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UO Chemists Clear Hurdle in Race To Reap Nanotechnology's Potential



Another problem solved: University of Oregon chemists involved in ONAMI--the Oregon Nanoscience and Microtechnologies Institute--now can control the spacing between nanoparticles, a key step for the development of a new class of nanoelectronic

devices.

An article to be published in *Langmuir*, the American Chemical Society's surface science journal, details the process developed by Jim Hutchison and his students.

"We care about the spacing because the interactions between the particles are distance-dependent," he says. "If they're too far apart, the interaction will be weaker, preventing the particles from passing electrons from one to another."

Hutchison explained this most recent advance, and showed how particles the size of about a single nanometer can be made, during the May 27 grand opening of the ONAMI center in Corvallis.

Hagen Shares Joy, Appreciation for Life

By Kaya Hardin



Petra Hagen takes the time to remember the little things, to go the extra mile to help the students who move through her office, and for this she is one of this year's recipients of a Classified Employee Recognition Award.

"UO has been really good to me," says Hagen, Journalism and Communication graduate affairs assistant.

"It's remarkable how supportive everyone in the university community has been."

This support became obvious when, in 1998, Hagen received a terminal cancer diagnosis. In 2000, she underwent an operation that, amazingly, was successful. Throughout her rehabilitation, her UO co-workers were there for her, donating more than 800 hours of their vacation time.

"This job has allowed me to live in Eugene," Hagen notes, "and due to the great people I work with and the great place I live, I'm content."

In her job, Hagen works with more than 90 graduate students, supporting them as they go through their programs. Her role is one that she is grateful to still find challenging.

With Hagen's outlook on life, it's easy to see why she enjoys what

The ability to control spacing of nanoparticles at 1.5 to 3 nanometers is the latest groundbreaking discovery coming out of the UO's materials science program. A nanometer is a billionth of a meter. A human hair is about 50,000 nanometers thick.

Already known as the world leader for teaching green chemistry principles, Hutchison's lab is now pioneering the field of "green nanoscience," helping to shape this emerging area of scientific inquiry. Earlier this month (May 4), the university received a patent on Hutchison's breakthrough method for synthesizing nanoparticles using an environmentally benign process.

Hutchison's lab can turn out more nanoparticles in a few hours than can be made in a week using the traditional approach. This faster, safer, cheaper way of making functionalized gold nanoparticles has the potential to speed development of nanotechnology.

Hutchison's process is versatile, rapid and reproducible--the first significant change in the way such material is made in 20 years. As a result, Oregon has a strong claim in what's shaping up to be the 21st century's version of a gold rush. The National Science Foundation says nanotechnology's potential has been predicted as being a trillion-dollar market by 2015, making it the next industrial revolution.

Hutchison and his students also have learned to optimize the properties of nanoparticles so they will dissolve in water or in solvents and exhibit specific reactivity, depending on the need. Such ability to harness the behavior of molecular "building blocks" opens up galaxies of possible applications in biomedicine, optics and electronics--even cosmetics.

Other achievements by Hutchison and his students include methods for forming well-ordered nanoparticle monolayers and multilayers on insulating surfaces for use in nanoelectronic devices. They've also developed methods for forming one- and two-dimensional nanoparticle structures using DNA as a template.

All of these innovations have involved applying green chemistry methods pioneered by Hutchison and fellow chemistry professor Ken Doxsee. They established the world's first green organic chemistry lab at Oregon in 1997. Green chemistry is rapidly becoming the standard worldwide as industry seeks clean, resource-efficient manufacturing techniques.

The National Science Foundation, the Alfred P. Sloan Foundation and the Camille & Henry Dreyfus Foundation, Inc., fund Hutchison's research. For information, visit www.uoregon.edu/~hutchlab/. For information about the ONAMI collaboration, visit www.onami.us.

IO Highlights Ends with This Issue

she does.

"Without fail," she says, "you get back out of everyday exactly what you put into it!"

Kaya Hardin is a student reporter for Inside Oregon.

