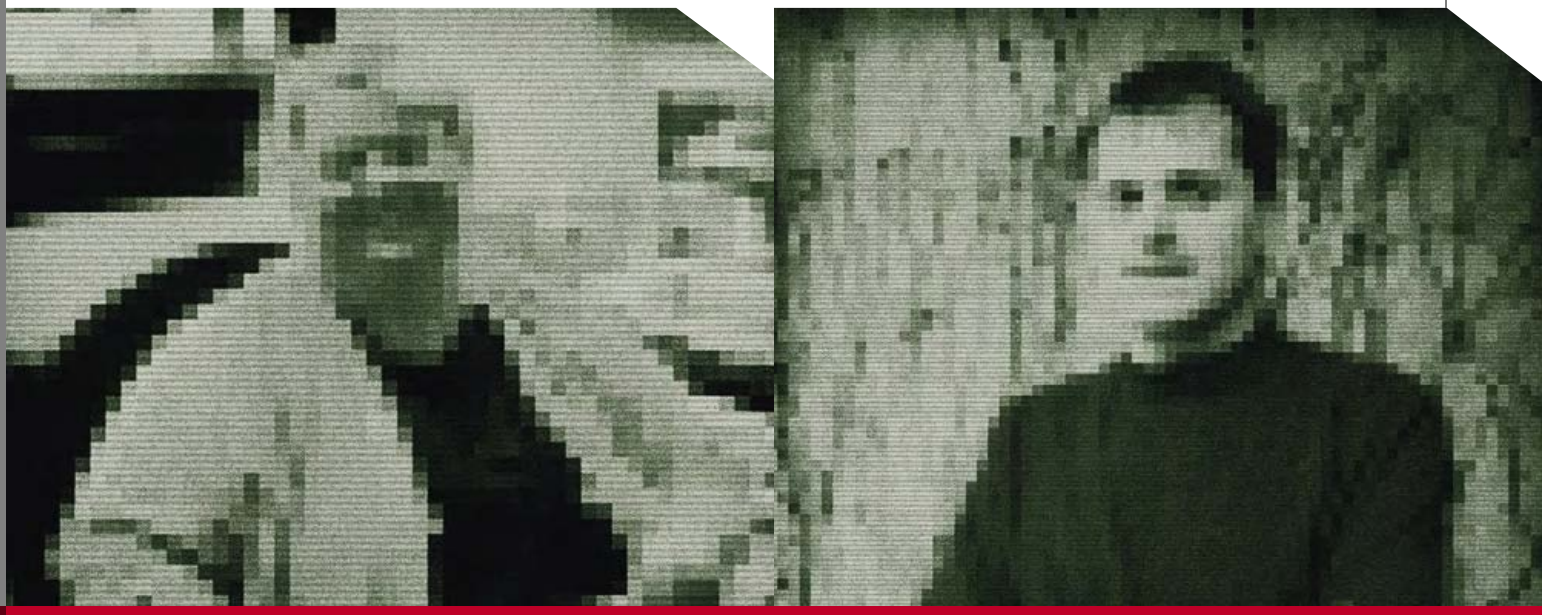

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Are tightened security measures harming science at Cal?

by Jeffrey Natchtigal
Photography by Karen Levy

WHEN STEFAN GILB'S chemistry lab moved to UC Berkeley from Colorado last summer, he was told that he would have to fly home to Germany for a face-to-face interview at the US embassy to get a renewal visa stamp. The 36-year-old researcher, who works with a laser-based process called femtosecond spectroscopy at Lawrence Berkeley National Lab (LBL), was willing to fully comply with the new requirement set by the Bureau of Immigration and Customs Enforcement. He understood that in a time of increased security, the trip home was an inconvenient but necessary evil to allow him to continue as a postdoctoral researcher in the United States.

But when a consular official at the US embassy in Frankfurt decided that Gilb's chemistry background and current laser studies warranted a security check, what should have been a two week turn-around stretched into a seemingly endless ordeal. Gilb waited in limbo for three months in Frankfurt for his visa application to be reviewed in Washington, DC. With his research stalled, Gilb was in danger of losing his position at the lab. Additional travel expenses and rent for an empty apartment in Berkeley ran over $2000.

