

# Flavour physics with AFTER@LHC ?

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Target	$\rho$ (g.cm <sup>-3</sup> )	A	$\mathcal{L}$ ( $\mu\text{b}^{-1}.\text{s}^{-1}$ )	$\int \mathcal{L}$ ( $\text{pb}^{-1}.\text{yr}^{-1}$ )
Sol. H <sub>2</sub>	0.09	1	<b>26</b>	<b>260</b>
Liq. H <sub>2</sub>	0.07	1	<b>20</b>	<b>200</b>
Liq. D <sub>2</sub>	0.16	2	<b>24</b>	<b>240</b>
Be	1.85	9	<b>62</b>	<b>620</b>
Cu	8.96	64	<b>42</b>	<b>420</b>
W	19.1	185	<b>31</b>	<b>310</b>
Pb	11.35	207	<b>16</b>	<b>160</b>

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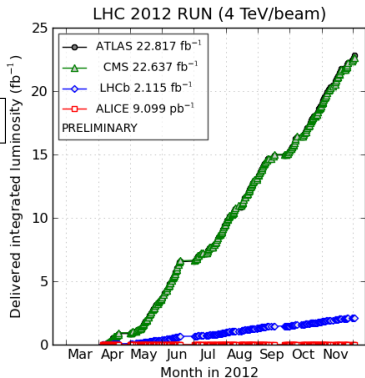
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(generated 2012-12-02 18:23 including fill 3360)

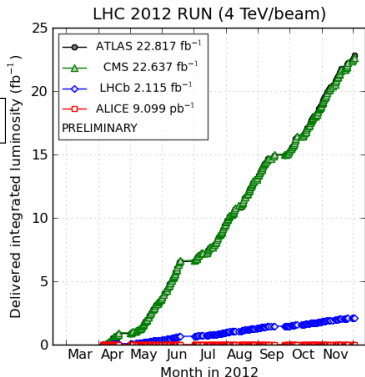


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  - Run14pp  $12 \text{ pb}^{-1}$  @  $\sqrt{s_{NN}} = 200 \text{ GeV}$
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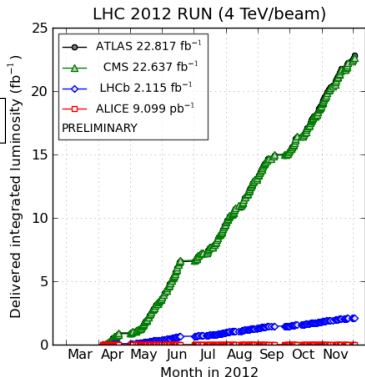
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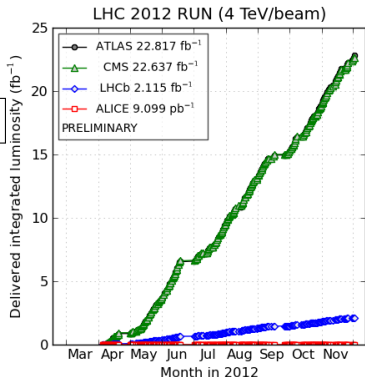


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- Lumi for Pb runs in the backup slides  
 (roughly 10 times that planned for the LHC)



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Nuclear Instruments and Methods in Physics Research A 333 (1993) 125–135  
North-Holland

**NUCLEAR  
INSTRUMENTS  
& METHODS  
IN PHYSICS  
RESEARCH**  
Section A

## LHB, a fixed target experiment at LHC to measure CP violation in B mesons

Flavio Costantini

*University of Pisa and INFN, Italy*

A fixed target experiment at LHC to measure CP violation in B mesons is presented. A description of the proposed apparatus is given together with its sensitivity on the CP violation asymmetry measurement for the two benchmark decay channels  $B^0 \rightarrow J/\psi + K_s^0$ ,  $B^0 \rightarrow \pi^+ \pi^-$ . The possibility of obtaining an extracted LHC beam hinges on channeling in a bent silicon crystal. Recent results on beam extraction efficiencies measured at CERN SPS based on this technique are presented.

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This paper presents a fixed target experiment to measure CP violation in the B system based on the possibility of extracting the 8 TeV LHC proton beam using a bent silicon crystal [4]. A 10% extraction efficiency of the LHC beam halo will give an extracted beam intensity of about  $10^8$  protons/s allowing the production of as many as  $10^{10}$   $B\bar{B}$  pairs per year, i.e. about two orders of magnitude more than what could be produced by an  $e^+e^-$  asymmetric B factory with  $10^{34}$   $\text{cm}^{-2}\text{s}^{-1}$  luminosity [5].



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- After a year, one simply moves the crystal by less than one mm ...

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  - Can a polarised target help ?