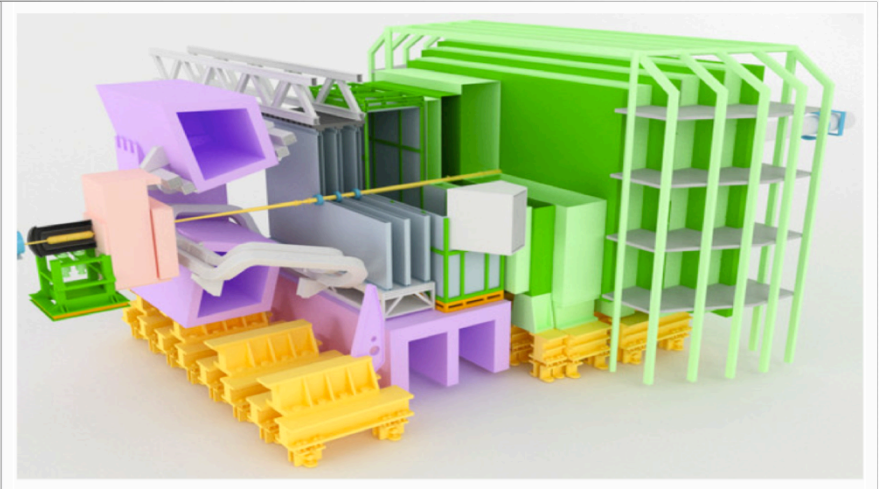
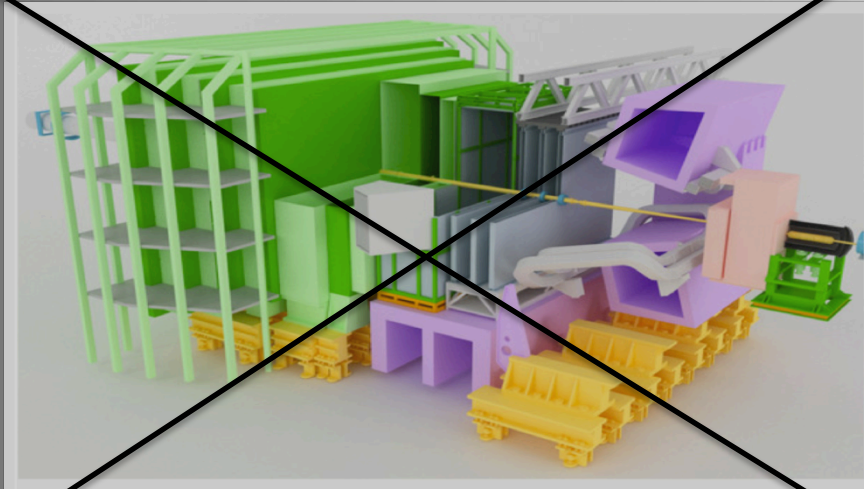




