

**APPROVED FY 2002 LDRD PROJECTS REVISED 10/3/2001**

<u>LDRD Proj. No.</u>	<u>Project Title</u>	<u>P.I.</u>	<u>Dept./Bldg.</u>						
00-25A	Rapid Real-time Measurement of Aerosal Chemical Composition	Y-N Lee	Env. Sci./815E						
00-25B	Multiple Humidity Tandam Differential Mobility Analyzer(TDMA)	F. Brechtel	Env. Sci./815E						
00-32	Microvascular Endothelial Cells as Targets for Ionizing Radiation: In Vitro and In Vivo Models	L. Pena	MED/490						
00-40	The Structure of Membrane Proteins: Monolayers and Thin Films	B. Ocko	PHYS/510B						
00-43	Understanding the Pathways of Ubiquitin Dependent Proteolysis	M. Bewley	BIO/463						
00-45	New Protein Expression Tools for Proteomics	P. L. Freimuth	BIO/463						
01-07	Development of Superconducting Accelerator Magnets Capable of High dB/dt	A. Ghosh	SUPERCONDUCT MAGNET DIV/902A						
01-11	Combination of Magnetic Fields and 20 keV Synchrotron X-rays to produce Microbeams for Cell Culture Experiments	L. Pena	MED/490						
01-12	Gene Expression Profiling of Methamphetamine-induced Toxicity in Neurons in Culture using DNA Microassays	M. Vazquez	MED/490						
01-13	"Functional Spectral Signature" (FSS) Method for Signal to Noise-Enhancement of Brain Patterns in PET Images	C. Felder	MED/490						
01-18	Exploration and Development of Ultrafast Single Short Detection Methods for Use with Pulse Radiolysis Experiments at LEAF	A. R. Cook	CHEM/555A						
01-19	New Program in Metal Nanocluster: Metal NanoClusters and Electron Transfer in One, Two, and Three Dimensions (NANO III)	C. Creutz	CHEM/555A						
01-20	Molecular Wires for Energy Conversion and Nano-Electronics	J. R. Miller	CHEM/555A						
01-21	Nanoscale Catalysts: Preparation, Structure and Reactivity (NANO II)	J. Hrbek	CHEM/555A						
01-23	Experimental and Theoretical Studies of the Formation of Titanium-Carbon Nanoclusters (NANO II)	T. Sears	CHEM/555A						
01-24	Development of a UV-Raman, Near-field Scanning Optical Microscope for <i>in-situ</i> Studies of Chemical Intermediates on Metal Nanoparticles (NANO II)	M. G. White	CHEM/555A						
01-28	Development of New Techniques for Improvements in PET Imaging of Small Animals and Other Applications	D. Schlyer	CHEM/555A						
01-30	Development of CZT array detector Technology for Synchrotron Radiation Applications	D. P. Siddons	NSLS/725D						
01-31	New Applications of Circular Polarized VUV-light (NANO IV)	E. Vescovo	NSLS/725D						
01-32	Soft X-Ray Magnetic Speckle (NANO IV)	C. Sanchez-Hanke	NSLS/725D						

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01-35	Prototype approaches for Infrared Nanospectroscopy	G. L. Carr	NSLS/725D						
01-36	Pressure-Induced Protein Folding Monitored by Small Angle X-Ray Scattering and Fourier Transform Infrared Microspectroscopy	Lisa Miller	NSLS/725D						
01-38	Soft Condensed Matter Probed by Low-energy Resonant Scattering	W. Caliebe	NSLS/725D						
01-39	Femto-Second Transmission Electron Microscope Based on Photocathode RF Gun	X. J. Wang	NSLS/725C						
01-45	First-Principles Theory of the Magnetic and Electronic Properties of Nanostructures (NANO IV)	M. Weinert	PHYS/510A						
01-50	Cryo-EM for Solving Membrane Proteins	J. F. Hainfeld	BIO/463						
01-51	Human DNA Damage Responses: DNA-PK and p53	C. W. Anderson	BIO/463						
01-52A	Molecular Mechanisms Underlying Structural Changes in the Adult Brain: A Genetic Analyses	J. J. Dunn	BIO/463						
01-58A	Catalytic Microcombustion Systems	C. R. Krishna	ES&T/526						
01-62	Mapping Electron Densities in Porphyrin Radical Crystals Using the NSLS	K. M. Barkigia	MA/480						
01-67	High Sensitivity Mass Spectrometer	P. E. Vanier	NNS/197C						
01-78	Development and Application of Cavity Ringdown Spectroscopy to the Detection and Monitoring of Trace Chemical Species in the Atmosphere	A. J. Sedlacek	Env. Sci./703						
01-79	Development of a High Field Magnet for Neutrino Storage Rings	R. Gupta	SUPER.MAGNET DIV/902A						
01-82	DNA-Nano Wires that AutoConnect in 3 Dimensions (NANO III)	J. F. Hainfeld	BIO/463						
01-85	Carbon Nanotube Chemical Probes for Biological Membrane Attachment Quantification (NANO III)	B. Panessa-Warren	Instrumentation/ 535B						
01-86	Self-organized Nanoparticles for Probing charge Transfer at Metallic/Organic Interfaces (NANO III)	M. Strongin	Physics/510B						
01-87	Charge Transfer on the Nano Scale: Theory (NANO III)	M. D. Newton	CHEM/555A						
01-88	Charge Transport through Dye-Sensitized Nanocrystalline Semiconductor Films (NANO III)	B. Brunshwig	CHEM/555A						
01-91	Magnetic Nanodispersions (NANO IV)	L. H. Lewis	MA/480						
01-93	High Resolution Magneto-optical Study of Magnetic Nanostructures, Nanocomposite functional and Superconducting Materials (NANO IV)	Qiang Li	MA/480						

