid-Scintillators with Long-Term Chemical Stability for a New High-Precision Measurement of the Neutrino Mixing Angle, Theta-13	$199946
06-037	Electronic Properties of Carbon Nanotubes and Novel Multicomponent Nanomaterials	$45590
06-038	Growth and Characterization of CdZnTe Crystals for Improved Nuclear Radiation Detectors	$62932
06-039	Design, Synthesis and Characterization of a New Class of Hydrocarbon Polymers Containing Zwitter Ions and Nanostructured Composites for High Temperature Membrane in PEM Fuel Cells	$133331
06-044	New High-Resolution X-Ray Monochromators for Condensed-Matter Science Experiments	$1871
06-046	Novel Materials for Hard X-Ray Optics	$24809

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Project ID	Project Name	FY Total
06-047	Nano-Crystallography of Individual Nanotubes and Nanoparticles	$62673
06-052	High-Temperature Superconducting Magnet Development	$236846
06-056	Epigenetics: Methamphetamine (MAP)-Induced Brain Dysfunction and Methylation of DNA	$76620
06-060	Molecular Mechanism of Chromosomal Replication Initiation in Eukaryotic System	$101859
06-061	Diversification of Isoflavonoid Biosynthesis	$437328
06-065	Metabolic Flux Analysis in Arabidopsis Thaliana	$425511
06-066	Transformation and Fate of Nanomaterials in the Environment	$140086
06-071	Development of a Cloud Condensation Nucleus Separator	$69661
06-074	Aluminum Hydride - An Ideal Hydrogen Source for Small Fuel Cells	$132601
06-087	Gamma Ray Imager for National Security Applications	$110380
06-088	Neurogenomics: Collaboration Between the Biology Department and the Brookhaven Center for Translational Neuroimaging to Investigate Complex Disease States	$149971
06-092	Nanoparticle Labeled Neural Stem Cell Tracking In Vivo by Magnetic Resonance Microscopy	$109022
06-094	MicroCT Methods of Quantitative Adipose Imaging: Development of a Long-Term Assessment Technique for Studying Obesity in a Roden Model	$77143
06-095	Study of Overdoped HTS Materials	$181219
06-096	HTS Trilayer Josephson Junctions	$212075
06-097	Photocatalytic Reduction of CO2 in Supercritical CO2	$80098

Total # of Projects for BNL:	**85**	**Total Cost for BNL:**	**$11101892**

INL - Idaho National Lab

Project ID	Project Name	FY Total
AE104	Development of Experimental Methods for Measurements of Nuclear Cross Sections	$263037
AE105	Evaluation of Alternate Materials for Coated Particle Fuels for the Generation IV Gas-cooled Fast Reactor	$508353
AE107	Investigation of Fundamental Thermal-Hydraulic Phenomena in Advanced Gas-Cooled Reactors	$310110
AE108	Advanced Fuel Development	$260608
AE109	Investigation of Nanofluids for use in Nuclear Reactors	$399488
AE110	Design of a High-Resolution Reactor Analysis Capability Using a Generic Transport Algorithm	$374580
AE111	Investigation of Core Flow Behavior During Loss of Coolant Transients for the Generation IV Gas Cooled Reactor Designs	$275926
AE112	Reactor Physics Methods Development for Idaho National Laboratory Competitiveness in Next Generation Nuclear Plant (NGNP) Design	$175722
AE113	Fuel Fabrication Development	$283495
AE114	SESAME: Simulations Enabled Safeguards Assessment Methodology	$382502
AE115	SINEMA: Simulation Institute for Nuclear Energy Modeling and Analyses	$394618
AE116	Optimization of Electrorefining of Spent Nuclear Fuel Using Ultrasonic Electrode Agitation	$180500
AF100	Laser Acoustic In-situ Monitoring of Nuclear Reactor Material Mechanical Properties	$167066
AF101	Influence of Grain Boundary Character on Microstructure and Properties of High Temperature Alloys	$110998
AS100	Fundamental Thermodynamics of Non-Ideal Systems for Advanced Radionuclide Separations	$260725
AS101	Synthesis, Characterization and Testing of Dithiophosphinic Acid Derivatives	$262102
CA101	Development of a multi-species Rhodopseudomonad H2 Producing Photosynthetic Anaerobic Microbial System.	$28659
CA102	Synthesis and Characterization of Perovskite-Type Oxygen Permeable Membranes	$27401
CA103	Determining Melting Behavior of Materials with Internal Heat Generation	$19924
CS124	Cyber Protection for Critical Infrastructure	$197746
CS127	Attack Graph Approach to Control System Vulnerability Analysis	$325208
CS128	Next-Generation Neutron Generator	$310757

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INL - Idaho National Lab

Project ID	Project Name	FY Total
ET121	Human Factors for Management of High Consequence Events	$91740
ET122	Developing the Scientific Basis for Landscape Level Management of Federal Facilities	$222488
ET132	Modulating Drain Valve for Continuous Processing of High Temperature Molten Materials	$163589
ET133	Systematic Feasibility Analysis of Power Production from Unconventional Geothermal Resources	$85122
ET134	Investigation of Passive Film Performance on Hastelloy C22 in Structural Loading	$183631
ET135	Dynamic Autonomy for Mobile Manipulation	$351853
ET137	Development of Integrated Virtual Engineering Tools to Facilitate Unique High-Level Decision Making Capabilities	$123487
FF100	The Metabolic Capabilities of Acidithiobacillus caldus, a Ubiquitous Moderately Thermophilic Acidophile	$124058
FF101	Innovative Applications of Dissipative Particle Dynamics	$97839
FF102	Ion Exchange Coatings for Analysis	$135101
FF103	Hybrid Welding Process	$129155
GB100	The Metabolomics of a Naturally Occurring Acidophilic Bacteria System	$223397
GB101	Development of an Autonomous Geophysical System for Quantitative Monitoring of Redox Zonation and Subsurface Flow	$163362
GC153	Development and Use of Transgenic Caenorhabditis elegans to Measure Bioavailability of Metals and Mutagenicity in Contaminated Media	$206833
HT106	Renewable Biomass Carbon for Synthetic Fuels to Support the Hydrogen Economy	$309189
HT107	H2O/CO2 Co-Electrolysis for Syngas Production	$241903
HT108	Alternate Configurations for High Temperature Electrolysis Cells	$295465
HT109	Hybrid Heterogeneous Catalysts for Hydrogenation of Carbon Dioxide to Liquid Hydrocarbons	$195383
HT110	Technical and Economic Evaluation of Options for CO2 Use	$257906
HT111	Fundamental Aspects of Membrane-Permeant Interactions	$102414
HT112	Integrating Decision Making with Engineering Process Simulations for the Assessment of Converting Biomass CO2 and Nuclear H2 to Synthetic Liquid Transportation Fuels	$338123
HT113	Module-Based Gasification and Synfuels Processes Simulator	$440599

INL - Idaho National Lab

Project ID	Project Name	FY Total
HT114	Small Scale Ammonia Production System	$83518
NE131	Bimodal Nuclear Thermal Propulsion	$158301
NE139	Dynamic Probabilistic Extensions to the SAPHIRE Risk and Reliability Designer Tool	$198104
NE141	Joint System Prognostics For Increased Efficiency And Risk Mitigation In Advanced Reactor Instrumentation And Control	$459157
NE144	Design of a High-Resolution Multiphase Reactor Analysis Capability	$332134
NE145	On-line Symbolic Condition Monitoring of Advanced Energy Systems	$151264
NN100	Model-based Design and Evaluation of Advanced Safeguards and Proliferation Detection Systems	$202767
NN102	Ultratrace Plutonium Analysis and Standard Preparation	$77654
NN103	Realization of FTMS Potential for Accurate Measurement of Extreme Isotope Ratios	$304356
NN104	Development of In-situ Measurement Technology for On-line Monitoring of Actinide Concentrations in Molten Salt Electrolyte	$121822
NN105	Demonstration of a Proliferation Pathway in a Thorium Fuel Cycle Using Pyrochemical Processes	$49908
NN106	Environmental Signatures in the Nuclear Fuel Cycle: Pathway Analysis of Signature Alteration in Environmental Samples	$160322
NN107	Non-proliferation Issues as Related to Advanced Fuel Cycle and Advanced Fast Reactor Development with Processing of Reactor Fuel	$370441
NN108	Development of a Bayesian Estimation Method for the Detection of Nuclear Proliferation	$197536
NS144	Proactive Designs of Self-Configuring Dynamic Sensor Networks for Wide Area Persistent Monitoring	$232767
NS145	Forensic Signatures of Higher Actinide Elements in Advanced Irradiated Fuels	$248981
NS146	Biological Threat Agent Forensics	$130496
NS147	Enhanced Explosives Testing Capability	$747749
NS149	Radio Frequency Test Range Characterization	$137510
NS150	Investigation into the Preservation and Enhancement of Mobile Ad-Hoc Network Quality of Service	$286599
NS151	Sensor-Assisted Autonomous Precision Landings for Man-Portable UAVs	$268063
RP104	Improved Techniques for In-Situ Measurements	$329568

INL - Idaho National Lab

Project ID	Project Name	FY Total
RP105	NiCrFe Filler Metal for Cracking Resistance	$203071
RP106	Protective coating Development for Reactor Instrumentation	$238748
RP109	Analysis and Modernization of Radioanalytical Methods and Equipment used to Support ATR	$165403
SC121	Effect of Environmental Variables on Bicarbonate Transport by Marine and Freshwater Cyanobacteria	$287773
SC122	Synthesis and Characterization of Hybrid Materials for Advanced Membranes and Molecular Ropes	$124419
SC133	Materials Damage Evolution and Failure	$217489
SC134	In Situ Laser-based Characterization of Fatigue Damage in High Temperature Environments	$195617
SC137	Microbial Metabolic Systems Approach to the Evaluation of Hydrogenic Activity of Extremophilic Anaerobic Carboxydotrophs	$739556
SC138	Structure and Reactivity of Actinide Complexes and Clusters under Controlled Solvation Conditions	$269925
SC139	Optical Eddy Current Techniques for Harsh Environments	$163610
SC140	Multiple Sensor Array for Harsh Environments	$145776
SH100	Microstructure and Deformation Physics of Fission-Reactor Model Materials by Atomistically Informed Mesoscale Simulation	$393077
SM103	Establishment of a Comprehensive Armor Material, Process and Manufacturing Program at the INEEL/SMC	$374942
ST114	Investigation of the Potential for 90Sr Immobilization in INTEC Perched Water via Microbially Facilitated Calcite Precipitation	$101865
ST115	Experimental Investigations of Application and Delivery Mechanisms for In Situ Stabilization of Sr-90 in the Alluvium and Interbed Sediments Underlying the INTEC Tank Farm	$390865
ST118	Novel Polymers For Use as Improved Biomedical Coatings	$62942
ST119	Development of Rapid, Easy-To-Use Antibody-based Assay to Detect Asbestos	$59534
ST120	Reduction of biomass sugar costs through the use of thermal and acid stable xylanases and reduced severity pretreatments	$220393
ST121	Proof of Concept of an Autonomous Robotic Data Driven Sensing Platform	$58404
TM100	Computational Modeling of Catalysts for the Reduction of Sulfur Trioxide in the Sulfur-Iodine (S-I) cycle for Hydrogen Production	$187187

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Project ID	Project Name	FY Total
TM101	Mathematical Characterization and Synthetic Generation of Spatial Structures Across Multiple Scales Using Fractal Techniques	$187057
TM102	Modeling complexes containing transuranic elements	$243809
TM103	Kinetic Monte Carlo Method for Calculation of Diffusion Coefficients for Defects in Solids	$68677

Total # of Projects for INL:	**89**	**Total Cost for INL:**	**$20351318**

KCP - Kansas City Plant

Project ID	Project Name	FY Total
KC02009-703531	Software-Defined Radio Systems	$81499
KC03002-703538	Evaluate the Feasibility of a Single-Containment Vessel	$31458
KC04004-703569	Laser Welding of Small Parts Fabricated Using LIGA Processes	$190298
KC05002-703581	Continous Air Monitor for Light Elements	$1818
KC05003-703582	Flexible Telemetry Transceiver	$307171
KC05005-703584	Accessible Electronics for High-G Packaging	$64460
KC05006-703586	Anti-Tamper Technology	$37042
KC05007-703587	Development of Microwave Packaging for RF MEMS	$2757
KC05009-703589	Model-Based Machining Simulation	$14620
KC05010-703590	Wireless Sensor Network	$66659
KC05011-703591	FPGA Based Wireless Data Collection and Monitoring System	$25599
KC05014-703594	Bore-Aligned, Miniaturized Engagement Simulation System (ESS) Transmitter	$72345
KC05015-703596	High-Precision, Multi-Point Distributed Initiation Systems Technology	$66661
KC05016-703597	3-D Capacitor fabrication Using Selective Laser Sintering	$73675
KC05017-703598	Zigbee Wireless Sensor Network Development	$2776
KC05019-703601	Fequency Selective RF Palette	$3387
KC05020-703602	Resistance Bonding using LIGA membranes	$3930
KC05021-703603	Ultrasonic Evaluation of Nuclear-Grade Steel Bar Stock	$45301
KC05022-703604	Implementing Zero-Shrink, Low-Temperature Cofired Ceramic Technology	$38032
KC05023-703605	Optically Triggered Pulse Power Switch	$74231
KC05024-703606	Wideband High-G Subterranean Transceiver	$11204
KC05025-703607	Provide proof-of-concept utilizing Charge Deep-Level Transient Spectroscopy (Q-DLTS) and diamond sensors for detection of organics	$205602
KC05026-703608	Negative Poisson Ratio Structure	$9093
KC05027-703609	Online Process Monitoring and Control	$4394
KC05028-703610	Physical Vapor Deposition (PVD)of Thin Films on 3-Dimensional Objects	$1459
KC05032-703614	Missile Defeat Technology Study	$503132
KC05033-703615	Vacuum Sealing Microelectronics and Packaging	$163858
KC06001-703616	Min-Current Solidtron (CCS)	$94955

KCP - Kansas City Plant

Project ID	Project Name	FY Total
KC06003-703618	Rogue Wireless Detection	$95060
KC06005-703620	Harvesting Energy from Ambient Vibrational Sources	$45387
KC06006-703621	Additive Manufacturing of Near-Net Shape Metal Parts	$24381
KC06007-703622	Temporary Bobbin for Miniature Transformer Coil	$64557
KC06008-703623	Micromolding Nonconductive Parts	$41297
KC06009-703625	Federated Authentification Technology	$105190
KC06010-703626	Phased Array Antenna	$216358
KC06011-703627	Atmospheric Plasma Deposition of DLC Coatings	$189090
KC06012-703628	Firing System Modeling	$6383
KC06013-703629	Magneto-resistive Detonator Safing Device	$11275
KC06014-703630	Virtual Reality Assembly	$2916
KC06015-703631	Special Finishes for Products	$38971
KC06016-703632	Placement of Window in 76 Housing	$1432
KC06017-703633	Embedded Programing for High Band-width	$2125
KC06018-703634	High Strength Pressure Vessel	$58554
KC06021-703637	Digital Object Identity	$97111
KC06023-703639	Advanced RF Microelectronic Development	$48016
KC06024-703599	Micromechanical Assembly Development	$55800

Total # of Projects for KCP:	**46**		**Total Cost for KCP:**	**$3301319**

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-2001511DR	Development of High Performance Cold Neutron Spectroscopy at LANSCE	$54765
LANL-2001517DR	Early Diagnosis of Infection	$127
LANL-20020072DR	Experimental Investigation of Fundamental Processes Relevant to Fusion Burning, Strongly Coupled, Multi-Material Plasmas	$353
LANL-20020225ER	Interfacial Solutions: Quasiliquids and Tropospheric Chemistry	$17
LANL-20030022DR	Novel Physical Behavior of Nanostructured Materials Derived from Interface Atoms	$1
LANL-20030029DR	Structural Bioinformatics: Inferring Protein Function from Sequence and Structure on a Genomic Scale	$1
LANL-20030030DR	Neutrino Physics and Fundamental Symmetries	$1866874
LANL-20030036DR	New States of Matter Near Zero-Temperature Phase Transitions	$2413
LANL-20030038DR	Stochastic Closure for Multi-Scale Simulations	$211927
LANL-20030059DR	Clathrate Hydrate Science and Technology	$377
LANL-20030067DR	Water on Mars	$8389
LANL-20030068DR	Non-equilibrium Electron Spin Transport and Dynamics in Solids	$2060
LANL-20030091DR	Actinide Partitioning at Solid-Solution Interfaces	$639
LANL-20030119ER	Synthesis of Labeled Glycosaminoglycans for Structural and Dynamical Studies of Macromolecular Complexes	$1970
LANL-20030129ER	Collisionless Magnetic Reconnection in 3D Geometries	$118390
LANL-20030162ER	Automatic Detection of Salient Objects in Real-world Imagery	$177319
LANL-20030227ER	Estimation of Aquifer Recharge Using Time-Lapse Gravity Surveys	$14543
LANL-20030310ER	Polymer-Assisted Aqueous Deposition (PAAD) of Metal-Oxide Films	$1127
LANL-20030419DR	Assembly and Actuation of Nanomaterials Using Active Biomolecules	$71
LANL-20030568PRD1	Interaction of Magnetism and Superconductivity in Novel Superconductors	$34964
LANL-20030579PRD1	Cosmic Cinematography: Opening a New Window for Discovery in Astrophysics	$39070
LANL-20030604ER	Preparation & Characterization of Inorganic & Organic High-Nitrogen Energetic Materials	$2746
LANL-20030623ER	Space Weather Foundations	$7129
LANL-20030624	Dynamical Astrophysics	$711
LANL-20030635PRD2	heoretical and Computational Studies of the Behavior of Plasma at the Edge of a Tokamak	$731

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20030770PRD3	Short-term Decoherence in Quantum Optics	$27758
LANL-20030837PRD4	An Organometallic Chemistry Approach to the Preparation of Fluorinated Polymers	$34238
LANL-20030839ER	Proteins in Protein Networks	$421415
LANL-20030840PRD4	Novel Antibiotic Targets for B. anthracis: Fosmidomycin and Siderophores	$83202
LANL-20030859PRD4	Fault Tolerant and Recovery-Oriented Computing	$23796
LANL-20030861PRD4	Mechanisms of Creep in Bulk Metallic Glasses	$1157
LANL-20030865PRD4	Compton Imaging and High Energy Astrophysics	$15848
LANL-20030874PRD4	Ion Beam Slicing With Point Defect Engineering	$41597
LANL-20040014DR	Localization and Itinerancy in Plutonium	$2017157
LANL-20040031DR	Scalable Reconfigurable Computing: Exploiting an Exponential Increase in Computational Density	$1438684
LANL-20040040DR	Search for Variation of the Fine Structure Constant with Optical Frequency References	$1511939
LANL-20040042DR	Science of Geological Carbon Sequestration: Integration of Experimentation and Simulation	$1107404
LANL-20040049DR	Solid-State Quantum Information Processing: A New Approach to Demonstrate Quantum Entanglement	$1202755
LANL-20040064DR	Energetic-Particle Interactions with Dense Plasmas: A Study Relevanto to Boost and to Fast Ignition Using Laser-Driven High-Current Ion Beams	$2008115
LANL-20040069DR	High-Power MM-Wave Source Technology	$1625663
LANL-20040072DR	Radiography with Background Radiation	$1688021
LANL-20040087DR	Understanding the Molecular Mechanisms of Pathogen Recognition by the Immune System: Biothreat Reduction through Predictive Science	$1844375
LANL-20040093DR	Understanding Electronic and Magnetic Communication Between f-Electrons in Actinide and Lanthanide Materials	$1638823
LANL-20040104DR	Testing Time-Reversal Symmetry with Ultracold Neutrons and with Solid State Systems	$1559945
LANL-20040120DR	Fluorobody Switches: Recognition Proteins Which Fluoresce Upon Binding Targets	$1153644
LANL-20040134DR	Bose-Einstein Condensate Physics: Dynamics and Applications	$1876557
LANL-20040141DR	Statistical Physics of Infrastructure Networks	$1870668

