APRIL 2009

Louisiana Tech University

BREEZE BULLETIN

Office of University Research (*http://research.latech.edu*)

Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.

Albert Einstein
(1879-1955, German-born American Physicist)

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LATECH IN-HOUSE WORKSHOPS

Below is a partial list of workshops sponsored by the Office of University Research designed to assist faculty in successfully submitting grants:

- ***ULS Learn and Serve Grants:***. April 16, 1:30-2:30, 15h Floor Wyly Tower, Rm. 1535.
- ***Grants.gov***. May 22, 1:30-2:30 CITDL Lab, Prescott Library.
- ***La. Board of Regents-Fall funding opportunities***. May 27, 1:30-2:30 15th Floor Wyly Tower, Rm. 1535.

If these dates and times are not convenient, please contact Beth Free at 257-5075 or *bfree@latech.edu* in the Office of University Research to schedule a one-on-one session or a workshop in your dept. or college. You may also go to: http://research.latech.edu/resources/resource_links/louisiana_tech_workshops to view a more complete list of workshops and current scheduling dates and times.

NEW STATE WEBSITES FOR TRACKING EXPENDITURES, STIMULUS FUNDS, E-GRANTS

On March 18, the Louisiana Dept. of Administration issued a press release announcing La-Trac upgrades, launch of grants database and stimulus tracking websites. This press release can be found at http://doa.louisiana.gov/doa/PressReleases/LaTrac_Egrants_Stimulus.htm (copy and paste into browser). Included in the upgrades are the following links:

- www.latracs.la.gov. Louisiana transparency and accountability website for citizens to track state expenditures.
- www.laegrants.la.gov. A one-stop grants portal that allows citizens, non-profits, businesses and faith-based organizations to identify funding opportunities. Registration is required.
- www.stimulus.la.gov. Louisiana state government's website for tracking tax payer dollars provided by the American Recovery and Reinvestment Act (ARRA)

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HOW TO FIND AND APPLY FOR STIMULUS FUNDS

For information on how to find and apply for stimulus funds, the ARRA grant guide can be downloaded from the University Research website: http://research.latech.edu/resources/funding_opportunities (copy and paste into browser). Read the Requests for Proposals carefully for submission instructions. For assistance, please contact Beth Free, Pre-Award Coordinator, via e-mail bfree@latech.edu or call 257-5075.

NEW GRANTS AWARDED

PI/Co-PI	Title	Funding Agency	$ Awarded
Glenn Beer	*A Science Camp for Blind Students*	La. Center for the Blind	3,186
November 2008			**3,186**
Pam Moore	*CERT Medical Home Project*	Biomedical Research Foundation of NW LA	2,500
Hisham Hegab	*NASA-ESMD Senior Project: Design of a Cryogenic Shell and Tube Heat Exchanger*	LaSPACE/LSU/NASA	4,000
Chad O'Neal	*Vibration Energy Scavenging (VibES) for Naval Corrosion Sensors - Gap Funding (between Phase I & Phase II)*	Radiance Tech/DOD	21,000
Angela Kennedy	*2008-09 Carl Perkins Vocational & Technical Education Grant*	US DoEdu./La. Tech. & Community Colleges	54.043
Mel Corley	*Earthquake Simulation Room for the Idea Place*	CNCL /ULS	2,000
Kerri Phillips	*The NSF Science & Technology Center on Ultrashort, Ultraintense Lasers*	CNCL/ULS	5,165
Aaron Lusby	*Sparta Conservation Service Learning Project*	CNCL/ULS	6,510
Greg Schelonka	*Strengthening English Skills of Children of Immigrants Through Tutoring*	CNCL/ULS	4,979
Erez Allouche	*Evaluating the Geopolymerization Potential & Commercial Applications of Dollet Hill Power Plant Fly Ash*	Cleco Power	25,000
Pam Moore	*NURSING CAPITATION 2008-2009*	ULS	91,000
December 2008			**216,197**
Erez Allouche	*Applications of Geopolymer Concrete (Envirocrete) in Pre-Cast Components and Field Construction*	Entergy Nuclear	60,956
Alice Hunt	*Effects of Carbohydrate and Caffeine Consumption on Pilot Performance in a Flight Simulator*	NASA/LaSPACE	21,261
Ville Kajaakari	*LaSPACE/Clower*	NASA/LaSPACE	5,000
Ville Kajaakari	*LaSPACE/Hartmann*	NASA/LaSPACE	5,000
January 2009			***92,217***
Tabbetha Dobbins	*CAREER: Enhancing Atomic Mobility and Desorption Kinetics in Light Metal Hydrides*	NSF/CAREER	400,000
Chester Wilson	*Multichannel Scintillation Microdevice for the Differentiation Between Alpha, Beta*	Entergy	50,000
Jinko Kanno	*Detecting and Patching Coverage Holes (DEPCH) in Wireless Sensor Network*	NSF/BoR/Pfund	10,000
Carynn Wiggins	*LEAP Remediation*	La. Dept. of Education	1,101
Erez Allouche	*Burst Pressure Test of Polyuea Panels*	Innovative Painting and Waterproofing	2,000
February 2009			**463,101**
Lance Schuler	*Toxicity of Metal Nanoparticle Mixtures in Aquatic Systems*	NSF/BoR/Pfund	10,000
Mark Decoster	*Collaborative Research for the Design & Development of Micro/Nano Scale Devices*	NSF/BoR	18,250
Erez Allouche	*Applications of Inorganic Polymer Concrete (Geopolymer) in Transportation Structures in California*	SCAPPA	90,000
Tabbetha Dobbins	*Development of 30nm Resolution X-Ray Tomography for H2 Storage Research*	NSF/BoR/Pfund	10,000
Nasimuddin Wasiuddin	*Quantification of Nanoscale Surface Roughness of Asphalt Binders Using Atomic Force Microscope (AFM)*	NSF/BoR/Pfund	10,000
Aziz Saber	*Load Distribution and Fatigue Cost Estimates of Heavy Truck Loads on Lou-*	LTRC	269,742
Glenn Beer	*Ouachita Parish/Louisiana Tech MSP: Project TEAMS*	DOEdu	59,055
March 2009			**467,048**
		'09 YTD Total	**5,716,063**

