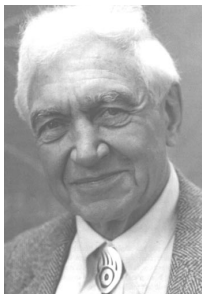
painful decisions, we're guided by the priorities set by HEPAP [the High Energy Physics Advisory Panel]."

In the president's FY 2003 budget, the $725 million for DOE high-energy physics programs is an increase of only 1.7% over this year's appropriation (see the story on page 30 of this issue). That's less than inflation. Among existing particle physics experiments funded by DOE, HEPAP has assigned the highest priorities to the search for manifestations of the Higgs mechanism and supersymmetry at the Fermilab Tevatron, and the study of B-meson physics at the SLAC B factory. The tight FY 2003 budget certainly affects Fermilab and SLAC. But at those labs, the result is expected to be a general belt-tightening rather than the shutdown of ongoing experiments.

The rare K decay experiment was intended to measure the same *CP*-violating parameters one measures, at much higher cost, at the B factories (see PHYSICS TODAY, May 2001, page 17). "Whether one gets the same result for K and B mesons is a major theoretical issue," says Brookhaven associate director Tom Kirk.



VERNON HUGHES has been striving for 20 years to measure the muon's anomalous magnetic moment to within a few parts in 10 million.

Measuring the moment

The prospective fate of the $g_\mu-2$ experiment is not as egregious as that of E949. Running since 1999, the $g_\mu-2$ collaboration was not explicitly promised any more AGS time beyond this year. "But one more year would bring the precision of our measurement to our goal of 0.4 parts per million," says Vernon Hughes (Yale University), who began this undertaking 20 years ago. "That would give us a unique opportunity to test, with unusual sensitivity, for supersymmetric departures from the standard model." (See PHYSICS TODAY, April 2001, page 18.) The collaboration's muon storage ring and its detectors represent a $25 million capital investment that can provide a measurement of a key supersymmetric parameter (a ratio of Higgs expectation values called $\tan\beta$) not easily accessible to the TeV proton colliders.

Unlike the precision measurement of $g_\mu-2$, the study of rare K decays has foreseeable prospects for life after the end of DOE funding for particle physics at the AGS. In FY 2004, NSF is expected to fund construction, at the AGS, of an ambitious experiment called KOPIO, which will search for $K^0 \to \pi^0\nu\bar{\nu}$. The standard-model prediction of this rare decay of the *neutral* kaon is even freer of obscuring hadronic complications than is its prediction for the corresponding K^+ decay. A few years further on would be DOE funding of a new K^+ experiment called CKM, at Fermilab's Tevatron, which would have 10 times the sensitivity of Brookhaven's unceremoniously cancelled E949.

BERTRAM SCHWARZSCHILD

Bonanza for Selected Science in Ireland

Ireland's new NSF-inspired funding agency has more money than scientists had dared hope for.

"Everything is benefiting. Institutions are benefiting. Morale is benefiting. And we are confident that the economy will benefit," says Ireland's Minister for Science, Technology and Commerce Noel Treacy, referring to Science Foundation Ireland, a new funding agency that by 2006 will dish out 635 million euros (about $560 million) for information and communications technology and biotechnology. The SFI money is the largest single chunk from a €2.5 billion program, Ireland's biggest-ever investment in research and education.

Attracting world-class scientists to Ireland and building up niche areas of science to be internationally competitive are key goals of SFI. The overarching aim, however, is to transform the economic success that made SFI possible—the Celtic tiger has been growing at nearly 10% a year—into long-term economic robustness. "We have a fantastically strong and happy group of blue-chip multinationals," says Edward Walsh, chairman of the Irish Council for Science, Technology and Innovation and a member of SFI's advisory board. "But for the most part, they are not doing research. It's manufacturing. That's unstable if you look 10 to 20 years ahead. Intellectual infrastructure is now the target."

Even with its emphasis on the economy, SFI is a boon to fundamental research. "We will fund the science that underpins biotechnology and information and communications technology," says agency Director General William Harris, himself a recruit from the US, where, in the early 1990s, he headed NSF's physical sciences directorate. "We are trying to borrow good ideas from NSF. The openness, competition, things like that," says Harris. "But we are smaller and we want to be more flexible than NSF can be, and faster in terms of decision making."

SFI

"I'VE NEVER SEEN POLITICIANS that I've enjoyed working with more," says Science Foundation Ireland's Director General William Harris (right), shown here with Ireland's Minister for Enterprise, Trade and Employment Mary Harney and Minister for Science, Technology and Commerce Noel Treacy.

Research payoffs

"SFI represents an interesting challenge," says John Pethica, who, as one of the 11 scientists awarded up to €6.5 million each over five years in the first batch of SFI grants, is moving his work in nanomechanics and tribology from Oxford University to Trinity College Dublin. "The structure of research facilities [in Ireland] has until now been fairly primitive. This is a tremendous opportunity to really shape things. We are not tied by traditional rules."