"They didn't tell [me] how long it would take," said Gilb. "They just said 'we will call you when it's finished.'"

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GILB'S STORY is just one in a growing list of complaints about tightened security measures for international scholars. Many of the newly enforced regulations are especially troublesome to scientists, whose specialized skills can place their visa applications into categories targeted for closer scrutiny. When faced with a gauntlet of bewildering and sometimes humiliating security measures, some international scientists now choose not to work in the United States, opting instead for countries like Australia and Germany, which have competitive research programs and streamlined immigration procedures.

Stefan Gilb, a German postdoctoral researcher in UC Berkeley's Department of Chemistry, waited months for his visa. Given the choice, Gilb now admits that he would no longer choose to work in the United States.

The impact is potentially enormous: the Association of American Universi-ties, an umbrella organization representing 60 major research universities including UC Berkeley, estimates the monetary value of scientific research conducted by foreigners at $12 billion a year, and international scholars' contributions to scientific discovery in this country have been described as incalculable by numerous experts in the scientific community. Like it or not, the United States' stellar scientific reputation depends heavily upon the ability to attract the world's brightest minds.

With a PhD from Karlsruhe University in Germany, Gilb wanted to conduct research in the United States before beginning his career at home in Germany. He said he has enjoyed his time at UC Berkeley. But if he had to do it all over again, he would never have come to the United States.

The "List"

WHEN HE FINALLY made it back to Berkeley, Gilb learned that his file had been checked against a list of known and suspected terrorists. While the details of his security check are classified, it's possible that the US consular official interviewing Gilb requested a detailed security check because his chemistry research sounded as if it fell under the guidelines of the Technology Alert List. "My work with lasers and atoms sounded like weapons to the embassy," Gilb said.

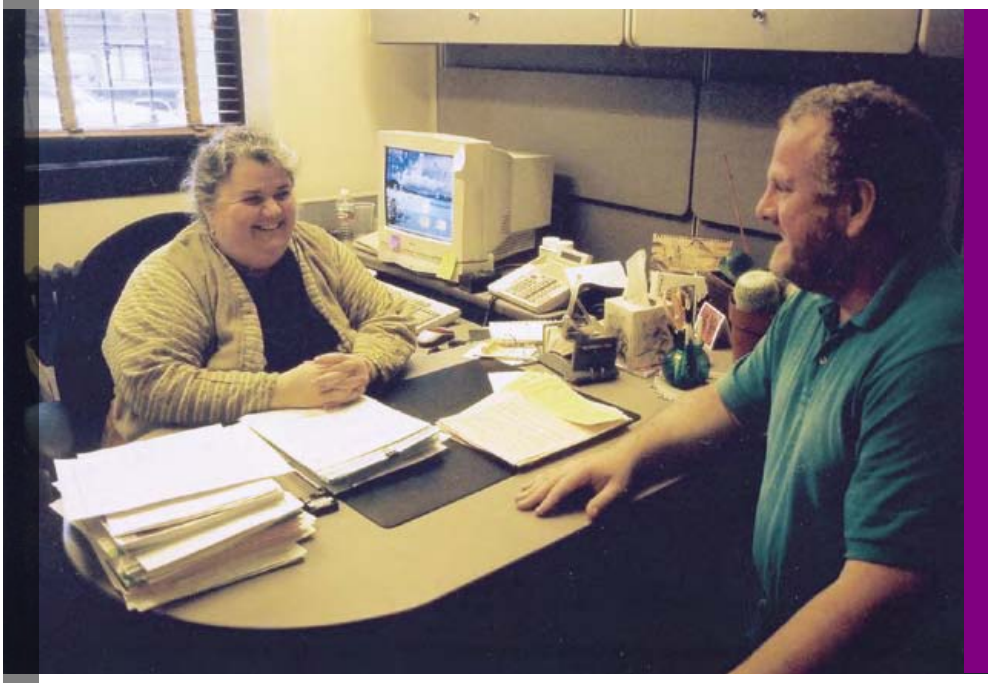
The Technology Alert List was originally developed during the Cold War to screen suspect visa cases and prevent the illegal transfer of controlled technologies. It now covers areas of study such as chemical and genetic engineering, advanced computer technology, and lasers. Revised and enforced with renewed vigor since 9/11, the list has become a major obstacle to foreign scholars. Gilb was lucky to be delayed for only three months. Zhirong Li, a graduate student in the Department of Plant and Microbial Biology, waited nine months for a visa to return to her UC Berkeley lab after a vacation home to China. Immigration officials told Li that her application warranted extra scrutiny because she studied "genetics and biochemistry."