“Reflections” on  
Symmetries and Asymmetries

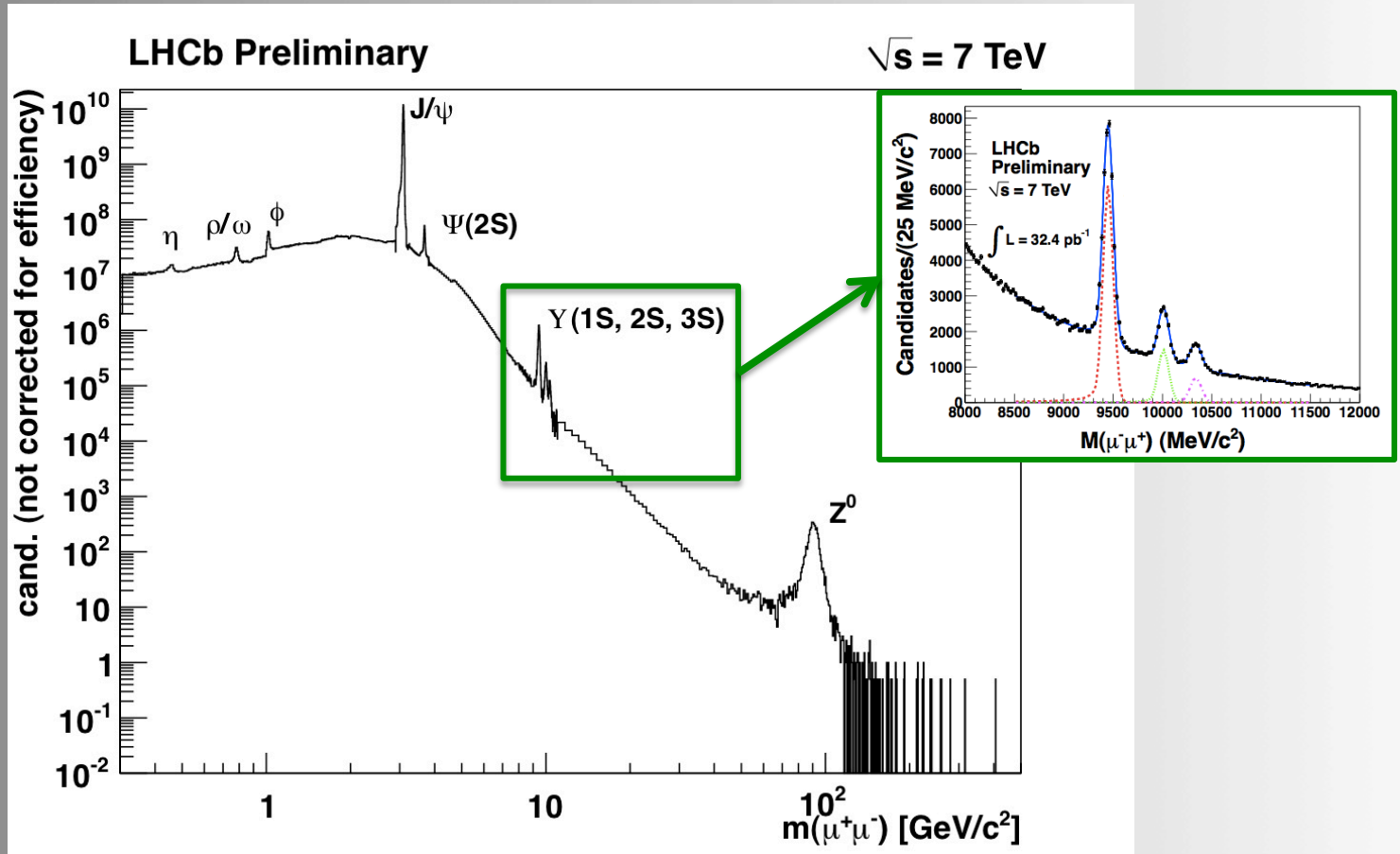
# The original sin: the starting asymmetry



An asymmetric detector to study the origin  
of matter-antimatter unbalance in the Universe

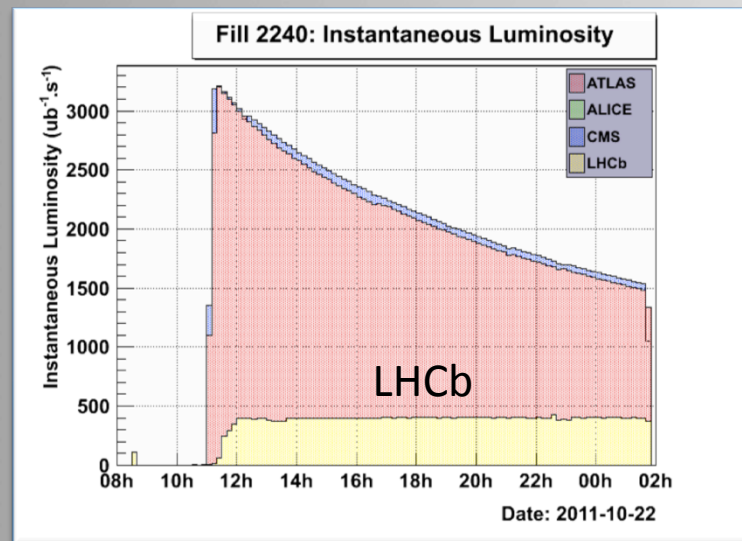
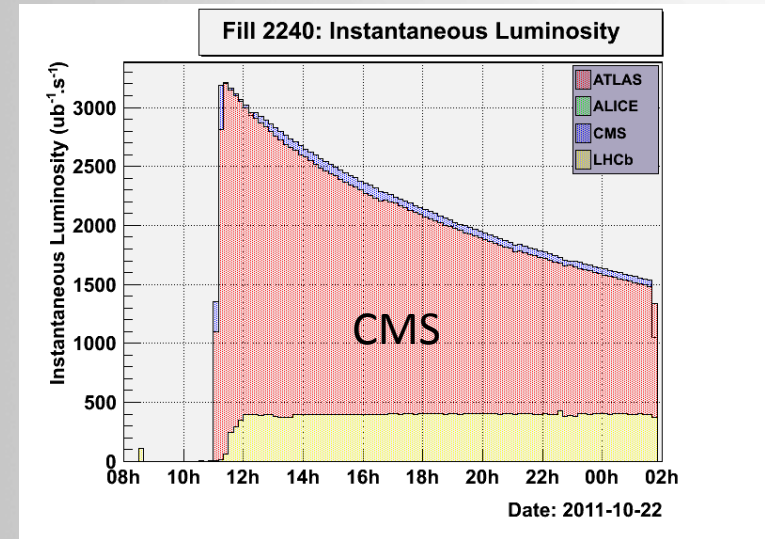
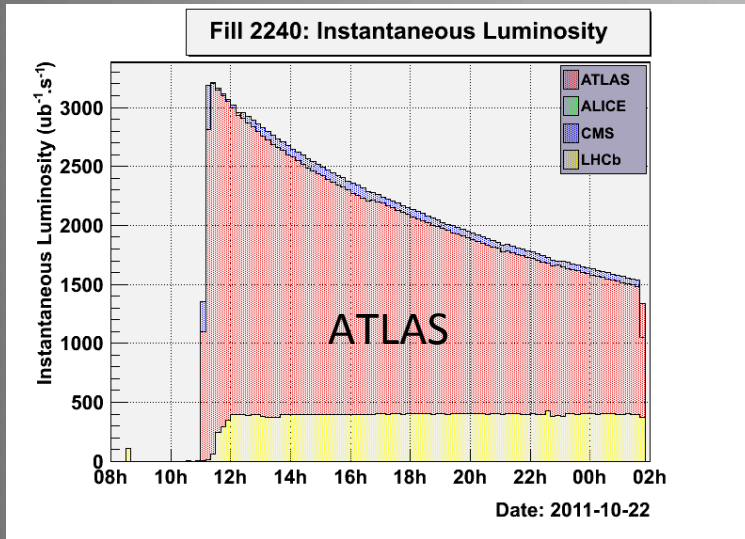
LHC managed to deal with, and having it taking data!