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Project ID	Project Name	FY Total
LANL-20040167ER	Exploring the Turbulent-Viscosity Effect in Solar-Wind/Magnetosphere Coupling	$125556
LANL-20040171ER	Fermion Quantum Phase Transitions	$292477
LANL-20040184ER	Response Networks of M. Tuberculosis and Bio-Threat Agents	$293086
LANL-20040193ER	Dark Lightning: Throwing Light on Monster Convective Storms	$244851
LANL-20040195ER	Precision Cosmology: A First Principles Approach to Galaxy Clustering	$295064
LANL-20040201ER	The Dynamic Response of Polymers Under Stress Using a Unique Probe for the Molecular Events Governing Materials Responses	$295053
LANL-20040212ER	Detecting Weak Gaseous Plumes in Hyperspectral Remote Sensing Imagery	$342885
LANL-20040213ER	Ion-Beam Synthesis and Luminescence Characterization of a New Class of Nanomaterials-Nanophosphors	$246050
LANL-20040218ER	Error-Minimizing, Implicit Adaptive-Grid Solutions of Time Dependent Problems	$259259
LANL-20040236ER	Computational Complexity and Quantum Entanglement	$336200
LANL-20040237ER	New Mathematical Tools for the Quantum Dynamics of a Bose-Einstein Condensate	$283054
LANL-20040256ER	Hybrid Density Functional Theory Investigations in Condensed Matter	$317802
LANL-20040259ER	Nonlinear-Acoustic Tomographic-Imaging of Damage in Solids	$354250
LANL-20040262ER	Understanding and Predicting the Initiation of DNA Transcription	$315242
LANL-20040284ER	The Dynamics of Two-Dimensional Turbulence	$283016
LANL-20040291ER	Tracking Single Molecules in Three Dimensions	$274694
LANL-20040294ER	Study of Phases with Hidden Order Parameter in the Actinides and other Strongly Correlated Electron Systems	$324481
LANL-20040295ER	Design Principles of Genetic Regulatory Networks	$348984
LANL-20040301ER	Understanding Global Planetary Processes Through a Study of the Moon's Surface Composition	$366144
LANL-20040326ER	Massively Parallel Fabrication of Complex Nanoscale Structures in Soft Materials	$247095
LANL-20040344ER	Understanding and Controlling the Chemistry of Biocidal Polymers	$256695
LANL-20040358ER	Measurement of Vibrational Anharmonicities for Chemical Dynamics	$329382
LANL-20040359ER	Spatially-Isochronous Time-of-Flight Mass Spectrometer	$335307
LANL-20040379ER	Modeling Invariance in Data Space	$464626

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Project ID	Project Name	FY Total
LANL-20040391ER	Quantum Devices for Electronic Circuitry and Advanced Detection	$348131
LANL-20040393ER	Genetic Programs Underlying Key Physiological States in Burkholderia Pseudomallei	$202235
LANL-20040408ER	Coherent Control of the Raman Fingerprint Spectrum Via Single-Pulse Coherent Anti-Stokes Raman Scattering	$337252
LANL-20040412ER	Mining the Sky with Both Eyes Open: Stereoscopic Monitoring of the Night Sky	$304000
LANL-20040415ER	Supernovae Neutrinos	$332403
LANL-20040419ER	Statistical Models for Natural Graphs	$258267
LANL-20040430ER	Synthesis of Continuous Carbon Nanotubes	$323482
LANL-20040438ER	Quantum Control and Information Processing Using Semiconductor Quantum Dots	$305810
LANL-20040454ER	High Throughput Isolation of Optimal Protease Substrates	$335980
LANL-20040461ER	Secure Communications in Fiber Links Using Randomness and Nonlinearity of Optical Fibers	$237091
LANL-20040478ER	Hyperthermal Surface Ionizer for Aerosol Chemical and Biological Analysis	$338232
LANL-20040480ER	Self-Healing High-Perfomance Parallel Computers	$238723
LANL-20040481ER	Efficient Modeling of Systems with Uncertainty on Multiple Scales	$270818
LANL-20040508ER	The Synthesis of Single Walled Carbon Nanotubes with Specific Diameters	$419740
LANL-20040840DR	Computational Models of the Water Cycle of Semi-Arid Basins	$3719
LANL-20040842DR	Fission Fragment Physics in Extreme Environments (U)	$373444
LANL-20040844DR	Phase Transitions and Strong Anharmonicities in Plutonium	$2430700
LANL-20040849ER	Imaging Optical Interferometry	$234840
LANL-20040882PRD1	Exploring Protein Cameleons Using Single Molecule Spectroscopy	$74248
LANL-20040884PRD1	Energy Dissipation in Laminate and Particulate Composites with Nano- or Micro-meter Phases	$90094
LANL-20040885PRD1	Mechanistic Studies on Fe(III)(hydr)oxide Dissolution and Actinide Mobilization in an Aqueous Aerobic Environment	$107189
LANL-20040908PRD1	Thermal Shrinkage and Compressional Expansion in Framework Oxides: Underlying Structural Mechanisms and Phase Stability	$77168
LANL-20040909PRD1	New Theoretical and Computational Approaches to Ultra-Relativistic Heavy Ion Collisions	$150703

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20040919PRD1	Optical Probing of Dense Structured Media such as Clouds: 3D Radiative Transfer at Work	$88521
LANL-20040937PRD2	Valence Ambiguity in Organoactinide Chemistry	$24506
LANL-20040941PRD2	Magnetic Field Induced Quantum Critical Points in Correlated Electron Systems	$36762
LANL-20040953PRD2	Amine-Boranes for Chemical Hydrogen Storage	$89347
LANL-20040954PRD2	Quantifying Information Flow and Information Integration in Complex Networks	$113116
LANL-20040961PRD2	Femtosecond Optical Combs for Precision Spectroscopy	$63591
LANL-20040969PRD2	Coherent Terahertz Radiation From Intense Laser-Produced Plasmas	$84253
LANL-20040978PRD2	Tunable Photonic Crystal/Quantum Dot lasers	$126194
LANL-20040980DR	Advanced Computer Architectures and Algorithmic Implications	$1483391
LANL-20040985PRD3	MiniBooNE Neutrino Oscillation Analysis	$94471
LANL-20041005PRD3	Bose-Einstein Condensation of Spins in Quantum Magnets	$54391
LANL-20041010DR	Dynamics of Complex Networks: Biology, Information, and Security	$509744
LANL-20041027PRD3	Materials Interactions with Terahertz Radiation	$126443
LANL-20041031PRD3	Dynamics of Quantum Phase Transitions	$115899
LANL-20041034PRD3	Rydberg Atom Interactions in Fields and Plasmas	$108784
LANL-20041040PRD3	Predictive Stellar Evolution	$125994
LANL-20041043PRD3	Gamma-Ray Bursts Afterglows in the Swift Era: Perspectives of New Major Discoveries	$140494
LANL-20041061PRD3	Investigation of the Dynamics of Protein Misfolding and Aggregation	$124147
LANL-20041075ER	Investigations into the Fundamental Chemistry and Structure of Hybrid Organic-Inorganic Materials	$731
LANL-20041078ER	Nano-Scale Physics and Near-Contact Hydrodynamics	$369649
LANL-20041086ER	Nuclear Materials Detection Algorithm Development for Port-of-Entry Applications	$139947
LANL-20041091ER	Generation of Novel Materials with Applications to L.A.N.L. Programmatic Goals	$277197
LANL-20041100PRD4	Thermal Transport: a Probe of the Bose-Einstein Condensate in Quantum Magnets	$126853
LANL-20041105PRD4	Ferroic Films for Multifunctional Devices	$127819
LANL-20041118PRD4	Intercalated Nanocomposites - Innovative Fuel Cell Catalysts	$131707
LANL-20041122PRD4	Nonlinearity and Chaos in Spatially Extended Dynamical Systems	$46193

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Project ID	Project Name	FY Total
LANL-20041131PRD4	Quantum Simulations in Optical Lattices	$120969
LANL-20041132PRD4	Ionic Liquids: A New Platform for Sensors	$131138
LANL-20050014DR	Resolving the Aerosol-Climate-Water Puzzle: Predictive Science for Global Stability and Security	$1808235
LANL-20050031DR	Coming Out of the Cosmic Dark Ages - The First Stars in the Universe	$1786467
LANL-20050043DR	Pu-H Interactions: Studies of Plutonium Hydride Phenomena (U)	$1808098
LANL-20050064DR	Protocell Assembly	$1836429
LANL-20050066DR	Lagrangian Measurements of Fluid Mixing	$1935879
LANL-20050076DR	Cold Atom Quantum Simulators	$1888284
LANL-20050107DR	Material Response During Dynamic Loading at Subpicosecond Time and Nanometer Length Scales	$1817383
LANL-20050123DR	Metabolome Scale Characterization of the Biothreat Agent, Bacillus Anthracis	$1708311
LANL-20050127DR	Be-Specific Human Immune Response and Development of Chronic Bereyllium Disease	$1725710
LANL-20050155DR	Rational Vaccine Design: Theory and Experimental Validation	$1745310
LANL-20050158ER	Salient Anomaly Detection: In Search of the Unknown in Images and Signals	$325329
LANL-20050161DR	Thinking Telescopes: Pursuing a New Paradigm for Discovery in Observational Science	$1840082
LANL-20050164DR	Probing New Physics with Ultra-Cold Neutrons	$1521761
LANL-20050184DR	New Americium Delta-A Metric for Primary Certification (U)	$1502270
LANL-20050199ER	Processing and Properties of Bulk Nanostructured Alloys	$325261
LANL-20050246ER	Gamma-Ray-Channeling Optics	$348941
LANL-20050271ER	A System-Scale Theory for Fast Magnetic Reconnection	$281105
LANL-20050277ER	Laser-Cooling Molecules to Millikelvins	$337555
LANL-20050290ER	A Microfabricated Single Molecule Sorter	$289211
LANL-20050304ER	Redox Interplay Underpinning 4f-Element Metallocene-Based Magnetic Systems	$257622
LANL-20050306ER	Exploration of the Role in Interfaces in Nanolayered Composites in Creating Radiation Damage Tolerant Materials.	$318489
LANL-20050307ER	HAWC: The Next Generation VHE All-Sky Gamma Ray Observatory	$226712
LANL-20050315ER	Implicit Adaptive Mesh Refinement: A Magnetohydrodynamics Application	$310881

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Project ID	Project Name	FY Total
LANL-20050323ER	Testing Embedded Model Assumptions of Stable Isotopic Dynamics with Continuous Sampling: Are Modelers' Assumptions of the Global Carbon Cycle Correct?	$428362
LANL-20050343ER	Atomistic Studies of Fast Chemical Processes in Nano-Structured Metastable Composites	$279482
LANL-20050360ER	Low-Threshold, Single-Exciton Nanocrystal Lasing Using Engineered Exciton-Exciton Interactions	$373241
LANL-20050363ER	Combustion Enhancement Using Plasma	$374212
LANL-20050377ER	Observing Individual Antibody-Antigen Encounters for Decades of Timescales	$263147
LANL-20050379ER	Taming and Accelerating Particle-In-Cell	$335105
LANL-20050388ER	Spatio-temporal Plasmonics: Controlling Plasmon Polaritons at the Nanoscale	$404503
LANL-20050400ER	Eliminating PCR in Biothreat Detection: Highly Multiplexed Nucleic Acid Dipsticks for Rapid and Sensitive Pathogen Identification	$466000
LANL-20050402ER	Immune Response to West Nile Virus in Birds	$391122
LANL-20050411ER	Quantitative Modeling of Living Neuronal Networks in Vitro	$357476
LANL-20050425ER	Computational Foundations for a New Class of Digital Filter Banks	$371853
LANL-20050430ER	Fulde-Ferrell-Larkin-Ovchinnikov Inhomogeneous Superconducting State	$387201
LANL-20050480ER	The First Complete Classification Algorithm	$351701
LANL-20050484ER	Novel High-Speed Electro-Optic Switches Based on Domain Microoptics Embedded in a Ferroelectric Chip	$285547
LANL-20050506ER	Hierarchical Assembly of Porous Materials: Obeying Bio-Inspired Allometric Scaling Laws	$320637
LANL-20050531ER	Neyman-Pearson Learning	$556105
LANL-20050540ER	A New Form of Secure Communication: Spatial Encryption Using Superluminal Sources	$244026
LANL-20050559ER	Plasma Catalyzed Coal Gasification	$318022
LANL-20050566ER	Ion Beam Synthesis of Ferromagnetic Semiconductors	$302828
LANL-20050583ER	High Efficiency Carrier Multiplication Using Impact Ionization in Semiconductor Quantum Dots	$317824
LANL-20050626ER	High-Valent Ruthenium Oxides on Tio2: Toward the Development of Light-Driven Oxidation Catalysts	$220737
LANL-20050631DR	Nonlinear Behavior in Complex Systems	$644393
LANL-20050632DR	Cooperative Phenomena in Soft Matter	$1044937

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Project ID	Project Name	FY Total
LANL-20050633DR	Exploiting Emergent Materials Behavior on the Nanoscale	$1606662
LANL-20051087ER	Antineutrino Monitoring of Reactors	$384218
LANL-20051092ER	Design of Experiment Construction and Assessment	$33171
LANL-20051098PRD2	Metallic Quantum Dot Superlattices	$124046
LANL-20051100PRD1	Hybrid Quantum-Dot/Photonic-Crystal Structures	$103894
LANL-20051102PRD1	Improving the Predictive Capabilities of Complex, Spatially Distributed Environmental Models	$120877
LANL-20051104PRD1	Trapped Ion Quantum Simulations	$74465
LANL-20051118PRD1	Control of Inelastic Collisions for Improved Atom Interferometry	$89387
LANL-20051121PRD1	Measuring Neutrino Properties with Oscillation Experiments	$10272
LANL-20051122PRD1	Photovoltaics of Nanocrystalline TiO2	$116330
LANL-20051124PRD1	Tuning Plutonium Compounds Through the Localized/Itinerant Crossover	$134955
LANL-20051125PRD1	W-Band Photonic Band Gap Structure Research	$113094
LANL-20051127PRD1	Artificial Design of Novel Multiferroic Materials	$103205
LANL-20051132PRD1	Exploration of Deformation Physics at Nanometer Scale	$130906
LANL-20051143PRD1	Hydrogen Storage in Novel Molecular Compounds	$134703
LANL-20051148PRD2	New Paradigms for Modeling Communicable Diseases	$127041
LANL-20051149DR	Cross sections for the Isomer of 235U	$723919
LANL-20051164DR	Nanoscale Fluctuations in Multifunctional Materials	$1382281
LANL-20051169ER	Physics of Astrophysical Jets	$418408
LANL-20051194PRD2	Statistical Mechanics Approaches to Parallel Computing	$127171
LANL-20051222PRD3	High Energy Particles in Astrophysical Outflows	$121275
LANL-20051239PRD3	Computer Simulations of Phase Stability and Microstructure Evolution in Alloys Using Hybrid Molecular Dynamics and Phase-Field Approaches	$125246
LANL-20051243PRD3	The Neutrino Matrix and Beyond	$108886
LANL-20051257PRD3	Investigation of Fuel Cell Electrocatalysts for Improved Activity and Durability	$138373
LANL-20051265PRD3	Three-dimensional Micro Architectures for Neural Interfaces	$140928
LANL-20051281PRD3	Size Effects in Nanoscale Ferroelectric Thin Films	$83543
LANL-20051282PRD3	Theory and Trapped Ion Quantum Simulations	$125220
LANL-20051284PRD3	Two Dimensional Spectroscopic Studies of Biexcitons in Quantum Dots	$126394

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20051286PRD3	A Multiscale Approach to Modeling Continental Rift Tectonics	$94574
LANL-20051320PRD4	From Actinide Electronic Structure to f-Element Molecular Photomagnets	$79236
LANL-20051325PRD4	The Formation of the First Stars and Their Feedback Effects on Cosmological Structure	$127378
LANL-20051330PRD4	Defect- and Fault-Tolerant Nano-computing Architectures	$125819
LANL-20051336PRD4	Effects of Length Scale on the Fracture Behavior of Ultra High Strength Nano-composite Materials	$116237
LANL-20051345PRD4	Biological and Chemical Sensor Design Using Linearly-Scaled TD-DFT Methods	$120363
LANL-20051347PRD4	Ultrafast Dynamics of Novel Magnetic Materials by Time Domain Spectroscopy	$92896
LANL-20051348PRD4	Quantum Fluctuations of Event Horizons	$76404
LANL-20060019DR	Structure and Bonding in Actinide Oxides	$1655270
LANL-20060021DR	Dynamics of the Onset of Damage in Metals under Shock Loading	$1815017
LANL-20060039DR	New Approaches to Quantum Computing and the Dynamics of Quantum Phase Transitions	$1079760
LANL-20060040DR	Pathogen Detection Based on Biomodulation	$1221576
LANL-20060043DR	Strongly Correlated Electrons: Duality and Implications	$712029
LANL-20060046DR	Image Reconstruction with Time-Reversal Mirrors	$386357
LANL-20060049DR	Heavy Quarks as a Probe of a New State of Matter	$1872283
LANL-20060060DR	DREAM: A Dynamic Radiation Environment Assimilation Model to Understand Acceleration, Transport, and Losses in Natural and HANE-Produced Radiation Belts	$1437039
LANL-20060079DR	Science-Based Prediction and Control of Complex Manufacturing Processes	$1316237
LANL-20060081DR	Mix Processes in Inertial Confinement Fusion	$1508644
LANL-20060088DR	Advanced Actinide Separations in Alkaline Media for Spent Nuclear Fuel and Defense Materials Processing	$1091739
LANL-20060097DR	Biological Effects of Molecularly Engineered Nanomaterials	$1265419
LANL-20060136DR	New Classes Of Materials For Gamma-Ray And Neutron Detection	$1533841
LANL-20060226ER	Development of an Engineering Model for Rubber Elasticity	$215269
LANL-20060230ER	Nascent Protein Folding Inside the Tunnel of the Ribosome: Cotranslational Folding	$273538

