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HL-LHC: Exploring alternative ideas (20' + 10')

Wednesday 30 October 2013 15:40 (30 minutes)

Abstract:

The HL-LHC parameters assume unexplored regimes for hadron colliders in various aspects of accelerator beam dynamics and technology.

This talk reviews various alternatives that could potentially improve the LHC performance, for example: the use of e-lens to compensate the beam-beam head-on interaction, the use of optical or coherent electron cooling to reduce the beam emittance (at top energy and at injection), the use of higher harmonic RF systems to improve Landau damping or alternative bunch schemes or even smaller beta*. The alternatives are assessed in terms of feasibility, pros and cons, risks versus benefits and the impact on beam availability.

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Session Classification: Session 4 - Upgrade scenario 2 (decoupled from scenario 1)