ADDITIONAL GRANT FUNDING FOR EXISTING AWARDS

- Erez Allouche, *UTILIZATION OF ULTRA-WIDEBAND RADIATION AS A UTILITY DETECTION SYSTEM AHEAD OF AN EXCAVATION BUCKET IN SOIL*, Deere and Company, $251,028.43;
- Upali Siriwardane, *SUPPORT OF ADVANCED FOSSIL RESOURCE UTILIZATION RESEARCH BY HISTORICALLY BLACK COLLEGES AND UNIVERSITIES AND OTHER MINORITY INSTITUTIONS*, Dept. of Energy through GSU, $16,002;
- Erez Allouche, *WEB-BASED SOFTWARE FOR SELECTING A TRENCHLESS CONSTRUCTION METHOD*, Australasian Society for Trenchless Technology, $2,440;
- David Gullatt, *LOUISIANA TECH/MONROE CITY PARTNERSHIP FOR SCHOOL REFORM*, Board of Regents, $30,000;
- Mark Gibson, *DEV & EXP. OF LA. SEC. WOOD PROC IND*, Louisiana Legislature/LSU, $55,000;
- David Mills, *CONTINUING GK-12, CREATING CONNECTIONS: ADVANCING KNOWLEDGE, LEARNING AND STEM CAREER OPPORTUNITIES FOR RURAL LOUISIANA*, NSF, $598,114;
- Ray Sterling, *ENCOURAGING INNOVATION IN LOCATING AND CHARACTERIZING UNDERGROUND UTILITIES*, U.S. Dept. of Transportation thru National Academies of Science, $90,000;
- Sumeet Dua, *CYBERTOOLS: COMPREHENSIVE COMPUTING, DATA, NETWORK, AND VISUALIZATION SERVICES FOR LONI, WITH APPLICATIONS IN COASTAL AND ENVIRONMENTAL FLUID DYNAMICS*, NSF through LSU, $107,806.

NEW REQUESTS FOR PROPOSALS

Louisiana Board of Regents:

NSF EPSCoR Research Infrastructure Improvement: Computational Materials.
Deadline dates:
Notices of Intent due: April 30, 2009
Last day for questions and answers about this RFP: May 28, 2009
Proposals due: June 15, 2009

LA EPSCoR Louisiana Experimental Program to Stimulate Competitive Research.
Deadline dates:
Proposals due: Open deadline until June 20, 2010

RFP's can be downloaded at http://www.laregents.org/www2/index.htm

National Science Foundation

The Directorate for Mathematical & Physical Sciences invites proposals for **Instrumentation for Materials Research - Major Instrumentation Projects**. The program provides support for the design and construction of major instruments costing more than $4 million but less than $20 million. The program also supports the development of detailed conceptual and engineering design for new tools for materials preparation or characterization at major user facilities. Such instruments may include, for example, neutron beam lines, synchrotron beam lines, and high field magnets, as well as development of detectors and preparation environments necessary to support materials research. No operational funding is provided through the program. Eligibility is limited to U.S. colleges and universities. Proposals are due June 29. More information regarding NSF 09-547 is available at: http://www.nsf.gov/pubs/2009/nsf09547/nsf09547.htm?govDel=USNSF_25.

