Martedì 29 Novembre 2016

Aula Magna del Dipartimento di
Fisica ed Astronomia
ore 15:00

Future Circular Colliders project: a long term vision for High Energy Physics.

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A possible long-term strategy for high-energy physics at colliders, after the exploitation of the Large Hadron Collider (LHC) and its High Luminosity upgrade, considers a tunnel of about 100 km circumference, which takes advantage of the present CERN accelerator complex. The Future Circular Colliders (FCC) concept follows on the successful experience and outcomes of the LEP-LHC machines. A possible first step of the project is to fit in the tunnel a high-luminosity e^+e^- collider aimed at studying comprehensively the electroweak scale with centre-of-mass energies ranging from the *Z* pole up to beyond the $t\bar{t}$ production threshold. A 100 TeV proton-proton collider is considered as the ultimate goal of the project and defines the infrastuctures.
Future Circular Collider study groups have been formed in a 5 years design study hosted by CERN, aiming at a Conceptual Design Report and a review cost in time for next European Strategy milestone at the horizon of 2020, when the full statistics of the LHC Run 1 and Run 2 will have been analyzed.
I will review the status of the Design study for both machines, giving an emphasis on the e^+e^- collider potential first step.