

## FY12 Approved LDRD Projects

<b>LDRD Proj. No.</b>	<b>Project Title</b>	<b>P.I.</b>	<b>Dept./Bldg.</b>	<b>Directorate</b>
09-001	Nanoscale Anode Materials for Lithium Batteries	Graetz, J.	ST/815	GARS
09-003	Organic Photovoltaics: Nanostructure, Solvent Annealing and Performance	Ocko, B.	PM/510B	BES
10-006	Solar Energy Source Evaluation for Smart Grid Development	Yue, Meng	ES&T/130	GARS
10-007	High Throughput Quantitative Biochemical Phenotyping	Rogers, Alistair	ES/EE	ELS
10-010	Development of an Ultrafast Electron Diffraction Facility for Condensed Matter Physics Challenges	Hill, J.	CMP/510B	BES
10-012	Design of Pt-free Electrocatalysts for Fuel Cell Oxygen Reduction Reactions	Khalifah, P.	Chemistry/555	BES
10-014	Charge Generation and Transport in Films of Conjugated Polymers for Organic Photovoltaics BNL Part of a	Miller, J./Cook, A.	Chemistry/555	BES
10-015	Photoelectrochemical Fuel Generation from Water and Carbon Dioxide	Muckerman, J.	Chemistry/555	BES
10-016	Structural Basis of Light Perception by Phytochrome	Li, Huilin	BIO/463	ELS
10-017	New Model Organisms for Analysis of Plant Metabolism	Schwender, J./Shanklin, J.	BIO/463	ELS
10-025	Development of Large Liquid Argon Time Projection Chambers (LArTPC) for Future Neutrino Experiments	Lanni, F.	Phys/510	NPP
10-034	Spin Waves in Artificial Magnonic Crystals: Fabrication, Imaging and Scattering	Arena, D.	NSLS	NSLS
10-039	EIC Polarized Electron Gun	Ben-Zvi, I.	C-AD/817	NPP
10-040	Development of a Laser System for Driving the Photocathode of the Polarized Electron Source for the EIC	Rao, T.	IO/535	NPP
10-041	Simulation, Design, and Prototyping of an FEL, for Proof-of-Principle of Coherent Electron Cooling	Litvinenko, V.	C-AD/817	NPP
10-042	Realization of an e+A Physics Event Generator for the EIC	Ullrich, T.	Phys./510	NPP
10-043	Exploring Signatures of Saturation and Universality in e+A Collisions at eRHIC	Venugopalan, R.	Phys./510	NPP
10-044	Electroweak Physics with an Electron Ion Collider	Marciano, W.	Phys./510	NPP
10-045	LSST - Astrophysics and Cosmology Initiative	Sheldon, E.	Phys./510	NPP
11-001	Cloud and Precipitation 4D Radar Science	Giangrande, S.	ESD/ASD	ELS
11-002	A Novel Approach to Parameterized Sub-Grid Processes in Climate Models	Huang, D.	ESD/ASD	ELS

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11-007	Deciphering the Molecular Mechanisms of Lignin Precursor Transportation	Liu, C.-J.	Biology	ELS
11-008	Touchless Micro-Crystallography	Soares, A. S.	Biology	ELS
11-012	Multiscale Complexity of Energy and Material Use: Integrated Assessment of Technology and Policy Alternatives	Choi, J.-K.	ES&T	GARS
11-016	Indium Iodide (InI) - A Potential Next-Generation Room-Temperature Radiation Detector	Hossain, A.	NN	GARS
11-017	Visualization Support Infrastructure for Global Climate Modeling with a Focus on the BNL FASTER Project	McGuigan, M.	CSC/463B	ELS
11-020	Single Crystal Growth of Novel Energy Materials by High Pressure Method	Gu, G.	CMP&MS	BES
11-025	Protein Microcrystal Dynamics by Coherent X-Ray Scattering	Fluerasu, A.	NSLS-II	LS
11-027	High-Resolution Biological Imaging by X-Ray Diffraction Microscopy	Lima, E.	NSLS-II	LS
11-030	Sub-10 nm Resolution Soft X-Ray Microscopy of Organic Nano-Materials by Novel Diffraction Methods	Shapiro, D.	NSLS-II	LS
11-032	2D Membrane Solution Scattering for Probing the Structures of Membrane Proteins	Yang, L.	NSLS	LS
11-033	Exploring the Role of Glue in Hadron Structure by an Electron Ion Collider	Qiu, J.	Physics	NPP
11-036	CMOS-Pixel Vertex Detector for EIC	Aschenauer, E.-C.	Physics	NPP
11-040	Study of FEL Options for eRHIC	Litvinenko, V.	C-AD	NPP
11-055	Astrophysics and Cosmology Initiative	Slosar, A.	Physics	NPP
12-007	Complex Modeling: Leveraging Advanced Scattering Data with Computation to Push Back the Materials Complexity Frontier	Billinge, S.J.L.	CMP&MS	BES
12-008	Early Deployment of Flagship Applications on BG-Q	McGuigan, M.	CSC	ELS
12-012	Inter-Individual Variation in Radiation-Induced Epigenetic Modifications and their Potential Impact on Carcinogenesis	Wilson, P.	Biology	ELS
12-015	Developing an Integrated Atmosphere-Ecosystem Model for Investigating Interactions Between Atmospheric System and Ecosystem under a Warming Climate	Wu, W.	EE/ASD	ELS
12-018	Conical Slit for Probing Buried Micron or Sub-Micron Volumes for Dynamic Measurements of Heterogeneous	Margulies, L.	Photon Sciences	Photon Sciences
12-021	In-Situ Transmission X-Ray Microscopy Studies of Structure and Function in Energy Storage	Wang, J.	Photon Sciences	Photon Sciences
12-022	MeV-UED for Ultrafast Science	Wang, X.-J.	AD	Photon Sciences

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12-023	Femto-Second X-ray Pulse Generation by Electron Beam Slicing	Yu, Li Hua	AD	Photon Sciences
12-024	Thermochemical Conversion of Biomass to Fuels and Chemicals	Babu, S. P.	DA	GARS
12-025	Flow-Based Battery Architectures for Large-Scale Electrical Energy Storage	Erdonmez, C.	SET	GARS
12-029	Demonstration of a Grid-Wide Measurement and Control Platform for Micro-Grids	Villaran, M.	SET	GARS
12-032	Laser-Driven Proton Accelerator	Pogorelsky, I.	PO/ATF	NPP
12-033	Water-based Liquid Scintillator Detector for Neutrino and Proton Decay Experiments	Tanaka, H.	Physics	NPP
12-034	Quantum Electrodynamics for QCD Precision Studies at the EIC	Stratmann, M.	Physics	NPP