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20060253ER	Nanobiomaterials: Building New Nanoarchitectures Using Biomolecular Scaffolds	$284130
LANL-20060268ER	Automatic Video Analysis Integrating Depth, Shape, Texture and Color	$295379
LANL-20060270ER	Automated Induction of Templates for Extracting Information from Text	$300168
LANL-20060272ER	Monte Carlo Estimation of Eigenvalues of Ultradimensional Matrices and Continuous Operators	$249746
LANL-20060302ER	New Method for Complex Contingency Analysis	$261575
LANL-20060305ER	Energy Distributions in Granular Flows	$249592
LANL-20060312ER	MRI in Microtesla Magnetic Fields with Simultaneous MEG	$353420
LANL-20060317ER	Understanding the Process of Intercalation Using Stable Isotope Labeled Polyaromatic Hydrocarbons (PAHs) and Oligomeric DNA; the Quantitation of Weak Bonding in DNA.	$501411
LANL-20060318ER	Seeing Undetectable Cancers with Time-Reversed Ultrasound	$342803
LANL-20060321ER	Chemical Thermoacoustics	$301215
LANL-20060340ER	Multigene Correlations and Their Implications for Cardiovascular Disease	$261520
LANL-20060346ER	Development of Redox Affinity Materials for the Separation of Carbon Nanotubes into Pure Chiral Fractions	$315765
LANL-20060350ER	A Faster Multipole Method	$313077
LANL-20060357ER	The S-Process in the Sm-Eu-Gd Region - A Probe for Stellar Mixing	$368749
LANL-20060360ER	Quantifying the Role of the Cold Plasmasphere in the Loss of the Electron Radiation Belts	$123278
LANL-20060386ER	Surface Enhanced Raman (SERS) Based Flow Cytometry Detection	$315660
LANL-20060392ER	Processing of Ultra-High Strength Electrical Conductors using a Novel Nano-Twinned Structure	$305053
LANL-20060395ER	Nanocomposite Thin Films for Surface Assisted Mass Spectrometry	$291283
LANL-20060399ER	Role of Electrostatic Forces in Space and Astrophysics	$874963
LANL-20060407ER	Detecting Spinons with the Wiedemann-Franz Law	$321976
LANL-20060416ER	Stabilization of Hydrogen Clathrates --- Engineering a Solution to Hydrogen Storage	$302218
LANL-20060437ER	Functional Proteomics Studies of Bacillus anthracis	$150699
LANL-20060473ER	Novel Physics Inspired Approach to Error-Correction	$300912

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20060494ER	Amplification of Surface Plasmons by Stimulated Emission from Semiconductor Nanocrystals	$371052
LANL-20060495ER	Exploring the Darkness: Cosmic Voids	$721345
LANL-20060497ER	Use of Strain Engineering to Tune the Physical Properties of Nanoscale Metal-Oxide Films	$391454
LANL-20060518ER	Improved Molecular Catalysts for Water Splitting	$277600
LANL-20060542ER	Generation, Detection, and Manipulation of a Single Magnetic Spin	$333965
LANL-20060551ER	Simulation and Modeling of the Quantum Response	$250935
LANL-20060558ER	Quantum Nondemolition Detection of Photons	$283386
LANL-20060581ER	Non-blinking and Robust Quantum-Dot Fluorophores for Applications in Biology	$341027
LANL-20060589ER	Manipulation and Control of Electron Spins in Semiconductors with Strain Engineering	$318065
LANL-20060593ER	Shedding Light on the Mechanical Unfolding of Individual Proteins	$272982
LANL-20060607ER	Acoustic Effects on Microscopic and Core-Scale Colloid Interactions and Porous Fluid Transport	$311530
LANL-20060617ER	Nanoscale Textured Composite Energetic Materials	$320767
LANL-20060685ER	Structure and Evolution in Cosmology and Astrophysics	$304409
LANL-20060686ER	Complex Dynamical Climate Systems Analysis	$499232
LANL-20060687ER	Space Weather Processes and Mechanisms	$721016
LANL-20060688ER	Solid Earth Geoscience: Transient & Steady-State Earth Processes	$422178
LANL-20060689ER	High-Throughput, Label-Free Affinity Screening	$54061
LANL-20060690ER	Development of a NESSUS Application Interface for Probabilistic Engineering Analysis	$37715
LANL-20060691ER	Novel Applications of Nanoporous Metal Foams	$52741
LANL-20060693ER	Next Generation Data Structure for Carte Blanca	$69711
LANL-20060694ER	Supersymmetry Breaking in Various Dimensions	$313472
LANL-20060697ER	Statistics for the Engineering and Physical Sciences	$178963
LANL-20060698ER	Investigating Coherent Flavor Evolution in Dense Neutrino Systems	$95178
LANL-20060699ER	Photon Number Resolving Detectors	$61124
LANL-20060700DR	Computational Methods for Protein Function Inference	$990618
LANL-20061378PRD1	High P-T Synthesis of Superhard Carbon Nitride from Graphite-Like Precursors	$52089

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20061383PRD1	Lifting the Quantum Critical Conundrum	$107506
LANL-20061387PRD1	Exploring the Membrane Penetration Machinery of Bacterial Toxins	$87177
LANL-20061388PRD1	Numerical Techniques of Rifting and Passive Margin Formation: The Role of Mantle Plumes	$78276
LANL-20061396PRD1	Studies of Sub-Micron Ferromagnetic Particles using Magnetic Resonance Force Microscopy	$101435
LANL-20061397PRD1	Measurements of Absorption and Scattering by Aerosols: How do they Offset Global Warming?	$118672
LANL-20061399PRD1	Main Group Hydride Chemistry for Hydrogen Storage	$94113
LANL-20061402ER	The Secret Life of Quasiparticles	$124054
LANL-20061416ER	Energetic Chlorine Donors for Perchlorate-Free Pyrotechnic Formulations	$21285
LANL-20061423ER	Improved Length Scaling in Accelerated Molecular Dynamics Methods	$213307
LANL-20061435ER	Experimental Study of Driven Magnetic Relaxation in a Laboratory Plasma	$349807
LANL-20061438PRD2	Interface-Governed Behavior of Nano-Layered Metallic Composites	$67584
LANL-20061442PRD2	Ion Synthesis of Novel SiGe Structures	$6763
LANL-20061449PRD2	Non-Equilibrium Stochastic Processes in Classical and Quantum Systems	$39468
LANL-20061456PRD2	Searching for New Uranium Based Superconductors	$18177
LANL-20061468PRD2	Fluorescence Lifetime Spectroscopy by Flow Cytometry	$36159
LANL-20061471DR	Advancing the Chemistry Material Science and Theoretical Understanding of Actinides	$262354
LANL-20061475PRD2	Three-dimensional Magnetic Reconnection Experiments	$50534
LANL-20061493DR	High-Resolution Physically-Based Model of Semi-Arid River Basin Hydrology	$467741
LANL-20061494ER	A Strategy for Effective Antibiotic Delivery	$173500
LANL-20061502ER	Laser Induced Breakdown Spectroscopy	$37335
LANL-20061515ER	Polyazido Precursors for Synthesis of Novel Drugs	$141873
LANL-20061517ER	Trapping Rare Culture Mutations for Bioweapon Attribution and Forensics	$151973
LANL-20061519ER	Feasibility Study on Heart Rate Variability Analysis for Fitness Assessment	$91280
LANL-20061522ER	Aligned Crystalline Silicon Films for Solar Cells	$237671
LANL-20061526PRD3	Multiscale Modeling of Irradiation-induced Defect Processes in High-Cr Ferritic Steels	$21260

LANL - Los Alamos National Lab

Project ID	Project Name	FY Total
LANL-20061528PRD3	High Efficiency Carbon Nanotube-TiO2 Nanostructured Solar Cells	$6538
LANL-20061558PRD3	Theoretical Studies of Cold Atom Fermi-liquids and Bose-Einstein Condensates on Chips	$22110
LANL-20061563PRD3	Search for Temporal Variation of the Fine Structure Constant	$43655
LANL-20061566ER	A Generalized Inference Modeling Methodology with Application to Comparative Terrorist Event Reconstruction	$186297
LANL-20061567ER	Avian Influenza	$384676
LANL-20061579ER	Quantifying the Relation of Hurricane lightning to Hurricane Intensification	$63281
LANL-20061585ER	Visualization Applied to Electronic Properties of Novel Superconductors	$134169
LANL-2999999	LDRD Miscellanous Costs	$26306

Total # of Projects for LANL:	**301**	**Total Cost for LANL:**	**$125374372**

LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB04004	Autonomous Sensors for Ocean Dissolved Organic Matter	$357060
LB04007	Techniques of Sample Controls for a Transmission Electron Aberration-Corrected Microscope	$365847
LB04010	Molecular Microscopy and Tomography	$290534
LB04012	Designing a Novel Reactor Neutrino Experiment for Measuring the Unknown Mixing Angle Theta13	$455638
LB04013	Coherent X-ray Diffraction Imaging (CXDI)	$248252
LB04014	Neuroimaging with Advanced Molecular Probes	$433853
LB04017	Research and Development for Double Beta Decay Experiments	$438965
LB04019	Critical Accelerator Technologies for Future Advanced Light Sources	$1085952
LB04025	California Water and Energy System: An Approach for Addressing Future Crises	$131669
LB04027	Spectroscopy and Dynamics of Pure and Doped Helium Nanodroplets	$145991
LB04029	Advanced Computational Methods for Photon- Molecule Collision Processes	$487354
LB04030	Ultrafast Magnetization Dynamics	$219960
LB04038	Gas Phase Studies of the Building Blocks of Life	$103159
LB04041	High-throughput Production of Proteins and Protein Complexes	$130239
LB04043	World Energy Scenarios: The Crucial Role of Energy Demand	$189932
LB04044	Lensless Imaging of Yeast Cells	$62868
LB05002	Advanced Detectors to Understand the Early Universe	$289993
LB05003	Behavior and Impact of Nanoparticles in the Environment	$215463
LB05005	Modeling human disease in Drosophila melanogaster	$178697
LB05007	Oxygen Catalysis for Biomimetic Energy Conversion Chemistry	$89708
LB05008	Cryptographic Foundation for New Generation Distributed Systems	$186562
LB05009	Unmasking the Human Genome Alternative Splicing Program	$213572
LB05010	Novel Imaging Detectors for Materials and Biology Research	$609985
LB05011	Micro-characterization and Chemical Micro-dynamics of Atmospheric Mineral Dust	$135998
LB05012	Constraining Ammonia Emission Inventories for Control of Air Quality	$142130
LB05013	Synthetic cytoskeleton: Protrusive Structures for Reconstituted Cell Motility	$87782
LB05016	Light-activated and Regulated Ion Channels and Transporters	$227579

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB05017	Highly Efficient PLED Through Polymer Morphology Control	$278100
LB05019	Time-resolved X-ray Absorption Spectroscopy of Metalloporphyrins	$131570
LB05020	Development and Application of Quantum Monte Carlo (QMC) Methods to Biological Systems	$219961
LB05021	Rapid Characterization of Microbial RNAs Using Artificial Nanopores	$197980
LB05022	Enabling High Energy Density Physics	$508924
LB05024	Left-Handed Nanoscale Meta-Materials: Towards the Optical Domain	$195598
LB05026	New Capabilities in Nuclear Astrophysics and Radiation Biology Using Neutrons at the 88-Inch Cyclotron	$217000
LB05027	New Directions for Theoretical Physics at the TeV-Scale	$365289
LB05028	Analysis of High-temperature Polymer-electrolyte Fuel-cell Phenomena	$142262
LB05029	Enhancing Commodity Processors with Vector Components for Increased Scientific Productivity	$299930
LB05030	Improved Spectroscopy of Weakly Bound States in Nuclei	$255999
LB05031	Advanced Computational Tools for Electric Power Systems	$388601
LB05032	Statistical Feature Modeling for Scientific Data Via Basis Decomposition	$120175
LB05033	NanoARPES: A New Detector for Nanometer-scale Electronic Structure Measurements	$201716
LB05035	Computational and Theoretical Studies of Bulk and Nano Solid Systems	$90962
LB05036	Biogeochemical Reaction Rates and Pathways in Porous Media	$145554
LB05037	New Approach for the Catalyic Conversion of Methane and other Inert Hydrocarbons	$116073
LB05038	Experimental Signatures of Deconfined Phases and Phase Transitions	$101800
LB05039	Low Energy Spread Electron Source	$176882
LB05042	Improved Phase Contrast for Cryo-EM of Biological Machines and Subcellular Structure	$102654
LB05043	Scientific Basis for Advanced Geologic Storage Technologies	$232095
LB05044	Statistical Dynamics of Protein Evolution	$176830
LB05045	Science and Technology of Quantum Materials	$329974
LB06001	Microarray Technology for Fungal Identification	$87948
LB06002	Electron Microscopy of Soft Matter in Two and Three Dimensions	$321514

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB06003	High-Stability Beam Handling in Electron Storage Rings with Applications to High Energy Colliders and Light Sources	$143764
LB06004	Investigation of the Microbial Processes Involved in Electron Transfer onto the Anode of a Biological Fuel Cell	$389997
LB06005	Tailoring the Self Assembly of Functionalized Biomolecular Building Blocks	$198421
LB06006	Visible Light-driven Water Oxidation in Mesoporous Solids	$189414
LB06007	Arsenic ElectroChemistry	$104936
LB06008	Magnetic Control of Spatial Organization at Bio-Membranes	$144678
LB06009	Compositional and Functional Analysis of Cell Walls During Metal-bacterial Interactions	$173011
LB06010	Metagenomics-Enabled Analysis of Termite Hindgut Microbiota for Biomass Conversion and Cleaner Energy	$92682
LB06011	Terahertz-Frequency Conductivity and Ultrafast Optical Excitations in Single-Walled Carbon Nanotubes	$102967
LB06012	Software Application Infrastructure for Efficiently Managing Large-Scale Computational Biology Experiments	$134997
LB06013	Surface Plasmon-Enhanced Photovoltaic Device	$108587
LB06014	Measurement of Molecular Shape and Assembly Using X-ray Scattering	$427871
LB06015	Integrated Microbial Community Genomes Data Management System	$456745
LB06016	Interrelation of Global Warming and Hydrate Dissociation in Oceanic Accumulations	$145931
LB06017	New Technology for Permeability Enhancement for Natural Gas Extraction in Tight Reservoirs	$115870
LB06018	Coupled Modeling of Hydrology, Nutrient Cycling, and Vegetation: Applications to Water Quality and Water Balance	$120000
LB06019	Development of Cost Effective Sequence-Based Technologies to Identify Genomic Alterations in Cancer	$243938
LB06020	Aging, Disease and the Mechanical Response of Biological Tissues, Specifically Human Bone	$130681
LB06021	Photons to Fuels ? The Electrochemical Reduction of Carbon Dioxide to Hydrocarbons	$420904
LB06022	Determining if PIR51 is a Potential Tumor Suppressor Gene Similar to BRCA2	$131939
LB06023	Electron Flow Generated by Gas Phase Exothermic Catalytic Reactions Using Metal-Semiconductor Nanodiodes	$102830

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LBNL - L. Berkeley National Lab

Project ID	Project Name	FY Total
LB06024	Versatile Mini-Scanning Transmission X-ray Microscope (mSTXM)	$88172
LB06025	Conceptual Study for a Novel Nuclear Astrophysics Accelerator Capability to Measure Nuclear Reactions That Power the Stars	$116961
LB06026	Extended First Order System Least Squares Finite Elements	$56202
LB06027	Properties of New Ionic Liquids for Electrochemical Applications and for Extraction of Heavy-Metal Cations from Wastewaters	$72945
LB06028	Electron Electric Dipole Moment Experiment in a Cold Atom Fountain	$164332
LB06029	Carbon Based Materials for Renewable Energy	$97340
LB06030	Biomineral Engineering for the Production of Photonic Structures and Light Collection Systems	$129802
LB06031	Fabrication of Photovoltaic Devices Using Nanostructured Biomaterials	$92501
LB06032	Structure and Function of Intact Celluosomes	$142260
LB06033	Computational and Experimental Testing of Methods for Binning Sequences from Metagenomic Data	$63866
LB06034	Polarizer System for Microfluidics	$223979
LB06035	Expression Profiling of Radiation and Cancer Susceptibility Genes	$187870
LB06037	Nanowire Carpet Hybrid Pixel Detectors	$36280
LB06038	Integration of Synthetic Nano-materials for High Speed, Robust, and Flexible Circuitry	$47867
LB06039	Analysis for Simulation of Nuclear Energy Systems	$99607

Total # of Projects for LBNL:	88	Total Cost for LBNL:	$18630280

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LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
03-ERD-031	Detection and Tracking in Video	$25322
03-ERD-062	Microbial Pathways	$260328
03-ERD-064	A Two-Particle Formulation of Electronic Structure	$82829
03-ERD-070	Laser-Matter Interactions with a 527-Nanometer Drive	$608552
03-ERD-072	Characterization and Optimization of High-Energy K-Alpha X-Ray Sources	$29100
03-ERD-076	Persistent Monitoring Platforms	$360941
03-ERD-077	Plutonium and Quantum Criticality	$638651
03-ERI-009	Force Spectroscopy to Study Multivalent Binding in Protein-Antibody Interactions	$60448
03-ERI-010	Intracellular Chemical Measurements: A Generalized Approach with High-Spatial Resolution using Functionalized Nanoparticles	$44062
03-ERI-012	Using Femtosecond Laser Subcellular Surgery as a Tool to Study Cell Biology	$69651
03-SI-001	Biological and Synthetic Nanostructures Controlled at the Atomistic Level	$289251
03-SI-003	ICE: The Image Content Engine	$629095
04-ERD-001	Nonaqueous Phase Liquid Dissolution in Porous Media: Multi-Scale Effects of Dissolution Kinetics on Cleanup Time	$210768
04-ERD-002	Multiprobe Investigation of Proteomic Structure of Pathogens	$332217
04-ERD-004	Three-Dimensional Vectorial Time-Domain Computational Photonics	$268722
04-ERD-012	Locally Adaptive Mesh Refinement for Linearly Scaling Electronic Structure Calculations	$474184
04-ERD-013	Acoustic Characterization of Mesoscale Objects	$191312
04-ERD-017	Broadband Radiation and Scattering	$163063
04-ERD-019	Development of Absolute Spectroscopic Diagnostics for Nonlocal-Thermodynamic-Equilibrium Plasmas	$195347
04-ERD-020	Electronic Transitions and Phonons in f-Band Metals at High Pressures	$442342
04-ERD-021	High-Strain-Rate Deformation of Nanocrystalline Metals	$461963
04-ERD-023	Short-Pulse Laser Absorption and Energy Partition at Relativistic Laser Intensities	$330356
04-ERD-024	XChem	$276398
04-ERD-025	Ultrafast Transient Recording Enhancements for Optical-Streak Cameras	$523915
04-ERD-027	Magnetic Dynamos and Stars	$389219

LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total
04-ERD-028	The Creation of a Neutron Star Atmosphere	$330369
04-ERD-032	New Generation X-Ray Optics: Focusing Hard X Rays	$429468
04-ERD-033	Nanosecond Ultrasonics to Study Phase Transitions in Solid and Liquid Systems at High Pressure and Temperature	$245667
04-ERD-036	Multiscale Characterization of Body-Centered-Cubic Crystals Deformed to Large Extents of Strain	$552445
04-ERD-037	Dynamic Data-Driven Event Reconstruction for Atmospheric Releases	$823502
04-ERD-039	Bioforensics: Characterization of Biological Weapons Agents by NanoSIMS	$196238
04-ERD-040	Developing New Tools for In-Vivo Generation and Screening of Cyclic Peptide Libraries	$397258
04-ERD-043	Nanomechanics: Strength and Structure for Nanotechnology	$219440
04-ERD-046	Coupling Micromechanics and Reactive Fluid Flow in Fracture Networks	$190850
04-ERD-048	High-Average-Power, High-Energy, Short-Pulse Fiber Laser System	$147929
04-ERD-052	A Coupled Computational and Experimental Approach to Determine Functions of Deeply Conserved "Anonymous" Human Genes	$571795
04-ERD-054	Development and Application of a Predictive Computational Tool for Short-Pulse, High-Intensity Target Interactions	$557065
04-ERD-057	Surrogate Nuclear Reactions and the Origin of the Heavy Elements	$384015
04-ERD-058	Stellar Astrophysics and a Fundamental Description of Thermonuclear Reactions	$434939
04-ERD-059	High-Energy-Density Galaxy Jets	$309675
04-ERD-064	High-Brightness, Laser-Driven, X-Ray Source for Nanoscale Metrology and Femtosecond Dynamics	$109439
04-ERD-065	Creating the Core Conditions of Extrasolar and Solar Giant Planets in the Laboratory	$299190
04-ERD-069	Ionization Chemistry of High-Temperature Molecular Fluids	$396801
04-ERD-070	The Large Synoptic Survey Telescope and Foundations for Data Exploitation of Petabyte Data Sets	$458370
04-ERD-071	Ultrafast, In-Situ Probing of Shocked Solids at the Mesoscale and Beyond: A New Paradigm for Materials Dynamics	$220902
04-ERD-084	Characterizing the Regulatory Genome: Transcription Factor Proteins and Gene Regulation Networks in Living Cells	$1465680
04-ERD-085	New Fragment Separation Technology for Superheavy Element Research	$306985

