

**Brookhaven National Laboratory
FY 2004 LDRD PROJECTS**

LDRD Proj.	Project Title	P.I.	Dept/Bldg.
02-02	Crystallization and X-ray Analysis of Membrane Proteins	D. Fu	BIO/463
02-08	Creating a MicroMRI Facility for Research and Development	H. Benveniste	MED/490
02-09	Targeting Tin-117m to Estrogen Receptors for Breast Cancer Therapy	K. Kolsky	MED/801
02-22	Electrical Systems Reliability	R. Bari	ES&T/475B
02-45	Combined Use of Radiotracers and Positron Emission Imaging in Understanding the Integrated Response of Plants to Environmental Stress	R. Ferrieri	CHEM/901
02-70	Theory of Electronic Transport in Nanostructures and Low-Dimensional Systems	A. Tsvelik	CMP/510A
02-71	Pressure in Nanopores	T. Vogt	CMP/510B
02-84a	Genomic SELEX to Study Protein DNA/RNA Interactions in <i>Ralstonia metallidurans</i> CH34 Regulating Heavy Metal Homeostasis and Resistance	D. van der Lelie	BIO/463
02-84b	Lead Resistance in <i>Ralstonia metallidurans</i> CH34	S. Taghavi	BIO/463
02-86	Ultrafast X-Ray Science	S. Dierker	NSLS/725B
02-88	X-Ray Photon Correlation Spectroscopy Studies of Nanostructured Block Copolymers	S. Dierker	NSLS/725B
03-004	High-Brightness, High-Power Electron Beams	I. Ben-Zvi	CAD/817
03-006	Feasibility Study of Optical Stochastic Cooling with a CO ₂ Laser	V. Yakimenko	PHY/820M
03-013	Proposal for Niobium/Tin Superconducting Magnet	E. Willen	SMD/902A
03-014	Technology Development for Linear Collider Final Focus Quadrupoles with Small-Aperture High-Gradient Superconducting Coils	B. Parker	SMD/902A
03-026	Developing a New, Unified Systems Theory on Size Distributions of Atmospheric Particles	Y. Liu	ESD/815E
03-027	Measurement of HO ₂ Radicals by ChemiLuminescence Analysis of Atmospheric Radicals (CLAAR)	S. Springston	ESD/815E
03-030	Chemistry of the Rhizosphere	M. Fuhrmann	ESD/830
03-039	Integrated Analysis of Carbon and Nitrogen Metabolism in Plants and Subsequent Analysis of Photosynthetic Acclimation to Growth in Elevated pCO ₂	A. Rogers	ESD/490D
03-050	Evaluation of High-Energy Radiation Effects in Materials	C. Finfrock	ES&T/703
03-056	Structural Properties of Methane Hydrates	D. Mahajan	ES&T/815
03-061	Dynamics of Wind Turbine-Tower-Foundation Systems	A. Philippopoulos	ES&T/526
03-064	Investigation of Neutron and Gamma Probes to Detect Explosives in Sealed Containers	M. Todosow	ES&T/475B
03-065	Ultrasound and Infrared Imaging to Detect Degradation of Electric Cable Insulation	M. Villaran	ES&T/130
03-072	Application of Compton-Suppression Gamma Spectrometry to Problems in Anti-Terrorism	J. Lemley	NNS/197C

