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**DOCUMENT FOR THE 2020 UPDATE OF THE  
EUROPEAN STRATEGY FOR PARTICLE PHYSICS**

**Report by Working Group 3 on  
Relations with external bodies and fields of physics**



## Report by Working Group 3

### Relations with external bodies and fields of physics

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#### **Current relations with other groups and organisations**

CERN was originally founded under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the two organisations continue to entertain excellent relations.

CERN has many agreements with universities, national laboratories and intergovernmental organisations in a variety of research areas. These agreements generally relate to cooperation on projects of common interest and mutual benefit in the educational, scientific or technical fields, rather than to interactions on high-level policy issues. An exception to this is CERN's status as observer at the General Assembly of the United Nations. Some of the areas covered by the agreements are not related to particle physics but concern CERN's unique capabilities in accelerators, particle detectors and information technology, which were initially developed for particle physics experiments.

Members of the CERN Management are also present in the European Committee for Future Accelerators (ECFA) and the European Strategy Forum on Research Infrastructures (ESFRI). In return, the European Union is an observer at CERN and the ECFA chair has an *ex officio* seat in the CERN Council when it meets in restricted mode. Similarly, the Nuclear Physics European Collaboration Committee (NuPECC) and the Astroparticle Physics European Consortium (ApPEC) are invited to the CERN Council's meetings that are dedicated to discussing European Strategy matters. The three organisations ApPEC, ECFA and NuPECC collaborate closely through mutual representation in their respective meetings and through joint workshops.

#### **Current CERN support for nuclear and astroparticle physics**

CERN operates several facilities for nuclear physics experiments which are fully integrated into its basic programme. The European Consortium for Astroparticle Theory, EuCAPT, was established recently and CERN was chosen as its first hosting hub. A theory centre was recommended in the ApPEC roadmap, and this initiative is also in line with the corresponding recommendation in the 2013 European Strategy for Particle Physics.

CERN's "Recognised Experiment" status allows collaborations whose experiments are not based at CERN but are in fields relevant to its scientific goals to use CERN's infrastructure, i.e. to hold meetings, to use offices and, in some cases, to receive administrative support. The research fields of the Recognised Experiments range from accelerator-based particle physics experiments to ground-based and satellite-based astroparticle physics experiments. The procedure for the granting of Recognised Experiment status is well established and transparent,

and includes a dedicated scientific committee that evaluates the applications and makes recommendations to the CERN Management. Approved projects are periodically reviewed by this committee.

The detector technologies used in Recognised Experiments are often very similar to those used at CERN, and the general trend is for experiments to become larger and more complex. Many forthcoming experiments, particularly in astroparticle physics and nuclear physics, could derive significant benefit from CERN's expert advice and technical infrastructure. There is no direct link between becoming a CERN Recognised Experiment and receiving technical support. In some cases, arrangements can be made for services to be provided in a cost-neutral way. Such arrangements already exist with a few experiments, but there is no well-established procedure for non-CERN experiments to apply to CERN for technical support. At present, informal requests are made through individual contacts and decisions are taken by the CERN Management on a case-by-case basis.

### **Recommendations for extending the current level of support**

Links with closely-related fields such as astroparticle physics and nuclear physics should be strengthened through the exchange of expertise and technology in areas of common interest and mutual benefit. In this context, the procedure for applying to CERN for technical support needs to be made known to the community. Working Group 3 recommends that a new procedure for applying to CERN for technical support should be established, with periodic progress reviews after approval, along similar lines to the procedure for Recognised Experiments. Such support should be limited to providing technical know-how and infrastructure services in a cost-neutral way for CERN, as excessive requests would have a negative impact on CERN's resources. Applications should be thus be prioritised by the respective organisations, ApPEC and NuPECC.

It should be noted that CERN's know-how and experience in managing the construction and operation of a large research infrastructure could be very beneficial in the context of major projects being considered in astroparticle physics.

### **Open issues**

If CERN were to participate in experiments or in the construction and operation of facilities at a location away from its site, substantial human and material resources might be required from the CERN Budget. Although the pursuit of common scientific goals might generate beneficial synergies, such a participation must not be allowed to compromise CERN's core mission, i.e. that of pursuing accelerator-based particle physics. The exploration of such possibilities should be entrusted to a dedicated working group established by the Council.