

## The Wisconsin Science & Technology Symposium – July 17-18

There is still time to register for the first Wisconsin Science & Technology Symposium, to be held on July 17 and 18 at UW-Stout in Menomonie, Wisconsin, and co-sponsored by WiSys Technology Foundation, UW-Stout, UW-River Falls, UW-Stevens Point, UW System and Marshfield Clinic. WiSys plans to organize future events to advance collaborations and build partnerships among UW and industry researchers.

The symposium takes advantage of the wide-ranging research being done in the state. "Wisconsin scientists are at the forefront of moving the state forward in our knowledge-based economy," said UW System President Kevin P. Reilly. "A snapshot of their cutting-edge research will be on display at UW-Stout during the Wisconsin Science & Technology Symposium."

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## Innovation Scholar Award: Bertram Ezenwa

WiSys is pleased to announce the selection of UW-Milwaukee Professor of Electrical Engineering and Computer Science Bertram Ezenwa for its Innovation Scholar Award.

Ezenwa, a senior scientist, is being recognized for his work on two projects: a vibrating platform for improving bone quality and bone and muscle strength, and a more comfortable socket for prosthetic appendages. These inventions show great commercial potential, and will offer tremendous benefit to users, according to WiSys.

Vibrating platforms are aggressively pursued in medical research for treating muscle and bone degeneration and diseases such as osteoporosis, and for muscle strength training. Ezenwa has improved on this concept by incorporating multi-frequency and multi-amplitude vibration into a platform. The differing vibrations resonate with different tissues, reducing muscle injury and reducing overall time spent on the device. Testing of



a prototype is underway in collaboration with the Medical College of Wisconsin and the Milwaukee Veterans Administration Medical Center. OEM Micro, an Eau Claire, Wisconsin-based manufacturing company, has received an optional license to make prototypes.

The pressure in a prosthetic socket determines its comfort and usability, but this pressure often varies during usage. Dr. Ezenwa's prosthetic socket uses real-time dynamic pressure control to actively and passively prevent variation in interface pressure with the amputee. Socket sub-components have recently been completed for a prototype.

Sponsored by Quarles & Brady, the WiSys Innovation Scholar Award recognizes UW System faculty, staff, and students who make outstanding discoveries that benefit society. Selection for the award is based on the innovative concept, broad use, value and potential for industrial application.

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Governor Doyle, who will be speaking at the event, emphasized the role of research in the economic health of Wisconsin: "These innovations will also lead to the development of new businesses and jobs in our state. I am so pleased that this event will demonstrate the benefits of technology transfer for the entire state of Wisconsin."

WiSys is leading the efforts to transition innovative technology research of UW faculty into marketable products. The future economic growth of Wisconsin will largely depend on technology-based business growth, and that transition can be accelerated through partnerships with researchers from various organization such as UW System, Marshfield Clinic, and private industry. WSTS will be an excellent forum to begin the process.

**UPCOMING EVENTS****ENGINEERED MATERIALS WORKSHOP  
— AUGUST 8, 2008**

A workshop on engineered materials and composites for clinical and biotechnology applications has been planned for August 8, 2008, at UW-River Falls. The workshop is an informal gathering of UW and industry researchers designed to foster collaborations and partnerships. It will focus on research initiatives on composites for bio-implantation, production of proteins, and cell and tissue engineering. Private industry representatives are welcome, although participation is limited.

Please contact Mike Cenci at [mcenci@warf.org](mailto:mcenci@warf.org) or (608) 263-0871 if interested in attending.

Visit [www.uwstout.edu/outreach/conf/science/index.html](http://www.uwstout.edu/outreach/conf/science/index.html) to register or for information, or contact Emily Brown or Lisa Murray ([ebrown@wisys.org](mailto:ebrown@wisys.org) and 608-890-2328, [lmurray@wisys.org](mailto:lmurray@wisys.org) and 608-263-2819).



**Wisconsin Science & Technology Symposium**  
...encouraging interdisciplinary research  
**Save the Date | July 17- 18, 2008**  
University of Wisconsin-Stout  
Memorial Student Center | Menomonie, WI

**University of Wisconsin System  
CORNER**

BY KRIS ANDREWS

**System Update: Save the Date**

UW-Milwaukee and UW System will be hosting a National Science Foundation Regional Grants Conference at UWM on March 6, 2009. Key NSF representatives will present information on NSF, the review process, cross-disciplinary programs, and international programs.

There will be breakout sessions with program officers from the NSF directors and a session on proposal writing. The conference will provide faculty and researchers with key insights into a wide range of current issues at NSF, including the state of current funding, new and current policies and procedures, and pertinent admin-

istrative issues. More information, including conference registration and lodging, will be posted on the following Web site: [www.graduateschool.uwm.edu/research/workshops/nsf/](http://www.graduateschool.uwm.edu/research/workshops/nsf/). If you wish to receive e-mail notification as further information becomes available, please send an e-mail to [peterh@uwm.edu](mailto:peterh@uwm.edu) with the subject line "NSF Regional Grant Conference Information."

For additional assistance in grant-writing, UW System and WiSys fund the Re-Assignment Time Grant, which provides release time to write extramural grants: [www.wisys.org/forresearchers/index.jsp?catid=73](http://www.wisys.org/forresearchers/index.jsp?catid=73).

## WEN Update

By Ashwini Rao

The Wisconsin Entrepreneurs' Network (WEN) provides three grant opportunities to current and prospective small business owners: Early Planning Grant (EPG), Technology Assistance Grant (TAG), and the Dairy 2020 Grant Program. "Access to capital and knowledge are critical building blocks for entrepreneurs," explains Gayle Kugler, interim WEN statewide director. "These grant programs are designed to help entrepreneurs access resources that will help them grow their businesses."

