



Research *Review*

Summer 2003

Patents Pending

Faculty and staff in the College of Engineering are among the leaders in creating new intellectual property at UW-Madison. Following are examples of some of the ground-breaking research resulting in recently disclosed or granted patents. For licensing or other information, contact the [Wisconsin Alumni Research Foundation](#).

MAKING MEMS AND SENSING STRAINS

Two mechanical engineering professors recently filed patents—for a new method for making MEMS, and for developing a novel class of strain sensors.

[Read more.](#)

About This Newsletter

Research Review is a quarterly electronic newsletter of the University of Wisconsin-Madison College of Engineering. If you aren't a subscriber, **sign up** to receive each edition via E-mail.

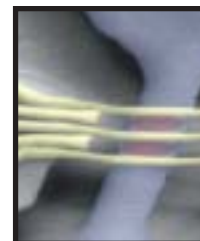
—Renee Meiller, editor

Research News

MUSIC TO AN ENGINEERS' ELECTRONS

A new guitar-like device will allow researchers to perform the first detailed study of the influence of heat dissipation on single electron transport.

[Read more.](#)



VIEWING REAL LIFE IN REAL TIME

A \$1.2 million National Cancer Institute grant is fostering collaborations to improve the biological understanding and imaging techniques doctors need to view cellular activities deep within the human body in real time.

[Read more.](#)

SUPPLYING SERVICES

A new partnership will help Wisconsin manufacturers apply e-business technologies to benefit supply-chain collaboration.

[Read more.](#)

PLANTING NEW SEEDS FOR HYDROGEN FUEL

A nickel-tin catalyst could replace platinum in an environmentally sustainable, greenhouse-gas-neutral, low-temperature process for making high-quality hydrogen fuel from plants.

[Read more.](#)



HAPPY HEARTS

A quick and painless technique could help clinicians identify signs of coronary heart disease, a condition that claims the lives of 2,000 Americans every day.

[Read more.](#)

Research News (continued from front page)

LET'S "POLCA"

For businesses that make products to order, production flow that centers around an existing inventory of standard components isn't effective. UW-Madison industrial engineers helped one company implement a new approach.

[Read more.](#)



MISSION CONTROL

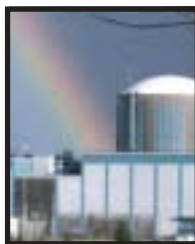
Following the Space Shuttle Columbia tragedy, a College of Engineering center is weighing options for furthering its industry-sponsored research related to the International Space Station.

[Read more.](#)

VIRTUAL REACTOR REALITY

It's impractical to take a nuclear power plant off-line for a research project, but by creating computer models, engineering physics faculty, staff and students helped make on-site experiments possible.

[Read more.](#)



New Funding

CAREER REWARDS

Four College of Engineering faculty received prestigious National Science Foundation Early Career Development Awards for projects that include developing laser-based sensors, cell-based biosensors, a technological platform for optimizing protein production, and a generic multi-stage assembly-process model.

[Read more.](#)

TINY TOOLS FOR A SMALL WORLD

Tantalizing new worlds of science and engineering await those with the tools and knowledge to unlock the doors to the nanoscale. With Department of Defense funding of \$1 million per year for up to five years, Electrical and Computer Engineering Associate Professor Dan van der Weide is part of an effort to build these nanoprobe tools and instruments.



[Read more.](#)



ADVANCING CANCER COMMUNICATION

With a \$10 million grant, the National Cancer Institute (NCI) established UW-Madison as a Center of Excellence, enabling researchers to enhance an interactive cancer-communication system to improve the quality of life

College of Engineering in the News

UW-Madison engineers are featured in many media outlets. Here are a few.

- A story about a tongue-strengthening device designed by biomedical engineering undergraduate students appeared on [CNN.com](#). The device, commissioned by Medical School Professor Joanne Robbins, can help people with swallowing problems avoid complications such as malnutrition and dehydration.
- Electrical and Computer Engineering Associate Professor Dan van der Weide and graduate students Rashmi Pahak and Min Choi are pictured on the cover of the [April issue of Optics and Photonics News](#). It features an article by van der Weide exploring the applications and outlook for electronic terahertz technology. Its advent has opened a new field of spectroscopic imaging at the boundary between radio waves and light with exciting prospects in areas including sensing and imaging.

for patients and families facing cancer at many stages. The five-year initiative focuses on the computer-based Comprehensive Health Enhancement Support System (CHESS), developed under Professor Emeritus David Gustafson in the Center for Health Systems Research and Analysis. His group will enhance CHESS with new modules, develop cost-effective communication systems for underserved populations, study the effect on patient and caretaker quality of life when clinicians receive electronic patient health information, and measure the cost and effectiveness of integrating a computer-based system with NCI's telephone information service.

[Read more.](#)