

Emittance preservation in LHC: Present understanding, possible improvements/gains, required diagnostics

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Emittance measurements during the LHC proton run 2011 indicated a blow-up of 20 % to 30 % from LHC injection to collisions. At the LHC design stage the total allowed emittance increase from SPS extraction to colliding beams was set to 7 %. This presentation will show the emittance preservation throughout the different parts of the LHC cycle and discuss the current limitations on emittance determination. Possible sources and cures for the observed blow-up will be presented. Possible improvements of emittance diagnostics and analysis tools together with a list of machine development tests in 2012 will also be shown.

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