Louisiana EPSCoR
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LA EPSCoR Program Helps Katrina-Impacted Researchers

Some science and engineering researchers who were unceremoniously evicted from their labs by Hurricane Katrina discovered a lifeline in the Louisiana EPSCoR LINK program.

The Links with Industry, Research Centers, and National Labs (LINK) program was designed to facilitate science and engineering research, education, and training opportunities for faculty, post-doctoral researchers and graduate students. The objective is the development of partnerships and alliances between Louisiana researchers and collaborators at those facilities.

The LINK program provides travel and subsistence funding of up to $7,000* for faculty, who may also sponsor post-doctoral researchers and graduate students, to visit and train at a research facility for anywhere from two to 12 weeks. When Katrina hit, it was decided to use LINK to help interested and eligible investigators approved by a panel of out-of-state reviewers.

"LINK emerged as a valuable resource for researchers displaced by the hurricane to visit and train at a research facility," says Louisiana EPSCoR Project Director Michael Khonsari. "As of January 17, 2006, 23 LINK awards supporting 18 faculty and 17 graduate students and post-doctoral researchers had been made in specific response to the hurricane."

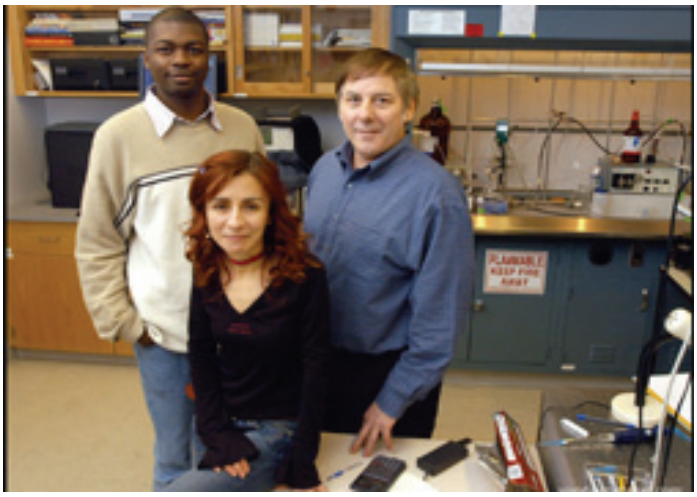
Noting that LINK awards are normally funded by Louisiana EPSCoR's National Science Foundation (NSF) three-year Research Infrastructure Improvement award, Dr. Khonsari adds: "The 23 Katrina-specific LINK grants, which totaled $141,414, were funded in part through an NSF Post-Katrina supplemental grant."

Through LINK, Louisiana EPSCoR has agreements with the Argonne and Oak Ridge National Laboratories, which also offer stipends and mentors to guide participants in the completion of research projects related to their academic goals and the laboratory missions. The Argonne program is also open to undergraduates.

Highlights of eight of the Katrina-specific LINK awards included the following:

Dr. T. A. Venkatesh, a **Tulane** Assistant Professor of Mechanical Engineering, went to the Microelectronics Research Center (MRC) in Austin, TX to work on the development of novel piezoelectric materials. Piezoelectric materials, which have the ability to generate an electric charge in response to applied mechanical stress, have a wide variety of applications. Using a numerical modeling approach, Dr. Venkatesh and his MRC collaborators obtained a comprehensive understanding of the effects of poling characteristics on the piezoelectric response of composite materials. A research facility associated with the University of Texas at Austin, MRC is funded by the National Science Foundation through the National Nano-Technology Infrastructure Network and by several industry consortia.

**LINK provides, per person, up to $1,000 for round-trip travel to the facility and up to $500 per week for meals and lodging, subject to the provisions of State travel regulations.*



Tulane Physics Professor Dr. Wayne Reed, right, with Ph.D. student Pascal Enohnyaket and postdoctoral associate Dr. Alina Alb, in a University of Massachusetts lab where they relocated following Hurricane Katrina.

Louisiana is one of the world's foremost producers of polymers and the research group headed by **Tulane University** Physics Professor **Dr. Wayne F. Reed** is a world-leader in polymer characterization. Dr. Reed's research bridges the main areas of expertise at the University of Massachusetts (UM) Silvio O. Conte National Center for Polymer Research, one of the world's foremost centers for polymer research. It was the LINK destination for him, a post doctoral researcher and four graduate students. There they used Tulane-based advances in a variety of collaborative projects with UM polymer scientists to assess their ultimate value in the field. The investigations laid the foundation for collaborations between the two institutions in terms of both joint research projects and personnel exchanges.

Dr. Andrew Knight, Loyola University Associate Professor of Chemistry, used his LINK award to visit the Naval Research Laboratory's Center for Bio/Molecular Science and Engineering where he continued an ongoing collaboration focused on making sequence-specific "artificial nucleases" that can either be used as a stand-alone, general anti-viral chemotherapeutic, or programmed to recognize specific viral RNA/DNA sequences, bind to them, and cut the gene at the point of attachment.