"It's support of a type

we have never had before," adds SFI awardee Michael Coey, a physicist at Trinity who specializes in spin electronics. "For the past 20 years, I've supported my research on outside money, mostly from the European Union, and it was mainly applied. SFI changes the climate. It gives more room for basic research." Still, he adds, "don't bet on that lasting. At the end of five years, we have to show we have done something significant."

"We want people to make the connection between the research they propose and the payoff for biotechnology and ICT," says Alastair Glass, who oversees information and communications technology for SFI. The hope is that the new research money will catalyze companies to set down R&D roots, stimulating the economy and creating jobs. Says Treacy, "For the past century, we've been exporting our best and brightest to foreign shores. We feel we should be able to absorb our own people."

Seven of the eleven initial awards went to researchers in physics or a related field, mostly nanoscience. About half of the awardees were already in Ireland, and the rest are moving from the US or UK.

The next SFI competition will again aim to attract top-notch scientists from abroad. But in February SFI decided to flesh out its programs, and the new round of awards adds funding for researchers in Ireland, as well as for visitors, conferences, workshops, and interdisciplinary centers.

Strains of success

While information and communications technology and biotechnology are the clear winners in Ireland's spending spree, money for research has risen across all fields, including the humanities. Non-SFI science funding for new projects, for example, doubled to €6 million this year. "SFI is building two narrow spikes of excellence on a foundation," says Walsh. The expansion of SFI programs, adds Brian Harvey, vice president of research at University College Cork, "has dispelled the initial disquiet that SFI was very narrow and that they were focused on bringing in outside talent rather than funding researchers here." Still, fields such as astrophysics and zoology fall outside SFI's range, Harvey says, "and we need to be vigilant about supporting excellent researchers even if they are not in mainstream areas—to offer tenure and retain them."

Not surprisingly, the sudden influx of money puts a strain on universities, which not only have to cope with jealousies arising from the focus on two niche fields, but also have to find space and money for new people. With an additional €605 million from the government for bricks and mortar, the biggest challenge for universities is to offer permanent positions and pay internationally competitive salaries to newcomers.

"We are putting down metrics to measure our progress," says SFI's Glass. "One is the people we attract. Another is the number of postgraduate students here. We want the rest of the world to say, Wow! What's happening in Ireland?"

TONI FEDER

Physics Project Scores in Siemens Westinghouse Competition

While other students their age were off on their summer vacations, Shira Billet and Dora Sosnowik, seniors at the Stella K. Abram High School for Girls in Hewlett Bay Park, New York, were putting time in at the lab. Their work paid off last December when they placed first in the team category of the 2001 Siemens Westinghouse Science and Technology Competition. They shared the $100 000 prize for their viscometer for ultrathin films.

In Billet and Sosnowik's viscometer, two distinct layers of liquid polymers are painted on a silicon wafer, with the more viscous film on top. The difference in surface tension between the two films causes the upper layer to dewet, a process similar to water beading into droplets on the hood of a car. The dewetting forms holes in the upper film, exposing the lower film, whose viscosity is then calculated from the rate of hole growth. "We were interested in this topic," says Billet, "because it's very difficult to measure the viscosity of thin-film lubricants using existing methods and [we] wanted to get involved with a modern and real problem."

SIEMENS FOUNDATION

TOP HONORS in the 2001 Siemens Westinghouse Science and Technology Competition went to Shira Billet (left) and Dora Sosnowik (team winners) and Ryan Patterson (individual winner).

And they succeeded, says Miriam Rafailovich, director of the NSF Materials Research Center at SUNY Stony Brook and Billet and Sosnowik's mentor. Rafailovich predicts the new method "will have far-reaching consequences in the fields of electronics and micromechanical systems."

Billet and Sosnowik, whose interest in science was sparked by their chemistry teacher, will use their winnings to pay for college. Billet plans to major in chemistry or journalism and Sosnowik wants to become either a musician or doctor.

The individual prize went to Ryan Patterson, a senior at Central High School in Grand Junction, Colorado, for a glove that translates the hand movements of sign language into text displayed on a screen.

ANTHONY TWEED

New Medal Named for Rosalind Franklin

The UK is honoring crystallographer Rosalind Franklin (1920–58) by creating a medal in her name to recognize innovations in science. Franklin's research was largely ignored during her lifetime, but is now widely accepted as having been key to discovering the structure of DNA. The new medal—the Royal Society's first to carry a woman's name—has a purse worth £30 000 (approximately $42 000).

Franklin died four years before the Nobel Prize in Medicine went to Francis H. C. Crick, James D. Watson, and Maurice H. F. Wilkins for the discovery of the structure of DNA. "It has been a long haul to bring Rosalind's contribution into the light of day," says the University of Cambridge's Joan Mason, who has given lectures on Franklin's research. Watson, now at Cold Spring Harbor Laboratory in New York State, agrees: "It's a great idea, not just honoring a woman, or a crystallographer, but also the memory of a fantastic scientist and a good friend."

But according to Franklin biographer Lynne Elkin of California State University, Hayward, Watson and Crick did not give Franklin's contribution its due in their seminal 1953 *Nature* article. She says that it was not until years later, in his book *The Dou-*