FY18 Approved LDRD Projects

Investment #	Project Title	Principal Investigator	DEPT	Directorate
LDRD14-005	1st Light: Elucidating Solid-Solid Interfaces in Energy Storage Systems	Takeuchi,Esther	DC	EPS
LDRD15-006	Design, Fabrication, and test of SRF Cavity prototype for eRHIC BNL	Xu,Wencan	AD	NPP
LDRD15-009	Nanoconfined Polymer Electrolytes for Rechargeable Lithium-Metal Batteries	Black,Chuck	NC	EPS
LDRD15-010	Hydrocarbon Chemistry on Zeolite Model Systems: Towards a Detailed Understanding of Energy-Relevant Chemical Transformations Using In-Situ Techniques at NSLS-II, CFN and Chemistry Department	Boscoboinik,Anibal	NC	EPS
LDRD16-006	Serial Micro Crystallography at Full Flux	Fuchs,Martin	PS	EPS
LDRD16-007	3D Ptychography Imaging without Rotation Using Highly Convergent X-ray Beam	Huang,Xiaojing	PS	EPS
LDRD16-010	100fs Single-Shot Electron Beam Slicing Technology Towards Ultra-Fast Imaging	Yu,Li Hua; Zhu,Yimei; Shatan,Timur; Willeke,Ferdinand; Doom, Lewis	PS	EPS
LDRD16-019	In Situ Synchrotron Studies of Subsurface Material Interfaces using X-Ray Fluorescence Mapping and X-Ray Tomography at NSLS-II	Gill,Simerjeet	NE	EBNN
LDRD16-023	ADC and Gbit/s Link in CMOS for Large Data Generation and In Operando Analysis	Li,Shaorui	IO	NPP
LDRD16-026	Microwave Kinetic Inductance Detectors: from Cosmology to NSLS2	O'Connor,Paul	IO	NPP
LDRD16-029	Higher-Order-Mode (HOM) damping for full luminosity of eRHIC	Xu,Wencan	AD	NPP
LDRD16-034	Advanced Silicon Detectors R&D	Lanni,Francesco	PO	NPP
LDRD16-037	Exploring hadron structure with ab initio lattice QCD calculations and making predictions for eRHIC	Izubuchi,Taku	PO	NPP
LDRD16-038	Preconceptual Design Study for Large Scale Structure Experiment post LSST/DESI	Slosar,Anze	PO	NPP
LDRD16-039	Machine Learning Assisted Material Discovery	Yoo,Shinjae	CC	CSI
LDRD16-041	Dynamic Visualization and Visual Analytics for Scientific Data at NSLS-II	Xu,Wei	CC	CSI
LDRD16-043	Deep Structured Analysis for Image Datasets from CFN and NSLS-II	Yager,Kevin	CC	CSI
LDRD16-045	Catalysis Program in CO2 Activation	Chen,Jingguang	CO	EPS
LDRD17-002	High-Powered Er-Doped Fiber Laser for 50 mA Highly Polarized Electron Beam	Zhao, Zhi	AD	NPP
LDRD17-003	Integrated Low-Noise and Low Drop-Out Voltage Regulator for Front-End ASIC	Li,Shaorui	IO	NPP
LDRD17-004	Next Generation Pad Readout for Neutron Detectors	Yu, Bo/Schaknowki, Neil	IO	NPP
LDRD17-005	Investigation of Novel Materials for Generating Polarized Electron Beams	Rao, Triveni/Johnson, Peter	IO	NPP