03-077	Real-Time Consequence Assessment System for Atmospheric Terrorist Events in the Northeast Urban Corridor	R.M. Reynolds	
03-081	Application of Thin Film-Like Dosimeters for Port Security and Anti-Terrorism	E. Kaplan	NNS/197D
03-083	Novel Xenon Detector Concepts for Homeland Defense	P. Vanier	NNS/197C
03-086	Defining New Pathways for Disarming Anthrax Toxin	P. Freimuth	BIO/463
03-094	Structural Studies on the Integral Membrane Protein AikB	J. Shanklin	BIO/463
03-098	Roles of Dopamine Receptor Agonists in Brain Metastasis of Breast Cancer	X. Lin	MED/490
03-099	The microPET Study of Gene Expression in Rodents	P. Thanos	MED/490
03-100	Investigation of the "Early Response" in Functional MRI	T. Ernst	MED/490
03-101	PET Imaging of Violent Behavior	G.-J. Wang	MED/490
03-103	PET Study of Acetaldehyde Distribution and Metabolism to Better Understand Alcohol Related Diseases	Zizhong Li	MED/490
03-104	Hydrogen Atom Transfer from Carbon to Metal - Relevance of a Novel Reaction to Catalyzed Hydrocarbon Conversions	M. Bullock	CHEM/555A
03-105	Radioprotection in D. Radiodurans, a Radiation Resistant Bacterium	D. Cabelli	CHEM/555A
03-107	New Development of Norepinephrine Transporter Radioligands for PET Studies of Substance Abuse, Depression and ADHD	Y.-S. Ding	CHEM/555A
03-108	Experiments in the Short-Wavelength Regime Pertinent to the DUV-FEL Concept	L. DiMauro	CHEM/555A
03-115	Imaging Tandem Mass Spectrometry for High-Throughput "Fingerprint" Detection of Complex Molecules in Mixtures	A. Suits	CHEM/555A
03-118	Condition: Green Chemistry Radiolytic Studies of Ionic Liquids in Service of Security and the Environment	J. Wishart	CHEM/555A
03-119	Exploring the Use of Powder Diffraction for Proteins	M. Allaire	NSLS/725D
03-121	Element-Resolved Dynamics of Nanoscale Ferromagnets	C.-C. Kao	NSLS/725D
03-122	Membrane Biophysics Using Single-Layered Lipid Membrane	R. Pindak	NSLS/725D
03-127	High Pressure in Strongly Correlated Materials - An Optical Investigation	C. Homes	CMP/510B
03-129	Polyoxometalate Giant Molecules: Novel Synthetic Methods, Characterizations and Potential Applications	Tianbo Liu	CMP/510B
03-135	Exploratory Sol-Gel Synthesis Routes for Perovskite Nanorods and Dots	T. Vogt	CMP/510B
03-137	In Situ Soft X-Ray Absorption Spectroscopy Studies of Cathode Materials for Thin Film Lithium-Ion Batteries	M. Balasubramanian	MSD/480
03-138	Functional Bulk Mn-Based Nanocomposites	L. Lewis	MSD/480
03-144	Nanostructured Transition Metal Oxides	L. Wu	MSD/480

03-151	Radio Wave Detection of Ultra High Energy Cosmic Rays	H. Takai	PHY/510A
03-161	Generation of Coherent, Femtosecond, High Brightness VUV and X-Ray Beams Using High Order Harmonic Conversion	T. Srinivasan-Rao	IO/535B
03-162	New Synthesis techniques to control atomic defects in advanced intermetallic compounds	L. Cooley	MSD/480
04-011	Femtosecond Photoinitiated Nanoparticle Surface Chemistry	N. Camillone	CHEM/555
04-013	Chirped Pulse Amplification at the DUV-FEL	L.H. Yu	NSLS/725C
04-025	Overcoming Coherent Instabilities at NSLS II	J.-M. Wang	NSLS/725C
04-033	Layered Cobaltates with High Thermoelectric Power	Qiang Li	MSD/480
04-038	Complex Thin Films and Nanomaterial Properties	J. Misewich	MSD/480
04-041	Lattice QCD Relevant for RHIC and AGS	P. Petreczky	PHYS/510A
04-043	Very Long Baseline Neutrino Oscillation Experiment	M. Diwan	PHYS/510E
04-046	Advanced ³ He Detectors for the Spallation Neutron Source	G. Smith	INST/535B
04-055	Genetic NanoTags	J. Hainfeld	BIO/463
04-060	The Use of Singular Point Genome Sequence Tags to Analyze Community Composition and Metabolic Potential	D. van der Lelie	BIO/463
04-061	3-D Electronic Wave Functions from EM Images	J. Wall	BIO/463
04-062	Functional MRI Studies in Rats using Implanted Brain Electrodes	A. Gifford	MED/490
04-063	Optimizing Functional Neuroimaging Techniques to Study Brain Function in Health and Disease States	R. Goldstein	MED/490
04-066	Technological Development of a Fluorescence Probe for Optical Detection of Brain Functional Activation <i>in vivo</i>	C. Du	MED/490
04-069	Nuclear Control Room Unfiltered Air In-Leakage by Atmospheric Tracer Depletion (ATD)	R. Dietz	EE/815E
04-073	Perfluorocarbon Tracer Sampling, Tagging and Monitoring Techniques for use at the Urban Atmospheric Observatory	J. Heiser	EE/830
04-079	Development of an Aerosol Mobility Size Spectrometer and an Aerosol Hygroscopicity Spectrometer	J. Wang	EE/815E
04-086	Exploration of Thermal Diffusion Processes in CdZnTe for Improved Nuclear Radiation Detectors	A. Bolotnikov	NNSD/197C
04-088	An Integrated Approach of High Power Target concept Validation for Accelerator-Driven Systems	N. Simos	EST/475B
04-104	Hydrogen Storage Using Complex Metal Hydrides for Fuel Cell Vehicles	J. Wegrzyn	EST/815