

Nanoparticles allow for 'green' technology

By aligning the miniature particles from the bottom-up, researchers create a 'statue' that's environmentally safe

BY ANTHONY LUCERO
NEWS REPORTER

Years after the demise of the logging industry, Oregon is now being called the "Silicon Forest." Like Silicon Valley in California is a center of high technology, the state is the center of much nanotechnology and microtechnology development with industry big-leagues like Intel Corporation teaming up with universities to create the Oregon Nanoscience and Microtechnologies Institute (ONAMI). The institute is part of a collaboration between the University, Oregon State University, Portland State University and the Pacific Northwest National Laboratory in Richland, Wash.

"I worked with ONAMI since its

inception," said Associate Chemistry Professor Jim Hutchison, adding that there are more than 20 faculty members from each participating university in ONAMI.

Here at the University, the focus is on nanotechnology. Hutchison said he is interested in the miniatures of the world.

"There are two things that are of interest in nanotech," he said. "One is, of course, the small size and the other is the new properties we see in nanoparticles — it's the properties that excite us."

Hutchison said he works using a

"bottom-up" approach. The researchers employ the analogy that to make a statue with a slab of marble, one must chisel it, which wastes much of the marble and takes more energy to construct the statue out of the slab. Hutchison said their method of development is to arrange nanoparticles so they assemble the statue.

"If you actually look at the nanoparticles in gold, they are a ruby-red color, which we have used for ruby glass," Hutchison said. "At the nano level, we can design particles with a controlled size and shape and can find molecules that will assemble the particles together."

Hutchison's bottom-up method saves time, money and is less hazardous, he said. His lab is pioneering "green" technology,

which can accomplish more efficiency while reducing the level of hazardous material both in labs and the environment.

Hutchison said he has used "green" practices for a research project he began in 1997, working to use safer materials in nanotechnology manufacturing processes in the lab that would also not pose a hazard to the environment. His lab recently patented the rights to a new synthetic procedure that eliminates the use of diborane and benzene, two hazardous materials in gold nanoparticles.

"Nanotech is just blossoming and commercial availability is not around just yet," said Greg Kearns, a graduate chemistry student working in Hutchison's lab.

Intel, Hutchison says, already uses approximately 34 million nanoparticles in its Pentium 3 transistors. For its next-generation microprocessors,

the amount of nanoparticles will multiply significantly. Kearns said microprocessors and optics are two areas that are currently in focus with nanotechnology and that with optics, researchers are trying components that steer light as much as 90 degrees without any loss of light.

While ONAMI has not officially opened its 60,000-square-foot headquarters, it's already receiving criticism from the Campaign to Demilitarize Oregon's Schools. The group cites concerns such as student tuition subsidizing weapons development, Nike "smart clothes" and the plan to use taxpayer money to make the tax-exempt building "smart" with video surveillance cameras they describe as "Orwellian." The Campaign to Demilitarize Oregon's Schools' Web site is <http://nanobotinvasion.cjb.net>.

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ASUO: Executives seek disciplinary action, issue public apology

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completely dry retreat," George said, adding that event leaders used "many avenues" to convey that the retreat was to be alcohol free. "There were announcements at public meetings and at staff meetings and to each of the persons who were basically in charge of a house in Sunriver that there was to be no alcohol or drugs on this retreat."

The ASUO spent about \$3,200 of incidental-fee funds on housing for the retreat.

Debra Campbell, operations managers for Sunset Realty, said she was "disappointed" that members of the University would leave inappropriate comments in a rental house guest log.

"It was very disrespectful of the students to take a guest comment book and write inappropriate comments that would be read by the owner and guests who stayed on the property," she said. "It was very immature and left the impression that as representatives of the University, they would be less than desirable."

Campbell said her organization was able to remove the offending material before it was read by others and that no other damages occurred, adding that a plumber did have to be called after a retreat participant accidentally flushed his cell phone down a toilet in one of the houses. Campbell added that her company has had "good experiences" with most of the campus groups that stay in rental units.

George and Ravassipour wrote a letter to Sunset Realty after the incident apologizing for the behavior of a "few of our group members."

"The students involved will be subject to discipline under University of Oregon rules," the letter states. "We sincerely hope that the actions of a few immature students will not negatively affect your view of the University and its student leadership."

George said he and Ravassipour, who were the head members at the event, approached Loschiavo to discuss how to handle the infractions.

Loschiavo said the first step when a group is accused of a conduct violation is to have the organization govern itself

so that group members have a "chance to take responsibility for what they did" and make plans to prevent a repeat occurrence.

He added that he is not treating the ASUO members differently than he would a fraternity or sorority, and that he has high expectations.

"I fully expect they will rise to the occasion," he said. "This group came to me up front, which is a really good place to start."

Retreat attendees met Wednesday night in a closed meeting in the EMU to discuss individual involvement in the violations and determine remedies, George said.

"The meeting that we had last night was a debriefing meeting as to ways we can prevent this from happening again," George said.

He added that the Emerald was ejected from the event so people could feel comfortable confessing their involvement in the illegal activities.

"We felt it was in the best interests of the group, the mood of the group, to have the press not involved so that they would feel comfortable basically

taking responsibility for their actions," George said.

George said the group wants "to show students at the University of Oregon that we are the leaders that they elected or hired us to be and that this will not in any way hinder our duties and our responsibilities to protect and work for the students at the University of Oregon."

George said a public apology is the first action to result from disciplinary meetings.

"We think that the first step that we can take to work toward a remedy to the situation is a public apology to the students and to the administration, which is a separate letter that we are drafting as well," he said. "We know that this letter is not a cure-all, and we don't expect it to be. We will continue to meet with (participants from the retreat) to further discuss appropriate ways that we can remedy the situation."

ASUO President Adam Petkun, who did not attend the event, said disciplinary action may result from the violations.

"There will be a subsequent

meeting next week to discuss further disciplinary action and also personnel action and (whether) conduct code actions (are) necessary," Petkun said.

ASUO Public Relations Director Nathan Strauss said the current administration can't be responsible for alcohol consumed at past retreats, but that drinking probably occurred.

"If you were to ask other people, this wouldn't be the first time that alcohol has ever been at a retreat," he said. "Any University retreat at any level, it would be inaccurate to say that there's never alcohol involved." EMU Director Dusty Miller said he attended the retreat with the group and did not witness any illicit behavior. Miller said the "exceptional" retreat was one of the best he's seen in the 30 years he has worked with campus groups.

He said he commends the group for taking ownership of the conduct issues.

"I respect that and I applaud them for trying to address this amongst themselves," he said.

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