

gen Maass, a press officer in the environment ministry. "It's very difficult to stop it after that. We haven't been very glad that Bavaria wanted this type of reactor, but there is a big need of diplomacy." This past February, Maass adds, FRM2 officials submitted documents that satisfied the government's safety concerns in the case of an airplane crashing into the reactor, a steam explosion, and other emergency scenarios. For his part, Bavaria's science minister, Hans Zehetmair, greeted the permission—needed before the state could issue the actual startup permit, which it did on 16 May—by saying that "the federal environment ministry has finally abandoned its blockade posture and agreed to the startup of this topnotch facility."

The 20-MW FRM2 is designed to produce a continuous flux of 8×10^{14} neutrons/(cm² · s) at its core, and five or so orders of magnitude less at the sample sites. The reactor's dozen beam lines will provide neutrons from 3 meV to 1 MeV. The lowest-energy, or "cold," beam lines will stretch into the *atomei*, or atom egg, the shell of the site's first reactor and now a local icon. Neutrons will also be used to generate an intense beam of positrons for detection of microcracks, Auger spectroscopy of surfaces, and other things, says Winfried Petry, the facility's scientific director. Research planned for the reactor spans physics, chemistry, biology, materials science, engineering, tumor treatment, and contract work for industry.

It's clear that this will be a unique research tool, says Thomas Brueckel, who studies magnetic nanostructures at the Jülich Research Center and chairs Germany's committee on neutron scattering. "There are a lot of enthusiastic scientists who built the instruments. They are waiting to do science." The cash-strapped government "could not both postpone the ESS and keep the FRM2 on hold," adds Kurt Clausen, a Danish neutron physicist currently at Jülich, referring to Germany's cool response to the proposed European Spallation Source (see PHYSICS TODAY, April 2003, page 35). Moreover, the FRM2 is already paid for, mostly by Bavaria, although the federal government is supposed to reimburse about half of the €435 million (\$518 million) construction tab. Bavaria and the Technical University of Munich, with contributions from the federal government, will also foot the FRM2's expected €20 million annual running costs.

But critics are not assuaged by plans to convert to a lower enriched uranium. For one thing, the new fuel

US Team Prepares for SARS-Threatened Olympiad

The 24 members of the 2003 US Physics Olympiad team and several of their coaches gathered at the Albert Einstein Memorial in front of the National Academy of Sciences in Washington, DC, in late May. Following a nine-day physics training camp at the University of Maryland, five of the students were chosen to represent the US in the international physics competition scheduled for early August in Taipei, Taiwan. Whether the event will take place remains in doubt, however, because of the recent SARS outbreak in Taiwan. Olympiad organizers already delayed the competition from its original 12 July date to 2 August because of SARS, but that may not be enough to ensure the competitors' safety. The US team did not compete in last year's Olympiad in Indonesia because of concerns about terrorism.

Anthony Tweed



AIP

will be enriched to roughly 50% with uranium-235 (HEU is 93% ²³⁵U), which is higher than the rule-of-thumb cutoff of 20% for nuclear bomb usability. "I would even say that such a conversion is counterproductive," says Franz Fujara, a neutron physicist at the University of Darmstadt. "It makes the public believe that the nonproliferation goal might be reached. All those who have in the past converted their reactors down to below 20% are betrayed. And in the future, the motivation to go down to 20% will be lost."

Critics further doubt that, once the reactor is running, the conversion will actually be carried out. FRM2 officials say they will switch if a fuel is developed that doesn't require modification of the reactor core and if the neutron flux doesn't drop by more than a few percent. Groups in France and the US are working on high-density uranium-molybdenum fuels that might work. "We are confident that we are able to change to a lower enriched fuel. But we are concerned that the timing is tight," says Petry. "FRM2 has never been, and never will be, a proliferation risk," he adds.

Says Clausen, "From a technical point of view, the FRM2 will be a good reactor. From a political point of view, it's a disaster."

Toni Feder

Visa Restrictions Bite Into Graduate Enrollments

Since the attacks on the World Trade Center and the Pentagon on September 11th, the fraction of foreigners among incoming physics graduate students in the US has taken a dive, according to a recent report by the American Institute of Physics.

After climbing for decades to a peak of 55%, the fraction of new physics graduate students who were noncitizens shrank by 10% in the past two years. The AIP report estimates that around one-fifth of foreigners accepted to study physics were at least initially prevented from enrolling in 2002 because they were not allowed into the US. Hardest hit in terms of percentage were students from China—who make up the largest single block of foreign physics students—and the Middle East.

Top-ranked physics departments suffered the least, with 10% of accepted noncitizens denied entry to the US, compared with more than 20% at lower-ranked PhD-granting and 40% at master's-granting departments. The lower-ranked departments also reported a decrease in the number of foreign applicants. In a way, says Michael Neuschatz, a coauthor of the

report, “the highly uneven distribution amplifies the impact. It causes severe pain for some departments and almost no pain for others.”

The no-shows take a toll on physics departments, many of which reported cancelled graduate courses and a shortage of teaching and research assistants. Some departments worry that unfilled teaching-assistant slots will be permanently lost. In response to the visa difficulties, most physics departments have not changed their admissions policies, but 10% have begun accepting fewer foreign students, “to insulate themselves from the associated problems and uncertainty,” and 9% are accepting more, to keep up their enrollment tallies.

