Startup Planning for the LHC and Operation Scenario for Forward Physics

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This contribution describes the status of the LHC and operational scenarios for forward physics.

Short Summary with References

Commissioning of the LHC with beams started in September 2008. Initial progress was excellent and a lot of very useful information obtained. Details can be found in a series of LHC-Performance-Notes. In particular, it was possible to perform detailed optics checks in the LHC and to determine and correct the β-beating [1].

Unfortunately, the commissioning stopped after few days with an incident which required a major repair, resulting in a longer shutdown [2]. The LHC is scheduled to restart for operation with beams in November 2009.

Special high-β optics have been prepared for forward physics for the TOTEM experiment [3] and the ALFA option [4] of the ATLAS experiment. The very high $\beta^* = 2625\,\mathrm{m}$ optics for ATLAS is described in [5].

Both an intermediate $\beta^* = 90\,\mathrm{m}$ and a high $\beta^* = 1535\,\mathrm{m}$ optics have been developed for TOTEM [6]. The 90 m option is designed such, that it is reachable from normal physics operation by an un-squeeze to $\beta^* = 90\,\mathrm{m}$. This makes it suitable for tests in earlier physics operation.

Details of both the TOTEM and ATLAS high-β optics are described in [7].

References

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