Marking the passage of an unfortunate milestone.

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Women's soccer has tough road to climb for its conference tournament.

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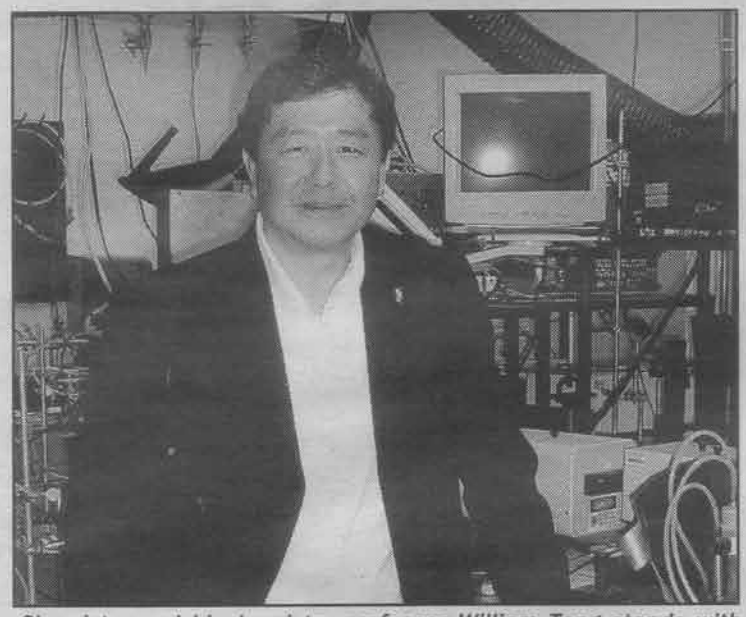

Chemistry and biochemistry professor William Tong stands with the recently developed laser-based detection system. Courtesy Photo

Laser research aims to focus on defense

SDSU professor works to detect explosives

STEPHANIE NEHMENS
SENIOR STAFF WRITER

San Diego State chemistry and biochemistry professor William Tong is working on a new laser-based system that may help protect citizens and the military from explosive and chemical attacks.

This system would not only be able to detect trace amounts of explosives and harmful chemicals, but is also portable and would be helpful to soldiers in Iraq, Tong said.

"It's necessary to have a system like this in the field because you hear every day in the news (about) the improvised explosive devices, the bombs on the roadside," Tong said. "It's very difficult to detect them and predict where they are."

The goal is to prevent the opportunity for terrorists to wreak havoc on civilian populations, program manager of the SDSU Technology Transfer Office Mike Rondelli said.

"If you stop 10 percent of all bombings, that's a lot," Rondelli said. "If you stop 100 percent, that's probably a dream."

Tong has received a $75,000 grant from the Center for Commercialization of Advanced Technology, a center funded by the U.S. Department of Defense.

The grant is seed funding, meaning if Tong's initial studies are successful, he then can receive more funding to build prototypes and eventually test

see **LASER** *on page 2*

iPods are new class substitute

Podcasts allow for remote learning

JODI S. COHEN
KRT CAMPUS

When Purdue University senior Marcos Kohler skipped a physics class to attend a concert in Chicago, he didn't have to borrow a classmate's notes to catch up.

Instead, he connected his silver iPod to a computer, downloaded the lecture, and from the comfort of a campus coffee shop, listened to the two-hour discussion on particle physics.

"It recreates the entire class experience," said Kohler, 22, who missed another lecture at the West Lafayette, Ind. campus when he overslept for the 1:30 p.m. class.

A videoconference class would be even better, he said, but "to go from paper printouts to audio, this is a step in the right direction."

It's a step that a small but growing number of professors are trying. By turning class lectures into podcasts – free audio shows that students can download to their iPods or other portable players – students can skip the lecture hall but still hear the lecture. Supporters said podcasts help students who miss a class or want to review the material, while professors get points for being flexible and using the latest, hippest gadget.

More traditional academics fear that by listening to lectures on the run, students will miss out on learning that can only happen when students and instructors come together.

Professors have posted lecture notes, PowerPoint slides and other written class material online for years, but instructors only recently began testing the best uses of the popular audio technology.

At Drexel University in Philadelphia, a chemistry professor assigns podcasted lectures, recorded last semester, for homework and then uses class time to review problems. At the University of Michigan, lectures can be automatically delivered to dentistry students' computers or portable devices.

And at the University of Hawaii, hundreds of students in a computer science class are required to show up at a lecture hall only twice a semester – for the midterm and final. Instead of a textbook, they purchase a small iPod at the bookstore, though most students already have one, the course professor said.

Universities have found other ways to test podcasting, using it to publicize campus news and broadcast Sunday mass.

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LASER: *Researcher says his team is currently testing tiny amounts of chemicals in SDSU lab*

CONTINUED FROM PAGE 1

the system in the field, he said. Tong said it would be the first laser portable enough to useable in the field.

At this point, Tong said he and his team are testing tiny amounts of chemicals at SDSU in his lab in the Chemical Sciences Laboratory building.

"Our method is called (laser) wave mixing," Tong said. "The technique is very sensitive; its orders of magnitude are more sensitive than currently available methods so we can do a lot of detection in a wide range of applications like biomedical, environmental and homeland security."

For 20 years, Tong has conducted research on how to use lasers to help detect diseases in the body and toxins in the environment, Rondelli said.

Tong's research has recently shifted to homeland security and national defense.

"Right now for this particular (CCAT) we are interested in designing and developing an ultra-sensitive detector that will allow us to detect trace amounts of explosives," Tong said.

He said it could be used in the field for battlefield applications and homeland security applications such as airports, seaports and border crossings.

"I think it's a great concept and it's probably long overdue," political science freshman Ryan Sullivan said. "There wouldn't be any false assumptions of who may endanger us."

> "I think it's a great concept and it's probably long overdue. There wouldn't be any false assumptions of who may endanger us."
>
> –RYAN SULLIVAN, POLITICAL SCIENCE FRESHMAN

Tong said there are other similar devices currently in use, but the problem is many of them are not sensitive or specific enough and they're not portable.

"The ultimate goal is to make these detectors that are hopefully sensitive with excellent chemical specificity, meaning that no false positives or negatives would result, relatively portable so that it could be carried by a person or mounted on a car," Tong said.

Rondelli said the market includes the Marines, Navy, Army, CIA, FBI, airport security, border patrol security and police departments.

"Police departments could detect a suspicious bag out on Market Street, we could probably get out a portable level detector that would tell us it's not an explosive," Rondelli said. "Or it could tell us it is something you need to clear the streets for and get a containment system in there to stop the loss of life."

Tong said he is currently talking to funding agencies so the big grant will hopefully come later.

"With this technology, we'll make a very good name for ourselves in the community," Rondelli said. "SDSU should be very proud of having (Tong) here."

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