The Division of Mathematical Sciences invites proposals to support **Focused Research Groups in the Mathematical Sciences**. The program allows groups of researchers to respond to recognized scientific needs of pressing importance, to take advantage of current scientific opportunities, or to prepare the ground for anticipated significant scientific developments in the mathematical sciences. Groups may include, in addition to mathematical scientists, researchers from other science and engineering disciplines appropriate to the proposed research. Up to 10-15 awards may be

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PROPOSALS SUBMITTED

FILE #	PI	Co-PI 's	TITLE	AGENCY	$ Requested
09-157	Voziyanov, Yuri	Kolot/Yagil	Dual-recombinase Genome Engineering System	NIH	357,380
09-158	Beer, Glenn	Deese, Bill	Ouachita Parish/Louisiana Tech MSP: Project TEAMS_University Fees	Ouachita Parish School District/ DOE	1,350
09-159	Moore, Pam		NURSING CAPITATION 2008-2009	Board of Supervisors-ULS	91,000
09-160	Hunt, Howard	Zumbalt	Ozone Sparging as an Oil Spill Remediation Tool	La. Sea Grant - Coastal Science Assistantship Program	30,500
09-161	Beer, Glenn	Deese, Bill	Ouachita Parish/Louisiana Tech MSP: Project TEAMS_ADDITIONAL FACULTY TIME	Ouachita Parish School District/ DOE	13,240
09-162	Beer, Glenn	Deese, Bill	Ouachita Parish/Louisiana Tech MSP: Project TEAMS	Ouachita Parish School District/ DOE	49,885
09-163	Choi, Ben		Semantic-Oriented Document Summarization	NSF	167,228
09-164	Selmic, Rastko	Kanno, Jinko	Sensor Network Coverage Control Using Simplicial Homology	NSF	346,038
09-165	Beer, Glenn	Deese, Bill	The Best of RIPPLE II	LaSIP/ LaGEARUP	339,536
09-166	Paun, Andrei		AF: Small: Automata and DNA	NSF	400,202
09-167	Bell, Edward		RSA Scholarship - Long Term Training Grant	U.S. Dept. of Edu	475,000
09-168	Talton, Carolyn	Patterson, Charles	Union/Lincoln Math Project	LaSIP/ LaGEARUP	366,018
09-169	Cummins, Carrice	Hill/Kimball-Lopez	The Union/Lincoln RTW Project	LaSIP/ LaGEARUP	393,562
09-170	Phoha, Vir	Leangsuksun, C.	AL-LA-MS EPSCOR RII Track 2: Building Research and Education Cyberinfrastructure for Enhancing Disaster Management on Northern Gulf Coast	LSU	225,000
09-171	Wilson, Chester		LASPACE/GRSA Waguespack	LaSPACE/NASA	4,000
09-172	Sterling, Ray	Allouche, Erez	Continuing Education & Training in Utility Installation & Rehabilitation Techniques	Contractors' Educational Trust	25,000
09-173	Wilson, Chester		Zero Power Anti-Tamper System	Radiance	308,000
09-174	Beer, Glenn	Schilling, Tammy	Louisiana College Access and Mentoring Programs for Success - 2009	BoR/LA GEAR UP	403,817
09-175	Hall, David		Improved Learning for Undergraduate Engineering Programs Using Finite Element Learning Modules	NSF	21,654
09-176	Beer, Glenn	Basinger, Dawn	Louisiana Tech/LA GEAR UP Explorers Camps 2009	BoR/LA GEAR UP	365,189

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PROPOSALS SUBMITTED (CONT'D FROM PAGE 4 . . .)

