



## Tech Honors Dynamic Innovators

*Modified from Judith Roberts, News @ Tech, Friday, May 23, 2008*

Louisiana Tech recognized the achievements of its faculty inventors at an inventor's recognition held recently.

The event honored inventors who had technologies that had been patented, licensed or filed for a regular U.S. patent application and also credited first-time faculty inventors.

"2007 was another banner year for us," said Dr. Richard Kordal, director of the Office of Intellectual Property and Commercialization. "We were issued a record number of five patents, signed a record number of five license agreements and received a record number of invention disclosures from first-time inventors."

Kordal added that faculty members are generating high-quality inventions that are gaining the interest of industry as evidenced by licensing activity.

"Tech's faculty is among the most productive and innovative in the nation," he said.

"The benchmark is one new invention per \$2.5 million research and development expenditures. We generate one new invention per \$500,000 research and development expenditures, or five times above the national average."

Those honored for patents included:

- Dr. Vir Phoha, a professor of computer science, for "Method for Allocation of Web Pages Using Neural Networks";
- Dr. Ben Choi, an associate professor of computer science, for "Method and Apparatus for Individualizing and Updating a Directory of Computer Files";
- Dr. Tianhong Cui, formerly of Tech, for "Polymer-Based Tunneling Sensor" and "Lithography-based Patterning by L-b-L Nano-assembled thin films"; and
- Dr. Lynn Walker, a professor of biological sciences, and Lawrence Higginbotham,

a former research scientist at Tech, for "Bacterium B-30043 for controlling algae."

The five license agreements that were signed came from the following Tech faculty inventors: Dr. Henry Cardenas, an assistant professor of mechanical engineering; Dr. Don Haynie, formerly an associate professor in the IfM; Dr. Yuri Lvov, a professor at the Institute for Micromanufacturing; Phoha; Walker; and Dr. Chester Wilson, an assistant professor of electrical engineering.

Phoha, Wilson, Cardenas and Lvov also were recognized for filing patent applications.

Eight first-time faculty inventors were also recognized: Dr. Pedro Derosa, an assistant professor at the IfM; Dr. Ville Kaajakari, an assistant professor of electrical engineering; John McDonald, a research engineer at the IfM; Dr. Tabbetha Dobbins, an assistant professor of physics; Dr. Neven Simicevic, an associate professor of physics;

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### Special points of interest:

- Nanotechnology
- Biotechnology
- Biomedical Nanotechnology
- Environmental Technology
- Information Technology



Dr. Chester Wilson is honored by Dr. Reneau and Johnny Maxwell



Dr. Vir Phoha is honored by Dr. Reneau and Johnny Maxwell

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 Comments are welcomed!



## “What’s in Ruston City Water???”

Cedar Creek High School Student Aleksandra Simicevic (Sr) did her science fair project at IfM studying what is in Ruston city water—and how well can contaminants be removed by activated carbon-based water filtration units. Aleksandra worked with advise from Dr. Tabbetha Dobbins and undergraduate student, Ejiroghene (Ej) Oteri on a project titled ‘Study of the Effectiveness of Water Filtration Based on the Active Sites of Activated Carbon’. Aleksandra found that store-bought bottled water contained fewer contaminants than Ruston city water using ultraviolet-visible spectrophotometry. That analysis did not include determination of the exact nature of contaminants in Ruston city water. Aleksandra

went on to evaluate the effectiveness of store-bought water filtration units at removing salt and antifreeze contaminants added in known concentrations to Ruston city water. Her hypothesis was that water filters expire only after active carbon sites which ‘trap’ contaminants become completely occupied. Her tests showed that the filter was ineffective at trapping more salt after 48 exposures to a salt+water mixture. The same type of filter was still effective at removing antifreeze from an antifreeze+water mixture after 50 cycles. Aleksandra’s project won 3<sup>rd</sup> place in the state-wide Louisiana Science & Engineering Fair competition in the Chemistry-Senior Division.



Aleksandra Simicevic  
Senior Cedar Creek High School,  
conducted her high school  
science fair at IfM.

## Yuri Lvov and Anshul Agarwal Featured on Cover of World’s Largest Pharmacological Journal “Pharma Focus Asia”

Dr. Yuri Lvov, professor of chemistry and T. Pipes endowed chair in micro and nanosystems at Louisiana Tech University, and Anshul Agarwal, a LA Tech doctoral candidate in biomedical engineering, have their research on cancer drug nanoencapsulation published in the July 2008 issue of Pharma Focus Asia. Lvov and Agarwal also share the cover of Pharma Focus Asia.

"The recognition that Dr. Lvov has received through this cover story confirms the world-wide leadership position that his research, his colleagues, and LA Tech holds," says Dr. Stan Napper, dean of COES.

Working from Louisiana Tech's Institute for Micromanufacturing, Lvov and Agarwal collaborated with pharmaceutical researchers from Northeastern University in Boston on an article titled "Sonication-Assisted Nanoencapsulation." "We may be able to drastically increase the efficiency of existing low-soluble cancer drugs by way of their nanoparticle formulation," says Lvov. "We are working with several other institutions around the country that are currently in the process of testing our new drug formulation."

"The application of his approach to nanoassembly into clinical drug delivery will enable further improvements in cancer therapy that may reduce some of the traumatic impact of current methods," states Napper.

