

## In uncertain times, funding supports key PPPL project

**Despite a squeeze** on federal funding for domestic fusion-energy research, government support remains solid for a \$94 million upgrade of the Princeton Plasma Physics Lab's biggest and most important fusion project, the National Spherical Torus Experiment (NSTX).

The work will enhance the position of the NSTX as the world's most powerful spherical tokamak, a device that houses extremely hot and supercharged gases called plasmas that can create fusion energy. With the relatively compact NSTX, researchers at PPPL are trying to prove the principle of how fusion energy would work by sustaining long-term plasma reactions to generate continuous energy for electrical power.

"NSTX works for a few seconds, but

we can tell a lot even in that short duration about how a much longer reaction would work," said Jonathan Menard '98, the project's program director.

Cuts to other programs point to a precarious state of fusion research in the United States. MIT's C-Mod project — one of three major fusion experiments in the U.S. along with NSTX and San Diego-based General Atomics' fusion facility — is being shut down indefinitely due to budget cuts by the

An interior view of the cylindrical housing for the new center stack of the National Spherical Torus Experiment, the Princeton Plasma Physics Lab's biggest project.

Department of Energy (DOE).

The tightening of domestic fusion-research funding results from pressure to reduce the federal budget deficit and the U.S. commitment to support an international collaboration that is building the world's largest fusion reactor, called ITER (International Thermonuclear Experimental Reactor), in France.

Aside from the NSTX project, funding for other PPPL projects will shrink by about 10 percent over the next two years, according to lab director Stewart Prager. PPPL, one of 10 national science laboratories supported by the DOE's Office of Science, has been operated by the University since it was created in 1951.

PPPL is receiving \$79 million from the Energy Department this year; that amount is expected to drop to \$71.8 million in the coming year, though Congress has not completed work on the federal budgets for fiscal years 2013 and 2014. A reduction of that size would cost about 36 jobs at PPPL, leav-

P  
14

TOP OF THE NEWS



### Website connects students on the go

**Princeton students travel the world** over the summer, dropping in everywhere from Bangalore to Budapest. Now, thanks to a new website, they'll be able to find one another when they get there.

Four undergraduates created Pton.in, where students can click on a spot on the site's map and find fellow students who will be there, the dates of their visit, and links to send them a message. The free site, restricted to Princeton students, had about 400 members by the end of May.

Jason Adleberg '14, who created the site with three friends, saw the need last summer, when he bumped into two Princeton students on the street in Tanzania. "I instantly had people to hang out with in this foreign place where I didn't know anybody or speak the language," he said. *By J.A.*

### Bomb threat clears campus

Princeton's campus was closed for eight hours June 11 after the University received a call that said multiple bombs were placed throughout the campus at unspecified locations. Several law enforcement agencies, including the FBI, conducted a campus search with bomb-sniffing dogs. No bombs were found. The University used automated phone calls, emails, and campus loudspeakers to notify about 6,900 staff, faculty, and students to evacuate the campus at 10:26 a.m. Most students had left for the summer, but research projects and summer camps were underway. Normal operations resumed at 6:25 p.m.



EDUARDO MUNOZ/REUTERS



ing a workforce of about 400, lab officials said. Smaller experiments, including research on how plasma processes occur in the cosmos and theoretical simulations of plasma, already have been hit hard, Prager said.

“Other nations are ramping up their domestic fusion programs, not ramping them down,” he said. “The U.S. should do the same, considering how important fusion is.”

A fusion-energy source, he said, would be essentially inexhaustible,

clean (producing no greenhouse gases), safe (with no chance of catastrophic accidents), available to all nations (without dependence on local natural resources), and small in its land usage. “The attributes of fusion are nearly ideal,” Prager said.

An offshoot of research at the lab is a portable technology called MINDS (Miniature Integrated Nuclear Detection System), commercialized by New Jersey-based InSitech. In seconds, the system can detect low levels of nuclear

material, the kind used in “dirty bombs,” in public places. MINDS has been tested in high-traffic public locations and is being used at the Port of Oakland. Prager said that such spinoffs are encouraged as the lab increases the scope of its research in both basic and applied science.

The 30-month NSTX upgrade, which will double the electric current and magnetic field, is about 60 percent complete; it is on schedule and within budget, Prager said. Earlier this year, the Fusion Sciences Advisory Committee, which advises the DOE on fusion-energy research, described the experiment as critical.

The upgrade “will provide ample research opportunities for five to 10 years’ worth of work at least,” said Michael Zarnstorff, deputy director for research at the lab.

A major concern stemming from the domestic research budget cuts is the loss of seasoned plasma experts and young physicists needed to continue the research in the next decades.

“If we eat into our base program too much, we won’t have the scientific means to take advantage of ITER once it is finished,” Menard said.  *By Anna Azvolinsky \*09*

ELLE STARKMAN

P  
15

## Eisgruber picks labor economist Lee \*96 \*99 as provost

**David S. Lee \*96 \*99**, a Princeton professor of economics and public affairs since 2007, became provost July 1 when former provost Christopher Eisgruber ’83 took office as the University’s president.

Eisgruber described Lee, 41, as an outstanding scholar whose experiences as a graduate student and faculty member have given him “a deep appreciation for the defining values of this University.”

The provost serves as the University’s chief academic and budgetary officer, as well as the president’s closest partner in the administration. As a labor economist, Lee’s research into human capital goes to the core of the provost’s responsibilities, Eisgruber said. He added that Lee’s studies of income inequality “just could not be more relevant,” given the University’s commitment to equality of access without regard to socioeconomic status.

Since 2009, Lee has been director of the Industrial Relations Section, an academic unit that promotes research and training in labor economics. With offices in Firestone Library, many of

the unit’s faculty members have served in top federal economic posts as well as senior positions in Nassau Hall.

Lee’s work as head of the search committee that recommended Cecilia Rouse as Woodrow Wilson School dean “caught my eye,” Eisgruber said.

Lee is the highest-ranking Asian-American administrator in Princeton’s history, but he said that for many years, that part of his identity has not been particularly pertinent to his work.

Growing up in Vancouver, “we just didn’t talk about race and ethnicity that much in high school,” he said. “It was in college [at Harvard] when I found myself self-identifying as an Asian-American. But in grad school, the focus was on what I was studying, and identification as an Asian-American was not so relevant.”

Lee played intramural hockey as a grad student and helped to reactivate an economics department hockey team last year. His wife, Christina Lee \*97 \*99, is an associate research scholar in the University’s Department of Spanish and Portuguese Languages and Cultures.  *By W.R.O.*



DENISE APPLEWHITE/OFFICE OF COMMUNICATIONS