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01-97	Size-Selected Quantum-Dots under Controlled Environmental Conditions (NANO II)	D. Imre	ES/815E						
02-02	Crystallization and X-ray Analysis of Membrane Proteins	D. Fu	BIO/463						
02-03	<i>In Vitro</i> Investigation of the DNA Double Strand Break Repair Mechanism by Non-Homologous End-Joining in the context of Chromatin	E. Lymar	BIO/463						
02-08	Creating a MicroMRI Facility for Research and Development	H. Benveniste	MED						
02-09	Targeting Tin-117m to Estrogen Receptors for Breast Cancer Therapy	K. Kolsky	MED/801						
02-16	Biom mineralization of Actinides: A Mechanistic Study of the Microbial Genesis of Novel and Stable Compounds	A.J. Francis	EE/490A						
02-17	Using Mini CO <sub>2</sub> -DIAL for Verification and Long-Term Monitoring of Cover Systems	J. Heiser	EE/830						
02-22	Electrical Systems Reliability	R. Bari	NE/475B						
02-24	Liquid Fuel Gasifier for Combustion and Fuel Cells	T. Butcher	NE/526						
02-31	Study of a Power Source for Nano-Devices	M. Lin	NE/815						
02-42	Ultrafast Nonlinear Spectroscopic Studies of Model Catalytic Surfaces	N. Camillone	Chem						
02-45	Combined Use of Radiotracers and Positron Emission Imaging in Understanding the Integrated Response of Plants to Environmental Stress	R. Ferrieri	Chem/901						
02-46	Arranging Nanoparticles into Arbitrary Patterns with Optical Trapping	C. Fockenberg	Chem/555A						
02-48	Advanced Multidimensional Techniques to Explore the Biochemical and Behavioral Consequences of VOC Exposure	M. R. Gerasimov	Chem/555A						
02-49	Project to Detect pp and 7Be Solar Neutrinos in Real Time: LENS, the Low Energy Neutrino Spectrometer	R. Hahn	Chem/555A						
02-53	Combined Theoretical and Experimental Study of Crystal Lattice Defects in Complex Transition Metal Oxides	J. Davenport	Mat Sci/DA/515						

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02-55	Chemical Sensors: Immobilization of Organometallic Complexes into Sol-gel Matrices	M. Renner	Mat Sci/ES&T/555						
02-56	Size Dependence of Catalytic Reactivity of Iron Oxide Nanocrystals	S. Wong	Mat Sci/ES&T/480						
02-58	Femtosecond Synchronization for Ultra-Short Pulse DUV-FEL Radiation	W. Graves	NSLS/725D						
02-62	Rapid Wavelength Tunability for the DUV-FEL	B. Sheehy	NSLS/725D						
02-66	High-Gain Harmonic-Generation at the DUV/FEL	L.H. Yu	NSLS/725C						
02-67	Biom mineralization: A Route to Advanced Materials	E. DiMasi	Condensed Matter Physics/510B						
02-70	Theory of Electronic Transport in Nanostructures and Low-Dimensional Systems	A. Tsvelik	Condensed Matter Physics/						
02-71	Pressure in Nanopores	T. Vogt	Condensed Matter Physics/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	D. van der Lelie	BIO/463						
02-85	Design of a <i>Ralstonia mettallidurans</i> Two-Hybrid Protein System for Studying Signaling Pathways Regulating Heavy Metal Homeostatis and Resistance	S. Taghavi	BIO/463						
02-86	Ultrafast X-Ray Science	S. Dierker	NSLS/725B						