People

ON THE MOVE

Three Lundquist Business faculty members--Associate Professor **Larry Richards** and Professors **Ken Ramsing** and Dean **James Reinmuth**, all Decision Sciences--as well as **Diane Bricker**, Education, have been given emeritus titles by Senior Vice President and Provost John Moseley in recognition of their decades of distinguished service to their students, colleagues and the university.

ON THE PODIUM

Three English GTFs presented papers in April at the California Folklore Society conference in Northridge. **Jennifer Dare** presented "The Art of War: Exploring the Aesthetic Impulse of Warhammer Miniature Armies"; **Julia Hammond** delivered "Safekeeping: Homey Things and the Forces of Capital"; and **Kom Kunyosying** presented "What Threatens: Thai Protective Culture in the Ages of Industrialization and Information." Two Folklore GTFs also presented papers at the same meeting. **Matthew Branch**, presented "Reading the Green: Interpreting Oral Histories from an Environmental Perspective" and **Neal Schlein** delivered "The Oral Formulate Square Dance: Spontaneous Choreography in a Genre."

This Week

- CSWS celebrates its **30th anniversary** with entertainment, presentations, displays and refreshments from 4-6 p.m. Wednesday, **June 2**, in the Gerlinger Alumni Lounge.
- Five winners of Oregon Quarterly's **Northwest Perspectives Essay Contest** read their winning entries at 7 p.m. Thursday, **June 3**, in the Gerlinger Alumni Lounge.
- The University Opera Ensemble presents "**Men Are From Mars...**"--an evening of musical commentary on the relationships of men and women--at 8 p.m. Friday and Saturday, **June 4-5**, in Lillis Atrium. Included is a fully staged performance of Purcell's baroque opera, "Dido and Aeneas."
- Join the fun at an end-of-the-year **UO Student Family Swim** from 4-7 p.m. Sunday, **June 6**, at Leighton Pool in the Student Rec Center.

Continuing budget stringencies mean that this issue of *IO Highlights*, quick-copied and sent to you once a month throughout this academic year, will be the last one you'll receive.

"To save production costs and to speed communication, we're shifting exclusively to e-mail distribution for Inside Oregon, effective with the June 7 issue," says Editor John R. Crosiar.

Every issue of *Inside Oregon*--including this year's *IO Highlights* issues--will continue to be archived at [<comm.uoregon.edu/inside/>](http://comm.uoregon.edu/inside/).

For information, call 6-3135 or e-mail [<inside@uoregon.edu>](mailto:inside@uoregon.edu).

Affordable Software Training Offered

Human Resources has purchased vouchers from New Horizons for one- and two-day classes in seven widely used software applications for re-sale at affordable prices to faculty and staff members seeking to improve their computer skills or to learn new ones.

The classes meet at the LCC Business Development Center, 1445 Willamette St., Suite 1. Parking is limited so it is best to ride the bus.

With vouchers, the cost for a one-day class is \$54.50 and for a two-day training, \$109. These prices are made possible by the Employee Benefit Fund that pays part of the cost.

To register for a class, visit [<hr.uoregon.edu/training/upcoming.php>](http://hr.uoregon.edu/training/upcoming.php) and click on the class title. Your department index code is required to reserve a seat.

For more information and to provide feedback on relevant training needs, call Kathy Cooks, 6-2939, or send e-mail to [<computertraining@hr.uoregon.edu>](mailto:computertraining@hr.uoregon.edu)

On-line Video Reports Campus Energy Use

Students from the Environmental Studies Service Learning Program have used the UO Libraries' new Virage video production

For more about University events, visit the [Calendar of Events](#).

system to create a 10-minute video about energy use on campus.

To view the video with your Windows-based computer, go to <www.uoregon.edu/~ecostudy/slp/energy/> and click on the "...Presentation Online" link.

The university and EWEB funded the project. Team members have delivered the presentation to more than 4,000 UO students. For information, call 6-0591 or e-mail <smital@darkwing>.

Each issue of Inside Oregon is archived on the web at <http://comm.uoregon.edu/inside/archive.php> . If this issue displays improperly, please go there for the correct version.

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Dates of upcoming issues, with copy and calendar deadlines, are posted at [IO Deadlines](#).

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