



# Closing Words Theatre of Dreams

Manchester, 6-7 April 2016



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# Overview and next steps

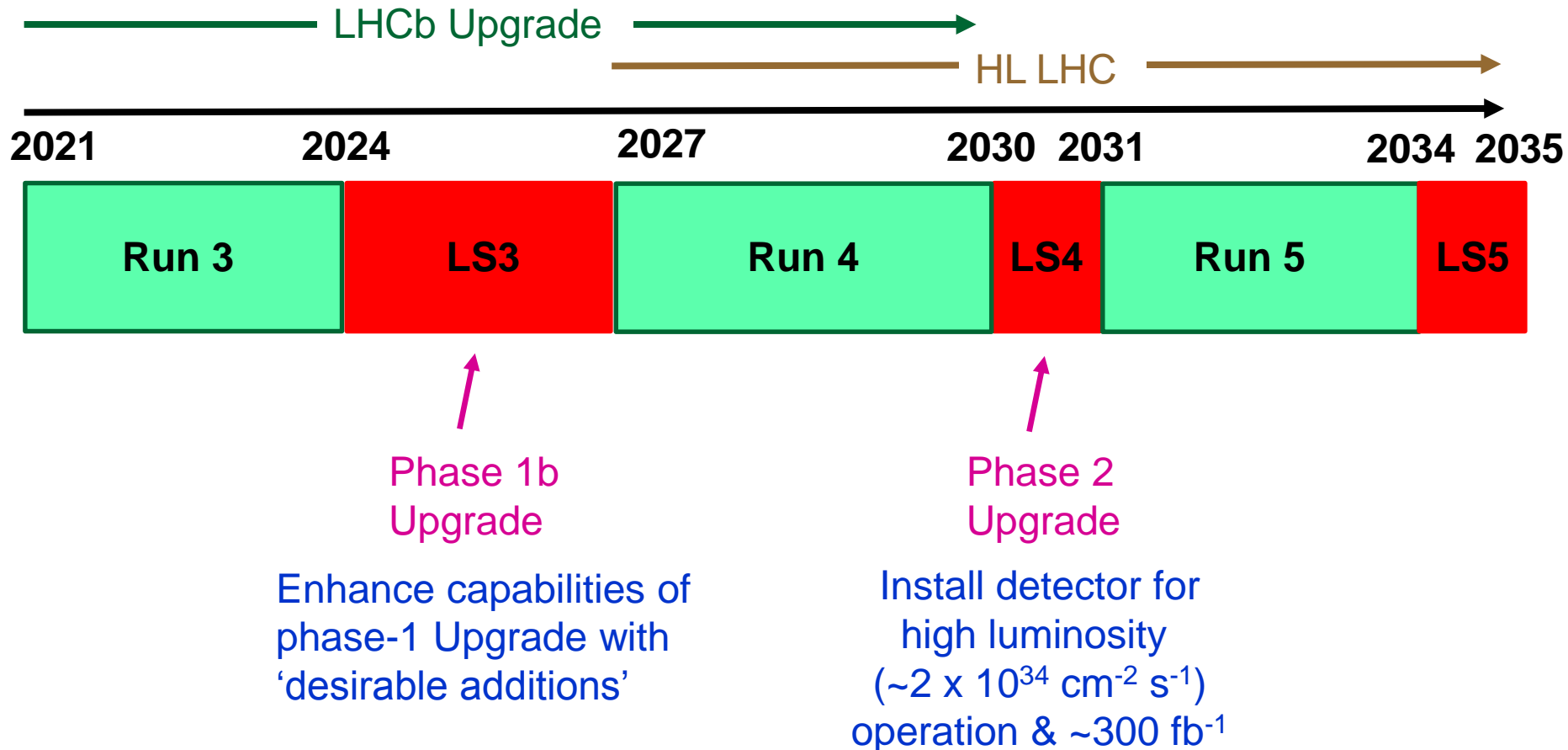
Extremely stimulating and indeed exciting meeting.

Clearly no opportunity for considered reflection – here just one or two immediate remarks.

In the near future a TTFU/UPG meeting will be called to digest what we have heard, and discuss next steps. We will then report back in an open meeting.

If you have any opinions or input, don't hesitate to tell us !