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Project ID	Project Name	FY Total
04-ERD-086	Electro-Thermal-Mechanical Simulation Capability	$651729
04-ERD-088	A New "Natural Neighbor" Meshless Method for Modeling Extreme Deformations and Failure	$390023
04-ERD-093	An Integrated Laboratory for the Study of Interventional Device Dynamics	$341962
04-ERD-095	Internet Ballistics: Identifying Internet Adversaries Despite Falsified Source Addressing	$241670
04-ERD-102	Petascale Simulation Initiative	$1493917
04-ERD-103	De Novo Identification of Regulatory Regions in Intergenic Spaces of Prokaryotic Genomes	$193300
04-ERD-104	Time-of-Flight, Secondary Ion Mass Spectrometry Measurement of Metabolites from Single Cells	$298486
04-ERD-105	NanoBIS Determination of the Unoccupied Electronic Structure of Pu	$196212
04-ERD-108	Non-Equilibrium Phase Transitions	$398586
04-ERI-004	Mission to Very Early Earth	$215001
04-ERI-009	Calcium Dynamics in Human Bone	$258478
04-ERI-013	Iodine-129 Accelerator Mass Spectrometry for Earth Science, Biomedical, and National Security Applications	$199184
04-ERI-014	Carbon Flux in a California Grassland Soil Sequence: The Role of Dissolved Organic Carbon in Carbon Sequestration	$193303
04-ERI-015	Single-Cell Level Investigation of Cytoskeletal Response to External Stimuli	$113494
04-LW-069	A Single-Molecule Study of the Movement of a DNA Sliding Clamp	$258947
04-SI-003	Kinetic Simulation of Boundary-Plasma Turbulent Transport	$920434
05-ERD-003	The Structure and Properties of Nanoporous Materials	$434141
05-ERD-006	Developing Radiography for Advanced Radiography Capability at Future Large Fusion-Class Lasers	$375520
05-ERD-007	Physics from the MIPP Experiment	$491628
05-ERD-008	Emerging Contaminants: Application of Microarray Technology to the Detection of Mixtures of Endocrine-Active Agents	$279261
05-ERD-009	Nano-Barometers: An In Situ Diagnostic for High-Pressure Experiments	$16039
05-ERD-011	Neutron Capture Cross Section Measurements at DANCE	$343453
05-ERD-012	Catalyzing the Adoption of Software Components	$436406
05-ERD-014	Hysteresis and Kinetic Effects during Liquid-Solid Transitions	$375528

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Project ID	Project Name	FY Total
05-ERD-016	Characterization and Control of Laser-Induced Modifications in KDP and DKDP Crystals	$320874
05-ERD-018	LOCAL: Locality-Optimizing Caching Algorithms and Layouts	$487629
05-ERD-019	A New Capability for Regional High-Frequency Seismic Wave Simulation in Realistic Three-Dimensional Earth Models to Improve Nuclear Explosion Monitoring	$263996
05-ERD-021	Heterogeneous Processes at the Intersection of Chemistry and Biology	$303209
05-ERD-025	Avoiding Surprise: Countering Novel Chem-Bio-Warfare Agent Threats	$470023
05-ERD-027	Innovative Copolymer Complex to Inhibit the Transport of Biological Aerosols	$253869
05-ERD-028	CHEMTREAT: Accelerated Remediation of Contaminated Fine-Grained Sediments by a Chemical Clay Cracking and Co-Solvent Flushing Process	$243043
05-ERD-029	Decontamination of Terrorist-Dispersed Radionuclides from Surfaces in Urban Environments	$258325
05-ERD-030	Optical Properties as a Real-Time in-situ Materials Diagnostic at Extreme Conditions	$388260
05-ERD-032	Remote Sensing of Alpha and Beta Particle Sources	$323517
05-ERD-035	Controls of Fluid Chemistry on Fracture Growth	$226924
05-ERD-036	Advanced Studies of Hydrogen at High Pressures and Temperatures	$452470
05-ERD-037	Ceramic Laser Materials	$185291
05-ERD-038	Integration and Codevelopment of a Geophysical CO2 Monitoring Suite	$306256
05-ERD-039	Determination of the High-Pressure Melting Curve of Iron	$210811
05-ERD-041	Risk Analysis of Secure Knowledge Discovery	$211486
05-ERD-042	Detection and Attribution of Regional Climate Change	$237587
05-ERD-043	A Dynamically-Coupled Groundwater, Land Surface and Regional Climate Model to Predict Seasonal Watershed Flow and Groundwater Response	$338935
05-ERD-044	Hydrodynamic, Atomic Kinetic, and Monte Carlo Radiation Transfer Models of the X-Ray Spectra of Compact Binaries	$307597
05-ERD-045	The Opacity of the Solar Interior	$556590
05-ERD-047	Environmental Consequences of Large-Scale Deployment of New Energy Systems	$235845
05-ERD-049	A Multiplexed Diagnostic Platform for Point-of-Care Pathogen Detection	$363296
05-ERD-050	Developing a Reactive Chemistry Capability for the NARAC Operational Model (LODI)	$267365

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Project ID	Project Name	FY Total
05-ERD-053	Rapid Screening of Human Effluents with Single Particle Mass Spectrometry for Early Detection of Respiratory Disease and Cancer	$413916
05-ERD-054	Enhanced Isolation Performance of Geologic CO2 Storage Sites through Mineral Trapping: Experimental and Field Confirmation of Model Predictions	$201064
05-ERD-055	Probing Other Solar Systems with Current and Future Adaptive Optics	$682276
05-ERD-058	RadTracker: Optical Imaging of High Energy Radiation Tracks	$548481
05-ERD-060	Split-Beam, Short-Pulse Final Optics and Characterization for High-Energy Short Pulses	$3363805
05-ERD-061	Precision Split-Beam, Chirped-Pulse, Seed Laser Technology	$1048264
05-ERD-062	Amplifier and Compressor Technology for Split-Beam, High-Energy Short Pulse Generation	$3039062
05-ERD-063	Dark Matter and Dark Energy Science	$314324
05-ERD-064	Characterizing Hypothetical Proteins	$496936
05-ERD-065	Comparative Analysis of Genome Composition with Respect to Metabolic Capabilities and Regulatory Mechanisms	$584485
05-ERD-066	Mitigation of Optical Damage Sites on UV Optics	$2303622
05-ERD-067	A Fracture Mechanics and Tribology Approach to Understanding Subsurface Damage on Fused Silica during Grinding and Polishing	$1965088
05-ERD-068	Development of Hot, LTE-Tunable Radiation Sources for Material Science Studies and Simulating Radiation Transport in Dense Astrophysical Plasmas	$597078
05-ERD-071	Characterization of the Effect of Short Pulse Exposure on Laser Damage Size, Morphology, and Conditioning in Wide-Bandgap Materials	$1755916
05-ERD-073	Leading the Quantum Limit Revolution	$298961
05-ERD-076	Terascope: THz Spectroscopic Imaging for Standoff Detection of High Explosives	$329203
05-ERD-078	Discovering the Folding Rules that Proteins Obey	$445615
05-ERD-079	A New Method for Wave Propagation in Elastic Media	$497014
05-ERD-084	Rapid Defense Against the Next-Generation Biothreat	$1073816
05-ERI-001	Developing the Physics Basis of Fast-Ignition Experiments at Future Large Fusion-Class Lasers	$514910
05-ERI-002	Efficient and Reliable Data Exploration via Multiscale Morse Analysis and Combinatorial Information Visualization	$538832
05-ERI-003	Measuring Plasmon Density of States in Warm Dense Matter	$195891

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Project ID	Project Name	FY Total
05-LW-006	Understanding the Nuclear Magnetic Fields	$196093
05-LW-018	Development of a Chemoenzymatic-Like and Photoswitchable Method for the Ordered Attachment of Proteins to Surfaces	$233570
05-LW-027	High-Pressure Multi-Mbar Conductivity Experiments on Hydrogen: The Quest for Solid Metallic Hydrogen	$212931
05-LW-040	Molecular Transport in One-Dimensional Lipid Bilayers: A Biological "Smoke Alarm"	$227538
05-SI-003	Biological Imaging with Fourth-Generation Light Sources	$2415156
05-SI-005	Target Fabrication Science and Technology: An Enabling Strategic Initiative	$2707574
06-ERD-002	Nonclassical Noise Reduction for Sensing Applications	$136025
06-ERD-004	Development of Computational Techniques for Decoding the Language of Genomes	$124016
06-ERD-005	Critical Materials Issues for Generation IV Reactors	$476569
06-ERD-007	Time Resolved Phase Transitions via Dynamic Transmission Electron Microscopy	$362254
06-ERD-009	Scalable Data Management for Massive Semantic Graphs	$401754
06-ERD-010	The Physics of Recombining Plasmas in Celestial Sources	$340323
06-ERD-012	Conversion of Plutonium and Enriched Uranium	$516954
06-ERD-013	Biophysical Characterization of Pathogen Invasion	$225072
06-ERD-014	Separation of Carbon Dioxide from Flue Gas Using Ion Pumping	$172490
06-ERD-017	Laser-Driven Dynamic Hohlraums	$258519
06-ERD-024	High Resolution Measurements of the Plasma Current Profile for ITER	$276720
06-ERD-026	Urban Atmospheric Turbulence: Improved Turbulence Closure Models through Observations and Simulations	$248733
06-ERD-027	Investigating New Regimes of Material Strength at Ultrahigh Strain Rates and Pressures	$418432
06-ERD-031	Atmospheric 14CO2 Constraints on and Modeling of Net Carbon Fluxes	$187523
06-ERD-033	Understanding and Improving High Voltage Vacuum Insulators for Microsecond Pulses	$498845
06-ERD-035	Fundamental Investigation of Laser-Induced Surface Damage in Optical Materials	$634864
06-ERD-036	A Predictive Model of Fragmentation using Adaptive Mesh Refinement and Hierarchial Material Model	$667554

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Project ID	Project Name	FY Total
06-ERD-037	Long Time Scale Shock Dynamics of Reactive Materials	$140901
06-ERD-038	Decomposition of Large Scale Semantic Graphs via an Efficient Communities Algorithm	$344541
06-ERD-039	The Properties of Confined Water and Fluid Flow at the Nanoscale	$500454
06-ERD-040	Thermal-Fluidic System for Manipulating Biomolecules and Viruses	$180084
06-ERD-042	Spheromak Energy Transport Studies via Neutral Beam Injection	$330120
06-ERD-045	Heavy Quark Jet Tomography of Compressed Nuclear Matter	$346157
06-ERD-047	Image Relational Search Engine	$157986
06-ERD-051	Development of Single Cell Raman Spectroscopy for Cancer Screening and Therapy Monitoring	$410556
06-ERD-053	Foam-Walled Hohlraums for Increased X-Ray Conversion Efficiency	$229126
06-ERD-054	Large Aperture Optics Performance	$1759316
06-ERD-055	Mitigation of Electromagnetic Pulse Effects from Short-Pulse Lasers and Fusion Neutrons	$733692
06-ERD-056	Laser Beam Propagation in High-Temperature Plasmas	$819302
06-ERD-057	Francisella Tularensis: Understanding the Host-Pathogen Interaction	$469663
06-ERD-058	Data Intensive Computing	$567426
06-ERD-059	A Novel Structure-Driven Approach to Sequence Pattern Definition for Remote Homology Detection	$519369
06-ERD-060	Multi-Petabyte Image Data Management Systems	$558236
06-ERD-061	Characterization and Quantification of Dynamic Robustness in Biological Systems	$247032
06-ERD-063	Redox Proteins in Environmentally Relevant Bacteria	$260475
06-ERD-064	Viral Identification and Characterization Initiative (VICI)	$665763
06-ERD-065	Compact, High-Intensity Neutron Source Driven by Pyroelectric Crystals	$162500
06-ERD-066	Regional Climate	$147875
06-ERD-067	Study of Transport Behavior and Conversion Efficiency in Pillar Structured Neutron Detectors	$273191
06-ERD-069	A Coupled, Multi-Physics Code for Accurate Modeling of Nuclear Reactors	$54886
06-ERI-001	Development of Integrated Microanalysis of Nanomaterials	$581582
06-ERI-002	The Chemistry of Core Formation	$237907

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Project ID	Project Name	FY Total
06-ERI-004	Modeling the Mechano-Chemistry of NTPases	$104291
06-ERI-005	Evidence for Stratospheric Downwelling Associated with High-Elevation Topography	$53878
06-FS-007	Single-Cell Chromatography	$102025
06-FS-008	Dielectric Properties of Oil Shale	$100622
06-FS-009	Thermal Diffusivity and Conductivity Measurements in Diamond Anvil Cells	$86719
06-FS-011	Feasibility Study for Large Water-Based Neutron and Neutrino Detection	$84594
06-FS-014	Feasibility of Gratings for Increasing Solid-State Laser Gain and Efficiency	$83915
06-FS-015	Enhanced Efficiency Chip Slapper for Detonator Applications using a Metal Hydride as a Solid-State Gas Gun	$58584
06-LW-013	Nuclear Physics the Monte Carlo Way	$142715
06-LW-019	Quantification of DNA Repair using Accelerator Mass Spectrometry	$154292
06-LW-023	Developing A New Accelerator Mass Spectrometry Assay for Quantitation of PlatinumDNA Adducts for Response to Platinum-Based Chemotherapy	$227268
06-LW-024	Quantum Monte Carlo Assessment of the Relevance of Electronic Correlations in Defects and EOS in Metals	$263946
06-LW-028	Diffusion Monte Carlo without all the Hops	$232333
06-LW-051	Biologically-Driven Fabrication of Complex Nanostructures at Nanoscale Chemical Templates	$223063
06-LW-063	Observation of Coherent Thz Frequency Emission from Shocked Polarizable Materials	$194117
06-LW-064	Analysis of the Mucin Membrane Protein by Cryo-Electron Microscopy and Computational Image Processing	$215919
06-LW-090	Understanding Shape Control in Nanoparticle Synthesis	$219696
06-LW-093	Real-Time, Ellipsometry-Based Transmission Ultrasound Imaging	$226610
06-SI-001	Novel High-Energy-Density Source	$2159938
06-SI-002	Active Detection and Imaging of Nuclear Materials with High-Brightness Gamma Rays	$2279810
06-SI-003	Developing and Integrating Novel Technologies for the Production and Characterization of Membrane Proteins	$1940280
06-SI-004	The Ultrafast Lattice Response of the Shocked Solid	$1269659
06-SI-005	Transformational Materials Initiative	$3424147
06-SI-006	Predictive Knowledge Systems for Large Complex Data Sources	$2166686

LLNL - L. Livermore National Lab

Project ID	Project Name	FY Total

Total # of Projects for LLNL:	**188**	**Total Cost for LLNL:**	**$92597273**

NTS - Nevada Test Site

Project ID	Project Name	FY Total
H1701016	Line VISAR for curved surfaces	$37601
H1701026	Coded aperture imaging for location of nuclear materials	$115257
H1701036	Detector modeling capability	$138156
H1701056	Diagnostic Shock Source	$163417
H1701085	Development of a Multichannel Velocity Interferometer Optical Probe	$6307
H1701086	Mach-Zehnder Velocimeter	$142344
H1701096	Monte Carol simulation of high-speed, gated X-ray detectors	$171677
H1701116	Novel fiber array diagnostic geometry	$178165
H1701156	Slapper simulator	$92878
H1701165	Streak pyrometer	$779
H1701176	Stereoscopic borescope	$128646
H1701196	Time frequency analysis	$90374
H1702016	Spatial light modulators for dynamic spatial laser profiling	$120373
H1702026	High radiographic output flat-field light source	$170664
H1702036	Wide range (20-500 nsec) streak sweep circuits	$177097
H1702066	Parallel pulse-height X-ray spectrometer	$115457
H1702096	Applications of Si Nanowire CNT to phototubes	$127677
H1702105	High-efficiency, low energy x-ray source	$637
H1702106	Construction of a prototype TW streaking system	$52313
H1702116	Disposible X-ray diode for fusion shots	$69711
H1702125	CMOS x-ray color camera	$10350
H1702135	Ultra-high speed, long-data-length transient recorder	$2558
H1702145	Versatile, higher-demension x-ray imager	$1031
H1702146	Framing tube performance upgrades	$80617
H1702156	Streak tube performance limits	$59326
H1702176	Nano-material enhanced compact X-ray sources	$152868
H1702186	Versatile, high dimension X-ray imager	$140266
H1703016	Single pulse detection of infrared sychrotron light	$111351
H1703046	Silver chalcogenides: Unique megagauss field sensors	$49042

NTS - Nevada Test Site

Project ID	Project Name	FY Total
H1703085	DOE test complex universal trigger distribution system	$230
H1703106	Neutron monochrometer	$129547
H1703126	Dense plasma focus computer modeling	$49381
H1703135	Optical transducer development for UGT testing	$2178
H1703136	Superheader	$114492
H1703156	Anode pre-ionizing systems	$46255
H1703186	Dynamic plasma properties via spectrometry	$154918
H1703196	Atomic vapor generator	$72383
H1703205	Extension of HOT/very HOT tube	$2582
H1703215	Variable temperature/flow-rate stack for fugtive releases	$3883
H1704016	Aerial neutron detection	$117166
H1704066	High resolution gamma spectroscopy with cerium bromide	$76294
H1704125	A tagged photon source for energy-dependent radiography	$2924
H1704126	Micro reticulated plates for neutron source imaging	$136770
H1704146	Prototyping search software with multiple algorithm options	$81955
H1704155	Small Compton-suppressed gamma detectors	$14
H1704166	Quantum wire detection	$59673
H1704226	Simple wheeled dead-reckoning system	$55720
H1704234	Micro-portal gamma/neutron monitor with cellular network	$952
H1704235	Development of Microchannel Plate - Microsphere Plate Detectors to measure gammas & neutrons	$21866
H1704246	Tagged Photon source for energy-dependent Radiography - Part II	$98280
H1704256	Urban localized position system	$35127
H1704425	Investigation of field effects on neutron detection	$940
H1705026	Resonance shadowgraphy	$84210
H1705036	Fluorescence calibration	$47256
H1705076	Li-6 and B-10 polymer materials for neutron detection	$161449
H1705086	Reactive optical deffractive materials for nerve agent detection	$111255
H1705116	Multi-scale entropy extraction for weak signals	$99679

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NTS - Nevada Test Site

Project ID	Project Name	FY Total
H1705126	Portable X-ray spot size diagnostic	$91385
H1705136	Displacement interferometry system	$173383
H1705146	Multi-layer solid state silicon neutron detector	$204160
H1705216	Quadrature optical modulator	$85199
H1705225	Polymerized crystalline colloid arrays for sensing nerve agents	$507
H1705226	Electro-optic differentiator	$79047
H1705256	Pyroelectric crystal neutron source	$73767
H1705265	Solid State Ultraviolet Laser Diode	$25000
H1705336	Large format phosphor imager	$100519
H1705366	Inexpensive passive neutron detectors for shipping containers	$76352