FILE #	PI	Co-PI 's	TITLE	AGENCY	$
09-177	Dornier, Lanie	Schilling, Tammy	LA GEARUP Sports Medicine Camps	BoR/LA GEAR UP	164,218
09-178	Kennedy, Angela		2008-09 Carl Perkins Vocational & Technical Education Carryover Grant	LCTC	6,675
09-179	Schillinger, Don		Building Bridges to the Future Camp	BoR/LA GEAR UP	154,176
09-180	Beer, Glenn	Tobacyk/ Livingston	Comprehensive School Reform for LA GEAR UP Schools	LaSIP/ LaGEARUP	523,640
09-181	Phoha, Vir		Distributed Autonomy for Intelligent Decision Making, Adaptive Learning and Robust Collaboration	DOD	340,000
09-182	Weiss, Leland	Gold, Scott	Microscale Power Generation From Microcombustion-based MEMS De-vices	BoR/EPSCoR	750,000
09-183	Wilson, Chester		Novel Polymer Based Energy Har-vester	NGA	336,246
09-184	Wilson, Chester	Pelligrin, Scott	Multichannel Scintillation Microdevice for the Differentiation Between Alpha, Beta	Entergy Corp.	50,000
09-185	Wilson, Chester		FY2009 NASA EPSCoR	BoR	1,500,000
09-186	Carpenter, Jenna	O'Neal, P./ Davis	Creating a Culture of Success for Women in Engineering	NSF	1,000,000
09-187	Sterling, Ray	Allouche, Erez	Retrospective Evaluation of Lining Sys-tems	Battelle	130,012
09-188	Feng, June		Understanding the Molecular Mecha-nism of Alzheimer's Disease . . .	INBRE/LSU	525,621
09-189	Chiu, Alan		Adaptive Coupled Neural System Model for Hippocampal Function Res-toration	INBRE/LSU	586,853
09-190	Wilson, Chester		LaSPACE GRSA/Sweeney	LaSPACE	5,000
09-191	Paun, Andrei	DeCoster, Mark	Modeling Caspase-induced Apoptosis Using Discrete Methods	INBRE/LSU	784,575
09-192	Dai, Weizhong		Radiation-Inducing Heating of Biologi-cal Tissue: A Novel Multi-Scale Contin-uum Mathematical Model for Skin Burn-ing	NSF	270,530
09-193	Lvov, Yuri		Microfluidic Device for Directed As-semby of Nanoparticles & Polyelectro-lytes on Insitu Generated Templates	NSF	180,000
09-194	Saber, Aziz		Load Distribution and Fatigue Cost Es-timates of Heavy Truck Loads on Lou-isiana State Bridges	LTRC	269,742
09-195	Hindmarsh, Pat-rick		Development of An Autonomous Repli-cating Plasmid and Gene Regulation in Candida Albicans	INBRE/LSU	342,373
09-196	Giorno, Rebecca		Roles of Bacillus Anthracis Spore Coat and Exosporium in Germination	INBRE/LSU	102,842

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PROPOSALS SUBMITTED (CONT'D FROM PAGE 5 . . .)

FILE #	PI	Co-PI 's	TITLE	AGENCY	$
09-197	Sethi, Prerna		Rule based Data Mining for Knowledge Discovery in Alzheimer's Disease Using Microarray Databases	INBRE/LSU	523,855
09-198	Buboltz, Walt	Soper, Barlow	Sleep Quality/Length and It's Releationship to Caloric Intake, MBI, and Food Choice	NIH	288,885
09-199	Wilson, Chester		AT Power Capacitive Fabric	Radiance Technologies	30,000
09-200	Sawyer, Lee	Young, Marcus	A Thermomagnetic Generator for Space Power	LaSPACE/URP	4,858
09-201	Deemer, Eric		Test of an Achievement Goal Model of Academic and Career Development Among College Women in Sciences and Engineering	NSF	?
09-202	Que, Long		Biomolecular Nanophotonic Microsystem (BNM)	DARPA	299,657
09-203	O'Neal, Mike		Providing Managerial Expertise to Network Foundation Technologies	Network Foundation Technologies	22,325
09-204	Wang, Shengnian		Novel Micro/nanofluidic Electropration Devices for DNA/Oligonucleotide Delivery	NIH/OSU	34,662
09-205	Lvov, Yuri		Halloysite Tube Nanocontainer for Sustained Release of Protective Agents	NSF	326,260
09-206	Davis, Despina		A Novel Method of Molten Salt Electrodeposition of High-TC Superconducting BI(PB)-SR-CA-CUO Nanostructures	EPSCoR	29,898
09-207	Davis, Despina		Nanostructures Electrodeposition for Microfuluidic Magnetic Sensors	DARPA	294,372
09-208	Colvin, Jan		Children's FUNN Day (Children's Families Understanding the Need for Nurturing Day)	Louisiana Children's Trust Fund	14,725
09-209	Selmic, Sandra		Collaborative Research: Fabrication & Characterization of Well-Defined Organic Nanostructures on Surfaces from the Gas Phase	NSF	113,434
09-210	Griffin, Linda		The Solution Part II: A Mentoring Program	ULS	30,000
09-211	Wilson, Chester	Ware/ Derosa	Microscale Radiological, Environmental, and Biological Monitoring Microdevices for NASA Commercialization	EPSCoR	1,432,021
09-212	Cathey, Ron	Merritt/ Medley	NCAA Choices: Bulldogs Advancing Responsible Choices	NCAA, The National Collegiate Athletic Association	30,000
09-213	Weiss, Leland	Gold, Scott	Hydrogen Generation & Thermal Management from Microbustion MEMS Devices	EPSCoR	774,121
09-214	Wang, Shengnian		Micro/nanotechnology Enhanced Electroporation Platforms for ES and Cancel Cell Transfection	NSF	174,960
09-215	Cardenas, Henry		Corrosion Potential Evaluation of Press Cylinder Cleaning Fluids	Graphic Packaging	609
09-216	Weiss, Leland		Thermal Control of MEMS Systems Using Micro Phase Change Engines	DARPA	179,264

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PROPOSALS SUBMITTED (CONT'D FROM PAGE 6 . . .)

