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Milestones for the lead injector complex commissioning

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The LHC physics programme with heavy ions (lead-lead) collisions at a luminosity of $10^{27} \text{ cm}^{-2}\text{s}^{-1}$ can be achieved by upgrading the ion injector chain: Linac3-LEIR-PS-SPS. The conversion of the Low Energy Antiproton Ring (LEAR) to a Low Energy Ion Ring (LEIR) has already started. The conversion includes new magnets and power converters, a high-current electron cooling system, broad-band rf cavities, upgraded beam diagnostics and vacuum equipment to achieve 10-12 mbar. The start-up of the beam commissioning is planned for summer 2005. The impact on the proton LHC start-up of the major hardware changes in Linac3 (installation of the new ECR source and the test of the energy ramping cavity), LEIR, PS (new injection system, rf gymnastics), the stripping insertion between PS and SPS and their commissioning is discussed. The milestones, schedule and an estimation of the lead beam brilliance and intensity in LHC are tentatively shown.

Primary author: Mr MAURY, Stephan (CERN)

Presenter: Mr MAURY, Stephan (CERN)

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