Total # of Projects for NTS:	**67**	**Total Cost for NTS:**	**$5383637**

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Project ID	Project Name	FY Total
3210-2121	Creation of Photosystem II Designer Alga for Hydrogen Production	$24942
3210-2137	Chemical Vapor Deposition-Based Combinatorial Chemistry for New Hydrogen Storage Materials	$57574
3210-2140	No-Moving-Parts Pump and Preconcentrator	$32073
3210-2141	Three-Dimensional Imaging of Multiple Fluorophores	$40059
3210-2142	Alzheimer's Disease Detection via Nonlinear Analysis of EEG	$38765
3210-2143	Nano/Microelectromechanical Systems Tools for Retinal Surgery	$35360
3210-2144	Metabolic Profiling of Phosphorylated and Coenzyme-Bound Metabolites Using Pressure-Assisted Capillary Electrophoresis Mass Spectrometry	$64872
3210-2145	Fundamental Growth Mechanisms of Metal Nanoparticle-Carbon Nanotube Nanocomposite Materials	$32316
3210-2146	Detecting Concealed Nuclear Materials with Photofission	$19500
3210-2147	Integrating Hydrologic and Economic Data for Water-Energy Nexus Assessment	$58128
3210-2149	Coupled-Cluster Theory with Effective Three-Body Forces	$84429
3210-2150	Excited-State Quantum-Classical Molecular Dynamics	$75714
3210-2153	Ionic Liquids as Novel Lubricants	$84362
3210-2154	Exploring New Pathways in the Impact of Aerosols on Terrestrial Carbon and Hydrological Cycles	$79874
3210-2158	Modeling and Computational Platform for Architecture Design of Phase-Locked, High-Power Semiconductor Laser Arrays	$64318
3210-2159	Large-Area, Flexible, Heteroepitaxial, Single-Crystal-Like Diamond Films on Low-Cost Substrates for Wide-Ranging Electronic Applications	$101932
3210-2160	Development of Readout Electronics for the ALICE Electromagnetic Calorimeter	$116946
3210-2163	Orientational Imaging in Biological Systems by Electromechanical Scanning Probe Microscopy: Galvani Experiment on the Nanoscale	$117179
3210-2164	Development of an Intermediate-Temperature Solid Oxide Fuel Cell	$92982
3210-2165	Sensing Arrays Based on Non-Nernstian Sensing Elements	$118584
3210-2166	Multivariate Dependence in Climate Extremes	$103716
3210-2167	Out-Of-Autoclave Stabilization/Carbonization of Pitch-Based Carbon-Carbon Composites and Other Pitch Materials	$57790
3210-2168	Effect of Texture on High-Temperature Deformation in Nb-1%Zr Alloy	$67307
3210-2171	Lead-Free Electromechanical Transducer Materials	$99271

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Project ID	Project Name	FY Total
3210-2172	Thermoelectric Properties of Uranium Dioxide	$15988
3210-2173	Preliminary Study of Phosphor-Based Tracer Rounds	$4999
3210-2174	Scalable Surface Enhanced Raman Spectroscopy for Single-Molecule Detection and Characterization	$118287
3210-2175	Cesiated Carbon Nanoflakes Field-Emitter-Array Infrared Imager: A New Concept for Fast, Sensitive, and Inexpensive Microbolometric Infrared Cameras	$97075
3210-2176	Estimating Economic Impacts due to Service Interruptions in Transportation Systems	$65592
3210-2177	Development of a Revolutionary Solar Neutrino Detector	$161558
3210-2178	Non-Contact Ultrasonic Treatment of Metals in a Magnetic Field	$124960
3210-2179	Smart Tunneling Barriers: A New Concept for Ferroelectric-Based Nonvolatile Random Access Memory	$81747
3210-2180	Participation in the National Institute of Standards and Technology Iris Challenge Evaluation: Algorithms for Improving Iris Recognition	$162474
3210-2181	Identification of Protein-DNA and Protein-Protein Interactions in Single Living Cells Using Optical Nanosensors	$129970
3210-2182	Preliminary Investigation of Medical Image Registration Using Deformable Models	$25961
3210-2183	Characterizing Graphite Foam for Use in Electromagnetic and Acoustic Shielding	$26146
3210-2184	A Proposed Material for Use in Combat Identification for the Department of Defense	$20127
3210-2185	Discrete Event-Based Simulation of Electromagnetic Wave Propagation in Highly Cluttered Environments	$116982
3210-2186	In Situ, Three-Dimensional Thermal Mapping Using Colliding-Pulse, Two-Photon, Induced Luminescence	$120136
3210-2187	Generation of Mouse Embryonic Stem Cell Lines to Study Micro-RNA Functions through Conditional and Tissue-Specific shRNA Knockdown Approaches	$104019
3210-2188	Hybrid Spread-Spectrum Sensor Telemetry, Tracking, and Information System	$162024
3210-2189	Quasi-Electrostatic Carbon Orientation Processing for Lithium Ion Battery Anodes and Other Applications	$77033
3210-2190	Development of ZnO Light-Emitting Diodes Using Pulse Thermal Processing	$19420
3210-2191	Novel High-Resolution Micromechanical Gyroscope	$129991
3210-2192	Big Bang Cosmology and Online Simulation Suite	$110076

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Project ID	Project Name	FY Total
3210-2193	Demonstration of Intra-Reactor Diagnostics for Catalytic Fuel Reformers	$88659
3210-2194	Optical Monitoring of Delivery Methods for Therapeutic Agents to Neural Tissues	$69636
3210-2195	A Genomic Analysis of Microbial-Mediated Metal Transformation	$85955
3210-2196	Exploring Layered Materials with Neutron and Photon Spectroscopy to Determine the Depth and Water Content in Subsurface Layers of Planets	$52159
3210-2197	Multivariate Statistical Analysis Technique to Locate Ecological Observation Sites within Regional Landscapes	$12855
3210-2198	Determining Relative Value of Ecosystem Services	$52912
3210-2199	Selective Electrochemical Oxidation of Water for Treatment of Ischemic Diseases and Other Applications	$55357
3210-2200	A Novel Radio-Luminescent Glass for Safe User Applications	$22090
3210-2201	Effects of Groundwater Chemistry on the Distribution of Soil Microorganisms in Natural Media	$33662
3210-2203	Microstructure and Defects in Energetic Materials and Radioactive Alloys	$56463
3210-2204	Establishing a Targeted Mutagenesis System in Clostridium cellulolyticum	$5185
3210-2205	Carbonate Thermochemical Cycle for the Production of Hydrogen	$18103
3210-2206	Novel, Low-Cost, High-Mn-Containing Austenitic Stainless Steels and Alloys for High-Temperature Structural Applications	$30792
3210-2207	Laser Interference Direct Structuring of Zirconia for Dental Materials	$10234
3210-2208	Characterization of a Potentially New Si:TiO2 Nanocrystal	$20031
3210-2209	High-Resolution WoodCAT Data Collection and Analysis	$22577
3211-2100	H- Laser Stripping Proof-of-Principle Experiment for the Spallation Neutron Source Power Upgrade Proposal	$129864
3211-2110	Advanced Plasmonic Sensor Array for Homeland Security	$130000
3211-2112	Photonic Bandgap Crystal Sensor	$65705
3211-2115	Neutron Reflectometry Studies of the Structure of Polyelectrolyte Thin Films Subject to Shear	$288689
3211-2116	Small-Angle Neutron Scattering Investigation of the Mechanism and Kinetics of Membrane Protein Crystallization in Self-Assembled Surfactant Mesophases	$103284
3211-2117	Applications of Ultrafast, Ultra-Intense Lasers to Radioactive Ion Beam Production and Diagnostics	$324426
3211-2118	Nanostructured Superhydrophobic Materials	$685725

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Project ID	Project Name	FY Total
3211-2119	Real-Time, Interconnection-Wide, Power System Analysis and Visualization	$324935
3211-2120	Multiscale Mathematics on Massively Parallel Computers: New Tools for Computational End-Stations on the Cray X1E, Red-Storm, and the IBM Blue Gene	$241241
3211-2121	Exploring Alternative Technologies for Next-Generation Leadership-Class Computing	$378311
3211-2122	A Chemistry End-Station for the Large-Scale Computing Facility: Chemical Catalysis at the Nanoscale	$301344
3211-2123	Computational Mechanics End-Station: Parallel Implementation of Finite Element Software on Ultrascale Computers and Its Application on Modeling Human Joints	$324304
3211-2124	A Novel Thermomechanical Process for Producing Fe-3% Si Magnetic Steel Sheet for Transformers	$329165
3211-2125	Advanced Network Capabilities for Terascale Computations on Leadership-Class Computers	$207528
3211-2126	Computational Modeling of Alloy Deformation Based on a Novel Statistical Mechanics Approach	$193686
3211-2127	Toward Systematic Computational Instrumentation for Nanoscale, Condensed Matter, and Materials Science	$328961
3211-2128	Reliability, Availability, and Serviceability for Terascale Computing	$359751
3211-2129	Terascale Computations of Multiscale Magnetohydrodynamics for Fusion Plasmas	$389953
3211-2130	In-Situ, Time-Resolved, Neutron Diffraction Study of Materials Behavior Under Severe Thermomechanical Deformation	$314217
3211-2131	Development of Lightweight Lead-Acid Batteries	$312342
3211-2132	Effects of Confinement on the Statistical Physics of Nanoparticles -- From Idealized Models to Real Materials: Application to Antiferromagnetic Oxides	$259827
3211-2133	Advanced Overhead Transmission Conductors	$194770
3211-2134	An Integrated Experimental and Modeling Approach for the Study of Microbial Biofilm Communities	$331287
3211-2135	Inhalation Exposure to Processed Nanoparticles: Exploring Nanotechnology and Biological Links	$303290
3211-2136	A Deuteration Facility for In Vivo H-D Isotopic Labeling of Biological Macromolecules for Neutron Structural Biology and Soft Matter Science	$273125
3211-2137	Radioimmunotherapy Using Oxide Nanoparticles: Radionuclide Containment and Mitigation of Normal Tissue Toxicity	$275892

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Project ID	Project Name	FY Total
3211-2138	Petascale Computation in Condensed Matter Physics	$240814
3211-2139	Interfacial Solids: Functionality from Atomic-Scale Charge Transfer at Stacked Interfaces	$195325
3211-2140	Confocal Scanning Transmission Electron Microscopy for Three-Dimensional Atomic-Resolution In-Situ Imaging	$259816
3211-2141	A Systems-Biology Framework for Post-Genomic Microbiology	$263764
3211-2142	Molecular and Cellular Imaging	$311518
3211-2143	Imaging Molecules, Active Sites, and Reactions on Nanocatalysts	$249318
3211-2145	Mass Spectrometry Beyond 100 Kilodalton: A New Generation of Mass Spectrometers to Solve a New Generation of Problems	$258188
3211-2146	Fog Vortices with Electrospray Mass Spectrometry for Detection of Chemical and Biological Agents	$214117
3211-2147	Deformation Mechanisms in Nanocrystalline Metals	$253602
3211-2148	High-Resolution Imaging of Biological Samples in a Wet Environment	$215428
3211-2149	Genome-Enabled Detection of Differential Mortality in a Northern Temperate Forest Ecosystem	$188052
3211-2150	Optimization Studies for ISOL-Type High-Powered Targets	$181876
3211-2154	Infrastructure Development for Neutron Scattering for Biomembranes and Biomimetic Membranes	$299375
3211-2155	Synthesis and Neutron-Scattering Characterization of Ordered Self-Assembled Polymer Nanostructures and Bio-Membranes	$258132
3211-2156	Biomass Ethanol from Clostridium thermocellum: Linking Bioprocessing with Systems Biology for Bioenergy	$362573
3211-2157	A Model System for Analyzing Whole-Body Toxicity of TICs, TIMs, and Chemical Warfare Agents	$209044
3211-2158	Systems Biology of the Mammalian Cilium: A Cellular Organelle Essential for Human Health and Development	$271328
3211-2159	Taming Electronic Spins in Conjugated Polymers for Photovoltaic and Solid-State Lighting Applications	$322568
3211-2160	Small-Angle Neutron Scattering Investigations and Computational Modeling of Creep Cavitation in Nanoparticle Strengthened Materials	$353311
3211-2161	Accelerated Domestication in Populus: Harnessing the Recently Sequenced Genome for Bioenergy Crop Production	$372933
3211-2162	Development of a Global Biogeochemistry Capability for Enhanced Climate Simulation and Earth System Modeling	$117720

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Project ID	Project Name	FY Total
3211-2163	Terascale Simulation Tools for Next-Generation Nuclear Energy Systems	$385812
3211-2164	Novel Carbon Materials for Advanced Energy Storage	$407672
3211-2165	Multi-Component Fuel Spray Simulation Tools for Alternative Fuel Formulations	$455594
3211-2166	Nanocomposite Dielectrics: New Smart Materials for Electric Power Applications and the Advanced Grid	$316258
3211-2167	Multiscale Modeling: Application to Hydrogen and Helium in Steel	$267022
3211-2168	Exploring Performance Tools for Petascale Systems with Lightweight Compute Node Kernels	$259908
3211-2169	Assuring Dynamic Power Grid Stability: Integrated Electric and Information Grid Modeling	$419887
3211-2170	Automated Code Transformations in Support of Ultrascale Code Migration	$324899
3211-2171	Nanocrystalline/Amorphous Silicon Thin-Film Composite for Stable, High-Efficiency, Photovoltaic Application	$260291
3211-2172	Large-Scale Exploration of Protein Models for System Biology Applications	$208905
3211-2173	Disentangling Soil Respiration Using Genomic Techniques	$344472
3211-2174	Detection and Identification of Bacteria and Viruses Including Stealth and Genetically Modified Organisms	$261312
3211-2175	Design and Synthesis of Novel Infrared-Active Nanophosphors	$226896
3211-2176	Combustion of Nanostructured Metal Fuels: Towards Designing Optimized Combustion Chambers	$199643
3211-2177	Time-Resolved Analysis of Microstructure in Advanced Materials Under High Magnetic Fields using Neutrons	$303869
3211-2178	Enhanced Cognizance of Evolving Threat Situations via Knowledge Discovery from Disparate Data	$389361
3211-2179	Probing the Boundary Between Imaging Microscopy and Spectroscopy: Toward the Exploration of Single Particles by Nuclear Magnetic Resonance Spectroscopy	$278667
3211-2180	Photoregulated Peptide-Protein Interaction Systems for Bionanotechnology Applications	$454135
3211-2181	Experimental Optimization of Advanced Stellarator Confinement	$350799
3211-2182	Functional Analysis of the Role of MicroRNAs in Cancer	$324052
3211-2183	Exploring Reconfigurable Computing Programming Models to Accelerate High-Performance Computing Applications	$270789

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ORNL - Oak Ridge National Lab

Project ID	Project Name	FY Total
3211-2184	Theoretical and Computational Methodologies and Tools for Second-Generation Integrated Fusion Simulation	$175407
3211-2185	Novel Approaches for Microbial Diversity and Strain Discovery for Bioenergy and Bioremediation	$231953
3211-2186	Use of Small Angle Neutron Scattering to Study Complex Systems	$3653

| **Total # of Projects for ORNL:** | **132** | **Total Cost for ORNL:** | **$24070908** |

PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN03085/1748	Sonoluminescence Following Acoustically Driven Bubble Collapse	$50247
PN04001/1760	A Toxigenomic Approach to Quantitative Structure-Activity Relationships Modeling	$131368
PN04006/1765	Array Technologies for Quantification of Proteins	$126479
PN04023/1782	Design and Demonstration of Integrated Biologically Based Risk Modeling Framework	$75274
PN04031/1790	Fast, Two-Dimensional Gas-Phase Separations for Ultrahigh-Throughput Global Analyses	$210965
PN04034/1793	Integrated Data Structures for Mapping Cellular Networks	$193137
PN04040/1799	Mechanisms of Regulated Ligand Shedding	$322933
PN04042/1801	Microcantilever-Based Sensing	$69950
PN04047/1806	Network Inference Testbed	$148894
PN04053/1812	Proteome and Bioenergetic Analysis of Growth States in a Syntrophic Co-Culture	$313521
PN04055/1814	Proteomics of Membrane Protein Complexes Relating Calcium Signaling and Oxidative Stress	$213295
PN04063/1822	Stimulus Controlled Catalysis	$136653
PN04064/1823	Structural Characterization of Molecular Machines	$61943
PN04068/1827	Toxicoproteomics-Based Core Analytic Capability for Chemical Toxicology and Environmental Sentinel Studies	$62928
PN04069/1828	Transmodulation of Cellular Responses to Epithelial Cells	$196399
PN05004/1832	A Novel Carbon Dioxide Capture Process Using Organometallic Clathrates	$168586
PN05006/1834	Acid Dissolution in Water Clusters	$68816
PN05008/1836	Analysis of Protein Function in Living Cells	$275786
PN05010/1838	Bioinformatics Resource Manager	$220797
PN05012/1840	Biophotolytic Production of Hydrogen from Water	$182796
PN05013/1841	Biophysical Characterization of Membrane Proteins	$163867
PN05014/1842	Biosensing Devices Based on Functionalized Nanomaterials	$128612
PN05017/1845	Chemical Printing of Complex Electrode Structures	$180264
PN05018/1846	Complex Queries	$224531
PN05019/1847	Computational Biology and Bioinformatics Tools for Understanding the Role of Membrane Proteins in Diurnal and Circadian Processes of Prokaryotes	$164990

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Project ID	Project Name	FY Total
PN05021/1849	Computational Tools for Proton Transport Through Complex Materials	$109842
PN05022/1850	Controlled Cultivation, Molecular Biology, and Advanced Imaging of Microbial Biofilms	$206046
PN05023/1851	Controlled Modification of Surfaces with Peptide Ions	$93939
PN05024/1852	Crosstalk Between Receptor Signaling Pathways	$214864
PN05025/1853	Systems Analysis of the Dynamics of Membrane Architecture, Composition, and Function -- Proteomic, Metabolomic, and Metallomic Characterization	$283109
PN05026/1854	Cytochrome and Whole Cell Interactions With Iron Oxides	$232559
PN05027/1855	Data Assimilation, Visualization, and Mining	$175423
PN05028/1856	Data Integration and Pattern Recognition	$220786
PN05029/1857	Desulfurization of Diesel Fuel by Selective Oxidation	$73978
PN05031/1859	Detecting Biomarkers in High-Dimensional Data in the Presence of Unobserved Confounding Variables	$90879
PN05032/1860	Detection-Directed Chemical Separations with Enhanced Tracer Infrastructure	$246066
PN05034/1862	Discovery of a Biomarker Signature in Response to Nanoparticle Exposure	$141885
PN05035/1863	Discovery of Novel Volatile Organic Metabolic Signatures for Early Immune Response or Inflammatory Conditions	$159918
PN05037/1865	Early, Validated Biomarkers of Infectious Diseases in Humans	$244278
PN05038/1866	Ecophysiological Investigation of Cyanobacteria using Controlled Cultivation	$95112
PN05039/1867	Electrical Loads That Consume Non-Fundamental Electrical Power Pollution	$93143
PN05041/1869	Enhanced Hydrogen Production Via Separation of CO_2 from Gasified Coal	$136674
PN05043/1871	Experimental Assessment of the Causes of Spectral Peak Broadening	$179861
PN05044/1872	Formalized Materials Discovery for Radiation Materials	$280222
PN05045/1873	Fundamental Investigations for Novel Acousto-Optics	$133533
PN05046/1874	Fundamental Investigations of Heterogeneous Catalysis Using Steady-State Isotopic Transient Kinetic Analysis	$420528
PN05047/1875	Fundamental Understanding of Catalytic Depolymerization of Cellulose	$258492
PN05050/1878	High Throughput Screening of Protein Localization	$338135
PN05052/1880	Identification of Cellular Markers of Response to Vaccination in Non-Human Primates as Correlates of Protection	$128870
PN05053/1881	In Situ Probe of Oxidation at Environmental Interfaces	$51024

PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN05054/1882	Integrated Information Architectures	$369522
PN05055/1883	Integrated Microbial Forensics	$414819
PN05057/1885	Investigation of Novel Fieldable Platforms for Large Volume Air Collection	$110655
PN05058/1886	Low Cost Small-Scale Hydrogen Production from Natural Gas	$129335
PN05059/1887	Low Cost Hydrogen Permeation Barriers	$32066
PN05060/1888	Magnetic Resonance Imaging for Understanding Water Management in Proton Exchange Membrane Fuel Cells	$139789
PN05062/1890	Mixed Conducting Hydrogen Separation Membranes	$134823
PN05063/1891	Model Nanoparticles for Discovery/Validation of Particulate Matter Biomarkers	$95512
PN05064/1892	Modeling of Energy Transfer and Associated Variance in Gamma Ray Detector Materials	$281234
PN05065/1893	Models and Measurements for Intrinsically Secure Computing	$120697
PN05066/1894	Modular Architectural Advanced Technology Structures	$90052
PN05067/1895	Molecular Modeling of Cytochromes, Surfaces, and Organisms	$207821
PN05068/1896	Morphological, Functional and Redox Studies of Synechocystis 6803 and Cyanothece 51135 Bacterial Membrane Complexes by Methods of Electron Microscopy	$81778
PN05070/1898	Multiscale Modeling and Uncertainty Quantification for Bioremediation	$196864
PN05071/1899	Mutagenesis and Functional Characterization of Shewanella oneidensis Genes Involved in Fe(III) and Mn(IV) Oxide Reduction	$190005
PN05072/1900	Nanoparticles for Enhanced Biothreat Separation and Detection	$187904
PN05074/1902	Noninvasive Biofilm Characterization Using Acoustic Microscope	$222540
PN05075/1903	Non-Invasive Real-Time In Situ Spectroscopic Monitoring of Macrophage-Particulate Matter Interactions to Define Biological Pathways	$121523
PN05077/1905	Ontology-Facilitated Extraction, Transfer, and Integration of Image-Derived Information	$248418
PN05078/1906	Origins of Nonlinear Spectral Response in Semiconductor Radiation Detectors	$174893
PN05079/1907	Overcoming Heterogeneity-Induced Bypassing in Subsurface Remediation by Mobility Controlled Flooding	$100863
PN05080/1908	Particulate Matter Exposure and Respiratory Effects Biosignature Discovery	$211536
PN05083/1911	Predictive Proteomics for Biosignature Discovery	$119944

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Project ID	Project Name	FY Total
PN05084/1912	Probing the Dynamics of the Interacellular Membrane Systems of Synechocystis 6803 and Cyanothece 51142 cells by Site-specific Near-Field Scanning Raman Microscopy and Fluorescence Lifetime Imaging Mi	$25296
PN05085/1913	Purification and Biophysical Characterization of MR-1 Redox Proteins	$248371
PN05086/1914	Radiation Detection Scenario Analysis	$269802
PN05087/1915	Raising Computational Efficiencies of Massively Parallel Software	$237872
PN05088/1916	Rapid Risk Assessment Integration and Feedback Research	$137301
PN05090/1918	Retrospective Analysis of Access Grid Events	$119928
PN05091/1919	Rfr-Domain Protein Family Characterization in Cyanothece 51142	$119632
PN05092/1920	Single-Pair FRET for Studying Molecular Interaction Dynamics Between Spatially Confined Proteins in the Living Cell	$45165
PN05094/1922	Supporting Temporal Analysis Using Signatures for Scenarios	$95510
PN05097/1925	The Dynamic Changes in the Molecular Interactions along the Circadian Rhythm	$68183
PN05098/1926	Theoretical Assessment of the Causes of Spectral Peak Broadening	$73516
PN05099/1927	Towards a Semantic Data Grid for Systems Science	$205845
PN05101/1929	Unraveling the Molecular Biology of Host-Pathogen Interactions	$167273
PN06001/1930	Accelerating Information Analytics Using High Performance Computing	$286212
PN06002/1931	Advanced Explosives Detection Technologies	$491070
PN06003/1932	Advanced Gasifier Modeling	$113408
PN06004/1933	Advanced Particle Fuel Element Feasibility Study	$342729
PN06005/1934	Advanced Ultrasonic Methodology for Enhanced Imaging and Material Property Measurements in Challenging Engineering Materials	$179480
PN06006/1935	Advancement in Low-Background Radiation Detection Electronics and Pulse Shape Analysis	$46864
PN06007/1936	Affinity Reagents Based on Novel Molecular Scaffolds	$267958
PN06008/1937	Application of the Multiscale Modeling Framework to the Weather Research and Forecasting Regional Atmospheric Model	$25458
PN06009/1938	Atomistic Simulations of Radiation Effects and Nanoscale Phenomena in Nuclear Fuels and Inert Matrices	$32584
PN06010/1939	Biomaterials as Sequestering Agents for Radionuclides and Toxic Metals	$120201
PN06011/1940	Bringing Water into an Integrated Assessment Framework	$88481

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Project ID	Project Name	FY Total
PN06012/1941	Characteristic Ellipsoid Method for Monitoring Power System Dynamic Behavior Using Phasor Measurement Units Data	$23193
PN06013/1942	Characterization of Ex-Vivo and In Vivo 1H-NMR Biosignatures of Respiratory Exposure to Model System	$165270
PN06014/1943	Combinatorial Operando Catalyst Research	$121334
PN06015/1944	Community-Based Biosignatures of Exposure and Functional Response in the Sediment-Water Interface of the Hyporheic Zone and Periphyton Community in River Systems	$255640
PN06016/1945	Composite Analysis for Knowledge Signatures	$248881
PN06017/1946	Controlled Template Synthesis of Tungsten Carbide as a Potential Replacement of Precious Metals and Carbon Support for Electrocatalysis	$49804
PN06018/1947	Cooperative Assembly of Active Nanomaterials and Devices	$107337
PN06019/1948	Data Intensive Machine Learning for Real-Time Decision Analysis	$223576
PN06020/1949	Determination of Metabolic Pathways by Nuclear Magnetic Resonance Spectroscopy	$112580
PN06021/1950	Developing an Efficient Biological Photovoltaic Fuel Cell	$84461
PN06022/1951	Development of a Rapid Murine Igg Selection and Production Platform to Generate Reagents for Diagnostic and Detection Assays	$123815
PN06023/1952	Development of a Scaleable Water Resources Management System	$189265
PN06024/1953	Development of Fractured Media Multiphase Flow and Transport Model in STOMP	$63955
PN06025/1954	Development of Microscopically-Based Models for Prediction of the Impact of Surface Grain Coating on Mineral Dissolution and Leaching Rates	$306713
PN06026/1955	Development of Novel Measurement and Modeling Capabilities for Secondary Organic Aerosols	$101521
PN06027/1956	Development of Rapid Bonding Techniques for Microchannel Reactors	$33403
PN06028/1957	Dynamics and Spatial Expression of Signal Proteins in the Desulfovibrio vulgaris Biofilm and Its Implication to Iron Corrosion	$186332
PN06029/1958	Effects of Soot Aerosol on Snow and Water Resource in the Western United States	$54873
PN06030/1959	Electron Energy Loss in Radiation Detection	$126045
PN06031/1960	Establishing the Long-Term Stability of an Argon-Cooled Compton-Shielded Germanium Spectrometer	$100076
PN06032/1961	Evaluating Multithreaded Architectures for Irregular Data Intensive Applications	$248895

PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN06033/1962	Fuel Chemistry Relationship to Fuel System Wear	$57963
PN06034/1963	Functional Genomic Analysis of the Regulation of Bone Cells by a Bioactive Lipid	$327447
PN06035/1964	Functional Nanostructured Taggants	$170214
PN06036/1965	Fundamental Investigations of Heterogeneous Catalysis Using Computational Methods	$119816
PN06037/1966	Hierarchical Decomposition and Inverse Modeling for Multiphysics Simulation	$199223
PN06038/1967	High Throughput Isolation of Organelles	$253046
PN06039/1968	Host Pathogen Interaction of Salmonella typhimurium and a Bovine Model System	$12886
PN06040/1969	Hybrid Algorithms for Networked Systems Analysis	$164599
PN06041/1970	Hydriding to Improve Friction Stir Welding of Titanium Alloys	$23928
PN06042/1971	Identification of Proteomic Profiles and Biosignatures in Complex Microbial Systems Absent of Genomic Sequence Data	$95636
PN06043/1972	In Vivo Molecular Imaging Using Ultra-Slow Magic Angle Spinning Nuclear Magnetic Resonance	$59012
PN06044/1973	Information Physics Methods and Applications	$422173
PN06045/1974	Integrated Demonstrations of Biological Workflows to Support Threat Detection and Biomarker Discovery	$328752
PN06046/1975	Interactive Interfacial Catalysis	$72923
PN06047/1976	Interrogation of Glucose Metabolism by Oral Biofilms Using Combined Nuclear Magnetic Resonance/Optical Spectroscopy and Stable Isotope Labeling	$327670
PN06048/1977	Investigation of Parallel Computing in Independent Component Analysis of Real-Time Remote Sensing Applications	$183506
PN06049/1978	Liquid Core Optical Waveguide Detection on a Bioassay Column	$143926
PN06050/1979	Metabolomics Measurement and Validation Development for Renewable Energy Research	$105038
PN06051/1980	Monitoring the Condition of Migrating Salmonids with DNA Microarrays	$37472
PN06052/1981	Multiscale Computational Model of the Heart to Predict Airborne Particulate Matter Cardiovascular Disease	$86476
PN06053/1982	Nanoporous Metal Phosphates as Sorbents for Metals and Radionuclides	$45083
PN06054/1983	Nanoscale Characterization of Nanomaterial-Cell Membrane Interactions	$117805
PN06055/1984	Nanostructured Catalyst Synthesis and Applications	$439409

PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN06056/1985	Nanostructured Heterogeneous Photocatalysts	$257016
PN06057/1986	Near Real-Time Situation Awareness from Massive Sensor Data	$219094
PN06058/1987	Ni-Based Molecular Electrocatalysts for Hydrogen Production/Oxidation	$158481
PN06059/1988	Non-Precious Metal Based Catalysts for Polymer Electrolyte Membrane Fuel Cells: Ternary Transition-Metal Nitrides	$71967
PN06060/1989	Novel Chemical Extraction Based on Integration of Microtechnology with Functional Multiscale Materials: Radiochemical Separations and Monitoring of Municipal Water Supplies	$94215
PN06061/1990	Power Grid Monitoring and Alerting System	$94439
PN06062/1991	Power Systems Computational Advancements	$216337
PN06063/1992	Preparation and Characterization of Peptide Arrays Using Soft Landing	$111632
PN06064/1993	Probabilistic Design and Optimization of Advanced Thermoelectric/Piezoelectric Systems	$113403
PN06065/1994	Protein-Protein Interaction Network Prediction	$93018
PN06066/1995	Quantitative Characterization of Post-Translational Protein Modifications Using Mass Spectrometry	$222922
PN06067/1996	Radiological Forensics	$411504
PN06068/1997	Regulation of Cell Surface Ligand Dynamics	$307071
PN06069/1998	Response of Radiation Detector Materials to Ions	$114120
PN06070/1999	Secretome Analysis of Nanomaterial Induced Biomarkers	$118228
PN06071/2000	Selective Heterogeneous Catalysts	$105431
PN06072/2001	Sensor Platforms for Biomarkers of Response to Biological Agents - Immuno-PCR Bead Assays for Detecting Early Biomarkers	$58210
PN06073/2002	Sensor Platforms for Biomarkers of Response to Biological Agents - Nanoparticle Immunoassays for Detecting Protein Biomarkers	$72618
PN06074/2003	Signal Analysis for Nuclear Resonance Fluorescence	$55770
PN06075/2004	Signatures of Oxidative Stress Associated with Inhaled Particulate Matter	$167218
PN06076/2005	Simultaneous Monitoring of Multiple Variables in Signal Transduction Pathways	$239949
PN06077/2006	Single Enzyme Nanoparticles for Biofuel Cells	$108235
PN06078/2007	Synthesis and Characterization of Thin Films for Rapidly Screening Detector Materials	$292846

PNNL - Pacific Northwest National Lab

Project ID	Project Name	FY Total
PN06079/2008	Synthesis, Structure, and Properties of a Novel Family of Pillared Doped-Graphite Materials	$61942
PN06080/2009	The Tree-of-Life Chip for Examination of Ecosystem Structure and Function	$70417
PN06081/2010	Trace-Level Threat Detection Device	$74358
PN06082/2011	Type III Secretion Systems and Their Roles in Bacterial Virulence Process	$195127
PN06083/2012	Using Subtractive Hybridization to Identify Biosignatures of Perturbed Microbial Communities	$63018
PN06084/2013	Validation of Biomarkers that Transcend Individual Genetic Polymorphisms: Application to Radio-Protectant Therapies	$77335
PN06085/2014	Visualizing Heterogeneous Data for Improved Network Security	$93100

Total # of Projects for PNNL:	**171**	**Total Cost for PNNL:**	**$27552922**

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PTX - Pantex Plant

Project ID	Project Name	FY Total
PX03002	Enhanced Analysis Capability Supporting Accelerated Aging Studies	$62271
PX03004	Formation and Detection of Pores in Polymeric Materials	$227167
PX03008	Neutron Non-Destructive Imaging of Weapons Materials	$71645
PX04003	Characterization of Corrosion Mechanisms	$143141
PX04005	Advanced Radiation Alarm Monitoring System (ARAMS)	$12719
PX04008	Pilot Plant Solids Addition Capability	$45660
PX04012	Fiber Optic Probe Development for Laser Spectroscopy	$42650
PX04015	Pilot LABSOSC System Evaluation & Application for Specific Gamma Spectrometry	$5085
PX04029	Supercritical Fluid Extraction of DMF from HNS	$46512
PX05001	Development of A Method to Melt/Disfigure (Sanitize) Weapon Components Using Microwave Technology	$433639
PX05006	Measurement of Physical Constants for Various Crystalline High Explosives	$73565
PX06001	Utilization of Blackberry Technology Inside the Security Fence	$5714
PX06005	Spectroscopic and Infrared Imaging Studies of Pressing Effects on Explosives	$80361
PX06006	Evaluation of Non-Equipotential Floors	$55475
PX06007	Desktop Virtual Reality Training System	$102537
PX06010	Mechanical Impact Sensitivity of Uncased HE on Actual Work Area Floor Covering	$131583
PX06011	Precision Control of Agglomeration and Coating of Explosive Powders	$41370
PX06014	Breached Pit Vessel	$37411

Total # of Projects for PTX: **18**   **Total Cost for PTX:**   **$1618505**

SNL - Sandia National Lab

Project ID	Project Name	FY Total
100327	MEMS Core Design for iSMART	$251045
100337	Decision Support System Development Using Agent-Based Modeling	$552692
100736	Machine Perspicacity Feasibility Study	$97577
100738	Back-End Verification of SOC Devices	$386269
101118	Microsystem Miniaturization of High Frequency Systems	$1140792
101297	Integrating Nano-Enabled Systems	$368613
101817	LTD/RTL Power Flow Development for Z-Pinch Fusion Drivers	$1260058
101931	Critical Advances in Cognitive Science and Technology: The Cognitive Collective and Cognitive Science and Technology Foundations	$631146
102362	Z-Pinch Driven Fusion Systems for IFE, Transmutation, and GNEP	$1289071
102593	Science Based Engineering of a Sample Preparation Device for Biological Agent Detection	$366624
102597	RF MEMS Passive Demodulating Detector	$86178
102599	Engineered Conjugated Molecule-Linked Metal Nanocrystal/Silica Arrays for Integrated Chemical Sensor Platforms	$321786
102600	Nanoengineering for Solid State Lighting	$460617
102602	Miniature Vibrational Energy Harvester: Improved Modeling & Simulation Through Experimental Validation	$96727
102603	Model-Based Statistical Estimation of Sandia RF Ohmic Switch Dynamic Operation from Stroboscopic, X-ray Imaging	$82077
102604	Integration of Nanoporous Materials into Device Structures via DEP-Directed Manipulation and Templated Self Assembly	$372910
102605	Atomistic Simulations of Brittle Crack Growth	$79730
102606	Integrated Machining and Assembly of MEMS-based Antenna	$91107
102607	Neutrino Detection Technology Development	$195639
102608	Understanding the Materials Physics for an Alternative for PZT 95/5	$151489
102609	Optical Microswitching Foundations	$641109
102610	New Processes for Innovative Microsystems Engineering with Predictive Simulation	$86261
102612	Embedded Evaluation Sensor	$300435
102613	Phase Imprint Lithography for Large Area 3D Nanostructures	$453473

SNL - Sandia National Lab

Project ID	Project Name	FY Total
102615	Mid-Infrared Quantum Dot Emitters Utilizing Planar Photonic Crystal Technology	$447621
102642	Global Optimization for Nanomaterials	$332846
102659	Laser-Based Micro Forming and Assembly	$266408
102660	Experimental and Theoretical Determination of Thermal Defect Generation on Silicon Surfaces for Control of Nanoscale Structures	$95812
102661	Advanced Modeling and Simulation To Design and Manufacture High Performance and Reliability Advanced Microelectronics and Microsystems	$470573
102662	RF/Microwave Properties and Applications of Directly Assembled Nanotubes and Nanowires	$133579
102663	Quantum Dot Logic to Extend Moore's Law	$295202
102737	Creation of Water-Treatment Membrane Technologies with Reduced Biofouling	$464569
103004	Modeling and Simulation of Spectra Expected from Radiation Sensors Made from Arrays of MEMS Scale Capillaries	$117810
103005	Ultrafast NanoLaser Device for Detecting Cancer in a Single Live Cell	$168637
103006	The Nanoscience, Engineering, and Computation Institute at Sandia (NECIS)	$1195135
103389	Virtual Security Design, Analysis, and Training Tool	$71227
103390	Emergency Preparedness for Biological Attacks	$97604
103392	Tunnel Detection	$22798
103393	Heterogeneous Distributed Network Sensing Feasibility Study for Security Applications	$82182
103394	A Method to Enable Complex New Software Missions	$52104
103395	Automated Approach to Dealing with Hacker Attacks	$100072
103396	Nano-Bio-Cogno Convergence Concept Design Study	$95597
103459	Quasi Spherical Direct Drive Fusion	$92469
103925	Cognitive Science and Technology Synergies Concept Design Study	$71628
103926	Ultra-high Mobility 2D Electron Systems for Science and Technology	$248581
104111	Controlled Synthesis of Nanocrystalline Catalysts - from Solutions to Supports	$79625
104420	Enabling Ultra-Miniaturization of RF and High-Speed Digital Systems	$173542
104421	Thermo-Optic Focal Plane Array (TO-FPA) for High Sensitivity Room Temperature Infrared Imaging	$48805

