

Guidelines Stress Collaboration at an Early Stage

In presenting for discussion a statement by the International Committee for Future Accelerators (ICFA) to the fourth ICFA Seminar on *Future Perspectives in High-Energy Physics*, V. Soergel, until recently Director-General of Germany's national accelerator facility DESY, commented that any future large-scale accelerator project such as a TeV-class linear collider would not be acceptable to governments without the prior agreement within the particle physics community on technical parameters and a site. Speaking at the meeting which was held in Hamburg on 3-7 May at DESY, he saw the guidelines for international collaboration spelt out in an ICFA statement issued at the seminar as an important step in tackling what B. Richter, the Director of SLAC in California, felt was the most important aspect, namely "how to do things with the maximum efficiency".

ICFA is a 15-person committee comprising the Directors of major high-energy physics laboratories; the present Chairman is J. Peoples, the Director of Fermilab in the USA. It was set up by the International Union of Pure and Applied Physics (IUPAP) Particles and Fields Commission in 1976. The aims as redefined in 1985 are to promote international collaboration during the construction and exploitation of very-high energy accelerators, and to advise and exchange information on plans for regional facilities.

The statement, while largely reiterating the aims, nonetheless clearly indicates that collaboration must start at the early stages of future large-scale facilities, defined as those with a unique scientific potential of which only one should exist in a given field. Such facilities should be planned, designed and where appropriate built, by an international collaboration. Moreover, R&D should be carried out on an international basis before construction, and should be open to all countries and potential participating institutions on equal terms.

An agreement on an appropriate structure to review a scientific proposal for a facility by the scientific community should be set up before making formal approaches to governments. Governments, meanwhile, must be kept informed of progress.

The four models for collaboration identified by ICFA are:

- National or regional facilities built and operated by a host country where planning and the choice of parameters should be done internationally.
- Large facilities needing outside funding along the lines of the model used to build DESY's HERA e^+e^- collider.

- Large projects requiring collaboration between several countries, with comparable shares from each to cover both construction and operating costs. In this case the facility would be common property regulated by government agreements.
- Very large projects built and operated within the framework of an international organization such as CERN.

Other ideas for promoting collaboration which arose during the discussion ranged from avoiding a bureaucratic overhead (A. Skrinsky, Director, Institute for Nuclear Physics, Novosibirsk, Russia) to maximizing the advantages to non-host countries to ensure a stable framework (S. Wojcicki, SLAC). Several felt there was a need to promote construction at, or under the auspices of, existing centres to reduce costs and to relieve the pressure on existing labs, something that is acutely felt by the particle physics community in the USA while the SSC collider is being built in Texas.

World Linear Collider R&D Agreement Endorsed

The world now has at the Stanford Linear Collider Center (SLAC) in California an e^+e^- linear collider which is running routinely as a high-energy physics machine. More than 700 Z^0 particles will be produced each day this year and upgrading means that the luminosity should more than double from today's value by the end of 1994 (to 25% of the design value).

R. Siemann from SLAC speaking at the ICFA Seminar in Hamburg on 5 May described other "dramatic changes in the prospects for linear colliders". There has been considerable progress these last 10 years on specific components, and a number of prototype and test facilities are being set up (see p. 84).

There are some negative aspects. Discussions are presently focussed on a 0.5 TeV e^+e^- machine instead of the 1-2 TeV considered when the SSC and LHC hadron colliders were being planned. But the time-

scale is optimistic as one must wait for the results from prototypes; it may even be beyond "human time-scales" if one waits for results from the large hadron colliders. The main questions are therefore:

- Is a 0.5 TeV machine an end in itself or a stop along the way?
- Are superconducting linacs suitable for the TeV range?
- Will a technically conservative 0.5 TeV collider say enough about construction and operation at multi-TeV energies?

U. Amaldi (CERN) commented during a general discussion on e^+e^- colliders that 1-2 TeV should be the long-term goal, 0.5 TeV is not a compromise as the physics case is strong, and there are good synergies with the large hadron colliders. B. Richter (SLAC) felt that while "any energy should be a stop along the way", from the machine builders' point of view, the only linear collider that exists is "an



The International Committee for Future Accelerators (ICFA) panel on international collaboration at the ICFA Seminar on *Perspectives in High-Energy Physics*, Hamburg, 3-7 May 1993. From the left: G. Flügge (Aachen; European Committee for Future Accelerators), B. Richter (Director, Stanford Linear Accelerator Center), V. Soergel (Member, DESY Scientific Council), A. Skrinsky (Director, INP, Novosibirsk), S. Wojcicki (Stanford; IUPAP), and S. Yamada (Tokyo).



From the left, W.O. Lock, A. Skrinsky and J. Peoples. Owen Lock, who retired from CERN last year, was the Secretary of ICFA for 15 years. He is succeeded by R. Rubinstein from the Fermi National Accelerator Laboratory (Fermilab), Michigan, USA. Alexander Skrinsky, Director, Institute for Nuclear Physics, Novosibirsk, Russia, was succeeded last year as the Chairman of ICFA by John Peoples, the Director of Fermilab.