

# The Daily Tar Heel

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## BREAKING THE MOLD

Particle research is 'cutting edge'

BY KEVIN KILEY  
STAFF WRITER

While the product of Joseph DeSimone's research is too small to see, its impact might be larger than anyone can imagine.

DeSimone, a chemistry professor, and his research team work with tiny nanoparticles, which are so small they can only be seen by the most powerful microscopes.

"In general I feel like we're on the cutting edge," said Stuart Williams, a third-year graduate student in DeSimone's lab. "Or at least I hope so."

**FOCUS**  
ON



RESEARCH



See a particle replication interactive graphic at [dailytarheel.com](http://dailytarheel.com).

The team has been transforming the field of nanotechnology research since 2004, when it developed a technique of manufacturing nanoparticles.

"We realized that we could make a particle, which no one had done before," DeSimone said.

The process — known as Particle Replication in Nonwetting Templates, or PRINT — uses laser-cut plates to make a mold out of a Teflon-like material to which nothing can stick. The mold can be filled with almost any substance to create the particles.

"It's like an ice cube tray for nanoparticles," DeSimone said.

Research in DeSimone's lab now revolves around employing these particles to confront some of the world's biggest problems, from cancer to global climate change.

"I think it's important to work on the big problems," DeSimone said.

**Drug delivery**

DeSimone and his lab first set out to use the new technology in the medical field.

"I was approached by faculty for doing some drug delivery work, so we went down that path," he said.

One of the lab's major projects includes studying the way the body takes in drugs and creating more efficient ways to deliver substances to combat diseases.

"I was dismayed at how unsophisticated the traditional approach to drug delivery was," DeSimone said.

So he set out to change it. Using PRINT, lab members can



DTH FILE

Hanjun Zhang works on the PRINT process in professor Joseph DeSimone's laboratory. Their research focuses on studying drug intake and improving the efficiency of substance delivery in the body to combat diseases.

create particles out of materials that decompose in the body and place drugs inside these particles. These particles are made out of organic materials so that they will not harm the body.

Researchers then can study how cells take in the particles and the effect the new delivery system has on fighting disease.

The lab has worked mainly on delivering oncology agents — substances that can stop the uncontrolled cell division that leads to cancer.

These oncology agents use receptors to seek out and attach to certain cells to stop the uncontrolled division of the cancerous cell.

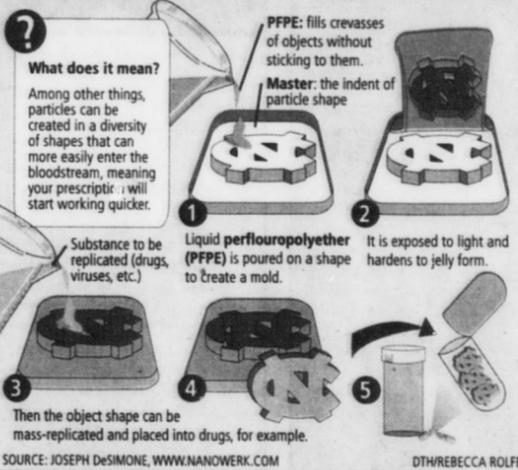
In addition to fighting cancer, they are trying to improve the efficiency of other drugs by the same methods, ensuring that the drugs get to the correct cells.

"With cancer, we're trying to kill cells," DeSimone said. "With

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### Particle replication Tar Heel style

The process is "Particle Replication in Nonwetting Templates" (PRINT), but researcher Joseph DeSimone compares it to an "ice cube tray for nanoparticles."



## Gun control may tighten

Task force backs federal standard

BY CAROLINE DYE  
STAFF WRITER

New recommendations from the N.C. attorney general to improve campus safety in light of the Virginia Tech shootings mirror federal gun control legislation signed into law Tuesday.

An N.C. task force on public safety recommended Thursday that the state legislature require involuntary commitment orders to be added to the national background check security report.

The federal legislation provides financial incentives for states to take such action — adding their mental health records to the FBI's database of those ineligible to purchase firearms.

Capt. Bobby Collins of the Orange County Sheriff's Office said that he thinks the measure would be effective if adopted by North Carolina.

"Until that happens, we're going to be restricted," he said. "I think that there are some mental illnesses that should be reviewed on the issue of gun control. The benefit

would be to the public at large." The federal legislation was strongly influenced by calls for tighter gun laws after April's Va. Tech massacre.

The shooter in the Va. Tech incident, Seung Hui Cho, had a history of mental health issues that did not show up on his background check when he successfully applied to purchase a firearm.

U.S. Rep. Carolyn McCarthy, D-N.Y., who sponsored the nationwide bill, released a written statement Tuesday declaring, "This important legislation will close the wide gaps in our nation's firearm background check system."

But Capt. Ricky Buchanan of the Durham County Sheriff's Office is skeptical that the law would reduce gun violence in general. "I don't know what percentages of killers are mentally ill," he said. "People who tend to kill are going to kill."

Hannah Perry of Perry's Gun Shop, in Wendell, 10 miles east of Raleigh, said she supports the measure because it could help prevent some of the most extreme cases of gun violence.

But she added that potential gun customers already have to answer questions regarding their mental state and that gun shop owners can refuse to sell guns to those they think are mentally

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ANALYSIS

## N.C. educational model may shift

UNC Tomorrow yields tall order

BY ERIC JOHNSON  
SENIOR WRITER

WINSTON-SALEM — The UNC Tomorrow Commission issued dozens of recommendations for the UNC system and its 17 campuses. Some suggestions are more feasible than others, and the system's governing board will spend the next few months deciding what changes should be made.

