facilities and organizations

EUPRO Progresses à la carte

The European Union for Physics Research Organizations (EUPRO) currently groups representatives of 14 organizations. It focuses its efforts on promoting à la carte cooperation among typically 3-4 member organizations on topics in mainstream physics, starting with facilities. Hans Chang, EUPRO's chairman and the Director of the Dutch funding agency FOM, told the EPS Council in Bad Honnef that following its meeting in February in Munich, EUPRO is waiting for the various member organizations to discuss the science case, cost and location of a high magnetic field facility before taking up the question of possible cooperation. A recent workshop concluded that a 100 T device with a pulse duration of 1 seconds is too ambitious, so proposals and further studies are being prepared for moving in stages to 0.01 and 0.1 seconds.

Five member organizations have agreed to discuss possible cooperation in the area of free-electron lasers where four facilities — in Holland, France, Germany, and Italy — have already filed a joint application for support to the European Union's Training and Mobility for Researchers programme. Having studied the results of a second Experts Meeting organized by the OECD's Megascience Forum, synchrotron radiation facilities are no longer on EUPRO's agenda. But this is not the case for neutron sources. Several reports will appear in 1996 (see below) dealing with the scientific case and technical options for the proposed European Neutron Source (ESS). European governments and funding agencies will need to analyze them in the light of the US Department of Energy's (DoE) decision not to continue with the the large, reactor-based, Advanced Neutron Source. In line with the DoE's thinking, Dr. Chang also feels that with the renewed interest in the US for a major spallation source, there should be collaboration with other laboratories active in the field. These are the Los Alamos National Laboratory (which seeks an upgrade to the world's most powerful powerful proton accelerator LAMPF), Argonne National Laboratory and the Brookhaven National Laboratory (1-5 MW short pulse spallation source proposed) of 200 so-called permanent Standing Bodies, following a Ministerial-level meeting. With 23 countries participating, the Forum has operated mainly through meetings of experts to generate and distribute information in selected fields. The next CSTP Ministerial meeting in September will be asked to decide if it wants to provide a more stable arrangement for preparing Ministerial-level discussions on cooperative agreements in science. The proposal, which was agreed to by the Forum in January at its 6th meeting and has been sent to Ministers for consultation (the UK and Germany appear to object to the cost), is to have à la carte working groups set up by interested countries to discuss specific areas. The groups would be open to non-OECD countries on a case-by-case basis. The Forum has carried out very useful reviews of six fields involving large facilities and/or programmes and has identified a number of policy issues.

US Reprogrammes for Spallation

Following the US Department of Energy's (DoE) decision in February 1995 not to continue with the 3000 MSUS enriched uranium fuelled Advanced Neutron Source (ANS) reactor facility owing to its cost and the nuclear proliferation issues, the DoE has indicated that its aims have been "reprogrammed". It is now thinking in terms of a 5 MW pulsed spallation source (tentatively called PSNS) with the Oak Ridge National Laboratory (the proposed ANS site) as the preferred site. There is a "chance" it could be constructed because the US lacks a large neutron source of the Institut Laue-Langevin class (indeed, a 1993 US review recommended the ANS and a spallation source). With the US President's budget request seeking 8 MSUS for design activity, there should be collaboration with other laboratories active in the field. These are the Los Alamos National Laboratory (which seeks an upgrade to the world's most powerful powerful proton accelerator LAMPF), Argonne National Laboratory and the Brookhaven National Laboratory (1-5 MW short pulse spallation source proposed) and the Berkeley National Laboratory (which is studying, among other things, an H⁺ source). The DoE also seems to be interested in collaborating with Europe on R&D for future spallation sources. A technical study of the proposed 5 MW European Spallation Source (ESS) under H. Lengeler from CERN, the ESS Project Leader, is being supervised by the ESS Interim Council. It will finish in December 1996, at the same time as two parallel studies led by the ESS Scientific Coordinator (J.L. Finney of London University) on users' requirements and on instrumentation requirements and the scientific case. All three studies will report in autumn 1996 to allow time to prepare an application to the next European Union Framework Programme. Specialists are presently analyzing options and scientific developments. It is unclear at what stage and at which level international discussions could take place once the European studies come together in 1996.