These and other data are presented in the report, *Physics Students From Abroad in the Post-9/11 Era*. Single copies may be obtained free of charge from AIP, Statistical Research Center, One Physics Ellipse, College Park, MD 20740; e-mail stats@aip.org; electronic copies can be downloaded from <http://www.aip.org/statistics/trends/undtrends.htm>.

Toni Feder

News Notes

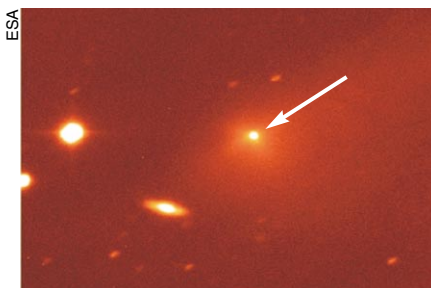
Nanos made permanent. After serving several months as interim director of the troubled Los Alamos National Laboratory, physicist and former US Navy vice admiral George “Pete” Nanos has been named the permanent director. “I had intended to conduct a national search for a new director . . . but Pete Nanos’s superb performance over the last several months makes such a process unnecessary,” said University of California President Richard Atkinson when he named Nanos in mid-May. The university manages Los Alamos.

Nanos became interim director on 6 January after a string of accounting and security controversies and crises led to the resignation of John Browne, a physicist who had led the lab for five years. “Under the most trying of circumstances, Pete has provided bold, innovative, and compassionate leadership to the hard-working men and women of the . . . laboratory,” Atkinson said.

Nanos, the former commander of the Naval Sea Systems Command and the navy’s strategic nuclear program, has instituted a series of reforms at the lab, the most recent of which was a restructuring of the business operations division. “I have to have a very direct relationship with how this laboratory does business,” Nanos told the Los Alamos staff.

JLD

Rosetta’s new rendezvous. The comet 67P/Churyumov–Gerasimenko is the new destination of Rosetta, a European Space Agency mission. Originally scheduled for launch this past January to the comet Wirtanen, Rosetta was postponed after an Ariane 5 launch rocket failed (see PHYSICS TODAY, March 2003, page 28). A later trip to Wirtanen was ruled



out because it would require a more powerful rocket—exactly the type that failed—so ESA now plans to send the spacecraft to Churyumov–Gerasimenko on 26 February 2004. The change of plans will cost ESA about €73 million (\$85 million).

TF

Media lab leaves Asian offshoot. MIT has pulled out of Media Lab Asia, citing conflict with the Indian government, its partner in the venture. Spawned from MIT’s renowned media lab, the Indian incarnation aims to use information technology to improve life for the masses (see PHYSICS

TODAY, March 2002, page 27). Among the projects already under way are creating low-cost rural manufacturing systems, developing cheap Internet access in remote areas, and providing computer access for youths in poor neighborhoods.

The partners had foreseen locking in a 10-year collaboration agreement after an initial phase, but MIT and Arun Shourie, India’s new minister for information technology and communications, have diverged on how to run Media Lab Asia, according to Walter Bender, executive director of the MIT Media Lab. For example, the minister unilaterally sacked employees, including the CEO, says Bender. “The bottom line is we did not agree on how to manage the lab and so we decided not to continue.”

But the experience has not dampened talk of new offshoots: “We remain passionate about the media lab model and we remain passionate about the importance of international engagement,” says Bender.

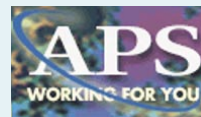
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Letters and opinions are encouraged and should be sent to Letters, PHYSICS TODAY, American Center for Physics, One Physics Ellipse, College Park, MD 20740-3842 or by e-mail to ptletter@aip.org (using your surname as “Subject”). Please include your affiliation, mailing address, and daytime phone number. We reserve the right to edit submissions.

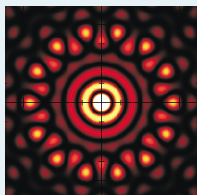
WEB WATCH

<http://www.aps.org/intaff/visa>

Visitors to the US now face increased scrutiny from both the State Department, which issues visas, and the Bureau of Citizenship and Immigration Services, which controls entry. To advise students and academic visitors, the American Physical Society’s Office of International Affairs has created a Web page of **Preliminary Visa Information**.



<http://www.uni-wuerzburg.de/mineralogie/crystal/teaching/teaching.html>



Now in its second generation of modifications, the **Interactive Tutorial about Diffraction** sets out to teach students how diffraction patterns reveal crystal structure. The tutorial, which was written by Thomas Proffen of Los Alamos National Laboratory and Reinhard Neder of the University of Würzburg, makes use of a program that can simulate any type of structure and calculate the corresponding Fourier transform in any section of reciprocal space.

<http://birds.cornell.edu/brp/soundsmarmamm.html>

The biophysical acoustics program at Cornell University’s ornithology lab doesn’t restrict its research to birds. Whales are also studied. If you visit the program’s Web site, you can listen to **Recorded Marine Mammal Vocalizations** and view the corresponding sound spectra.



To suggest topics or sites for Web Watch, please phone the editor at (301) 209-3036.

Compiled and edited by Charles Day