



AVVISO DI SEMINARIO

Venerdì, 30 gennaio 2015, ore 11.00

Sala Asinelli – INFN-CNAF

Via Ranzani, 13/2, Bologna

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Towards a Future Circular Collider

Abstract. The award of the 2013 Nobel Prize for Physics acknowledged the leading role of Europe in particle physics, which has a global community of over 10'000 scientists. To reinforce its pole position throughout the 21st century, Europe must be ready to propose an ambitious post-LHC accelerator project by 2018/19. This is a main recommendation of the updated European Strategy for Particle Physics, adopted by the CERN Council in May 2013. The Future Circular Collider (FCC) conceptual design study has been initiated as a direct response to this high-priority recommendation.

Extending the high-energy frontier permits direct exploration of yet unknown particles. High-precision measurements to study rare processes can provide indirect evidence of new phenomena. The need to push the present energy frontier within the 21st century in an economically sustainable way calls for a large circular collider. It is prudent to explore all options (pp, ions, ee, ep collisions) and it is mandatory to document the opportunities for “New Physics” for the different scenarios. Considering the existence of designs for linear e+e- precision and energy-frontier colliders (CLIC, ILC), it is vital to provide alternative designs at the same level of detail for a large, circular hadron collider and a circular lepton collider. With the establishment of the roadmap for the LHC exploitation until 2035 a time window of 20 years opened for design and implementation of such a facility. Based on the experience of other large-scale science projects in general and colliders in particular, this is considered both necessary and sufficient.

This seminar gives an overview of the study, its goals and its organisation. It presents the open, integrating and extensible collaboration model aiming at federating organisations world-wide to form a platform for a visionary large-scale research infrastructure for high-energy physics under European leadership.

Consensus agreement among experts exists that also for technologies such as computing, which are subject to fast moving evolution it is not too early to put the seed. Establishing world-spanning, collaborative models to create, operate and extend computing services for high-energy physics and beyond call for early integration of all potential partners. Models for cost/value efficiency improvements, which are decoupled from the commodity product cycles are high on the agenda, and remain to be conceived.