The EPG program is for entrepreneurs looking to hire a consultant to evaluate the feasibility of a proposed start-up or expansion. The TAG program assists small high-technology businesses in obtaining seed or early-stage research and development funding. WEN also recently began to administer grants for existing and start-up Wisconsin dairy producers for dairy herd expansion through the Dairy 2020 program. The maximum award amount for each program is \$3,000 per business. Grant recipients will provide at least 25% of project costs from sources other than the State of Wisconsin.

WEN was established in June 2005 in partnership with WiSys to create seamless access to entrepreneurial resources and expertise from across Wisconsin to both spawn new ventures and help grow existing businesses. In June 2006, WEN began administering these grants on behalf of the Wisconsin Department of Commerce.

Applicants can find program information and links to business advisors and consultants on the WEN website at [www.wenportal.org](http://www.wenportal.org) or by calling (800) 940-7232.

## NEW Product Development

WiSys is always looking for new products and projects, and we support collaboration across UW campuses and industry. Faculty are encouraged to contact us with ideas on new projects, product development, and partnerships. WiSys can provide funding assistance in some cases. Please contact Lisa Murray ([lmurray@wisys.org](mailto:lmurray@wisys.org) and 608-263-2819).

## QUESTIONS & COMMENTS

To submit articles, provide feedback, request edits or obtain copies of current or past issues of the WiSys Newsletter, please contact Emily Brown at (608) 890-2328 or [ebrown@wisys.org](mailto:ebrown@wisys.org).

All suggestions are welcome.

## Marshfield Clinic CORNER

By Marsha Barwick

Marshfield Clinic's mission extends beyond traditional human medicine to the integration of clinical care, research and education for fostering applications of discoveries for the protection of public and population health.

As part of that mission, the Marshfield Clinic Applied Sciences Division was developed to promote the exchange of knowledge between patient care services, research programs and emerging public health issues as well as to align resources for conducting research projects and determining potential marketability through a partnership with WiSys. The collaborative relationship between Marshfield Clinic and WiSys Technology Foundation is the first WiSys entered into with an entity outside the UW System. Their agreement enables researchers at both institutions to jointly develop intellectual property and create advancements in human health.

To strengthen their partnership with WiSys and UW System, the Applied Sciences Division has provided opportunities for Marshfield Clinic and UW scientists and researchers to share pending projects and areas of expertise. One recent opportunity for collaboration was the Medical Device Gathering, held on June 5, 2008, at Marshfield Clinic. Participants were able to offer services or studies, broaden the scope of joint projects, and create relationships for future exploration and development.

For additional information and a calendar of events for Marshfield Clinic Applied Sciences, office of Technology Transfer go to: [www.marshfieldclinic.org/appliedsciences](http://www.marshfieldclinic.org/appliedsciences), or call 1-800-782-8581.

## Discoveries and the People Making Them: Teamwork Advances Antibiotic Research

By Nathan Hurst

Just as a baseball team relies on different players for different positions, a team of inventors incorporates expertise from different fields to achieve results. With Aaron Monte's team from UW-LaCrosse, those results include several patents for new antibiotic compounds.

Monte, a chemistry professor, began to assemble the team in the mid-1990s, when he and Marc Rott, a professor of microbiology, began working with American Indian students through the Bridges to Baccalaureate program, which is a National Institutes of Health funded program to help students transition into college. Students like Leah Defoe, who is credited as an inventor on two patents, contributed traditional herbal remedies, from which the team screened and isolated anti-microbial compounds.

"I believe nature provides the best source for novel molecules," said Monte. "Most drugs on pharmacy shelves came directly from natural sources, or are close chemical derivatives of natural molecules."

With the addition of biology professor and mycologist Thomas Volk, microbiology professor William Schwan and chemistry instructor Joseph Toce, the group developed a procedure to discover and isolate new compounds.

Volk maintains a large collection of fungi fruiting bodies that can't be grown in a lab. Because of Volk's rare collection, the group is searching for potential drug leads in a place where few others can look, said Monte.

Toce, former chief operating officer of St. Louis-based Reliable Biopharmaceutical, purifies and isolates chemicals of interest. Schwan, who has biosafety clearance, then tests their effectiveness on antibiotic resistant bacterial strains.

Through this integrated, interdisciplinary approach, the



L to R: Marc Rott, Leah Defoe, Aaron Monte, William Schwan, and Maliyakal John.

team has developed antibiotic compounds from the traditional herbal remedy Sweet Fern that treat serious infections and prevent the growth of bacteria. From fungi, they have isolated compounds that treat respiratory infections common in cystic fibrosis patients, and they're not stopping there.

The team continues to grow. Last year they received Applied Research Grant/WiSys Technology Advancement Grant funding to hire Dr. Xueting Liu, a natural products chemist from China. She is an expert in Nuclear Magnetic Resonance spectroscopy and helps the team isolate and identify the chemical structure of the purified natural compounds.

They have also collaborated with Professor Jim Cook, a synthetic chemist from UW-Milwaukee, to modify the compounds and increase their potency and efficacy.

This past year, four masters students and thirteen undergraduate researchers rounded out the team.

"They're our hands in the laboratory. They help us to move the work forward," said Monte, "and they learn a lot of good science that they can carry with them."

Most recently, Monte, Schwan, Rott, Volk and Toce founded a company, Mycophyte Discovery, which was a finalist in the 2008 Wisconsin Governor's Business Plan Contest.

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