

LDRD FY2024 Funded Proposals

LDRD Project No.	Project Title	Principal Investigator	Dept.	Directorate
21-013	Development of an integrated multi-scale bioimaging capability	Liu, Qun	BI	EBNN
21-029	Bridging the Gap between Scientific Simulations and Experiments with Cycle-Consistent Generative Models	Ren, Yihui	CC	CSI
21-038	Laying the Foundation for an Integrated Center for Sequence-to-Function Discovery	Yang, Lin	PS	EPS
21-045S	The study of nucleon structure	Gao, Haiyan	DB	NPP
22-034	Coherent x-ray detection of dynamics associated with topological phases in quantum matter	Chen, Xiaoqian M	PS	EPS
22-050	Trapping Noble Gases in Silicate Nanocages for Medical Isotopes, Nuclear Energy, and Nuclear Nonproliferation	Sanders, Vanessa	IP	NPP
22-053	Advancing FASSt-Simulation: A Novel Computational Framework for Model-Measurement Integration for Climate Prediction	Kuang, Chongai	EE	EBNN
22-054	Advancing FASSt-Sensing: Laying the foundations of the next generation observing systems and first light science in aerosol-cloud processes	Kollias, Pavlos	EE	EBNN
22-057	Multi-modal Characterization and Machine Learning Enabling Rapid Development of Scalable Battery Technology for a Clean Energy Future	Marschilok, Amy	IS	EPS
22-059	Precision synthesis of multiscale nanomaterials through AI-guided robotics for advanced catalysts	Zhang, Yugang	NC	EPS
22-062	Eureka!	McSweeney, Sean	PS	EPS
22-063	Full-scale demonstration of high-gradient Complex Bend element for NSLS-II upgrade	Sushil, Sharma	PS	EPS
22-065	Overcoming the Computational Bottlenecks of Particle-Resolved Direct Numerical Simulation with High Performance Computing and Machine Learning	Lin, Meifeng	CC	CSI
22-070	Investigation of Advanced Radiofrequency Microelectronic Platforms	O'Connor, Paul	IO	ATRO
22-076	Project 48	Schoonen, Martin	DJ	EBNN
23-007	High repetition rate Lithium Laser Ion Source for neutron beam production	Shunsuke, Ikeda	AD	NPP
23-013	Physics and simulations of very high energy neutrino fluxes and events from LHC collisions in the HL-LHC era.	Milind, Diwan	PO	NPP
23-014	Data Popularity, Placement Optimization and Storage Usage Effectiveness at the Data Center	Qiulan, Huang	PO	NPP
23-016	3-D structure of the proton: from partons to strong fields	Yacine, Mehtar-Tani	PO	NPP
23-019	R&D for PIONEER: a Next-generation Rare Pion Decay Experiment	Vladimir, Tishchenko	PO	NPP
23-021	Utilizing AI/ML and automation systems to inform and optimize isotope separations	Hatcher-Lamarre, Jasmine	IP	NPP
23-026	Entangling multiplexed atomic quantum sensors	Martinez-Rincon, Julian	IO	ATRO
23-028	Nonlinear On-Chip Waveform Processing for Detector ASICs	Mandal, Soumyajit	IO	ATRO
23-030	Radiolytically Generated Spin-Correlated Radical Pairs for Molecular QIS	Mani, Tomoyasu	CO	EPS
23-039	Extensible Robotic Beamline Scientist for Self-driving Total Scattering Studies	Maffettone, Phillip	PS	EPS
23-043	Hybrid Digital-Analog Quantum Algorithms	Hormozi, Layla	CC	CSI
23-045	Novel Climate-Energy Sector modeling framework to project energy demands and infrastructure resiliency in urban environments	Jensen, Michael	EE	EBNN
23-046	Examining Novel Isotope Production Pathways for a Medium to High Energy Cyclotron	Hatcher-Lamarre, Jasmine	IP	NPP
23-048	Real-time Information Distillation on Novel AI Hardware	Huang, Jin	PO	NPP