FILE #	PI	Co-PI 's	TITLE	AGENCY	$
09-217	Cardenas, Henry		Halloysite Nanotube Delivery of Corrosion Inhibitors for Vehicle Launch Structures and Civilian Infrastructure Protection	EPSCoR	1,414,596
09-218	Mainardi, Daniela		NSF CREST Center for Bioenergy	NSF	150,000
09-219	Wang, Jay		Reliable Prediction of Long-Time Setup of Piles ...	NSF	233,694
09-220	Wasiuddin, Nazimuddin		Effect of Nanoclay Modifications of Binders and Nanoparticle Coatings of Aggregates on Asphalt-Aggregate Adhesion	NSF	107,662
09-221	Lvov, Yuri		Layer-by-layer Nanocarrier for Highly Efficient Solubilization of Insoluble Drugs	NIH resubmit	750,000
09-222	Lvov, Yuri		Halloysite Tube Nanocontainer for Sustained Release of Protective Agents	BoR/NASA/ LURA	5,000
09-223	Saber, Aziz	Wang, Jay	Engineered Porous Material	NSF	446,118
09-224	Jaganathan, Arun	Allouche/ Simicevic/ Grimm	Continuing Education and Training in Utility Installation and Rehabilitation Techniques	NSF	247,774
09-225	Kennedy, Angela		55 Plus! Retooling and Retraining Northeast Louisiana Workers	LTC	314,049
09-226	Allouche, Erez		Burst Pressure Test of Polyuea Panels	Innovative Painting and Waterproofing	2,000
09-227	Morrow, Timothy		Development of an Open-system Molecular Dynamics Method for the Prediction of Phase Equilibrium Involving Complex Molecules	NSF	194,374
09-228	Carpenter, Jenna	O'Neal, P./ Davis	Creating a Culture of Success for Women in Engineering	NSF	1,362,416
09-229	O'Neal, Patrick	Selmic, Sandra	Investigation of Pulse Photometry for Nanoparticle Tracking	NIH	150,000
09-230	Mainardi, Daniela	Derosa/Gold	Nano-wired Enzymatic Anode Catalyst for Fuel Cell Applications	NSF	552,382
09-231	Mainardi, Daniela	Derosa/ DeCosta	Nano-printed Methanol Dehydrogenase Enzymes for Practical Environmental Catalysis	NSF	549,977
09-232	Mills, David	Ramsey, Linda	Louisiana Regional Collaboratives Project	TX Regional Collaborative Project	64,842
09-233	O'Neal, Patrick		Slow Releasing Fluorescent Gelatin Nanoparticles for Delivery Green Tea Polypenols to Breast Cancer	DOD	120,000
09-234	Mainardi, Daniela	Giorno/ Hindmarsh	Nanoengineered Enzymatic Catalysts for Methane Bioremediation	NSF	652,362
09-235	Dobbins, Tabbetha		PIRE: Partnership between LSU and Nanjing University in Education, Training and Research ...	NSF	0
09-236	Crews, Niel	O'Neal, Chad	SNP Genotyping During PCR: Spatial DNA Melting Analysis of Temperature Gradient Microfluidics	NSF	383,922

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PROPOSALS SUBMITTED (CONT'D FROM PAGE 7 . . .)

FILE #	PI	Co-PI 's	TITLE	AGENCY	$
09-237	Norris, Dave		Capacity Building Implementation Art/ Technology Competition	La. Div. of Arts	7,500
09-238	Norris, Dave		Arts in Education Implementation	La. Div. of Arts	15,000
09-239	Norris, Dave		Capacity Building Service Providers Incubator Support Art Gallery and Speaker Series	La. Div. of Arts	7,500
09-240	O'Neal, Patrick	Shipp/Jones	Louisiana Tech Rapid Senior Design Program	NSF	126,857
09-241	Wick, Collin		Studying Ion Dissociation Rates at Aqueous-Organic Interfaces	Battelle Memorial Institute	10,000
09-242	Grafton, Tommy		Project Northland Claiborne Parish	Region VII Office for Addictive Disorders	26,100
09-243	Grafton, Tommy		Communities Mobilizing for Change on Alcohol (CMCA) Claiborne Parish	Region VII Office for Addictive Disorders	25,000
09-244	Grafton, Tommy	Smith, Addie	North Central Alliance Partners in Prevention	DHH	99,963
09-245	Grafton, Tommy	Boyd, Rhonda	Project Northland	Office for Addictive Disorders	193,299
09-246	Siriwardane, Upali		Development of Biomass to Liquid-Fuel Conversion Technologies for the Louisiana Forestry By-Products	DoEnergy/USDA	700,000
09-247	Wilson, Chester	O'Neal, Chad	Multimode Detector Phase 2 Enhancement	Air Force/ Radiance	270,000
09-248	Palmer, James	Hegab/Lvov/ Snow	Enzyme Immobilization Applicable for Large Scale Reactors to Reduce Cellulosic Ethanol Costs	DOE/Biomass Conversion Program	1,023,462
09-249	DeCoster, Mark	Guilbeau/Lvov	IGERT: Multi-scale Integration for Biomimetic Systems (MIBS)	NSF	0
09-250	Mills, David		Ultrasonic Nebulization as a Tool for Creating Multilayered, Multicomponent Nanoassemblies	LSU/LaSPACE/ NASA	6,000
09-251	Eklund, Sven		Improvement of Miniature Biofuel Cells Using CNTs as Electron Transfer Mediators	LSU/LaSPACE/ NASA	12,000
09-252	Guilbeau, E.	Crews/ Hindmarsh	Thermoelectric Method for Sequencing DNA	NIH	275,000
09-253	Crews, Niel		Improved Biocompatibility for Microfluidic Genetic Monitoring Systems	LSU/LaSPACE/ NASA	12,088