Advancing our knowledge of transmission patterns of tuberculosis and improving tuberculosis control in Louisiana was the objective of a visit by **Dr. Sue Wang** to the Centers for Disease Control and Prevention (CDC) Tuberculosis Laboratory in Atlanta. In 2004, rates for new TB cases in the U.S., Louisiana, and Metropolitan New Orleans were 4.9/100,000, 5.6/100,000 and 11.5/100,000, respectively. In June 2004, the CDC published a manual on molecular genotyping of clinical TB isolates and offered national laboratory identification of genotypes for prospective mycrobacterial tuberculosis specimens. The

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Louisiana Public Health State Laboratory has performed molecular genotyping, which can assist with tuberculosis control by identifying case clusters of recent transmissions and assisting in outbreak investigations. The CDC offered Dr. Wang, an Infectious Disease Fellow at the **Tulane University Health Sciences Center**, the opportunity to be trained on techniques of secondary typing methods. Utilization of molecular epidemiology technology may also help improve the understanding of unequal distribution of TB among the State's African-American community.

Dr. Jinke Tang, a **University of New Orleans** (UNO) Physics and Research Professor, used his LINK funds to visit Sharp Laboratories of America (SLA), a world leader in optoelectronics, which encompasses the study, design and manufacture of hardware devices that convert electrical signals into photon signals and vice versa. SLA had previously sponsored Dr. Tang's research in magnetic materials, a successful collaboration that led to its support of his initial study of quantum dot infrared photo detectors. The objective of his LINK visit was to prepare for the start of a new and additional direction of his research activities, which target the advanced materials and information technology industries identified by Louisiana's Department of Economic Development as a priority in diversifying the State's economic base. Optoelectronic technologies include fiber optic communications, laser systems, electric eyes, remote sensing systems, medical diagnostic systems and optical information systems.

Dr. Mark Sulkes, a **Tulane** Chemistry Professor, and researchers at Wayne State University collaborated on a series of experiments relevant to silicon ionic complexes that are important in atmospheric chemistry, interstellar chemistry and the plasma deposition process. The research methods of the collaborators complement rather than duplicate one another and future collaborative experiments and grant applications are possible.

Prostate cancer, the most frequent cancer among men and the leading cause of cancer deaths in the U.S., was the subject of research conducted by **Dr. G. Kim,** a **Louisiana State University Health Sciences Center in New Orleans** Assistant Professor of Pathology, at the Medical University of South Carolina in Charleston. The availability of cholesterol is essential for proliferation and progression of cancer and high density lipoprotein (HDL) is one of the main sources of cholesterol for membrane and steroid hormones synthesis. It is also a growth stimulator for many types of cells, including breast cancer. Dr. Kim, the post-doctoral researcher who accompanied him, and his South Carolina collaborators focused on a scavenger receptor that facilitates cellular uptake of cholesterol from HDL.

Water has important influences on the structure and stability of protein structures at both the molecular and larger scales. **Dr. Steven W. Rick** has shown that individual water molecules can play a significant role in the folding, the process by which a molecule assumes its shape, of a particular neuropeptide that acts as both a hormone and a neurotransmittal. The most abundant neuropeptide in mammalian central nervous systems, it has a number of important physiological effects. His LINK award allowed the **UNO** Associate Professor of Chemistry to travel to Georgia Tech's School of Chemistry and Biochemistry where he began a collaboration that connected his research interests regarding how water influences protein stability and dynamics with those of a researcher who has been investigating the folding and structure of that neuropeptide.

"By adapting LINK to fill the needs of scientists so sorely impacted by Katrina, we not only afforded them the opportunity to expand their research, but also, I hope to what was a great extent, helped them find some peace of mind," says Dr. Khonsari, who is also the Board of Regents Associate Commissioner for Sponsored Programs Research and Development.

LONI Connects Mississippi Schools

The Louisiana Optical Network Initiative (LONI) is collaborating with Mississippi's top research universities to provision access to commodity Internet and the research networks National LambdaRail, or NLR, and Internet2, or I2.

LONI is Louisiana's state-of-the-art fiber optics network connecting the state's major research institutions to one another, the two major research networks, commodity Internet and 85 teraflops of grid supercomputing resource. LONI established a point of presence, or POP, in Jackson, MS. Jackson State University, Mississippi State University, the University of Mississippi and the University of Southern Mississippi will use LONI's Jackson POP to access the National LambdaRail, Internet2, and the commodity Internet.

The switch to LONI stemmed from the nationwide decommissioning of Internet2's Abilene Network. Mississippi needed another path to the new Internet2 network resources. Additionally, this new route marks the first time these Mississippi institutions will have access to the National LambdaRail.

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