The commission's charge was, in essence, to travel around the state and ask North Carolinians what they want from their public universities. It turns out they want quite a lot.

"The response across the state was overwhelming," said Norma Houston, executive director of UNC Tomorrow.

Now the board must decide if those demands can be met.

Their answer will go a long way in determining what public higher education in North Carolina will look like for decades to come.

The report offers some stark challenges to the traditional model of university education, asking UNC administrators to focus far more resources on nontraditional paths to a college degree.

Taken as a whole, the commission's findings pose a basic, almost philosophical question of what a public university ought to be doing in the 21st century.

"The report of the commission is a really good start, but that's all it is," said BOG Chairman Jim Phillips. "There are an awful lot of recommendations in there, and we're not just gonna snap our fingers and make them happen."

The first task will be boiling down 28 pages into a realistic list of action items.

Given the breadth of the com-

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### UNC Tomorrow's recommendations

After a statewide listening tour, the UNC Tomorrow Commission issued dozens of recommendations for the UNC system and its 17 campuses.

Some suggestions are more feasible than others, and the system's governing board will spend the next few months deciding what changes should be made.

Among the suggestions:

- ▶ Consider allowing undocumented immigrants to pay in-state tuition. They presently pay the much higher out-of-state rate.
- ▶ Focus on recruiting more male students, with special attention toward black males. Overall, the UNC system is disproportionately female, and the gender gap is widest among black students.
- ▶ Develop minimum admissions standards and clearly communicate those standards to high school students. Officials want to reduce the high dropout rate at many system campuses.
- ▶ Examine whether some degree programs should be eliminated or consolidated. The idea is to focus resources more efficiently across all 17 UNC campuses.
- ▶ Tailor new degree programs to meet the state's economic needs.
- ▶ More collaboration with business, government agencies and nonprofit groups.
- ▶ Greatly expand online education programs.
- ▶ More focus on access for part-time students and adult learners.
- ▶ Get more funding for summer programs, so students can consider a year-round curriculum and graduate more quickly.

## Film highlights air guitar legends

Students can test skills in Jan. contest

BY KELLY YANG  
STAFF WRITER

Everyone owns an air guitar, but it takes a special kind of person to be an air guitar champion.

Amateurs looking to learn how to rock out in their own style will get to see the pros on the big screen.

Today the Carolina Union Activities Board will show the documentary "Air Guitar Nation," which showcases some of the greatest air guitar players in recent years.

"The film is for everyone that ever rocked out to a loud guitar," said Dan Crane, who plays Bjorn Turoque, the documentary's featured air guitarist. "Or anyone that ever laughed at their drunk cousin making an ass out of himself at a wedding by standing on a table

and channeling Angus Young."

CUAB's art collection committee chairwoman Lindsey Paytes said the documentary is just one part of a three-part series.

"Bjorn Turoque will later speak in the Great Hall, and then the actual championship will take place on (Jan. 25 in Gerrard Hall," Paytes said. "The documentary serves to give people an idea of what air guitar is."

Amanda Kao, CUAB's fun committee chairwoman, began working to bring the event to UNC after witnessing an air guitar championship in New York City last summer. She immediately drew up plans to bring the urban phenomenon to UNC.

"Air Guitar Nation" has been out for a while, but not too many

### WATCH THE DOCUMENTARY

Time: 7 p.m. today  
Location: Union Auditorium  
Info: [www.unc.edu/cuab](http://www.unc.edu/cuab)

people know about it," Kao said. "It started in northern Finland and includes a UNC alum, C. Diddy, who won the U.S. championship." Directed by Alexandra Lipsitz, the documentary follows contestants such as C. Diddy — played by David Jung — through air guitar competitions, including the U.S. Air Guitar championships.

Crane said the production company originally intended to do a "no talent" talent show.

But as the crew shot more footage, Crane said, they realized they had a bigger story than that.

"I'd say the brief flash of a naked Finnish man rocking out with his

you-know-what out is something that the ladies out there might look forward to," he said.

Kao said students who want to compete in the Jan. 25 event can send their contact information to her at [www.unc.edu/cuab](http://www.unc.edu/cuab).

"The documentary is definitely interesting and unconventional," she said. "It's what CUAB is looking for."

Crane stressed that the movie is not just for aspiring air guitarists or fans of the video game phenomenon "Guitar Hero," but he said he does think those people will like the film.

"The film rocks," he said. "It's an exponentially more exciting 90 minutes than watching your stoned roommate play 'Guitar Hero.' Trust me."

Contact the Arts Editor at [artsdesk@unc.edu](mailto:artsdesk@unc.edu).

### announcement

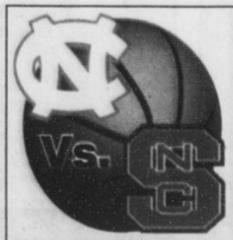
#### WORK FOR LA COLINA

The Daily Tar Heel's monthly Spanish-language section is hiring reporters, translators and copy editors. Applications are due Jan. 16 in Union 2409. Contact [lacolinasdesk@gmail.com](mailto:lacolinasdesk@gmail.com) with questions.

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#### HOOKAH BAR OWNER BUSTED

"I apparently took an ID I shouldn't have," said Adam Bliss. The owner of Hookah Bliss, of 418 W. Franklin St., is charged with allegedly selling alcohol to minors last weekend.



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#### UNC VS. N.C. STATE

Read a preview of the men's basketball team's Saturday matchup against ACC rivals N.C. State. The teams will play at noon in the Smith Center.

### this day in history

#### JAN. 11, 1980 ...

Senior Elizabeth Messick is hit by a slow-moving transit bus on East Franklin Street. She is taken to N.C. Memorial Hospital and said to be in good condition.

### weather

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