

SLHC-Preliminary Phase Project Public event 2010

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History...

End 2006 and beginning of 2007: preparation of a proposal for an EU project supporting the LHC luminosity upgrade

- Luminosity depends directly upon β^* and beam **brightness** N/ε^*

$$L \propto \frac{1}{\beta^*} \frac{N_b}{\varepsilon_{X,Y}} \cdot N_b \cdot k_b$$

N_b : number of protons/bunch

$\varepsilon_{X,Y}$: normalized transverse emittances

k_b : number of bunches per ring

- Brightness is defined at low energy in the **injectors**

$$\Delta Q_{SC} \propto \frac{N_b}{\varepsilon_{X,Y}} \cdot \frac{R}{\beta\gamma^2}$$

N_b : number of protons/bunch

$\varepsilon_{X,Y}$: normalized transverse emittances

R : mean radius of the accelerator

$\beta\gamma$: classical relativistic parameters

History (cont.)...

<http://cern.ch/SLHC-PP>

- 2 May 2007: submission of proposal focusing on upgrading the **high luminosity IRs** (“IR upgrade phase 1”) and the **injectors** (“Linac4”)
- 1 April 2008: contractual start of the SLHC-PP
- 9 April 2008: 1st public event (“Kick-off”)
- 26 February 2009: 2nd public event
- 23 June 2010: 3rd public event

19/09/2008:
LHC splice
“incident”

Oct.2008 –
Oct.2009:
LHC repair

CHAMONIX 2010
Workshop
+
New Scientific
Strategy

Meeting goal

<http://cern.ch/SLHC-PP>

Inform about the present plans for the LHC and its upgrade*

- 👉 CERN scientific strategy: *Steve Myers*
- 👉 LHC prospects - first run: *Philippe Bloch*
- 👉 Linac4 status: *Maurizio Vretenar*
- 👉 Plans for the upgrades of the injectors: *Roland Garoby*
- 👉 LHC upgrade plans: *Lucio Rossi*
- 👉 ATLAS upgrade plans: *Steinar Stapnes*
- 👉 CMS upgrade plans: *Jordan Nash*

*For the status of the SLHC-PP consult the Annual report

[\[http://info-slhc-pp.web.cern.ch/info-SLHC-PP/DOCUMENTS/Milestone%20Deiverable%20Reports/SLHC-PP_Annual%20Report2010.pdf\]](http://info-slhc-pp.web.cern.ch/info-SLHC-PP/DOCUMENTS/Milestone%20Deiverable%20Reports/SLHC-PP_Annual%20Report2010.pdf)