# Reminder of my nomenclature



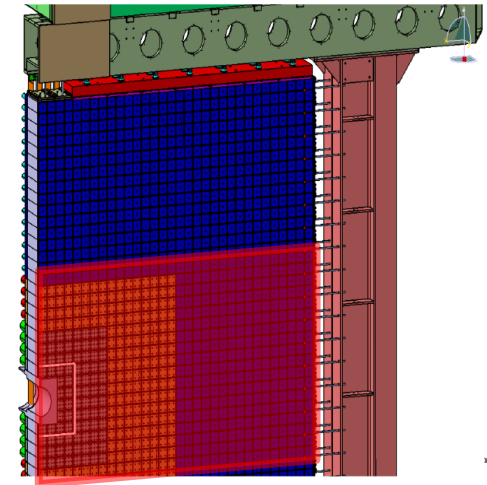
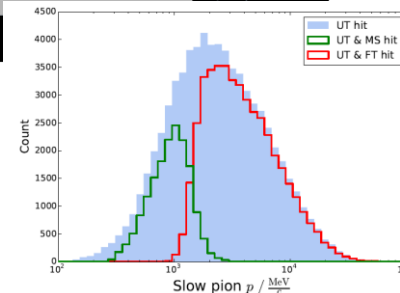
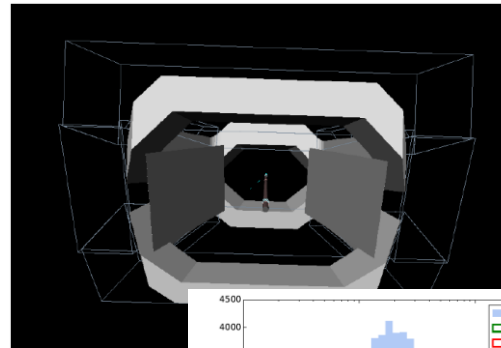
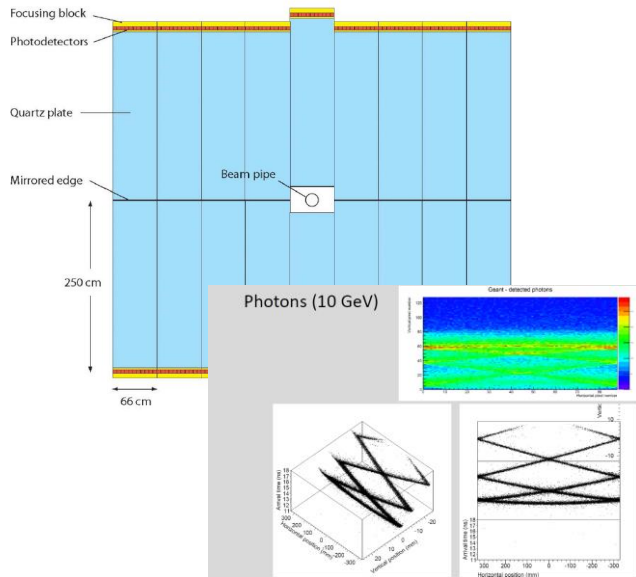


# Phase-1b possibilities

A few 'big' projects proposed that *could* bring significant enhancements to our physics

TORCH – for PID, general timing, or in hybrid CALO ?

Side chambers – conceptually simple but in practice an interesting challenge.



Replace a significant region of the ECAL with a new technology.

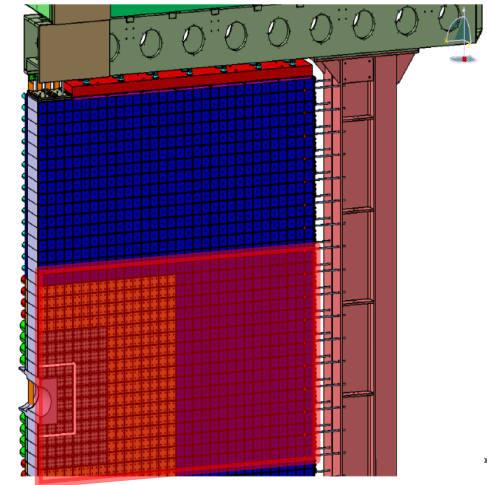
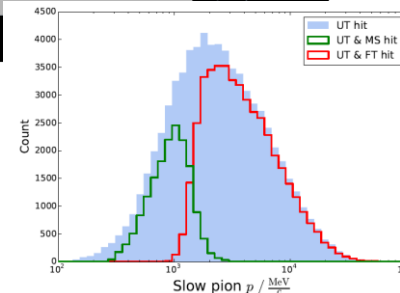
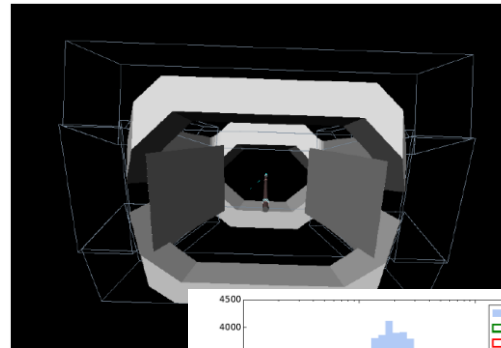
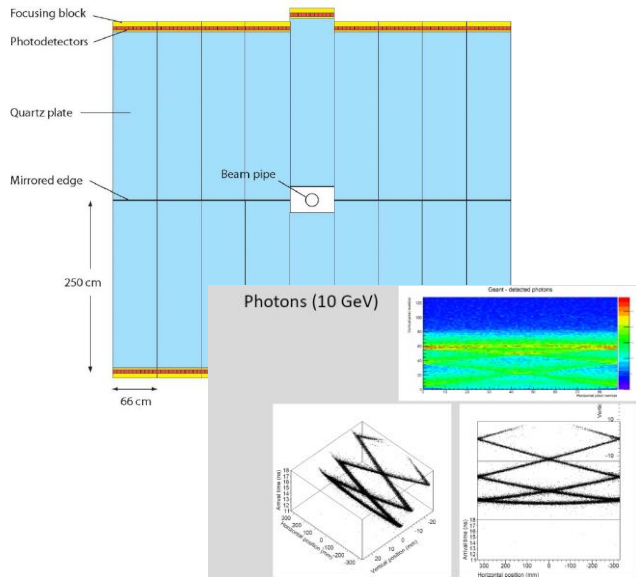
All very exciting, but too early to assess how feasible they are, & their true benefits. Focused work required over the coming few months in order to get an initial idea – we must find a way to do this ! Then we can start to worry about the practicalities.

