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Budget crisis forces hard choices on US high-energy physics

Washington

US high-energy physicists, facing deep budget cuts and divided on their priorities, have been given six months to come up with a consensus on the future direction of their \$700 million research programme.

Peter Rosen, head of the high energy and nuclear physics office at the Department of Energy, asked the department's High Energy Physics Advisory Panel (HEPAP) last month to revisit a report that it produced in 1998 on the future direction of the discipline in the United States.

Rosen believes the new study is needed by this autumn to shore up support for the high-energy physics programme in Washington. Officials in both Congress and the Clinton administration have expressed concern about the what they perceive as a lack of clarity about the programme's goals.

"There's a lot of questions about whether the community really deserves the funding which it asks for," says Michael Lubell, head of public affairs at the American Physical Society in Washington. Lubell says that the field badly needs to make more of the spin-offs from particle physics — such as the invention of the worldwide web and several medical technologies — instead of relying on the brilliance of its research to make the case for funds.

Many observers say that since the collapse of the Superconducting Super Collider project in Texas in 1993, high-energy physics has struggled to regain prestige in Washington.

Areas of physics that were once far less fashionable have won more support — solid-state physics, for example, will benefit from President Clinton's recent nanotechnology initiative. But the budget for high-energy physics has been frozen for several years, causing substantial staff reductions at the two largest particle-physics laboratories, Stanford Linear Accelerator Center (SLAC) in California and Fermilab in Illinois.

A meeting of HEPAP at Fermilab last month was told that the two laboratories are facing a \$50 million shortfall in the next financial year, under the Department of Energy's budget plan. Last summer, the laboratories — aided by the fact that Fermilab is



"NEUTRINO FACTORY" IN RACETRACK SHAPED RING...

in the district of Dennis Hastert (Republican, Illinois), the speaker of the House of Representatives — persuaded Congress to add some \$18 million to the budget proposed for them by the administration.

Leaders of the programme are hoping, meanwhile, that the study requested by Rosen will help to provide direction for the field. "It will be a unifying process for the

community," predicts Jonathan Dorfan, director of SLAC.

The 1998 study said that the top priority was to operate existing facilities at SLAC and Fermilab. It added that research and development work should continue on a proposed electron-positron collider, the Next Linear Collider (NLC), in order to complete a conceptual design for it, and that extended research programmes should investigate two other machines, a muon collider and a very large hadron collider.

Some sources in the high-energy physics community say that Rosen wants the new study to sharpen the focus of this agenda by calling explicitly for the construction of the NLC. But not everyone has rallied behind the NLC. Some physicists believe that, at an estimated cost of about \$5 billion, it is too expensive to be built in the United States in the foreseeable future, and that the community should be exploring other options instead.

"The high-energy physics programme will go the way of the fusion programme if it pursues the NLC as its best bet," warns John Peoples, former director of Fermilab. The

UK science spend 'not sensible'

London

Increases in the British government's spending on fundamental science are being funded by cuts to research in more directly applicable areas, a cross-party group of members of parliament (MPs) warned this week. They said that "a policy of robbing Peter to pay Paul is neither sensible nor sustainable".

A report from the House of Commons select committee on science and technology points out that civil departments, such as the Ministry of Agriculture, Fisheries and Food (MAFF) and the Department of Health, have suffered a long-term decline in support for their research spending. This is in spite of their role of informing government policy, addressing gaps in the science base and responding to short-term research needs.

The committee says that although public confidence in agriculture is at an all-time low and the farming industry is in crisis, MAFF's research and development budget has been cut by ten per cent in the past three years.

The committee says this decline should be halted or reversed. It also recommends that the minister for science be elevated to Cabinet level. At present science is represented within the Cabinet by the Secretary of State for Trade and Industry, Stephen Byers.

The lobby group Save British Science wants a Ministry of Science — something the cross-party group of MPs does not agree with. But Peter Cotgreave, director of Save British Science, said elevating the position of the science minister would be "a decent compromise".

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