LDRD FY2020 Continuing Proposal Requests

Investment #	Project Title	Principal Investigator	Directorate	DEPT
LDRD17-011	Engineered Protein Arrays for Structural and In-Operando Studies	Gang, Oleg	EPS	CFN
LDRD17-015	NSLS-II High Brightness Upgrade Design Studies	Yongjun Li/Shaftan. Timur	EPS	PS
LDRD17-016	Diffractíon-límíted and wavefront preserving reflective optìcs development	Idir, Mourad	EPS	PS
LDRD17-023	Molecular Mechanisms of Alkane Hydroxylation	Liu, Qun	EBNN	BI
LDRD17-024	Development of a New Approach to Remotely Measure Limitations on Plant Growth	Rogers, Alistair	EBNN	EE
LDRD18-002	Analysis on the Wire (AoW)	Katramatos, Dimitrios	CSI	CC
LDRD18-005	Provenance-enabled sample measurements and tracking for multi-modal analysis and predictive synthesis	Pouchard,Line	CSI	CC
LDRD18-009	Visualization toward White-Box Machine Learning for Image Registration in Multi-modal imaging and Analysis	Lin,Yuewei/Xu,Wei	CSI	CC
LDRD18-015	Operando Studies of 3D Printing with Nanostructured Inks	Wiegart, Lutz	EPS	PS
LDRD18-017	Electrolyte Flow Battery for Smart Grid Application	Takeuchi, Esther	EPS	IS
LDRD18-020	Novel Development of Deep Learning and Radar Data Assimilation for Energy Resilience and Grid Reliability	Jensen,Michael	EBNN	EE
LDRD18-026	Electron Beam Formation via Ionization Injection for Next Generation Accelerator R&D	Palmer, Mark	NPP	AD
S-LDRD18-033	Micro-pattern gas detectors	Kiselev,Alexander; Woody,Craig	NPP	PO
LDRD18-036	Finding a Lifshitz Point with the Beam Energy Scan II	Pisarski,Robert	NPP	PO
S-LDRD18-037	Forward and Backward Tracking at the EIC using small strip thin gap chamber detector	Ruan,Lijuan	NPP	PO
LDRD18-038	Ultra-fast High-Granularity Silicon Sensor Technology for Photon Science	Tricoli,Alexander	NPP	PO
S-LDRD18-039	Studying Confirment and Nuclear Structure through Correlations and Quantum Entanglement at an EIC	Ullrich,Thomas	NPP	PO
S-LDRD18-044	Interplay of the many body dynamics of parton spins with gluon saturation at EIC	Venugopalan,Raju	NPP	PO
S-LDRD18-045	Jets at the EIC	Venugopalan,Raju	NPP	PO
LDRD18-046	Enabling Sustainable Ammonia Synthesis through Ambient and High Pressure Synchrotron Techniques	Rodriguez, Jose/Stavitski, Eli	EPS	CO
LDRD19-001	Physics-Informed Autonomous Synthesis of Self-Assembling Materials	Yager,Kevin	CSI	CSI
LDRD19-002	Physics-Guided Optimization of Quantum Gate Operations	Lin, Meifeng	CSI	CSI
LDRD19-003	Building an Integrative Forecast System to Address Challenges Facing Renewable Energy Forecast	Liu, Yangang	EBNN	EE
LDRD19-008	Integrating Multimodal Experiments using Advanced Data Analytics Developed with Microscopic Theories for Quantum Materials	Stavitski, Eli	EPS	PS
LDRD19-010	X-Ray Vision of Topological Bosons in Condensed Matter	Dean, Mark	EPS	PM
LDRD19-013	In operando imaging and dynamics of 2D high temperature superconductor based, dense Q-bit arrays	Mazzoli, Claudio	EPS	PS

