



Dipartimento di Fisica e Sezione INFN di Torino

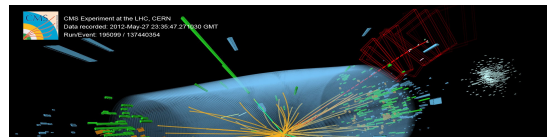
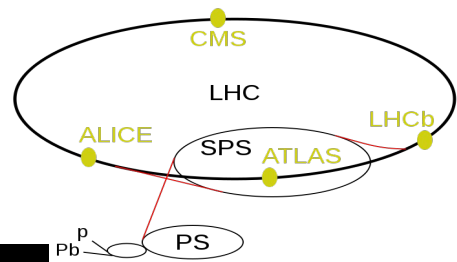


PHYSICS COLLOQUIUM

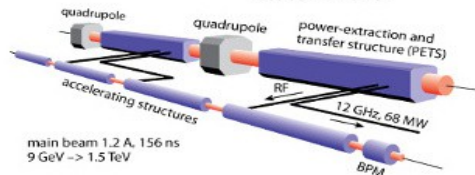
Friday 18 November 2016, **15:00, Aula Magna**

Michelangelo Mangano
(CERN)

The Large Hadron Collider and Beyond: Future Paths in High Energy Physics



drive beam 100 A, 239 ns
2.38 GeV → 240 MeV



main beam 1.2 A, 156 ns
9 GeV → 1.5 TeV

New project under consideration:
FCC: Future Circular Collider

Design Study by 2018 (for next EU Strategy Update of HEP)
Collision p-p, ions-ions, p-ions but also e⁺e⁻ at 350 GeV and e-p

16 T ⇒ 100 TeV in 100 km
20 T ⇒ 100 TeV in 80 km

LEGEND
LHC tunnel
HEP, LHC without option
potential FCC locations

The first run of the LHC has redefined the boundary conditions for the discussion of future HEP facilities. On one side, the discovery of the Higgs and the knowledge of its mass clearly define the needs, the challenges and the prospects of future precise measurements of its properties. On the other, the lack on new physics signals stimulates reconsideration of theoretical scenarios, and opens a broad discussion of the best ways to move forward. I will informally review these issues, summarize the most recent initiatives, and provide some personal perspective.