

EU Strategy for Particle Physics and the art of a Global view without the African continent

An opinion from two physicists attending the update of the EU strategy symposium at Granada, May 13-16, 2019



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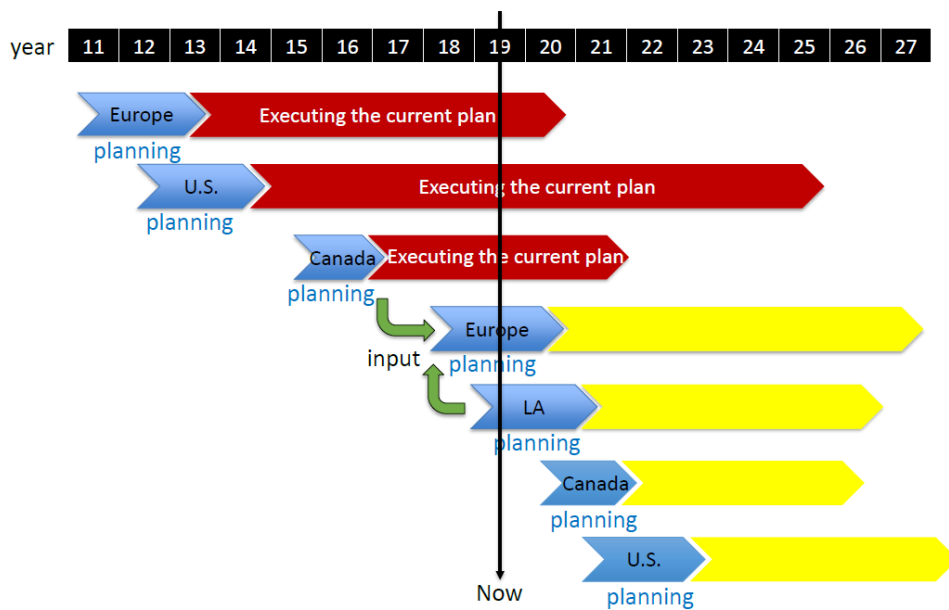
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The scientific community of particle physics got together in four-day symposium to review and discuss contributions to the European strategic vision for research and development in the field. Although initiated by the particle physics community of Europe, with CERN as the major player, the gathering saw the regional participations of North America and Asia with well-established and advanced research institutes in particle physics. It was therefore an international gathering of over six hundred scientists from the major stakeholders to define the strategic priorities of the field for several years or decades ahead.

Given the success of the particle physics research that culminated with the discovery of the Higgs boson in 2012 and the extensive searches for “new physics” which have so far yielded nothing spectacular to shake up and define the directional evolution of the field, strategic priorities beyond the LHC Run2 need to be fleshed out considering international resources in human, logistical and financial capitals.

Considering the scarce resources, it is more important for the world community of particle physics and funding agencies to come together and define a concerted strategy. Indeed, Europe, as well as the major other regions of the world, could define their strategies for particle physics with inputs from the international community (see the sketch below). Perhaps the evolution of the field and the leadership its direction may follow from a bold definition of a strategy without any assumption of political atmospheres nor expectations of what other regions may or may not do. To arrive at the definition of a strategy, many inputs from the international community were collected in the form of proposals, and then discussed and debated in plenary sessions and topical parallel sessions. It was a true spirit of international cooperation that forms the common denominator of the today’s culture of scientific activities.



Sketch of the Long-term worldwide strategies in Particle Physics, Nuclear Physics and Cosmology. Europe has performed the Update of the strategy in Granada in May 2019. Next is Latin America. Then Updates from Canada and US will follow around 2020-2021. Courtesy of Y-K. Kim.

Particle physics draws on worldwide efforts with small yet steadily increasing presence of developing countries from Asia, South America and Africa. While we can be proud of African countries such as Morocco, Egypt and South Africa gaining footholds in major international projects at the LHC, the cooperation among African countries and between them and the rest of the world is not well developed. This is especially the case for sub-Saharan Africa, which is one of the most rapidly developing regions in the world with great educational needs. Indeed, from the institutional representations at the symposium, it was evident, yet again, that in many areas of fundamental and applied physics research, Africa was missing. In order to extend—or augment—the existing international scientific ties to this continent, in the development of the European strategic vision for particle physics, the European engagement in physics education, communication and outreach, toward developing countries, should be strengthened and sustained also in targeted programs toward Africa. The success of these targeted programs would be sufficiently encouraging to provide motivation for a review of goals and for consideration of mechanisms of sustainability. The central long-term objective—to be integrated in the development of the strategy—would be to help improve higher education in Africa across national borders and in so doing, to contribute in a significant way to the development of science and technology on this continent. We believe that maintaining the leadership of the organization of targeted education programs in Africa, in partnership with other interested institutes and African governments and policy makers, presents a unique opportunity for Europe to pioneer the scientific and technological development of a region of more than a billion people with large unmet needs but vast human potential.

Africa, a rich continent in natural resources, is still lagging behind in innovation, transfer of knowledge, mass education, and its economies are not growing as expected to meet the needs of its fast-increasing populations. The African youth represents more than 70% of the population, and is, very often, unskilled,

unemployable, falls back into poverty, and struggles to cope. Africa further faces the issue of the retention of its qualified young people.

However, African initiatives promoted by African countries with their own resources—in some cases in partnerships with international institutes—are numerous. Among them in our field, to name a few, we cite the East Africa Institute for Fundamental Research (EAIFR), the Egyptian Network of High Energy Physics, the similar one, RUPHE, in Morocco, the excellent infrastructure of HESS experiment in Namibia, not to forget the prestigious universities in South Africa and its high-level research laboratories.

To help address the aforementioned issues effectively, we believe that African educational and research institutes should participate in the strategic discussions and planning of major fields such as particle physics. We feel that the African participation in these discourses has major benefits. This would allow the international partners interested in capacity development and retention in Africa to integrate inputs from Africans themselves, rather than to default to their own views of how they may want to “help” Africans. In addition, the help—in whichever form it is delivered—will have more impact. In this respect, we deplore the lack of African participation in the European strategies of particle physics and its associated symposia.

It is our hope that the next times we meet to define or review strategies—European, American, Japanese or Chinese—we will encourage constructive efforts to attract the presence and participations of developing countries and their inputs in order to improve research and educational partnerships that are beneficial to all parties.