NEW REQUESTS FOR PROPOSALS (CONT'D FROM PAGE 2 . . .)

made from anticipated total funding of $12 million. Eligibility is unrestricted. Required letters of intent are due Aug 21. More information regarding NSF 06-580 is available at: http://www.nsf.gov/pubs/2006/nsf06580/nsf06580.htm.

The Office of International Science and Engineering invites proposals for the **Developing Global Scientists and Engineers** (International Research Experiences for Students (IRES) and Doctoral Dissertation Enhancement Projects (DDEP)) program. The program provides grants to U.S. institutions, organizations, or professional societies to support a globally-engaged science and engineering (U.S.) workforce capable of performing in an international research environment in order to remain at the forefront of world science and technology. The IRES is aimed at Undergraduate and Graduate students conducting research abroad while the DDEP is for an individual doctoral student conducting research with a foreign investigator. Each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. Proposals that do not include a separate section on mentoring activities within the Project Description will be returned without review. Up to 24 awards are anticipated from total funding of $2.1 million. Eligibility is limited to U.S. institutions, organizations, or professional societies. Proposals are due Sep 15. More information regarding NSF 03-559 is available at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf04036.

The Directorate for Biological Sciences invites proposals for **Undergraduate Research and Mentoring in the Biological Sciences**. The program provides for funding to increase participation and representation of groups historically underrepresented in science and engineering. It is intended for institutions to establish innovative programs to engage undergraduates in a year-round research and mentoring activity. Up to 8 awards are anticipated from total funding of $4 million. Eligibility is restricted to U.S. academic Institutions. Collaborative projects from 2 or more Institutions are allowed. Proposals are due Sep 18. More information regarding NSF 06-591 is available at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf06591.

The Directorate for Geosciences invites proposals to support collaborative, interdisciplinary studies of the Earth's interior within the framework of the community-based initiative known as **Cooperative Studies of the Earth's Deep Interior**. Funding will support basic research on the character and dynamics of the Earth's mantle and core, their influence on the evolution of the Earth as a whole, and on processes operating within the deep interior that affect or are expressed on the Earth's surface. NSF anticipates making 5-10 awards from total funding of $2 million. Eligibility is limited to U.S. colleges, universities, and non-profit, non-academic organizations with formal research programs in the earth science and related disciplines. Proposals are due Sep 25. More information regarding NSF 06-578 is available at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf06578.

The Directorate for Education & Human Resources invites proposals for the **Science, Technology, Engineering, and Mathematics Talent Expansion** Program. The program seeks to increase the number of students (U.S. citizens or permanent residents) receiving associate or baccalaureate degrees in established or emerging fields within science, technology, engineering, and mathematics. NSF anticipates making 15-20 awards from total FY09 funding of $26 million. Eligibility is limited to academic institutions in the United States and its territories, from consortia thereof, or from nonprofit organizations that have established consortia among such academic institutions. Optional letters of intent are due Aug 18; full proposals are due Sep 29. More information regarding NSF 08-569 is available at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08569.

NSF has posted general announcements reminding potential researchers of the availability of funding through several science- and engineering-related disciplines. Unlike specific requests for proposals, these program offices will entertain and fund unsolicited proposals in the given field using the latest edition of NSF's grant proposal guidelines. Eligibility is unrestricted. Many programs use two or more proposal cycles during the year for unsolicited proposal evaluation and funding. The following 22 program descriptions have deadlines between July 9 and Sep 30. Links provide more detail regarding program research interests and NSF program contacts. Most of these offices encourage prospective applicants to contact them prior to preparing a proposal.