SNL - Sandia National Lab		
Project ID	**Project Name**	**FY Total**
104480	Enhancement of HPM Effects	$134586
104511	Updating Time-to-Failure Distributions Based on Field Observations and Sensor Data	$76954
104513	Run-Time Reusable Software Components	$85880
104514	Radical Advancement in Multi-Spectral Imaging for Autonomous Vehicles (UAVs, UGVs, and UUVs) Using Active Compensation	$96849
104574	Biodegradation of Hermetic Seals	$41861
104576	Image Processing Software for Reverse Engineering Applications	$57787
104577	Optimized Custom Knowledge Discovery	$64591
104735	Neural Interface Evaluation	$91108
104737	Foundations for Augmented Cognition Systems that use Nanoscale Materials	$83201
104742	The Effects of Angry and Fearful Emotion States on Decision-Making	$85767
104889	Active Resonant Subwavelength Grating for Scannerless Range Imaging Sensors	$97577
104949	Hollow Waveguides for Instrumentation in Intense Radiation Environments	$80583
104953	Nanoporous Films for Epitaxial Growth of Single Crystal Semiconductor Materials	$87166
104955	A MEMS-based Thermoacoustic Engine	$77332
104973	Development of Sample Preparation Methods for ChIPMA-based Imaging Mass Spectrometry of Tissue Samples	$98639
104975	Development of Nanofluidic Devices for Dielectrophoretic Chromatographic Separation of Biomolecules	$98127
104984	GNEP Technology Systems Study	$100336
105067	Advanced Robot Locomotion	$100337
105127	Enabling Technology for Shape Optimization of Armor and Other Defense Assets	$106079
105185	Pareto Optimization Techniques	$26275
105187	An Examination into the Chemical Properties of Supercritical Water	$26275
105188	Data Collecting, Analysis, and Modeling to Better Understand Supercritical Water (SCW) Reactor Safety Technologies	$26275
105189	Precise Distributed Control and State/Parameter Estimation for Multi-body Satellites and Satellite Formations	$21020
105190	Modeling and Design of Microstructures with Tailored Adhesive Properties	$26275

United States Department of Energy
Laboratory, Plant or Site Directed Research and Development Report
Project List -- Fiscal Year 2006

SNL - Sandia National Lab

Project ID	Project Name	FY Total
105191	Fourier Analysis and Synthesis Tomography	$26275
105193	Neural Correlates of Attention and Intention in Decision-Making of Macaques and Humans: Selective Lesioning of Posterior Parietal Areas during Electrophysiology and fMRI	$52550
105213	Application of Advanced Laser Diagnostics to Hypersonic Wind Tunnels and Combustion Systems	$22000
105305	fMRI Analysis of the Decision Making Processes of Human Subjects	$63957
105306	Investigating Surety Methodologies for Cognitive Systems	$43452
105672	On the Role of Numerical Error in Turbulence Simulations	$53855
105673	Systems Modeling and Analysis of Transportation Fuels	$104431
105674	Biological Research Survey for the Efficient Conversion of Biomass to Biofuels	$50546
105675	Discrimination of Signatures of Advanced Energetic Materials for the Modern Battlefield	$66211
67004	Rapid Prototyping to the Nanometer Scale	$409512
67005	Robust Manufacturing of Gel-based Components for Nuclear Weapons	$127894
67007	Injection Molding of Net-Shape Active Ceramic Components	$426712
67008	Macro-Meso-Microsystems Integration in LTCC	$468281
67010	Studies of Signaling Domains in Model and Biological Membranes Through Advanced Imaging Techniques	$397374
67012	Protein Microarrays for Biowarfare Agent Detection and Characterization	$464031
67013	Interaction of Proteins with Lipid Films	$329642
67014	New Technologies for Understanding Membrane Protein Recognition and Signaling	$162293
67015	Massively Parallel Scalable Atmosphere Model	$308216
67016	High Performance Processing Architecture	$191722
67017	Substructured Multibody Molecular Dynamics	$375517
67018	Enhancing Simulation Performance on Clusters with Configurable Auxiliary Devices	$215833
67020	Penetrator Reliability Investigation and Design Exploration (PRIDE)	$617474
67021	Topology Optimization for Improving Sensor Performance	$253784
67022	Characterization and Application of Dielectrics with Controlled Leakage	$292941
67023	Nano-g Accelerometers Using Nanophotonic Motion Detection System	$507884

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Project ID	**Project Name**	**FY Total**
67024	Bragg Fiber Development	$336600
67025	Microwave to Millimeter-wave Electrodynamic Response and RF Applications of Semiconductor Quantum Nanostructures	$366104
67026	Development of GaN Power Amplifiers for SAR and Radar Fuze Applications	$325033
67027	Evanescent Wave Planar Photonic Biosensor	$356977
67028	Passive Electronically Steerable Array (PESA) for Miniature Synthetic Aperture Radar (miniSAR), Precision Guidance, and Intelligence/Surveillance/Reconnaissance (ISR)	$369084
67032	Weaponization of Thermobaric Explosives	$343689
67033	Development of an Enterprise-Scale Agent-Based Autonomic Logistics Simulation Model	$286348
67035	Novel Processing, Affordable Motion Compensation, and Mode Multiplexing for Miniaturized Synthetic Aperture Radar	$363777
67037	Enhanced Perception for Remote 3D Mapping of Unknown Indoor and Outdoor Environments	$317229
67039	MICROFUZE Integration	$400283
67041	Analysis of Technology Impacts on Operations in Complex Environments	$360369
67047	Systems Analysis of Networked Sensors	$279462
67048	Deployable Object Tracker for NMD Flights	$210536
67052	Fully Integrated System Dynamics Toolbox for Water Resources Planning	$343235
67053	Predicting System Performance of Proton-Exchange-Membrane Fuel Cells: Computational Modeling with Experimental Discovery and Validation	$502648
67055	Silicon Field Emission Electric Propulsion Arrays (FEEP) Powered by Orbital Nuclear Reactors	$519972
67056	Advanced Fuel-cell Reactor for the Direct Cogeneration of Electricity During Selective Partial Oxidation of Hydrocarbons	$410683
67059	Membranes for H2 Generation from Nuclear Powered Thermochemical Cycles	$300987
67061	Tunable Ion Conductors for Low Temperature Oxide-based Fuel Cells	$196368
67064	Ray Model of High Frequency Cavity Scarring	$192994
67067	Noncontact Surface Thermometry for Microsystems	$329102
67068	High Speed Interferometric Deformation Measurements	$283433
67069	Fundamentals of Nanofluidics	$336864
67070	Simulating Self-assembly and Growth of Biological Nanostructured Materials	$337570

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Project ID	Project Name	FY Total
67074	Electrochemically Switchable Materials for (Bio)Microfluidics	$231753
67075	Modeling of Friction-Induced Deformation and Microstructure	$565945
67076	Reversible Antibody Trapping for Selective Sensor Devices	$170303
67077	Correlated and Comprehensive Analytical Techniques for Homeland Defense	$520537
67078	Development of High Energy Density Dielectric Materials for Integrated Microsystems	$364269
67079	Nanolithography Directed Materials Growth and Self-Assembly	$396927
67080	Development of a Novel Technique to Assess the Vulnerability of Micro-Mechanical System Components to Environmentally Assisted Cracking	$169415
67081	3D Optical Sectioning with a New Hyperspectral Deconvolution Fluorescence Imaging System	$393848
67082	The Science of Solutes: Transition Metals in LIGA Nickel	$284354
67083	Novel Gel-Based Technology for Sensors and Weapons	$124517
67084	Coupled Nanomechanical Oscillator Arrays for the Study of Internal Dissipation in Nano-scale Structures and Collective Behavior in Large Systems	$305542
67085	Precisely Controlled Picoliter Vessels with Rapid Sample Preparation for Trace Biotoxin Detection	$245343
67087	Infrastructural Development for Flexible Network of Devices	$461498
67088	Monolithic Reconfigurable Radio-Frequency Microelectromechanical (RF MEMS) Antennas	$381643
67090	Risk Assessment Meta Tool	$121993
67096	Vulnerability Assessment with Dynamic Reverse Engineering of Embedded Processors through Innate Debug Mechanisms of System-on-Chip Integrated Circuits	$265588
67098	Nonlinear Optical Detection of Biological and Chemical Aerosol Agents Using Femtosecond Lasers	$481984
67099	Polymer Electronic Devices and Materials	$273196
67114	Critical Infrastructure System of Systems Assessment Methodology	$527979
67122	Embeddable Shock Physics Sensors	$290144
69156	System Dynamics Modeling to Assist Regional Water Planning: Modeling the Non-Market Value of Water	$25000
69157	Interactive Water Quality Modeling to Assist Regional Water Planning	$25000

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Project ID	Project Name	FY Total
69166	Adaptive Algorithms for Use in the Rejection of Periodic Disturbances of Unknown Frequency	$25000
69198	Poroelastic Wave Propagation Modeling and Inversion	$309491
70799	Developing the Foundation for Polyoxo-niobate Chemistry: Highly Tunable and Exploitable Materials	$290467
71943	Simulating Human Behavior for National Security	$251897
73185	Superhydrophobic Surface Coatings for Microfluidics and MEMS	$501357
73207	Micro Optical Radar (MOR) Facial Recognition Project	$59847
75786	Maximally Autonomous Autodirective Antenna Array Technology	$25000
78783	Generalized Continuum Models for Inelasticity in Solids: Formulation of Theories, and Variational Methods for Computation	$52550
79738	Adaptable Software for Advanced Human/Computer Systems	$363005
79741	Design and Manufacture of Complex Precision Optics	$186552
79742	Development of a Manufacturing Capability for Production of Ceramic Laser Materials	$350508
79745	Integrated Genome-Based Identification of Biological Agent Proteins: A Microfluidic Module for Nanosequencing of Proteins and Peptides	$485130
79746	Tools for Characterizing Membrane Rafts and Toxin Interactions	$179002
79747	Integrated Nanosystems for Monitoring Cell-Signaling Proteins	$480883
79749	DNA-Based Intelligent Microsensors for Genetically Modified Organisms (GMO)	$283974
79750	Reverse-time Seismic and Acoustic Wave Propagation: High-fidelity Subsurface Imaging and Location of Energy Sources	$317276
79751	Multi-Spectral Detection of Microfluidic Separation Products	$194824
79752	A Mathematical Framework for Multiscale Science and Engineering: The Variational Multiscale Method and Interscale Transfer Operators	$412944
79753	Microprocessor Extensions to Accelerate Scientific Applications	$244460
79754	Data Mining on Attributed Relationship Graphs	$369225
79755	Multi-Physics Coupling for Robust Simulation	$290847
79756	Simulation of Neutron Radiation Damage in Silicon Semiconductor Devices	$343590
79757	Data Pipelining for Heterogeneous Data Fusion	$284841
79759	Emergent Distributed Tracking and Identification from Features in Wireless Sensor Networks	$373110

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Project ID	Project Name	FY Total
79760	Novel Photonic Crystal Cavities and Related Structures	$208377
79761	Integrated NEMS and Optoelectronics for Sensor Applications	$395809
79762	Development of Advanced UV Light Emitters and Biological Agent Detection Strategies	$338406
79763	SMART Micro-Preconcentrator for Integrated Preconcentration and Detection of Chemical Agents and Explosives	$374847
79764	Investigation of Liquid Jet Break-up and Dispersion	$264884
79765	Accelerating DSMC Data Extraction	$188139
79766	Modal Analysis of Almost-Linear Structures	$461782
79767	Nano/Micro-Engineered Interfaces for Improved Performance and Reliability	$289764
79768	Electromagnetic Modeling of Photonic Band Gap Laminates for Tailored Emission	$248358
79771	Hydrodynamic Manipulation of Coalescence Dynamics	$278973
79773	Atomic-Scale Modeling of Phonon-Mediated Thermal Transport in Microsystems	$228563
79774	Multiphase Dynamics of Soft Biological Tissues	$338959
79776	Nano-Scale Optical and Electrical Probes of Materials and Processes	$101654
79777	Applying New Network Security Technologies to SCADA Systems	$408958
79778	Use of Composite Materials to Refurbish Our Civil and Military Infrastructure	$332881
79779	Desalination Utilizing Clathrate Hydrates	$341351
79780	Development and Application of the Dynamic System Doctor to Nuclear Reactor Probabilistic Risk Assessments	$239081
79781	Innovative Solar Thermochemical Water Splitting	$445768
79798	System Analysis of Carbon Sequestration with Clean Coal Technology	$117350
79800	MOCVD Synthesis of III-Nitride Heterostructure Nanowires for Solid-State Lighting	$102545
79801	Novel System for Zero-Emission Electricity and Hydrogen Production from Coal and Biomass	$313860
79803	Fuel Traps: Mapping Stability via Water Association	$117597
79807	Risk-informed, Decision-making Methodologies for Robust Control of Complex Infrastructures	$405986
79812	Universal Biosample Processor	$229047

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Project ID	Project Name	FY Total
79813	Security-enabled Programmable Switch for Protection of Distributed Internetworked Computers	$367950
79815	Automated Terrorist Threat Detection System	$294058
79818	Development of Ultraminiaturized Photomultiplier Detectors	$366329
79820	Portable Medical Diagnostic System for Detection of Presymptomatic Biomarkers of Chem/Bio-agent Exposure	$388629
79821	Diatoms as Molecular Architects	$394405
79823	Novel Mechanisms of Nanomechanical and Transmembrane Actuation	$343302
79824	Carbon Nanotube Sorting via DNA-Directed Self-Assembly	$400294
79825	Next-Generation Contact Materials for High-Reliability Microsystems Devices	$433630
79826	Controlled Fabrication of Nanowire Sensors	$403932
79827	Fundamental Enabling Issues in Nanotechnology: Stress at the Atomic Level	$345760
79829	Adaptive, Peircean Based Decision Aid	$306975
79831	Design Tools for Complex Dynamic Security Systems	$404313
79832	Knowledge Discovery via Sensor Fusion in Structures and Ad-Hoc Networks	$293353
79836	UGS Concept and Technology Development for Enhancing Boost Phase Detection ISR SDAC Application	$238996
79838	Large-Area Metallic Photonic Lattices for Military Applications	$280924
79839	Network and Adaptive System of Systems Analysis Methodology	$373469
79843	Compensation of Ionospheric Errors for Geolocation	$186160
79844	Single-Photon-Sensitive Imaging Detector Arrays	$357983
79846	Fully-integrated Microfluidic Microthruster System For Micropropulsion Applications	$443511
79847	Standoff Detection of Explosives Using UV LIDAR Technology	$281153
79848	Fail-safe Infectious Substance Transport Packages	$260957
79849	Development of Entomologic Surveillance to Aid Early Disease Detection (EDD)	$83837
79850	Biological Risk Assessment Methodology (BioRAM)	$168372
79852	Laser-Induced Breakdown Spectroscopy for Remote Explosives Detection	$348953
79854	Discrete Field-Portable Identity Microarrays	$348717
79856	Integrated Optical MEMS using Through-Wafer Vias & Bump-Bonding	$366262

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Project ID	**Project Name**	**FY Total**
79859	Stressed Glass Technology for Actuators and Removable Barrier Applications	$166880
79861	Terahertz Quantum Cascade Lasers for Standoff Molecule Detection	$182126
79862	Advanced Technologies for National Security Applications	$783855
79863	Forensic Tool Development for SCADA Systems	$293345
79864	Verification Through Process Monitoring	$271091
79865	High Operating Temperature LWIR Detectors for Advanced Infrared Imaging Systems	$379027
79866	Tunable Dielectric Films for Frequency Agile RF and Microwave Integrated Circuits.	$271162
79867	Micropolarizing Device for Long Wavelength Infrared Polarization Imaging	$273856
79868	Next Generation High-Voltage Switches for Capacitive Discharge Firing Systems	$226389
79869	Intelligent Fuzing for Hard Target Defeat	$104143
79870	A New, Cost-Effective Solution to Provide Radiation-Hardened Materials for Nuclear Weapons	$379669
79871	Micro- and Mesoscale Detonics of Explosives	$289237
79874	Ion Neutron SIMulation - INSIM	$255617
79875	A Miniaturized mW Thermoelectric Generator For NW Objectives: Continuous, Autonomous, Reliable Power For Decades	$410686
79876	Advanced Material Applications of Precision-Deposited and Free-Form-Fabricated Energetic Materials	$370908
79877	Characterizing the Emissivity of Materials Under Dynamic Compression	$184347
79878	Beyond the Local Density Approximation: Improving Density Functional Theory for High Energy Density Physics Applications	$340931
79880	Thermo-physical Properties of Shocked Water for Modeling Pulsed Power Switches and Other HEDP Systems	$190250
79881	Triggered Low-Inductance Gas Switching	$378361
79883	Achieving a New Paradigm in Software Technology	$360080
79893	Cohesive Zone Modeling of Failure in Geomaterials: Formulation and Implementation of a Strong Discontinuity Model Incorporating the Effect of Slip Speed on Frictional Resistance	$24000
80568	Development of Design and Simulation Models for Large-Scale Hydrogen Production Plant Using Nuclear Power	$584537

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Project ID	Project Name	FY Total
80590	Reconciling System and Application Logs	$25000
80591	Mobile Agent Abstractions, Methods, and Infrastructure for Efficient Sensor Network Tasking Over Heterogeneous Networks	$25000
80592	Ultra-fast Low-voltage MEMS Switches for Optics and RF Applications	$195184
80593	Catalyst Development and Micro Reformers for Fuel Processing	$25000
80594	Catalytic Membrane Development for Micro-scale Glucose Reforming	$25000
80595	Reliability of Materials in MEMS: Residual Stress and Adhesion in a Micro Power Generation System	$25000
80596	Modeling River-Aquifer Interaction with Application to the Rio Grande	$25000
80598	Kinetics and Mechanisms of Nanowire Synthesis	$25000
80599	Rapid Chemical Analysis Using Micropower Gas Chromatographic Columns and Latching Microvalves	$25000
80601	Automated Assembly of Micro-Scale Devices	$52408
80602	MEMS Reconfigurable Intelligent RF Circuits	$25000
80603	Bayesian Inference for Inverse Problems, Model Structure, and Uncertainties	$206144
80604	Atomistic Modeling of Nanowires, Small-scale Fatigue Damage in Cast Magnesium, and Materials for MEMS	$50000
80667	Design, Analysis and Control of MEMS Devices for Micromanipulation Tasks	$25000
81752	Integrated Fiber Lasers for Efficient High-Power Generation	$3942756
81753	Advanced Fusion Concepts: Neutrons for Testing and Energy	$4157307
82854	Developing Novel Scaffolds for Biological Molecules by Solving the I-QSAR Problem Using the Signature Molecular Descriptor	$50000
84266	Effective Dispersion of Nanoparticles by Polymers	$233003
84267	Bead-based Multiplexed, Orthogonal, BW/ID (BioWarfare/Infectious Disease) Detection Microsystem and Technologies	$348016
84270	Robust Spore-based Detection System	$126044
84271	Terahertz Detectors for Long Wavelength Multi-Spectral Imaging	$324931
84318	Electroforming of Bi(1-x)Sbx Nanowires for High Efficiency Micro-Thermoelectric Cooling Devices on a Chip	$330029
84320	Advancement in Thermal Interface Materials for Future High-Performance Electronic Applications	$338930
85512	File System Performance Optimization for Supercomputing Applications	$25000

