

TODAY, June 2003, page 30). “Every now and then something happens where you need suddenly to know about a relatively bright star and what it was like earlier—say a supernova goes off,” she says. “Or you want to measure the orbit of a near-Earth object—if you just use a few days’ worth of observations, there are huge errors. You need to go back. The old data is extremely valuable.” Another example is Griffin’s own research looking at old spectra for evidence of past concentrations of Earth’s ozone. “If you’ve got a change that is irreversible, what were things like in earlier years? This you cannot get from modern observations, however wonderful they are,” she says. “Historic UV spectra of hot stars provide a unique resource for that purpose.”

The cost of digitization is “nothing compared to a space shot,” Griffin says. “Not only are the plates deteriorating slowly because of the natural aging and poor environmental conditions, but the expertise and knowledge of how to deal with them is also being lost. We are trying to energize a recovery movement.”

Toni Feder

FutureGen could make a comeback

The fortunes of FutureGen, the \$1.8 billion clean-coal demonstration plant canceled more than a year ago by the Bush administration, could be changing—if the project can shake off being labeled “the biggest earmark in history.” The Senate-passed \$838-billion economic stimulus bill includes what appeared to be a thinly disguised earmark of \$2 billion for the near-zero-emissions project. It was to have been built at a site in Mattoon, Illinois, but in January 2008 Samuel Bodman, then US Department of Energy secretary, pulled the plug (see *PHYSICS TODAY*, September 2008, page 26). Shortly after inauguration day, a group of six Midwest senators, led by Illinois Democrats Richard Durbin and Roland Burris, wrote to DOE Secretary Steven Chu, urging him to restart FutureGen, which would demonstrate carbon capture and storage (CCS) technology on a commercial scale. Specifically, the lawmakers asked Chu to formalize the project’s environmental impact statement, which had okayed construction of the plant.

As *PHYSICS TODAY* went to press, Chu hadn’t responded to the senators. But DOE press secretary Stephanie Mueller said Chu was reviewing FutureGen “along with a range of options to move [CCS] technology forward and help address the climate change crisis.” Chu, she said, “strongly believes” that CCS is

needed to reduce carbon dioxide emissions from US coal-fired plants. “But equally—if not more importantly—breakthroughs in this technology are essential for addressing the ever-greater threat posed by the greenhouse gas emissions from a growing number of coal-fired plants in China, India, and the developing world,” Mueller said.

FutureGen cropped up in an unflattering light during the contentious Senate debate on the economic stimulus bill. From the bill’s more than 700 pages, Sen. Tom Coburn (R-OK) unearthed a two-line provision that designated \$2 billion for “one or more near-zero emissions powerplant(s).” Coburn pronounced the provision the largest earmark ever.

But Coburn’s attempt to excise the FutureGen funding failed. At press time, it was uncertain whether the provision would survive the House-Senate conference committee. Both bills would allocate funds for other CCS demonstration projects.

FutureGen was to have teamed DOE with a consortium of 13 electric utilities. Bodman, who wasn’t at DOE when the project was proposed in 2003 with a price tag of \$950 million, canceled the project because he believed it had grown too expensive. He redirected DOE’s 74% share of FutureGen funding into a new \$1.3 billion cost-shared initiative to support up to three commercial-scale CCS demonstrations. No awards have yet been made.

David Kramer

news notes

Medical isotopes. It is technically and financially feasible to use low-enriched uranium

to produce medical isotopes on a commercial scale. That is the conclusion of a National Research Council (NRC) report released in January.

Congress commissioned the report to explore the conflicting goals of restricting exports of highly enriched uranium (HEU) for medical isotope production, per the Energy Policy Act of 1992, and ensuring a reliable supply of isotopes, to which end a later law lifted the export restrictions (see *PHYSICS TODAY*, May 2008, page 22). “The question we pursued was the feasibility of achieving both,” the chair and vice chair of the study write in the report.

The most common radioisotope used in medicine is technetium-99m, a decay product of molybdenum-99, which is obtained from uranium fission. The NRC report finds that facilities can convert from HEU, which poses a proliferation risk, to LEU to produce ⁹⁹Mo with a cost increase of less than 10%, and that the cost increase is “much less important than is reliability of supply.” Moreover, the increased cost to patients for radioisotope pharmaceuticals would be less than 1%.

“I think Congress is likely to adopt the report’s two main recommendations—restoring restrictions on HEU exports and enacting incentives for

web watch

To suggest topics or sites for Web Watch, please visit <http://www.physicstoday.org/suggestwebwatch.html>. Compiled and edited by Charles Day

<http://www.gigapan.org>



NASA’s Mars rovers, Spirit and Opportunity, are equipped with gigapixel cameras that create seamless, panoramic views of the Martian surface. The camera system is now available for terrestrial applications through a spinoff organization called **Gigapan**. Photographer David Bergman used a GigaPan camera to generate an image of President Barack Obama speaking at his inauguration. You can find and explore that and other images on Gigapan’s homepage.

