

Nazionale di Fisica Nucleare (INFN) envisages a major future activity centred on the study of mesonic and quark degrees of freedom of nuclei. In the medium term, this type of research is directed towards the CEBAF facility (4 GeV high duty cycle electron accelerator) in the USA. In the longer term, for the study of quark degrees of freedom, the INFN has expressed strong interest in the high energy European electron facility that is discussed in detail in the French report.

European Collaboration

When looking at nuclear physics in Europe, the field at first sight gives the impression of being largely dominated by national, uncoordinated activities. Funding comes from national agencies; accelerator centres are built and operated by individual nations; decisions concerning the future are mainly taken on a national basis.

At the same time, however, the experimental research itself takes place on a very much European scale. The accelerators situated in Europe are fairly complementary in their performance so experiments must often be done at a foreign laboratory in response to the physics goals — which dictate the use of the most suitable accelerator. Consequently, many research groups are composed of physicists from different countries. The resources of the national laboratories, and the beam time, are attributed to these groups solely on the basis of the merits of the proposed experiment, as evaluated by a programme advisory committee which is almost always international in character.

This international collaboration in most cases takes place on an informal basis, without backing by contracts or agreements between agencies, and is dictated only by the common interests of the researchers who pursue common scientific goals. *De facto*, European collaboration in nuclear physics is very strong — but it has a low visibility.

It is clear that this mode of operation of nuclear physics will need to be modified in the future. As research projects assume a more complex and larger scale, formal agreements for multinational development are needed. This applies to both the construction and exploitation of apparatus needed for the experiments of the various European groups, and, even more so, to the consideration of new facilities like accelerators that will increasingly have a European scale. To cite a few examples that presently are being discussed:

— EUROBALL, the ambulatory, multi-element, large solid angle photon detec-

tor, to be used at various heavy-ion facilities;

— the Pb-injector at CERN that should provide relativistic heavy ion beams;

— a future high energy, high duty-cycle European electron accelerator.

Any such project requires that the many steps needed, from the concept and initial planning to proposal and realization, must be taken in a common, European framework.

NuPECC

NuPECC, the Nuclear Physics European Coordination Committee, a body composed of European physicists has recently been set up to advance planning and similar activities in nuclear physics. This body, with its members nominated initially by the various national funding agencies or physical societies, aims to:

— strengthen European collaboration;

— optimize the use of existing national facilities, facilitate the pooling of resources and encourage the development of new instrumentation;

— act as an advisor if requested.

The first steps to improve communication within the European nuclear physics community have been taken. An inventory of facilities has been made, and the structure and editorial board for a news bulletin "Nuclear Physics News", to be edited together with the Board of the Nuclear Physics Division of the European Physical Society, were established earlier this year.

It is clear that a body such as NuPECC would work best within the framework of established European collaborations in science. The common interests of NuPECC and the European Science Foundation (ESF) in Strasbourg have meant that NuPECC has recently evolved into being an Associated Committee of the ESF, a framework that promises to be very fruitful.

The first action of NuPECC as an associated committee of the ESF relates to the headline of this contribution: NuPECC will be working to bring together a number of outstanding nuclear physicists in Europe in order to elaborate a long-range plan for European nuclear physics.

REFERENCES

- (1) *La Physique Nucléaire Fondamentale: Rapport présenté à l'Académie des Sciences par la commission chargée de l'enquête demandée par le Ministre de la Recherche et de la Technologie*; G. Charpak, P. Darriulat, M. Goldman and M. Jacob (1990).
- (2) *Künftige Entwicklung der Grundlagenforschung in der Mittlereenergie- und Kernphysik: Bericht des ad-hoc Ausschusses des BMFT*; A. Faessler, P. Kienle, K. Kleinknecht, A. Richter, H. Specht and J. Wess (1989).
- (3) Memorandum by the Chairman of the Nuclear Structure Committee to the Science and Engineering Research Council (1990).
- (4) Report not yet released.
- (5) Private communications.

A Nuclear Theory Centre

The French audit of nuclear physics by members of the Académie des Sciences (see above) recommended the setting up of a nuclear theory centre to help small, sub-critical groups stay in the mainstream, especially in medium energy nuclear physics. A 1988 report of the state of nuclear theory in the USA by a panel of the Nuclear Science Advisory Committee reached a similar conclusion in recommending the creation of at least one theory institute in the United States.

While little has been done so far at the European level to follow up on the idea, the US institute is now in business following acceptance by the Department of Energy of a proposal made by a consortium based on the University of Washington, Seattle. The first 3-5 month programme, on quarks in nuclei, intended for 10-15 scientists at the advanced postdoc level started in March

with 5-8 international participants.

The plan is to build offices for the institute and to share the facilities of the University's physics department. A permanent Director to replace the interim Director, Professor Ernest Henley is being sought, together with two senior staff. Some funds are available to help meet visitors' salaries — an important element if the institute is to stimulate an increasingly interdisciplinary nuclear physics community, and to help train graduate students and postdoctoral fellows.

Two more programmes — on nuclear astrophysics and on relativistic heavy ion reactions — will be organized in 1990. Those interested in participating should contact Prof. E.N. Henley, Dept. of Physics, FM-15, Univ. of Washington, Seattle, WA 98195; Tel.: +1-206-543 27 70; Fax: +1-206-685 06 35.