23-049	Capturing Leadership at the Future Higgs Factory for BNL	Pleier, Marc-Andre	PO	NPP
23-050	A Second EIC Detector: Physics Case and Conceptual De-sign	Ullrich, Thomas S	PO	NPP
23-051	RBRC research from RHIC to the EIC	Morrison, David	PO	NPP
23-053	Hydrogen Research: Design, Engineer, Materialize, and Operationalize (H2 Research DEMO)	Trojanowski, Rebecca	IS	EPS
23-058	Dual Calorimetry and 6-D Tracking with LAr TPC for Physics Discovery	Rescia, Sergio	IO	ATRO
23-060	eCRA: A Compact Efficient Electron Accelerator For Security and Medicine	Fedurin, Mikhail	AF	ATRO
23-061	Towards Quantum Teleportation Services between Quantum Processors	Figuroa Barragan, Eden	IO	ATRO
23-063	Building a Foundation Model for Protein Design: Integrating AI and Physics-based Approaches	Dai, Xin	CC	CSI
24-004	Human -AI-facility integration for the multi-modal studies on high-entropy nanoparticles	Carbone, Matthew	CC	CSI
24-006	Ion Trap test stand and laser cooling studies of ultra-low emittance bunches for high luminosity	Brooks, Stephen J	AD	NPP
24-010	A Section of a Fast Cycling Permanent Magnet Fixed Field Alternating (FFA) Synchrotron for Stony Brook University Hospital and Other Applications	Trbojevic, Dejan	AD	NPP
24-016	Catching nearby supernova with neutrino experiments and the Vera Rubin Observatory	Slosar, Anze	PO	NPP
24-021	Integrated High-Resolution Observations for Probing the Frontiers of Climatically Important Cloud Processes	Yang, Fan	EE	EBNN
24-024	Establishing ion stopping-power measurement capabilities at BNL	Morse, Christopher	NE	EBNN
24-026	High-precision quantification of fission yields using X-ray Fluorescence	Mattera, Andrea	NE	EBNN
24-027	Quench protection strategies for the EIC interaction region Direct Wind magnets	Kumar, Mithlesh	AM	ATRO
24-029	Telecom Quantum Dots Single Photons Sources	Zajac, Joanna	IO	ATRO
24-034	Dynamic Line Rating Forecasting for Renewable Heavy Power Systems under Cyberattacks and Extreme Weather Conditions	Yogarathnam, Amirthagunaraj	IS	EPS
24-035	Site-Specific Integration of Self-Assembled Materials onto Lithographically-Patterned Surfaces for the Fabrication of Electronic Devices and Sensors	Kahn, Jason	NC	EPS
24-036	Beyond CMOS Memristor Integration for Energy-Efficient Computing	Nam, Chang-Yong	NC	EPS
24-039	Hunting for topological skyrmions and exotic spin structures in quantum materials using deep neural network	Aryal, Niraj	PM	EPS
24-041	An advanced x-ray scattering technique for microelectronic: finding a needle in a haystack	Gao, Yuan	PS	EPS
24-045	Bringing the storage ring proton electric dipole moment (pEDM) experiment to BNL	Huang, Haixin	AD	NPP
24-046	Development of a lithium beam driver for Boron Neutron Capture Therapy	Okamura, Masahiro	AD	NPP
24-047	EIC Simulation Infrastructure	Kauder, Kolja	PO	NPP
24-050	Evaluating the limits and applications of ML to Nuclear Measurements in Nuclear Science	Stern, Warren	NN	EBNN
24-051	Biosecurity Research Environment for Invasive Fungal Diseases	Liu, Qun	BI	EBNN
24-054	Galvanically Isolated, High Spatial and Temporal Resolution Silicon Vertex and Tracking Detector with Large-Area Monolithic Active Pixel Sensors	Deptuch, Grzegorz W	IO	ATRO
24-055	Developing high-efficiency quantum interconnects for a long-distance network of atomic quantum devices	Will, Sebastian	IO	ATRO
24-056	Center for AI/ML-powered Grid Modernization	Yue, Meng	IS	EPS
24-057	Development of Holistic and Scalable Solutions to Microelectronics Metrology Challenges	Chu, Yong	PS	EPS

24-058	Development of next generation Superconducting Undulator	Musardo, Marco	PS	EPS
24-060	AI-accelerated understanding of magnetic van der Waals heterostructures	Dean, Mark	PM	EPS
24-061	Quantum Centric Supercomputing (QCS)	Tseng, Huan-Hsin	CC	CSI
24-063	Developing and Integrating Foundation Models and Causal Inference for Plant Disease Detection, Surveillance, and Prediction	Xu, Wei	CC	CSI
24-066	Hydrogenation of CO2 into Formic Acid	Gordon, John	CO	EPS
24-067	Limited-Angle Nano-Tomography for Non-Destructive 3D Integrated Chip Imaging	Yan, Hanfei	PS	EPS
24-068S	The Origin of Matter: Breaking Ground with Theia	Asner, David	DT	ATRO
24-069	Development of Advanced Materials for Photon Detectors	Cultrera, Luca	IO	ATRO
24-070	Machine Learning-assisted, high-throughput development of High Entropy Alloys for Nuclear Applications	Gill, Simerjeet	NE	EBNN
24-071	Marshalling BNL's Expertise, Unique Facilities, and other Key S&T Resources to Enable Short term Research in Nuclear and Particle Physics, Accelerator Science and Technologies, and Isotope Research and Production	Haiyan Gao	NPP	NPP
24-071 subtask 1	Test of in-water stabilized plasma arc for break-down of chemicals in water supply	Ady Herschovitch	AD	NPP