

## FY10 LDRD Projects

<u>LDRD Proj.</u>			
<u>No.</u>	<u>Project Title</u>	<u>P.I.</u>	<u>Dept./Bldg.</u>
07-005	Sensitive Searches for CP-Violation in Hadronic Systems	Semertzidis, Y.	PHYS/510A
08-002	Strongly Correlated Systems: From Graphene to Quark-Gluon Plasma	Kharzeev, D. & Tselik, A.	PHYS/CMP
08-004	Getting to Know Your Constituents: Studies of Partonic Matter at the EIC	Vogelsang, W.	PHYS/510A
08-005	Development of the Deuteron EDM Proposal	Semertzidis, Y.	PHYS/510A
08-008	Development of a Small Gap Magnets and Vacuum Chamber for eRHIC	Litvinenko, V.	C-AD/817
08-022	Novel Methods for Microcrystal Structure Determination at NSLS and NSLS-II	Orville, A. M.	BIO/463
08-025	Combined PET/MRI Multimodality Imaging Probe	Schlyer, D.	Med/490
08-028	Genomic DNA Methylation: The Epigenetic Response of <i>Arabidopsis Thaliana</i> Genome to Long-term Elevated Atmospheric Temperature and CO <sub>2</sub> in Global Warming	Liu, Q.	MED/490 & BIO/463
08-034	Fabry-Perot Interferometer & Hard X-ray Photoemission	Vescovo, E.	NSLS/725D
08-037	Ultrafast Electron Diffraction for Transient Structure and Phase Transition Studies At the NSLS SDL	Wang, X.	NSLS/725C
08-039	The Development of a Laser Based Photoemission Facility for Studies of Strongly Correlated Electron Systems	Johnson, P. D.	CMPMSD/510 B
08-042	Theory of Electronic Excited States in Heterogeneous Nanosystems	Hybertsen, M. S.	CFN/480
08-043	Nanofabrication Methods Using Solution-Phase Nanomaterials	Black, C.	CFN/480
08-051	Identification of Organic Aerosols and their Effects on Radiative Forcing	Lee, Y.-N.	ESD/815E
08-060	Computational Climate Science	Vogelmann, A.	ESD/815E
08-062	A Novel Spintronic Room-Temperature High Purity Germanium X- and Gamma-Ray Spectrometer	Bolotnikov, A. E./Camarda, A.	NN/197C
08-082	Biofuels and Nanotech for Improvement of Oil Heat Combustion Systems	Butcher, T.A.	ES&T
08-083	Solar Water Splitting: Quantum Theory of Photocatalytic Processes at the Water/Semiconductor Interface	Allen, P. B.	Stony Brook/BNL
09-001	Nanoscale Anode Materials for Lithium Batteries	Graetz, J.	ES&T/ERD
09-002	Bioconversion of Lignocellulose to Ethanol and Butanol Facilitated by Ionic Liquid Preprocessing	Francis, A. J., Wishart, J. F., Dunn, J.	ES/Chem./Biology
09-003	Organic Photovoltaics: Nanostructure, Solvent Annealing and Performance	Ocko, B.	PM/510B
09-004	Surface Chemistry and Electrochemistry of Ethanol	Hrbek, J.	Chem./555
09-005	Synergistic Interactions Between Poplar and Endophytic Bacteria to Improve Plant Establishment and Feedstock Production on marginal Soils	van der Lelie, D.	BIO/463
10-001	<i>Petascale</i> Data Mining for BNL Data Intensive Sciences	Yu, Dantong	CSC/463B
10-006	Solar Energy Source Evaluation for Smart Grid Development	Yue, Meng	ES&T/130
10-007	High Throughput Quantitative Biochemical Phenotyping	Rogers, Alistair	ES/EE

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10-008	Characterization of Materials in Extreme Environments for Advanced Energy Systems Using the National Synchrotron Light Source	Ecker, L/Ehm, L.	ES&T/NSLS
10-010	Development of an Ultrafast Electron Diffraction Facility for Condensed Matter Physics Challenges	Hill, J.	CMP/510B
10-012	Design of Pt-free Electrocatalysts for Fuel Cell Oxygen Reduction Reactions	Khalifah, P.	Chemistry/555
10-014	Charge Generation and Transport in Films of Conjugated Polymers for Organic Photovoltaics BNL Part of a Collaborative NREL, BNL, ANL LDRD	Miller, J./Cook, A.	Chemistry/555
10-015	Photoelectrochemical Fuel Generation from Water and Carbon Dioxide	Muckerman, J.	Chemistry/555
10-016	Structural Basis of Light Perception by Phytochrome	Li, Huilin	BIO/463
10-017	New Model Organisms for Analysis of Plant Metabolism	Schwender, J./Shanklin, J.	BIO/463
10-023	Development of Microprobe, Multichannel Optical Multimodality for Biological Tissue Imaging	Du, C	Medical
10-025	Development of Large Liquid Argon Time Projection Chambers (LARTPC) for Future Neutrino Experiments	Lanni, F.	Phys/510
10-034	Spin Waves in Artificial Magnonic Crystals: Fabrication, Imaging and Scattering	Arena, D.	NSLS
10-038	Atomic Structure and Bonding of Cellulose	Davenport, J.	CSC/463B
10-039	EIC Polarized Electron Gun	Ben-Zvi, I.	C-AD/817
10-040	Development of a Laser System for Driving the Photocathode of the Polarized Electron Source for the EIC	Rao, T.	IO/535
10-041	Simulation, Design, and Prototyping of an FEL, for Proof-of-Principle of Coherent Electron Cooling	Litvinenko, V.	C-AD/817
10-042	Realization of an e+A Physics Event Generator for the EIC	Ullrich, T.	Phys./510
10-043	Exploring Signatures of Saturation and Universality in e+A Collisions at eRHIC	Venugopalan, R.	Phys./510
10-044	Electroweak Physics with an Electron Ion Collider	Marciano, W.	Phys./510
10-045	LSST - Astrophysics and Cosmology Initiative	Sheldon, E.	Phys./510
10-046	Epigenetics from Plants to Man	Henn, F.	Medical
10-047	New Methods for Analyzing Brain Function using MR	Schlyer, D./Caparelli, E.	Medical
10-048	Radiotracer Development and PET Imaging	Wang, G.-J.	Medical
10-049	Imaging Plants	Vaska, P./Ferrieri, R.	Medical
10-050	Proton EDM Research and Development	Semertzidis, Y.	Phys./510
10-051	In-Situ Reaction Cell Development for Studying CO <sub>2</sub> Sequestration with the X-Ray Microprobe at the NSLS	Fitts, J. P.	EE