editorial

Getting the most out of high-energy dollars

Although not totally unexpected, it still comes as a shock to hear Wolfgang Panofsky in his article (page 23) on the status of high-energy physics point out that world leadership in this frontier discipline is on the verge of passing from the US to Europe. The main reason, of course, is financial. While the US budget for high-energy physics has been declining, the European investment in this area has been steadily increasing. Two years ago the European level of funding first exceeded the US level in real dollars and since then has climbed to the point where it now exceeds US funding by over $100 million.

US high-energy physicists agree that there is little hope of reversing this trend, given the country's current tight funding situation and emphasis on short-term payoffs. These conditions are especially hard on high-energy physics, which requires both big money and exceptionally long-range commitments. But in the past, whether funds have been easy or tight, Panofsky points out that high-energy-physics money could have been spent more efficiently if planning had not been hampered by the inherent mismatch between the long-range character of high-energy physics and the short-range year-to-year commitment of federal funds. He implies that now would be an appropriate time to consider how the government's funding procedures could be reformed to take into account the needs for long-term commitments in research areas such as high-energy physics.

The traditional funding procedures have always made the orderly planning of long-range programs in any area of research all but impossible. It is often not until the fiscal year is one-third over that the typical laboratory director finds out what his operating budget will be for the year. If this sum is substantially smaller than what was realistically expected, then emergency measures must suddenly be imposed, such as curtailing or abandoning programs or even eliminating staff positions. This annual budgetary guessing game is obviously grossly wasteful of money, effort and talent for any area of research that receives government funds. This problem is experienced in extreme by high-energy physics because of the enormous lead times involved in constructing accelerators or generating new experimental configurations.

An example of a more desirable budgeting procedure is the one enjoyed by CERN (European Organization for Nuclear Research), the chief competitor of US high-energy physics. Although CERN is supported by yearly contributions from 12 different nations, a procedure has been set up that makes possible reliable funding projections as far as four years into the future and specifies a firm commitment to a budget figure a year ahead of time. In the US the AEC publishes five-year forecasts for high-energy appropriations, but in contrast, these projections are not at all binding and may differ from the final budget by as much as a factor of two.

High-energy physics has long served as a symbol of US pre-eminence in physics as a whole. It is in our country's interests that scientists and government officials work together to find ways to ensure that the reduced funds we are now making available to this discipline be employed with maximum efficiency.

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