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Project ID	Project Name	FY Total
85513	MEMS-based Arrays of Micro Ion Traps for Quantum Simulation Scaling	$106195
86358	Analysis of Bead Attached Ion Channels on Optically Addressable Micro-Fluidic Electrode Arrays	$25000
86362	PCSS/Fiber-Optic Trigger System for Pulsed Power Switches	$327555
86801	Capture and Utilization of Prosody in Disambiguating Spoken Speech	$25000
89669	Diffusionless Fluid Transport and Routing Using Novel Microfluidic Devices	$47393
90493	Exploiting Interfacial Water Properties for Desalination and Purification Applications	$1057856
90497	Development of a Universal Fuel Processor	$548563
90498	Emulsion Technology for Sample/Contaminant Collection	$144177
90501	Rapid Updating of Stochastic Models Using Sensor Information	$219226
90506	Bioagent Detection Using Miniaturized NMR	$144340
90729	Analysis of Real-Time Reservoir Monitoring: Reservoirs, Strategies, & Modeling	$359192
90730	Merging Spatially Variant Physical Process Models Under an Optimized Systems Dynamics Framework	$427987
91991	Nanostructured Surfaces for Microfluidics and Sensing Applications	$129991
93361	Fundamentals of Embossing Nanoimprint Lithography in Polymer Substrates	$53902
93362	Rational Understanding and Control of the Magnetic Behavior of Nanoparticles	$50000
93364	MEMS Dual Backplate Capacitive Microphone	$12902
93366	Process Science and Engineering for Thermomechanical Nano-manufacturing	$20000
93369	Fabrication and Device Applications of Aligned Mesoporous Architectures	$50000
93414	Remote Sensing of End-Event Timing for High-Fidelity JTAs	$333606
93415	A Modern Nuclear Weapon Communications Architecture	$437430
93416	Improved Power Source for Doubling the Exchange Time Interval of LLC	$266889
93417	Advanced Optical Trigger Systems for Firing Sets in Nuclear Weapons	$404034
93418	Increasing the Accuracy of Vision-Based Dimensional Metrology	$148161
93419	Advanced Surety Concepts	$496813
93421	High Kinetic Energy Ion Source	$203691
93422	Mentor/PAL	$296136
93423	Identification of Threats Using Linguistics-Based Knowledge Extraction	$327947

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Project ID	Project Name	FY Total
93425	UV or IR Fluorescing Sensor for Explosive Material Components	$123115
93426	Large Scale Manufacturing of Integrated Nanostructures for Sensing	$309497
93427	Development and Optimization of Thermal Protection Materials for Hypersonic Vehicles	$775002
93491	Titanium Cholla - Optimized, Lightweight, High Strength Structures for Aerospace Applications	$281776
93492	In Situ Optical Diagnostics of Neutron Generator Target Films	$188761
93493	Low Cost, Meso-Scale Parts Fabricated from Nanocrystalline Metals	$395481
93494	New Low Cost Material Development Technique For Advancing Rapid Prototyping Manufacturing Technology	$199284
93495	Advanced Manufacturing of a Novel Functional Material	$423050
93496	Interface Physics in Microporous Media	$376380
93497	Creating a Discovery Platform for Defined-space Chemistry and Materials: Metal Organic Frameworks	$369243
93498	Virulence Membrane Protein Organization and Complex Formation in Francisella novicida	$387411
93499	Cell Modeling with Heterogeneous, Dynamic Cell Membranes	$407547
93500	Membrane Analysis of the Plague Bacterium Yersinia Pestis During Flea to Mammalian Host Adaptation	$297180
93501	Shotgun Protein Sequencing	$328514
93503	A Numerical And Experimental Characterization Of Decontaminating Water Distribution Networks	$487428
93505	Distributed Micro-releases of Bioterror Pathogens: Threat Characterization and Epidemiology from Uncertain Patient Observables	$245805
93506	Large Scale Simulation for Human Behavior Modeling	$430024
93507	Network Architecture Design for Next Generation Supercomputers	$442638
93508	Quantum Computer Architecture, Software, and Applications	$664114
93510	Robust Tunable Multi-function Amplifiers Using GaN and RF MEMS Technology	$303908
93511	Bloch Oscillations in Two-Dimensional Nanostructure Arrays for High Frequency Applications	$378227
93512	Inverted Monolithic Interconnected Module (MIM) Thermophotovoltaics (TPV) for Remote Power Generation	$308827

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Project ID	Project Name	FY Total
93513	A Discovery Platform for Nanowire Electronics and Photonics	$421659
93515	Miniature Flow Cytometer for Medical Diagnostics and Pathogen Detection	$411928
93516	Just in Time Jamming of Enemy Detonation Signals	$326506
93518	Ultrasensitive Directional Microphone Arrays for Military Operations in Urban Terrain and Future Combat Systems	$280832
93519	High Power Broadly Tunable Mid-IR Quantum Cascade Lasers for Improved Chemical Species Detection	$240767
93520	Si-rich Silicon Nitride Films for Reliable Low Write Voltage Anti-fuses	$127522
93521	Terahertz-based Target Typing and Kill Assessment	$273976
93522	Developing Key Capabilities for Quantum Computing	$959602
93525	Multi-Length Scale Algorithms for Failure Modeling in Solid Mechanics	$266790
93528	Nanocrystalline Aluminum Alloys for Structural Applications	$441986
93529	Nanoparticle Flow, Ordering and Self-Assembly	$382608
93530	Development of Simulation and Validation Techniques for the Dynamic Behavior of Metals at the Grain Scale	$180223
93531	Dynamic Compression of Synthetic Diamond Windows	$198607
93532	Fast High Voltage Spark Gap Switch With a Phase Changing Dielectric	$351072
93533	Development of a Physics Understanding of Pulsed Power Closing Switches for Multiple LTD Applications	$358188
93534	High Current Carbon-Nanotube Electron Sources	$179577
93535	Precision Electron Flow Measurements in a Disk Transmission Line	$202577
93536	Responding to the Identified Gap and National Needs in Early Bio-response	$120177
93537	Viral Vectors for Gene Modification of Plants as Chem/Bio Sensors	$126461
93538	LIGA-Fabricated Composite Right/Left-Handed Metamaterials	$154028
93539	Active Assembly for Large-Scale Manufacturing of Integrated Nanoelectronics	$119224
93540	Molecular Electronics: Theory and Experiment	$118176
93541	Design and Synthesis of Tailored Multi-Dimensional Nanoscale Structures	$156738
93542	Scanning Electron Microscope Doppler Vibrometer	$92960
93543	Si Nanocrystal as Device Prototype for Spintronics Applications	$114499
93544	Electrochemical Sensing Through Parallel Chemometric Diagnostics	$162741

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Project ID	Project Name	FY Total
93545	Biological Detection and Tagging Using Tailorable, Reactive, Highly Fluorescent Chemosensors	$123518
93547	Self-cleaning Synthetic Adhesive Surfaces Mimicking Tokay Geckos	$121210
93548	Nano-Engineered Electroluminescent Polymers	$101734
93549	Engineering Intracellular Active Transport Systems as In Vivo Biomolecular Tools	$185752
93551	Self-assembled Nanoexplosives	$96673
93552	Energy Infrastructure Surety Program for Military Applications	$444185
93554	Hybrid Inorganic-Organic Polymer Composites for Improved Performance in Polymer-Electrolyte Fuel Cells	$254662
93555	Enhanced Biomass to Bioenergy Interconversion through Protein and Metabolic Engineering	$561519
93556	Joint Physical and Numerical Modeling of Water Distribution Networks	$356099
93558	Computational and Experimental Study of Nanoporous Membranes for Water Desalination and Decontamination	$489345
93559	Novel Virus Coagulants for Water Treatment and Biomolecular Structural Science	$292816
93561	A Demonstration of Advanced Transparency At The Monju Fast Breeder Reactor	$347149
93562	Reliability of Passive Safety Systems	$236912
93563	Water-splitting Nanodevices for Solar Hydrogen Production	$364382
93564	Development of Nanostructured and Surface Modified Semiconductors for Hybrid Organic-Inorganic Solar Cells	$518225
93565	Cognitive Modeling of Human Behaviors	$402508
93566	Massive Graph Visualization	$207248
93567	A Dual Neutron+Gamma Source for the Fissmat Inspection for Nuclear Detection (FIND) System	$328202
93568	Small Acid Soluble Proteins for Rapid Spore Identification	$257231
93569	Parallel Computing in Enterprise Modeling: A Hybrid Approach	$374514
93581	Enhanced NaI Scintillation Detectors	$360081
93582	Portable Devices for Pen-Side Disease Diagnostics	$336331
93583	Plastic Neutron Detectors	$341505
93584	Scintillating Nanomaterials for New Radiation Detection Devices	$459546

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Project ID	Project Name	FY Total
93585	Explosives Detection by Photo-Ionization Ion Mobility Spectrometry	$426509
93586	Detection of Cell Phone and Wireless Systems	$234717
93588	Transportable Liquid Metal Reactor System Design	$89645
93589	Time-Frequency Enhanced Radar Processing for Foliage Penetration	$87402
93590	Secure Portal	$203024
93592	Human Perceptory Augmentation	$594806
93593	Advanced Hard Target Warhead	$609021
93594	Information System Situational Awareness	$116126
93595	Human Performance Modeling for System of Systems Analytics	$259416
93596	A Serious Game Engine for Complex Adaptive Systems Analysis and Training	$168883
93597	Pulse Power Integration for Advanced Electric Weapons Platform	$125495
93598	Terahertz Diagnostics for Impact-Flash Spectroscopy on Light-Gas Gun	$459715
93600	Void Sensor for Penetrators	$179780
93601	High Energy Density for Electric Weapons Platforms	$222542
93602	Tracking Moving People With Radar Using High-Range-Resolution and Clutter Attenuation	$198840
93603	Miniature Air-Deliverable Guided Sensor System	$181445
93604	Nonmechanical Zoom Using Active Optics for Night Vision Goggles	$84011
93605	The Physics of Threat/Target Interaction for Advanced Armor Development	$441984
93607	Development of Nonproliferation and Assessment Scenarios	$177327
93608	Photonics for Ultrawideband Intrasatellite Communications	$467422
93609	Building Trusted Systems from Untrusted Components	$554014
93610	Using Chaos for Ultrasensitive Coherent Signal Detection	$129697
93611	Micromechanical Resonators Applied to Shock Hardened, Covert Communications	$332561
93612	Infrared Detection and Power Generation Using Self-Assembled Quantum Dots	$332357
93613	Ultra-Thin Ultra-High-Efficiency Heterostructure Micro-Cooler for Satellite Sensing Applications	$354133
93615	Monolithically Integrated, Backside-Illuminated Photo Diode Array	$404066
93616	Future Technology Approaches for Threat Warning Receivers	$191154

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Project ID	Project Name	FY Total
93617	Shear Horizontal Surface Acoustic Wave Microsensors for Class A Viral and Bacterial Detection	$318808
93618	Post-CMOS Compatible Aluminum Nitride Resonant Accelerometers	$280428
93619	Hand Miniaturized BW Agent Detector for Real-time Detection of Concealed Agent Production	$354297
93622	Development and Application of Quantitative Proliferation Resistance Methodologies for Reprocessing Scenarios	$234345
93623	Modeling Expert Collaboration for National Intelligence Systems Engineering	$138339
93625	Strategic Concepts for Information Superiority	$517947
93626	Ultra Low Power Management Circuit Design	$219824
93628	Multispectral Fusion for Beyond the Fence Intruder Detection and Assessment	$255426
93629	Novel Design for Improved Nuclear EMP Detection	$174069
93630	Adaptive Antenna Tuning for Miniaturized Tag Transceivers	$150509
93631	Electrochromic Adaptive Optics for Novel Functionality of Earth-Staring Systems	$206796
93633	New Hash Function for Data Protection	$253833
93634	Binary Analysis for Embedded Environment	$176583
93635	Software Evaluation in Virtualized Environment	$443997
93636	Borazine Precursors for Boron Nitride Anti-Friction Coatings for MEMS	$359768
93637	Multi-Scale Behavioral Analyses of Integrated Surety Designs	$418861
93638	Decision Framing and Characterization Approaches for Complex Security Environments	$191779
93639	Remotely Interrogated Passive Polarizing Dosimeter (RIPPeD)	$285248
93641	New Approaches to Addressing the New Design Basis Threat	$391792
93652	Atmospheric Aerosols	$20548
94808	Human Interaction with Safety-Critical Interconnected Systems	$177420
94809	Process and Infrastructure Development for Integrated Three-Dimensional Mesomanufacturing	$48807
94810	Reliable and Secure Communication in Wireless Sensor Networks	$50000
94811	Nanostructured Electrocatalyst for Fuel Cells: Silica Templated Synthesis of Pt/C Composites	$25000

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Project ID	Project Name	FY Total
94812	Piezoelectric Properties of Arrayed Nanostructures of Zinc Oxide for Sensor Applications	$204183
94814	Three-dimensional Analysis for Nanoscale Materials Science	$205788
94830	Tribological Studies of Microelectromechanical Systems	$40000
95211	Highly Pixelated Hypertemporal Sensors for Global Awareness	$1519143
95214	Terahertz Microelectronic Transceiver (TµT) System	$2677760
95215	Microscale Immune Study Laboratory (MISL)	$4585133
96088	Tunnel Gap Modulation Spectroscopy: An Ultrasensitive Technique for Measuring Small Mass Change	$25000
96299	Optical Properties of Plasmonic Metal-dielectric Composites	$25000
97982	Membrane-based Water Purification for Removal of Arsenic and Biologically Active Small Molecules	$26555
98104	Microfabricated Preconcentrator for Microscale Gas Chromatography	$25000
98105	Dynamics of Propagating Shock Waves and Phase Fronts	$25000
98294	Verification and Operation of Adaptive Materials in Space	$33032
99405	Nanoporous Silica Templated Heteroepitaxy	$130242
99406	Chiral Multichromic Single Crystals for Optical Devices	$92024
99407	Molten Salt-Based Growth of Large-Area, High Quality Bulk Gallium Nitride for Substrates	$191777
99864	Quantification of False Positive Reduction in Nucleic Acid Purification on Hemorrhagic Fever DNA	$140665
99868	Large Atmospheric Explosions on Earth	$48237

| **Total # of Projects for SNL:** | **430** | **Total Cost for SNL:** | **$129221459** |

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SRP - Savannah River Plant

Project ID	Project Name	FY Total
SR05020	Electrical Heat Standards for Calorimetry	$96054
SR05023	Modeling of Pressure Swing Adsorption Separation Process	$61174
SR05027	Low Cost, High Flux Ni-Ti-Nb Hydrogen Purification/Separation Membrane Development	$68033
SR05029	Synthesis of Metal Hydrides by Mechanical Alloying at Elevated Temperatures in a High Speed Attritor	$38273
SR05033	Create New Rigorous Thermal-Cycling Absorption Process Model	$73394
SR05041	Permeation-resistant Coated Gloves for Gloveboxes	$104694
SR05047	Demonstration of Pressure Swing Adsorption (PSA) Separation Processes	$129893

| Total # of Projects for SRP: | 7 | Total Cost for SRP: | $571515 |

Y-12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1202102	Fisk Rad Detectors	$137205
Y1202103	Fuzzy Logic Analysis of Measurement	$17791
Y1202105	UNCC Hole Plate	$221029
Y1202106	UFL HSM	$67024
Y1202107	NCSU Artifact	$97537
Y1203001	Radiograph Archival	$39075
Y1203014	High Accuracy, High Density	$109083
Y1203039	Advanced SDOR	$664350
Y1203043	ID of Ultra Fine Particles	$3846
Y1203050	Lugless Casting	$99187
Y1203075	Project 2	$49132
Y1203076	Tech Infusion	$80851
Y1204006	Cone Beam X-ray CAT scan	$312426
Y1204019	Surface Metrology	$264700
Y1204037	Process Radiation Detector System	$237017
Y1204041	Slag Reprocessing	$114423
Y1204045	Next Generation MW	$919007
Y1204059	NMC&A Confirmatory Cart	$87013
Y1204087	Direct Conversion to Oxide	$25952
Y1204103	Precision Electroplating	$3083
Y1204110	Crucible Materials Thermo Modeling	$83104
Y1204127	Integrated Machining & Inspection at GT	$41796
Y1204128	Source Model	$6793
Y1204133	EMBOS	$193085
Y1204134	Tusk Fracture Toughness with SSM	$3060
Y1204135	UM - Optimet	$113248
Y1204136	Portable Metal Analyzer	$62995
Y1204137	UNCC Improving Machine Tool Productivity and Quality	$223715
Y1204138	Machining Uranium and Uranium Alloys	$187033

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Y-12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1204141	Ultrasonic Vibration of Molten Metals	$22120
Y1204142	ANIPM Evaluation	$216417
Y1205001	Reduce Holdup Measurement Uncertainty	$45935
Y1205005	High Speed Machining of Difficult to Machine Materials	$155338
Y1205012	Real-time Beryllium-in-Air Monitor Based on Passive Electric Spark	$155962
Y1205013	Mobile Neutron Probe	$23449
Y1205020	Miniature NC Turning and Milling Machine Integration	$99630
Y1205030	Inverse Vibration Modeling and Parameter Estimation	$134366
Y1205032	Microcantilever Transducers: Next Generation of Gas Diagnostics	$240543
Y1205033	Enhancing Inductively-Coupled Plasma Mass Spectrometry with Ion Mobility	$208758
Y1205040	Large Alpha-Uranium Single Crystals	$77849
Y1205043	Conversion of Uranium Metal to Oxide	$293181
Y1205045	Novel Material Synthesis (U)	$89883
Y1205048	Purification of Uranium by Electrorefining	$382234
Y1205064	Pin Extensions	$178350
Y1205069	Personal Radiation Detection Instrumentation (PRDI) Alternatives	$228113
Y1205072	Nanostructured Super Material Machine Tools	$259575
Y1205082	WiMaX Networking	$156859
Y1205084	Parylene Coating	$103777
Y1205089	Advanced Hydrogen-Getter Analysis	$87852
Y1205091	Debonding	$199085
Y1205092	Material Cleaning Alternatives	$215161
Y1205093	Special Casting Requirements	$91423
Y1205094	Uranyl Nitrate Processing Evaluation	$83975
Y1205095	Primary Extraction System Improvements	$125335
Y1205096	Novel Approaches for Be Sample Analysis	$190335
Y1205099	Bioassay Analysis by ICP-MS	$342385
Y1205O96	Denitration Alternatives	$21979
Y1206001	High Quality Radiographic Film Digitization	$140480

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Y-12 - Y-12 Plant

Project ID	Project Name	FY Total
Y1206003	Light Beam Grid Network Safeguards Surveillance System	$193791
Y1206004	Advanced Modeling of Microwave Processes	$208721
Y1206007	Material Detection and Quantitation for NMC&A	$283607
Y1206011	Investigation of Welding and Weld Quality Issues of Uranium Components	$189145
Y1206019	Lithium Technologies	$672830
Y1206025	Agile Machining Process Development	$306752
Y1206027	Be Swipe Analyzer	$167152
Y1206028	Portable Carbon in Uranium Analyzer	$313230
Y1206031	Advanced Methods to Nondestructively Sense for Stress Corrosion Cracking Sites on Uranium Parts Using a Thermoelectric Power (Seebeck) Coefficient Surface Contact Probe	$182712
Y1206032	Physics-Based Systems Integration for Y-12 Modernization	$209855
Y1206033	Interface UT 3-D Imaging Technology with LC-SEM	$89924
Y1206035	Agile Machine Chip Monitor	$83743
Y1206036	Casting Mold Temperature Measurement	$179412
Y1206038	Improving Beryllium Analysis Through Computational Deconvolution	$180908
Y1206044	Lithium Operations Modernization and Downsizing	$11152
Y1206054	RFID and Automated Barcode Evaluation for NMC&A Modernized Facility	$234762
Y1206055	In-Process Monitoring for NMC&A Modernized Facility	$74078
Y1206057	Advanced Infrared (IR) Heating Techniques for Materials Processing	$682773
Y1206060	Recovery of Materials	$127246
Y1206075	Total Oxygen Analysis	$19976

Total # of Projects for Y-12:   **78**   **Total Cost for Y-12:**   **$13446678**