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LDRD17-011	Engineered Protein Arrays for Structural and In-Operando Studies	Gang, Oleg	NC	EPS
LDRD17-015	NSLS-II High Brightness Upgrade Design Studies	Blum, Eric	PS	EPS
LDRD17-016	Diffractíon-límíted and wavefront preserving reflective optìcs development	Idir, Mourad	PS	EPS
LDRD17-017	Development of Compact, High Effïciency Nanofocusing Optics for Hard X-Ray Nano-Imaging	Nazaretski, Evgeny	PS	EPS
LDRD17-018	Genomes to Predictive Biology: Machine Learning for the Integration of Inter-Species Functional Genomics Data	Blaby, Ian	BI	EBNN
LDRD17-023	Molecular Mechanisms of Alkane Hydroxylation	Liu, Qun	BI	EBNN
LDRD17-024	Development of a New Approach to Remotely Measure Limitations on Plant Growth	Rogers, Alistair	EE	EBNN
LDRD17-029	High Performance X-ray Diffraction Simulation Toolkit Using GPU and CPU Clusters	Xu, Wei / Lin, Meifeng	CC	CSI
LDRD18-002	Analysis on the Wire (AoW)	Katramatos, Dimitrios	CSI	CSI
LDRD18-005	Provenance-enabled sample measurements and tracking for multi-modal analysis and predictive synthesis	Pouchard, Line	CSI	CSI
LDRD18-009	Visualization toward White-Box Machine Learning for Image Registration in Multi-modal Imaging and Analysis	Lin, Yuewei/Xu, Wei	CSI	CSI
LDRD18-015	Operando Studies of 3D Printing with Nanostructured Inks	Wiegart, Lutz	PS	EPS
LDRD18-017	Electrolyte Flow Battery for Smart Grid Application	Gan, Hong/Takeuchi. Ester	EPS	EPS
LDRD18-020	Novel Development of Deep Learning and Radar Data Assimilation for Energy Resilience and Grid Reliability	Jensen, Michael	EE	EBNN
LDRD18-022	Interdisciplinary Cyber-Security Framework	DePhillips, Michael	NN	EBNN
LDRD18-026	Electron Beam Formation via Ionization Injection for Next Generation Accelerator R&D	Swinson, Christina	AD	NPP
LDRD18-028	Tunable High Power FPC for Storage SRF cavity	Xu, Wencan	CAD	NPP
LDRD18-030	Investigation of surface charge limit of GaAs	Rao, Triveni / Tsang, Thomas / Wang, Erdong	PO	NPP
LDRD18-036	Finding a Lifshitz Point with the Beam Energy Scan II	Pisarski, Robert	PO	NPP
LDRD18-038	Ultra-fast high-granularity silicon sensor technology for photon science	Tricoli, Alexander	PO	NPP
LDRD18-046	Enabling Sustainable Ammonia Synthesis through Ambient and High Pressure Synchtron Techniques	Rodriguez, Jose / Stavitski, E.	CO/PSD	EPS
S-LDRD18-033	Micro-pattern gas detectors for EIC	Kiselev, Alexander; Woody, Craig	PO	NPP

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S-LDRD18-037	Forward and Backward Tracking at the EIC using small strip thin gap chamber detector	Ruan, Liguan	PO	NPP
S-LDRD18-039	Studying Confirment and Nuclear Structure through Correlations and Quantum Entanglement at an EIC	Ullrich, Thomas	PO	NPP
S-LDRD18-044	Interplay of the many body dynamics of parton spins with gluon saturation at EIC	Venugopalan, Raju	PO	NPP
S-LDRD18-045	Jets at the EIC	Venugopalan, Raju	PO	NPP
S-LDRD18-047	Functional Descriptors of Single Atom Catalysts	Frenkel, Anatoly	CO	EPS
S-LDRD18-048	Studying matrix models of QCD with Quantum Computers	Pisarski, Robert	PO	NPP
S-LDRD18-050	A Domain Specific Language for Quantum Computing	Kong, Martin	CSI	CSI
S-LDRD18-051	Spatial Imaging of Quantum Entanglement	Nomerotski, Andrei	PO	NPP
S-LDRD18-052	Quantum UV Sensors based on Superconducting Nanowire Single Photon Detector	Rescia, Sergio	IO	NPP
S-LDRD18-054	Catalyzing Strategic Partnerships for Impacting Materials for Next-Generation Quantum Information Science	Black, Chuck	CFN	EPS
S-LDRD18-056	Coherence in Charge Pairs for QIS	Miller, John	CO	EPS
S-LDRD18-057	Quantum Machine Learning	Yoo, Shinjae	CSI	CSI
S-LDRD18-058	EffeQtive Hamiltonians for Metalloenzyme Catalysis	Van Dam, Hubertus	CSI	CSI