- **Systematic Biology and Biodiversity Inventories**, within the Division of Environmental Biology, supports research in taxonomy and systematics that contributes to: 1) using phylogenetic methods to understand the evolution of life in time and space, 2) discovery, description, and cataloguing global species diversity, and 3) organizing information from the above in efficiently retrievable forms that best meet the needs of science and society. Proposals are due

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NEW REQUESTS FOR PROPOSALS (CONT'D FROM PAGE 9 . . .)

July 9. More information regarding PD 04-7374 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12825.

- **Physiological and Structural Systems**, within the Division of Integrative Organismal Systems, supports research aimed at furthering the understanding of organisms as integrated units of biological organization. The Cluster considers proposals focused on interacting physiological and structural systems, their environmental and evolutionary contexts, and how these components are constrained by their integration into the whole organism. Proposals are due July 12. More information regarding PD 07-1141 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501090.

- The **Strategic Technologies for Cyberinfrastructure** Program supports work leading to the development and/or demonstration of innovative cyberinfrastructure services for science and engineering research and education that fill gaps left by more targeted funding opportunities. In addition, it will consider highly innovative cyberinfrastructure education, outreach and training proposals that lie outside the scope of targeted solicitations. Proposals are due Aug 13. More information regarding PD 06-7231 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=500066.

- **Biophotonics, Advanced Imaging, and Sensing**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports innovative research of biophotonic, imaging, and sensing technologies for applications in human health. Unsolicited projects may be supported for one-to-three years. The average annual award size is $100,000 for individuals, $200,000 for teams. Proposals are due Sep 15. More information regarding PD 09-7236 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501025.

- **Process and Reaction Engineering**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports research into chemical and biochemical reaction engineering, process design and control, and reactive polymer processing. Major emphases include: bioreactor design and bioprocess optimization, fermentation technology, new sensor development to measure composition, product properties, emulsion and mini-emulsion polymerization, reaction injection molding. The average annual award size is $100,000. Proposals are due Sep 15. More information regarding NSF 09-1403 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13361.

- **Thermal Transport Processes**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports engineering research aimed at gaining a basic understanding of the microscopic and macroscopic levels of thermal transport phenomena (heat and mass transfer) underlying energy conversion and conservation, the synthesis and processing of materials, cooling and heating of infrastructure and equipment, the interaction of industrial processes with the environment, the propulsion of air and land-based vehicles, and thermal phenomena in biological and environmental systems. The average annual award size is $90,000; small equipment proposals up to $100,000 will also be considered and may be submitted during these windows. Proposals are due Sep 15. More information regarding NSF 09-1406 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13367.

- **Combustion, Fire, and Plasma Systems**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, provides for funding regarding combustion targeted at cleaner global and local environments, enhanced public safety, improved energy and homeland security, and more efficient manufacturing. Major emphases include: structure and dynamics of flames and plasmas, improved understanding of flame spread, and mitigation of combustion-generated pollution. The average annual award size is $90,000; small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-1407 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13366.

- **Catalysis and Biocatalysis**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports research on mechanisms of important catalyzed chemical reactions, electrocatalytic processes having engineering significance or commercial potential, sustainability, and kinetic modeling. Typical research projects include: utilization of new catalysts for producing nanomaterials, mechanisms and kinetics of reactions, and catalytic conversion of biorenewables. The average annual award size is $100,000; small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-1401 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13360.

- **Interfacial Processes and Thermodynamics**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports interfacial phenomena, mass transport phenomena, and solution phase equilibrium thermodynamics. Examples of research projects include: development of thin films & coatings, transport in nanoporous

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and membrane systems, and nanostructure control via surfactant mixing and polymerization. The average annual award size is $80,000; small equipment proposals up to $70,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-1414 is available at: .

- **Particulate and Multiphase Processes**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, provides funding to investigate mechanisms and phenomena governing particulate and multiphase processes, including granular and granular-fluid flows, particle/bubble/droplet interactions, aerosol science and technology, and suspensions. The average annual award size is $100,000; small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-1415 is available at: .

- **Chemical and Biological Separations**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports fundamental research on novel methods and materials for separation processes. Areas of emphases include: separation of biological molecules (especially ones that lead to environmentally benign processing), fuel cell membranes and nanostructured materials for separations, and combinatorial design of separation systems. The average annual award size is $80,000; small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-1417 is available at: .

- **Environmental Engineering**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems,funds transformative research which applies scientific principles to minimize solid, liquid, and gaseous discharges into land, inland and coastal waters, and air that result from human activity, and to evaluate adverse impacts of these discharges on human health and environmental quality. Areas of emphases include: treatment processes to remove and degrade pollutants from water and air, measuring and evaluating pollutants environmental effects, and advancing/developing clean-up techniques for polluted sites. The average annual award size is $100,000; small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-1440 is available at: .