Nuclear Council to be Considered

One of the themes running through discussions of ways to coordinate better the promotion of new facilities involves creating a partnership between scientists and government administrators. The conclusions of a meeting entitled International Cooperation in Nuclear Physics (Amsterdam, 8-9 December 1994) organized by Herman Feshbach from MIT who chairs IUPAP's International Committee for High Intensity Accelerators (ICHA: see EN, Sept. 1994, p. 156) indicated that there is some resistance to the proposal to form a Forum of Senior Administrators with an advisory group of scientists. This mainly comes from the concern that international-level discussions involving administrators may affect both national programmes and regional coordination through bodies such as the Nuclear Physics Europe Coordination Committee (NuPECC). The fact that as many as 23 countries sent representatives to the Amsterdam meeting confirms that the future of nuclear physics lies in international cooperation. So governments will have to be involved. The meeting thus voted unanimously to consider an International Council for Nuclear Science which would include administrators. A second meeting will be held in conjunction with the 18th International Conference on Nuclear Physics (Beijing, 22-26 August 1995) to aim at articulating the arguments for the Council. One first needs to establish who can appoint such a body, its composition, to whom it reports, and how its agenda is decided. Several models of frameworks for international cooperation were discussed, including the US Nuclear Science Advisory Committee (a committee of scientists chosen by and reporting to the Department of Energy), NuPECC (an Associated Committee of the European Science Foundation appointed by the ESF Executive Council) and the CERN Council (comprising an administrator and a

K.H. Chang, the Director of EUPRO.

H. Feshbach, the Chairman of ICHIA.
scientist from each CERN Member State).

Professor Feshbach thinks possible extremes are a IUPAP body or what he calls "a new paradigm" based on a working group of scientists and administrators appointed by the OECD (such working groups will be decided upon by the OECD next September as a follow-on to its Megascience Forum — see above). He believes physical societies would naturally be responsible for appointing scientific members, a role that is fully endorsed by Renato Ricci who chairs the EPS Nuclear Physics Division. National bodies related to the societies and to specific institutions could provide useful interfaces through channels such as NuPECC and the EPS Nuclear Physics Division Board. It seems that this would be very important for generating such as NuPECC and the EPS Nuclear Physics Division Board. It seems that this would be very important for generating a "new paradigm" based on a working group scientist from each CERN Member State).

The forthcoming deadline for applicants for magnet time allocation (September 1995 to February 1996) at the

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According to a recent report of a government review panel, university spending on physics research was about 205MHFL in 1993. Teaching staff carry out research in Holland so research will be affected by the cuts in the university budget. There will also be a shift of students from universities to polytechnics, which are cheaper (for students). Combined with demographic changes, university student numbers will probably decrease by 10% in 1995/6. Overall, university expenditure on physics research is expected to go down by 5% in 1994-99.

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Regarding non-university spending, FOM (the principle funding agency for physics) receives about 90MHFL from the science and technology funding agency NWO for running costs and about 7MHFL for investments. There are also funds from other sources giving a total of about 130MHFL in 1995, which is roughly the same as last year (35-40% is spent on research in universities). But the amount will decrease by about 2MHFL p.a. in the coming years owing to adjustments within NWO. Parliament has resisted the cabinet's proposal to reduce the funds for agencies such as NWO so it is unclear if the overall NWO budget will decrease.

The NWO runs programmes of its own, including several physics projects giving a total NWO expenditure for physics research of about 145MHFL in 1995. This is a lower limit since physics research is also funded from outside NWO.

One concludes that non-university government funding for physics research will decrease by several percent in the years to come.

Government and industry together spend about 11000MHFL each year on R&D (where government spending is 4900MHFL in 1995). In terms of GNP, industry spending was 1.0% in 1993, down from 1.2% in 1987, while government spent 0.8% and 1%, respectively. So the reduction in government support for research via the universities and funding agencies comes at a time when industry is cutting its spending.