Once a visa applicant lands on the Technology Alert List, the wait can last indefinitely. Even more aggravating, the State Department does not respond to any questions until it passes judgment on the applicant. A visa application goes into the vast government bureaucracy, and no one can say when it will surface.

Stalled Research

IN NOVEMBER 2003, the Association of American Universities released the results of a poll of 33 major US research universities. The study found that 555 international graduate students experienced visa delays in fall 2003 compared to 354 in 2002, a 57 percent increase. Nearly half of the responding universities said the main consequence was hindrance to scientific research.

At UC Berkeley, chemistry and physics professor Stephen R. Leone was frustrated that Gilb, one of his key researchers, was held up. Gilb's absence caused significant problems in completion of work for a client, and visa delays for other international



Steve Evans, a professor of Statistics and Mathematics at UC Berkeley, consults with international student and scholar advisor Gloria Law about becoming a naturalized US citizen. Originally from Australia, Evans is frustrated with the security delays he faces each time he re-enters the US.

researchers have definitely affected research in his lab. "The research has been hurt, and this research is for work on US-funded projects," said Leone, who is also the director of the Chemical Dynamics Beamline at LBL.

Researchers from five foreign countries are part of Leone's research group. "Nearl-y everyone who leaves has to plan on several additional weeks to get back," Leone said, describing the interruptions to his 13-person research team. "In the meantime, our research loses two to three weeks of effort while that person is waiting."

Another consequence of visa delay is that, depending on a scientist's country of origin, it can be difficult, if not impossible, to attend international meetings and conferences. As international scholar visa holders, each time they leave the country they must go through the review process again. It has come to the point that UC Berkeley's Services for International Students and Scholars (SISS) advisor Gloria Law has advised some international scholars not to travel "because it's not worth taking the chance of not getting back in." This can have serious career implications for postdoctoral researchers who need to present papers at international conferences.

Targeting Scholars

LAST FALL ALMOST 1,900 international students and scholars attended UC Berkeley, but few are comfortable enough to speak out about problems they may have had with visas. Only 12 international graduate applicants, six of them from scientific fields, reported that they were either denied visas or experienced serious visa delays in the fall semester, according to SISS. Of those 12, six were from China and two were from Russia, feeding the concern at UC Berkeley that there may be bias against Russian and Chinese scholars; many from those countries have been subjected to stringent security checks that often result in visa delays and denials.

These numbers don't include Stefan Gilb, however, and officials say there may be other cases that have gone unreported because foreign scholars don't want to create any more tension over their visas. There are no clear numbers to illustrate how many international students are upset, and more importantly, how many have decided not to study in the United States. However, anecdotal evidence suggests that the frustration and anger is far wider than the numbers reveal; the number of international students applying to UC Berkeley graduate programs decreased by 27 percent this year, according to the Graduate School office.

"So much happened out of a sense of fear," Law said, referring to the changes put in effect by the Department of Homeland Security. "With a policy of fear, a lot of strange things happen."

A new task force headed by Graduate Dean Mary Ann Mason is in the process of surveying students and postdoctoral researchers in all 105 UC Berkeley departments.

"What the committee is studying is based on the Patriot Act and related documents and how they affect international students," said Mason. "There is a large umbrella of laws and

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legislation, and we're concerned about the dampening effect on international students." Survey analysis will be available in April, 2004. But the reality of the situation, according to Mason, is that "as an individual university, we don't have much sway."

Robert Price, a political science professor who manages the graduate student and postdoctoral researcher section of UC Berkeley's international scholar survey, said that being the biggest research university in the country doesn't give UC Berkeley much pull with the federal government in the visa-delay issue. In the meantime, Price is concerned about the ramifications of the new security regulations for science in the United States. "What the survey won't tell us," Price said, "is to what extent scientists outside the US do not come here anymore."