- **Biotechnology, Biochemical, and Biomass Engineering**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports research into the processing and manufacturing of products of economic importance by effectively utilizing renewable resources of biological origin and bioinformatics originating from genomic and proteomic information. Quantitative assessments that further advance the fundamental knowledge base that contributes to a better understanding of cellular and biomolecular processes are specifically encouraged. Areas of emphases include: enzyme technology, recombinant DNA technology, metabolic engineering, tissue engineering, and food processing with special focus on the safety of the nation's food supply. The average annual award size is $120,000. Proposals are due Sep 15. More information regarding NSF 09-1491 is available at: .

- **Research to Aid Persons with Disabilities**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports research that will lead to the development of new technologies, devices, or software for persons with disabilities including substitution of human functional ability or cognition, or the interaction of persons with disabilities and their environment. Areas of particular recent interest are disability-related research in neuroscience/neuroengineering and rehabilitation robotics. The average annual award size is $80,000; small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-5342 is available at: .

- **Biomedical Engineering**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, seeks to advance both engineering and life sciences with biomedical engineering projects that are at the interface of engineering and biomedical sciences. Areas of emphases include: neural engineering, cardio/pulmonary systems engineering, tissue engineering, and the development of biomaterials. The average annual award size is $100,000 for individuals and $200,000 for multiple investigators. Small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-5345 is available at: .

- **Environmental Sustainability**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports engineering research with the goal of promoting sustainable engineered systems that support human well-being and that are also compatible with sustaining natural (environmental) systems. There are four principal gen-

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eral research areas that are supported: Industrial Ecology, Green Engineering, Ecological Engineering, and Earth Systems Engineering. The average annual award size is $100,000; small equipment proposals up to $100,000 also will be considered. Proposals are due Sep 15. More information regarding NSF 09-7643 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501027.

- **Energy for Sustainability**, within the Division of Chemical, Bioengineering, Environmental, and Transport Systems, supports research and education in energy production, conversion, and storage and is focused on energy sources that are environmentally friendly and renewable. Solar, wind, and biomass technologies are specifically, but not exclusively mentioned. The average annual award size is $100,000. Proposals are due Sep 15. More information regarding NSF 09-7644 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501026.

- **Particle and Nuclear Astrophysics**, within the Division of Physics, supports university research in many areas of particle astrophysics and nuclear astrophysics, including the study of ultra-high energy particles reaching Earth from beyond our atmosphere and experiments or research and design projects for underground facilities. Project funding may exceed $1 million. Proposals are due Sep 30. More information regarding PD 06-1643 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5633.

- **Theoretical Physics**, within the Division of Physics, supports the development of qualitative and quantitative understanding of fundamental physical systems, ranging from the most elementary constituents of matter through nuclei and atoms to astrophysical objects and the cosmos. This includes formulating new approaches for theoretical, computational, and experimental research that explore the fundamental laws of physics and the behavior of physical systems; formulating quantitative hypotheses; exploring and analyzing the implications of such hypotheses analytically and computationally; and, in some cases, interpreting the results of experiments. Proposals are due Sep 30. More information regarding PD 07-1284 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5626.

- **Atomic Molecular and Optical Physics**, within the Division of Physics, supports research in four sub-areas: Precision Measurements, Atomic and Molecular Dynamics, Atomic and Molecular Structure, and Optical Physics. Research supported in the first three sub-areas includes activities in quantum control, cooling and trapping of atoms and ions, low-temperature collision dynamics, the collective behavior of atoms in weakly interacting gases, precision measurements of fundamental constants, and the effects of electron correlation on structure and dynamics. In Optical Physics, support is provided in areas such as nonlinear response of isolated atoms to intense, ultra-short electromagnetic fields, the atom-cavity interaction at high fields, and quantum properties of the electromagnetic field. Proposals are due Sep 30. More information regarding PD 05-1241 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13622.

- **Elementary Particle Physics**, within the Division of Physics, supports particle physics at accelerators, for example, accelerator experiments at the Tevatron at Fermilab, and in the near future, collider experiments utilizing the Large Hadron Collider at CERN in Geneva, Switzerland. The program also supports advances in accelerator physics and detectors at accelerators, especially those directed at the International Linear Collider, and new methods of utilizing distributed computing in support of collaborative research, for example grid development, both nationally and internationally. Proposals are due Sep 30. More information regarding PD 06-1221 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5624.

Gravitational Physics, within the Division of Physics, supports research into the theory of strong gravitational fields and their application to astrophysics and cosmology, computer simulations of strong and gravitational fields, and gravitational radiation; and construction of a quantum theory of gravity. Proposals are due Sep 30. More information regarding PD 06-1244 is available at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5628.

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(APRIL 10-13)