LDRD19-014	Linking Experiments to Algorithms For Solving Single-Particle Cryo-EM Challenges.	McSweeney, Sean	EPS	PS
LDRD19-015	Triplet-Driven Solar Energy Capture	Miller, John	EPS	CO
LDRD19-016	Demonstration of feasibility of sub-nm, picosecond electron microscope for the life sciences	Shaftan, Timur	EPS	PS
LDRD19-017	Beam Pipe Higher Order Mode (HOM) Absorber	Xu, Wencan	NPP	CAD
LDRD19-019	Varying Cross-Section Direct Wind Double Helix Coils	Witte, Holger	NPP	CAD
LDRD19-020	Cryo-CMOS: enabling technology for scalable quantum processors	Carini, Gabriella	NPP	IO
LDRD19-021	Silicon Drift Detector with internal gain and ultra-low noise charge preamplifier for single photon detection	Giacomini,Gabriele	NPP	IO
LDRD19-022	Sensors and electronics for Next-Generation Dark Energy Surveys	O'Connor,Paul	NPP	IO
LDRD19-023	Development of Low Background Interconnections	Raguzin, Eric	NPP	IO
LDRD19-024	Quantum UV Sensors based on Superconducting Nanowire Single Photon Detector	Rescia, Sergio	NPP	IO
LDRD19-026	Cathode development and deployment for EIC	Gaowei, Mengjia	NPP	IO
LDRD19-027	Real-time Particle tracking with Deep Learning on FPGAs	Cavaliere, Viviana	NPP	PO
LDRD19-028	High-Throughput Advanced Data Acquisition for eRHIC, Particle Physics and Cosmology Experiments	Chen, Kai / Huang, Jin	NPP	PO
LDRD19-029	Single Atom Ba-ID for nEXO using Electron Microscopy	Chiu, Mickey; Warren, John	NPP	PO
LDRD19-030	Towards SBU-BNL scalable quantum processing and network enabled by fast imaging of single photons	Nomerotski, Andrei	NPP	PO
S-LDRD19-035	Novel Approaches for self-assembly of bionanomaterials and enabling their new functions	Gang, Oleg	EPS	CFN
20-002	Advancing Atmospheric Prediction Capabilities in Urban Areas for Energy Resiliency and National Security	Vogelmann, Andrew	EE	EBNN
20-008	Power Efficient Plasma Device for removal of PFASs, 1,4 Dioxane & other contaminents of emerging concerns from water supply & wastewater at record water disinfection rates	Hershcovitch, Ady	CAD	NPP
20-010	Developing Sub-Picosecond Multi-Terrawatt CO2 Laser Capability	Pogorelsky, Igor	CAD	NPP
20-018	Building a Quantum Repeater Prototype Connecting BNL to NYC	Figueroa, Eden	IO	NPP
20-022	Topical Error Correcting Codes in the NISQ Era	Hormozi, Layla	CC	CSI
20-023	High-density superconducting interconnect for Quantum Control	Saira, Olli	CSI	CSI
20-024	Quantum Machine Learning for dissipative Dynamics of NISQ devices	Fang, Yao-Lung	CSI	CSI
20-029	Unraveling the Elusive Active Site Structures of Membrane Bound Non-Heme Diiron Enzymes	Ertem, Mehmed	CO	EPS
20-030	Robust physics-informed machine learning applications in spectro-imaging and microscopy	Ge, Mingyuan/ Flynn, Thomas	PS/CSI	EPS
20-031	Intelligent Quantum Dot Growbot for high throughput targeted quantum materials discovery	Ghose, Sanjit	PS	EPS
20-032	Accelerating materials discovery with total scattering via machine learning	Olds, Daniel	PS	EPS
20-035	Storage Rings for Quantum Computing	Brown, Kevin	CAD	NPP
20-036	Nanoscale Topological Insulators for Novel Quantum Materials	Johnson, Peter	PM	EPS

20-037	The rice of the future: How growing practices can decrease human exposure to toxins	Tappero, Ryan	NC	EPS
20-038	Machine Learning for Real-Time Data Fidelity, Healing, and Analysis for Coherent X-ray Synchrotron Data	Barbour, Andi / DeGennaro, Anthony	PS/CSI	EPS
20-039	Electrochemical Systems for Large Scale Energy Storage	Takeuchi, Esther	IS	EPS
20-040	Development of Machine-learning Based Capabilities for Aiding Data Analysis and Design of Sub-nanometer Catalysts	Frenkel, Anatoly	CO	EPS
20-041	Conceptual Design Options for Future Upgrade of the National Synchrotron Light Source II (NSLS-II) Facility	Smalyuk, Victor	PS	EPS
20-042	Preliminary Studies Towards Structure-based Anti-COVID-19 Drug Development	Hill, John	PS	EPS
20-043	Designing Optimal Computational Campaigns for Complex Uncertain Systems	Alexander, Francis	CSI	CSI