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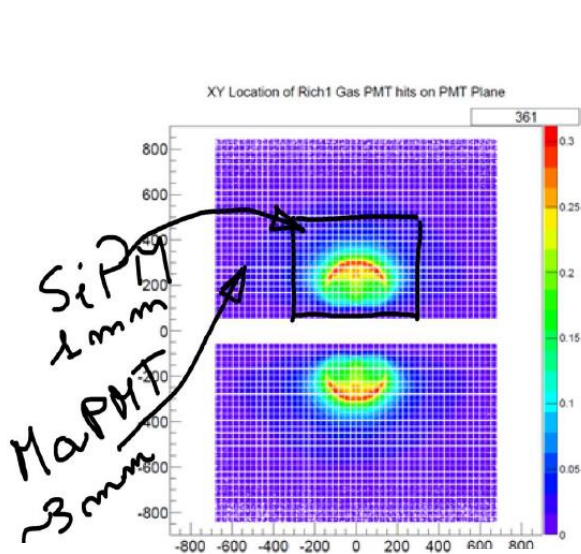


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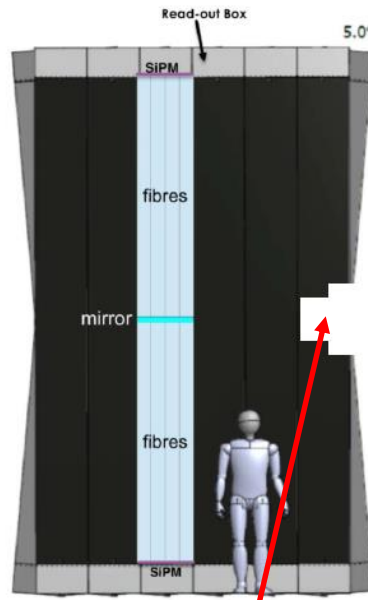
All very benefits.  
 Focus on al idea –  
 we must assess carefully whether it could scale to phase-2 luminosities. practicalities.

# Phase-1b possibilities

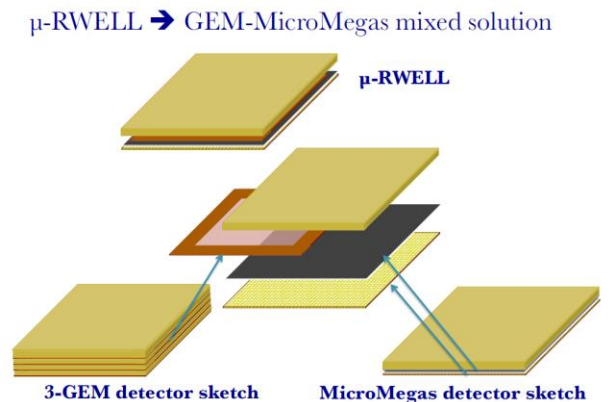
In addition, thinking about phase-2 Upgrade has led to ideas of new technologies, which in some cases could be tested post LS3 (& improve performance then)



Develop SiPMs for phase-2 operation. Already populate hot area of R1 in LS3



small (for LS3) silicon IT in this region ?



New muon chamber technology for hot regions. Already install first chambers during LS3 ?

These look very attractive, but are linked to how seriously we take our phase-2 plans.

# Phase 2

IMHO high luminosity running at IP8 is the logical conclusion of the LHCb story. We have an obligation to exploit the machine to the utmost for flavour physics,

→ nonetheless, we need to write down our physics case (underway).

(I suspect the proposal will be attractive to the CERN management as it gives breadth to the physics programme of the machine.)

Good news! The proposal has attracted a lot of Interest from the machine, and much work has been done. Our  $2 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1} / 300 \text{ fb}^{-1}$  goal looks feasible (a non-trivial conclusion) !

Clearly there are major detector challenges, for many of which (unsurprisingly) we don't yet have solutions, although some very promising ideas have been suggested during this workshop. Necessary to identify requirements and R&D programmes and begin work.





**Many thanks to Chris and friends for the hospitality and smooth organisation !**

**Let us continue the discussion (and ramp up the work) over the coming months.**

**(By the way, if anyone feels enthusiastic to host a similar event in the not-too distant future, please let me know... )**



a virtual  
bunch of  
flowers