"I think we ought to be very concerned," he added.

National Insecurity

ANOTHER SURVEY, conducted by the Institute of International Education in October 2003, found that new security procedures and economic factors are having a visible impact on foreign student enrollments. Forty-six percent of schools responding reported some declines in their total international student enrollments.

"I worry that what we're seeing is more than just another short-term response to an economic downturn," said Marlene Johnson, executive director of the Institute of International Education. "The survey suggests that, for the first time, US government policies are having the effect—although not the intent—of keeping legitimate students and scholars from accessing our schools."

Pressure from the scientific community has caused the Department of Homeland Security to reevaluate some of its visa security measures in an effort to become more practical and less stringent in its security procedures. But in the eyes of the government, security comes before scholars. In October 2003, Edward Ramotowski, director of the US Department of State's Office of Public and Diplomatic Liaison Visa Services, told the National Science Foundation that the State Department was aware of the importance of international travel to academic and scientific exchanges, but concluded with the nearly immutable position that "security is now and will continue to be the top priority in the processing of visas for international visitors."

Robert Price respects the desire for security, but wonders if it is a short-term fix with long-term consequences. "While they are making a justified effort to protect national security," Price said, "it can backfire to hurt the science that creates national security, making the whole [security] thing counterproductive."

The American Physical Society (APS), an organization of physicists, called on the president and Congress in June 2003 to implement visa rules that would not harm the flow of people and knowledge into the country. "US national laboratories, even those not engaged in classified projects, now have new rules that discriminate against scientists and engineers from certain countries," the APS statement read. "As a result, our partners are increasingly reluctant to participate in joint ventures. This isolation threatens irreparable damage to US economic competitiveness and, ultimately, national security."

SISS advisor Gloria Law, who has been an academic advisor for 20 years, also wonders if the US government really understands how serious a problem the overly restrictive visa checks poses to scientific research. As she straddles the precarious line between the authorities on one side and a welcoming university on the other, Law finds herself questioning whether the new bureaucracy is even effective. "There haven't been any hits yet. Does that make us safer?" she said. "If I were a bad guy, would I go through the normal channels? It seems to me not what you'd do."

Law hopes the government will keep things in perspective. "The goal is to facilitate international education," she says. "I think that's the best road to peace, and I don't think shutting the door will help us."

Jeffrey Nachtigal *is a graduate student in journalism.*

Are you on the Technology Alert List?

You could be if you are in any of the following fields:

A. Conventional munitions

B. Nuclear technology

C. Rocket systems

D. Rocket systems and unmanned air vehicle subsystems

E. Navigation, avionics and flight control

F. Chemical, biotechnology, and biomedical engineering:
– Biochemistry
– Pharmacology
– Immunology
– Microbiology
– Recombinant DNA technology
– Neurochemistry
– Chemical engineering
– Chemical separation technology
– Pharmaceutical production technology

G. Remote sensing, imaging, and reconnaissance

H. Advanced computer / micro-electronic technology:
– Supercomputing, hybrid computing
– Speech processing/recognition systems
– Neural networks
– Superconductivity
– Acoustic wave devices
– Superconducting electron devices
– Frequency synthesizers

I. Materials technology:
– Advanced metals and alloys
– Non-composite ceramic materials
– Ceramic, organic and carbon materials
– Polymeric materials
– Synthetics fluids
– Organometals
– Liquid and solid lubricants
– Magnetic metals and superconductors

J. Information security:
– Cryptography and cryptographic systems

K. Laser and directed energy systems technology:
– High energy lasers
– Low energy lasers
– Semiconductor lasers
– Free electron lasers
– Directed energy systems
– Kinetic energy systems
– High energy density

L. Sensors and sensor technology

M. Marine technology

N. Robotics:
– Artificial intelligence
– Computer-controlled machine tools
– Pattern recognition technologies

O. Urban planning:
– Architecture
– Civil engineering
– Environmental planning
– Geography
– Landscape architecture
– Urban design

While the goal of the Technology Alert List may be to prevent the transfer of militarily critical technologies, the wide scope of this list makes it easy to see why so many scientists face extended security checks. The preceding was only an excerpt; the full list can be found on the US State Department website at: **travel.state.gov/state147566.html**