<http://www.ymec.com/hp/pref2/>

YMEC is a Tokyo-based company that develops sound measurement and analysis software. The company’s virtual **Sound Preference Audition Room** provides audio files to help you determine how much reverberation you like when you listen to various kinds of music. The sound of a full orchestra in an anechoic room is particularly striking.



<http://www.ameslab.gov/60thanniversary/60thhome.htm>



The Department of Energy’s Ames Laboratory turned 60 in 2007. To mark the anniversary, the Iowa lab put together the online exhibit **Ames Laboratory—Shaping Science for 60 Years**. The exhibit charts the lab’s expanding mission from purifying uranium in the 1940s to carrying out a broad range of materials science research today.

production and/or purchase of medical isotopes produced with LEU," says Alan Kuperman, director of the nuclear proliferation prevention program at the University of Texas at Austin. "The days—or at least the years—of HEU-based isotope production are numbered." **TF**

Obama addresses DOE. President Obama told Department of Energy employees on 5 February that his plan to jolt the US economy back to life will "end the tyranny of oil in our time" and bring about "a revolution in energy efficiency" and a "better, smarter electricity grid" that can "ship wind and solar power from one end of this country to another."

"After decades of dragging our feet, this [stimulus] plan will finally spark the creation of a clean energy industry that will create hundreds of thousands of jobs over the next few years, manufacturing wind turbines and solar cells for example, and millions more after that," he said. "These jobs and these investments will double our capacity to generate renewable energy over the next few years."

Although his visit was brief and no questions were taken, Obama did have one piece of news to share: He had earlier that day signed a presidential memorandum asking DOE to speed up



The Giant Magellan Telescope. (Artist's rendering courtesy of Todd Mason/Mason Productions.)

issuance of energy efficiency standards for many common household appliances. In 2005 a court set deadlines, the last of which is June 2011, for the agency to issue standards on 22 types of household and commercial appliances. Still pending are standards on 15 of those appliance types. Obama said the standards will save consumers money, spur innovation, and over the next 30 years save the amount of energy produced during a 2-year period by all the coal-fired power plants in the US. **DK**

Korea joins giant telescope. On 6 February, South Korea joined the Giant Magellan Telescope (GMT). The country's Daejeon-based Korea Astronomy and Space Science Institute (KASI) is the

ninth partner and represents the second non-US country in the 25-m optical-IR project spearheaded by the Carnegie Institution for Science.

South Korea will contribute about 10% of the estimated \$700 million total construction cost; so far \$130 million has been committed. One of three huge telescopes in the works globally (see PHYSICS TODAY, September 2008, page 28), the GMT primary mirror will comprise seven 8.4-m-diameter, 20-ton segments. KASI scientists will contribute their expertise in secondary-mirror polishing.

Assuming money is raised, construction is set to start in 2012 and the telescope would see first light at its Las Campanas site in the Andes Mountains of Chile in 2019. **TF ■**

Thin Film Characterization



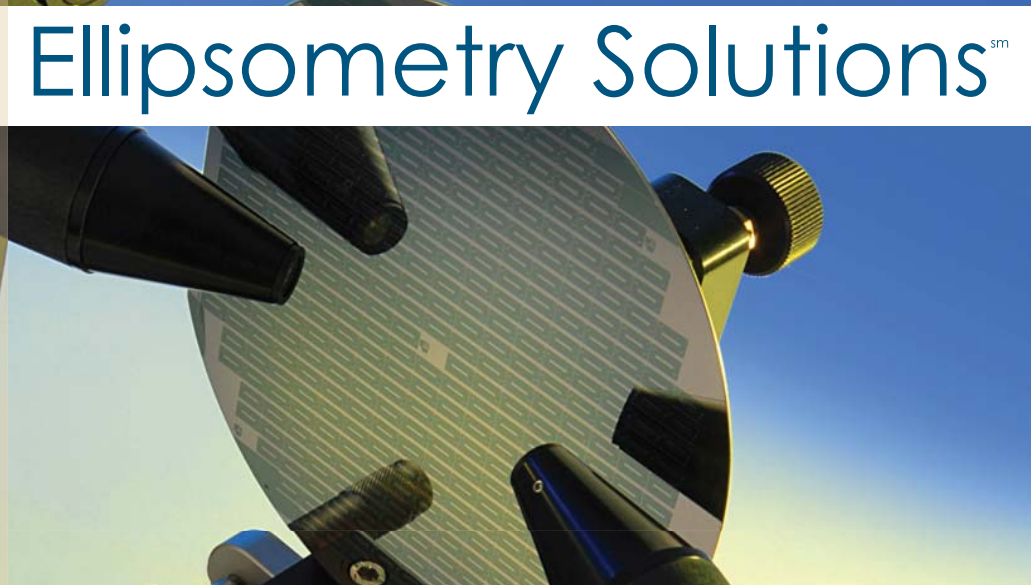
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