"Dr. Lvov's accomplishments contribute greatly to LA Tech's international stature in the nanotechnology field," says Dr. Leslie Guice, vice president for research and development at Louisiana Tech. "He is highly respected among the research community and has built strong collaborations with top-notch researchers nationally and internationally."

Lvov believes there is another important benefit of his research and the national and international publicity it is receiving. "This exposure allows other people, domestic and abroad, to see that some of the best medical nanotechnology research programs in the country are located here at Louisiana Tech University." Anshul appreciates Dr. Lvov's guidance in this research. "Without his contributions this could not have been possible."





## “IfM Researchers Present at 8<sup>th</sup> World Biomaterials Congress”

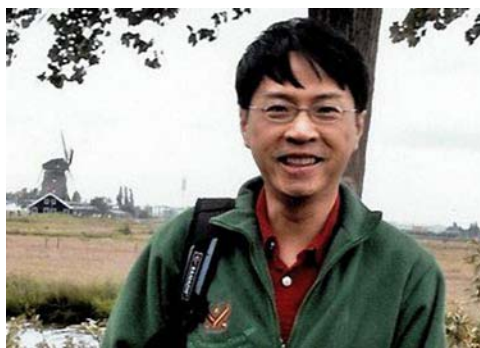
Dr. Yuri Lvov, Dr. David K. Mills and Dr. Sidney Sit recently returned from presenting their latest nanoassembly research at the 8<sup>th</sup> World Biomaterials Congress held May 28<sup>th</sup> to June 1<sup>st</sup> in Amsterdam, the Netherlands.” The Congress was organized by the European Society for Biomaterials, the Netherlands Society for Biomaterials and Tissue Engineering, the Biomaterials Network and the Biomaterials Society.

Dr. Mills and Sit organized a scientific session on ‘Layer-by-layer Nanoassembled Biomaterials’ that featured Dr. Lvov as the keynote speaker. Dr. Lvov addressed an assembly of over 100 engineers and scientists from around the world on the topic of 1-, 2-, and 3DBiomimetic Nanoassembly: Coating, Patterning, and Encapsulation. Other session speakers included researchers from Australia, Canada, China, Japan and the United States.

In a separate session, Dr. Sit presented the latest collaborative TMJ bioengineering research under active investigation with Dr. Mills. The project exploits seeded PCL scaffold and growth factors to fabricate reparative materials for tem-poromandibular joint disorders.



*Dr. and Mrs. Yuri Lvov*



*Dr. Sidney Sit*



*Dr. and Mrs. David Mills*

## Tech Honors

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Dr. Erez Allouche, an assistant professor of civil engineering; Dr. Ray Sterling, a professor of civil engineering and the director of the Trenchless Technology Center; and Dr. Sidney Sit, an assistant professor of biomedical engineering.

Kordal added that President Dan Reneau and Dr. Les Guice, the vice president of research and development, have been very supportive to faculty inventors. “I think you can tell by the level of patent and licensing activity that we have highly creative and entrepreneurial faculty,” Kordal said. “I enjoy working in such a dynamic environment and ... working for such a forward-thinking administration.”

## LaSPACE-LURA Awards

Congratulations to Jessie McCormick, Colby Prejeant, and Kay Pouriraji for winning LaSPACE-LURA awards for undergraduate research. These three outstanding chemical engineering juniors have been working at IfM over the course

of the last year in Dr. Scott Gold’s lab to address two of the greatest challenges in fuel cell research, the need for low cost active catalysts and hydrogen storage. Jessie and Kay are working on a novel pyrrole based catalyst for fuel cells. This catalyst

would provide a low cost alternative to platinum in fuel cells. Colby’s project will be to develop a hydrogen generator based on ammonia borane in a nanoporous matrix. The awards will fund \$5000 per student over the 2008-09 academic year.



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## Vision and Mission

The vision of the IfM is to be a world-class resource for the realization of commercially-viable micro- and nano-systems, contributing to the economic infrastructure of Louisiana and the nation and benefiting humanity as a whole.

The mission of the IfM is:

- To research and develop novel micro and nanosystems for biomedical, biological, environmental, chemical, information technology, and other applications
- To generate and harness commercially viable intellectual property
- To partner with industry, government, and academia in economic development

- To transfer new technology and provide technical training to industry and government
- To develop curricula and educate students in micro/nano scale technologies and systems

The IfM offers a wide range of microtechnology capabilities for the realization of micro electro mechanical systems (MEMS), as well as a complementary array of nanotechnology capabilities for MEMS and other applications.

**Nanotechnology, Biotechnology, Biomedical Nanotechnology, Environmental Technology, and Information Technology** constitute the five major research and development thrust areas and centers of excellence of the IfM.

Examples of projects include:

BioMEMS efforts aimed at the development of select commercially viable micro and nanosystems for biomedical and biological applications; EnviroMEMS efforts aimed at the development of select commercially viable micro and nanosystems for environmental and chemical applications; Nanotechnology efforts directed at the development of select commercially viable nanotechnologies for BioMEMS, EnviroMEMS, and other applications; Information technology efforts are directly supportive of the State of Louisiana IT Initiative and current efforts include projects for the realization of enabling micro/nanotechnologies for information sensing, storage and processing.



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