

## TIARA contribution to the European Strategy of Particle Physics

World class state-of-the-art particle accelerators are vital tools for basic research in the field of Particle Physics. The development of such accelerators, ever surpassing the frontiers of reachable energy and intensity, requires a vigorous and sustainable R&D programme. For example, the recent success of the LHC at CERN was built up on R&D spanning over a period of more than 15 years. It is also worthwhile stressing that significant accelerator R&D synergies exist with other fields of science requiring the use of accelerators, including light sources and neutrons, as well as for many other sectors such as health, environment, energy production and industry. This can be seen from the report TIARA-REP-WP4-2011-006 on “Key Accelerator Research Area” (<http://cdsweb.cern.ch/record/1396236> ). Exploiting these synergies and the organizational challenges this presents is one of the key objectives for TIARA.

In 2001, ECFA stressed the importance and the need to strengthen accelerator R&D (ECFA/01/213). In addition to the essential national on-going activities and in close coordination with them, ESGARD (European Steering Group on Accelerator R&D) endeavored to establish strong, consistent and collaborative projects with the incentive of the European Framework Programmes.

The importance of accelerator R&D was emphasized further in the European Strategy for Particle Physics established in 2006. Up to now, more than 10 FP6 and FP7 large projects have been launched in the past 8 years for a total cost exceeding 200 M€ out of which about a third was provided by the EC. Though this represents a limited fraction (which would need to be increased in FP8) of the overall R&D effort carried out in Europe, it has been essential to enhance further the collaboration between CERN, national laboratories and universities.

New technological challenges are in front of us to study further recent discoveries and explore new territories. These challenges can be taken up provided a stronger collaborative and sustainable European programme is set up based on the national and international R&D activities and infrastructures. To this regard, a strong coordination between CERN, relevant international bodies for other fields of research, national laboratories and universities is very important.

Finally, one of the key issues for the development of new generation of accelerators is to ensure a vibrant Education and Training programme in the field of accelerator science and technology. The survey carried out by TIARA (TIARA-REP-WP5-2012-006, <http://cdsweb.cern.ch/record/1442599> ) sheds interesting lights on the situation in Europe and shows that there is only a handful of dedicated full-time formal training programmes in accelerator science.

In order to allow one to develop a programme enabling the realization of future accelerators for particles physics on the medium and long term, it is essential that

- accelerator science and technology, and the corresponding R&D, be acknowledged as a vital need with the highest priority within the update of the European Strategy of Particle Physics,



- this message be widely conveyed to the European Commission and national funding authorities with a recommendation to amplify their investment effort in the area of accelerator R&D across all relevant fields of research,
- the education and training in the field of accelerator science and technology be strengthened
- a strong support be given to TIARA (Test Infrastructure and Accelerator Research Area, [www.eu-tiara.eu](http://www.eu-tiara.eu)), the aim of which is to develop further and support state-of-the-art research, competitiveness and innovation in a sustainable way in the field of accelerator Science and Technologies in Europe in close coordination with CERN, other relevant international bodies and national R&D activities and infrastructures.

We believe that such recommendations are essential to foster the effort of the community in accelerator science and technology and will allow Particle Physicists, and others, to confront new challenges pushing further the frontiers of knowledge and innovation.

The TIARA Governing Council and Steering Committee.