

The observatories have said they will work with NSF on the implementation of the recommendations. NRAO director Fred Lo says his observatory will "solicit support from stakeholders of the unique VLBA in the US and abroad" and define the most important science "so that if we do have to shut it down, at least we get those projects done."

How much money the measures will actually free up remains to be seen. "By economic shenanigans I can find you \$10 million in our recommendations, or \$60 million," Stanford University's Roger Blandford, who chaired the senior review, said at a presentation of the recommendations. The cost of closing facilities can also be high, the senior review report notes, and "in many cases, the greatest savings... and the best service to the astronomical community will be found in keeping the facilities operating at higher efficiency and with external contributions."

The recommended cuts were "extremely painful," Blandford said. "We are dealing with a set of telescopes that are all productive and good for another decade or so." But, he noted, "our charge was to balance the cost of running existing facilities against a very ambitious and exciting new program."

The Giant Segmented Mirror Telescope, Large Survey Telescope, and participation in the Square Kilometer Array are among the projects on the astronomy community's wish list. Savings of \$30 million a year is "only a down payment on the total demand we see in front of us," Van Citters said. Next month NSF will start a round of town-hall meetings and consultations with the astronomy community to figure out how to implement the senior review's recommendations.

Toni Feder with Jim Dawson

Manned mission to service *Hubble*

The *Hubble Space Telescope* will get a manned service mission after all, NASA administrator Michael Griffin announced on 31 October. Discussion over whether to go back to the *HST* had pitted popular support against opposition by NASA headquarters. Griffin received a standing ovation from scientists present at the announcement at NASA's Goddard Space Flight Center in Greenbelt, Maryland, home of the *HST* operations.

A \$900 million, 11-day service mission by the space shuttle *Discovery*, planned for May 2008, will replace gyroscopes, batteries, and a guidance

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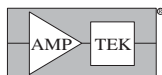
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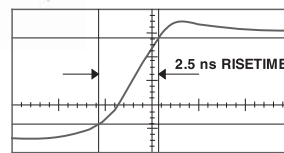
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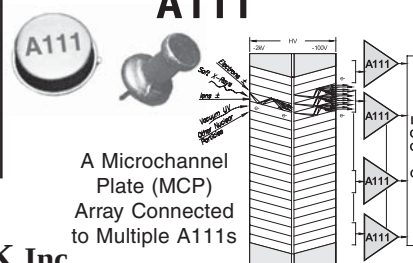
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PRECISION MEASUREMENT GRANTS

The National Institute of Standards and Technology (NIST) expects to make two new Precision Measurement Grants that start on 1 October 2007. Each grant is in the amount of \$50,000 per year and may be renewed for two additional years for a total of \$150,000. They are awarded primarily to faculty members at U.S. universities or colleges for research in the field of fundamental measurement or the determination of fundamental physical constants.

Applications must reach NIST by **2 February 2007**. Details are on the Web at: physics.nist.gov/pmg.

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NIST

National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce

New York science academy goes modern

After more than 55 years in the historic, but cramped, Woolworth Mansion on East 63rd Street in Manhattan, the New York Academy of Sciences moved in September to the glass-encased 40th floor of 7 World Trade Center, the first building to rise on the site of the September 11 terrorist attacks. The 32-room Woolworth Mansion (left), donated to the academy by Norman Woolworth in 1949, allowed the science organization to relocate out of a few rooms loaned to it by the American Museum of Natural History. But in recent years, the mansion, with a main room that held only 90 people, had proved too small to allow the academy to conduct large programs, said NYAS president Ellis Rubinstein. The new headquarters in the 7 WTC building (right) has a 300-person auditorium and will allow the 26 000-member academy to present programs to a broader audience, Rubinstein said. The new building is on the site of the last building to fall in the 2001 terrorist attacks. "We've rocketed into the future," he said, "and we're making a statement that we care about New York. We feel a little patriotic." **Jim Dawson**



FRANK ZIMMERMAN / CB RICHARD ELLIS



DAVID SUNDBERG / ESTO PHOTOGRAPHY

sensor, and attempt to fix the Space Telescope Imaging Spectrograph, which was installed in 1997 and stopped working in 2004. The mission will also replace the Wide Field Planetary Camera 2 with an improved model and replace the lenses used to correct the *HST* mirror (the COSTAR module) with the Cosmic Origins Spectrograph, which can work without COSTAR. The crew will also affix a bracket to the underside of the telescope to accommodate a de-orbit module that will be attached onto the *HST* at a later date, by either a robotic or a manned mission.

NASA had investigated sending a robotic mission to the *HST* after a service mission was cancelled in the wake of the 2003 space shuttle *Columbia* tragedy. A National Academy of Sciences advisory panel that reviewed the cancellation (see *PHYSICS TODAY*, March 2004, page 29) said the likelihood that a robotic mission could save the *HST* was remote, and the risks of the shuttle flying to the *HST* were nearly the same as flying to the International Space Sta-

tion. According to Griffin, one compelling argument in favor of a manned mission was that with new safety equipment the shuttle can be repaired in orbit if the need arises. "Griffin's announcement [about servicing the *HST*] is quite consistent with the conclusions of our committee in terms of human risk, mission risk, and the science value of an *HST* servicing," said New Jersey Institute of Technology's Louis Lanze-



NASA

During a 1997 servicing mission, the space shuttle positions the *HST* into a cargo bay with a robotic arm. A final servicing mission is planned for 2008.

rotti, who served on the NAS panel.

The successor to the *HST*, the *James Webb Space Telescope*, is behind schedule, and is not expected to fly before 2014. The new plan will allow *HST* observations at UV and near-IR wavelengths to continue beyond 2013, instead of ending in late 2008, when the *HST*'s current batteries are expected to fail.

Paul Guinnessy

Congressional fellows bridge science and policy

"I have to immediately become an expert on whatever issue comes up," says Donald Engel, this year's congressional fellow for the American Physical Society (APS). Engel is working as a staffer for Representative Rush Holt (D-NJ). "I work on math and science education, and on Einstein's alley"—a project to promote science and technology industry in New Jersey, he says. Engel, who last spring completed his PhD on computational protein design at the University of Pennsylvania, first heard about the fellowships as a college freshman in a course on careers in physics. "It has been in my head that I wanted to apply since then," he says.

Engel is one of about 140 new science and technology policy fellows spending a year in the offices of the US Congress and in executive branch agencies through a program organized by the American Association for the Advancement of Science. The American Institute of Physics sponsors a fellow in the State Department (see the story on page 36), and AIP and some of its member societies sponsor a half dozen congressional fellows. Fellows attend a nine-day crash course on the legislative and executive branches of government. Then they step into the best fit they can find in an agency, Senate or House office, or congressional committee.

The science person

Kevin Whittlesey, this year's fellow for the Optical Society of America (OSA) and the Materials Research Society (MRS), was a fellow last year at the National Academy of Sciences (NAS). "I got a snapshot of the science policy landscape, and the bug bit me," he says. Whittlesey earned his PhD in 2005 at Northwestern University for research in neural tissue engineering. When he first came to Washington, he says, "I wasn't sure whether I would encounter refugees from the lab who were burned out on science. What I found was a lot