# A fantastic clean machine



A plot similar to  $e^+e^-$  colliders. A great achievement !

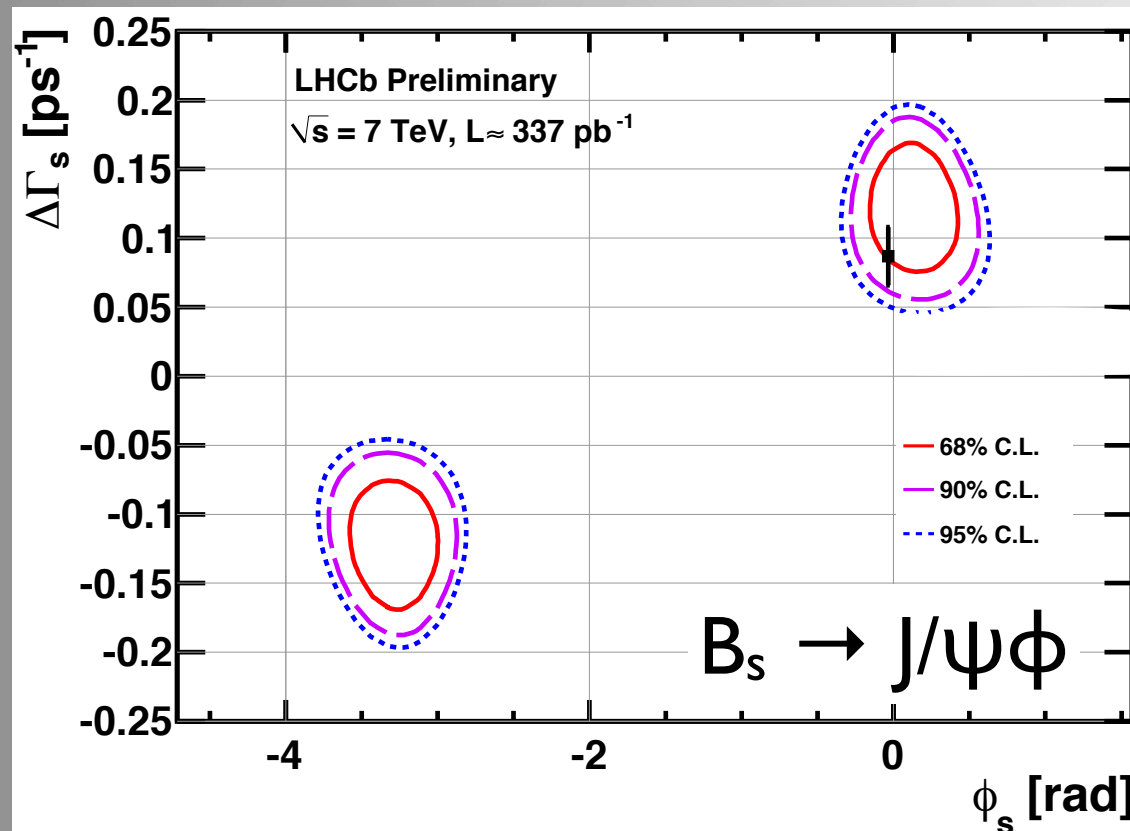
# The reason of a success: an asymmetry



Luminosity leveling made possible to LHCb to take so many data

# Cracking the Standard Model

an unbeaten (yet) symmetry: CP violation in  $B_s$  system

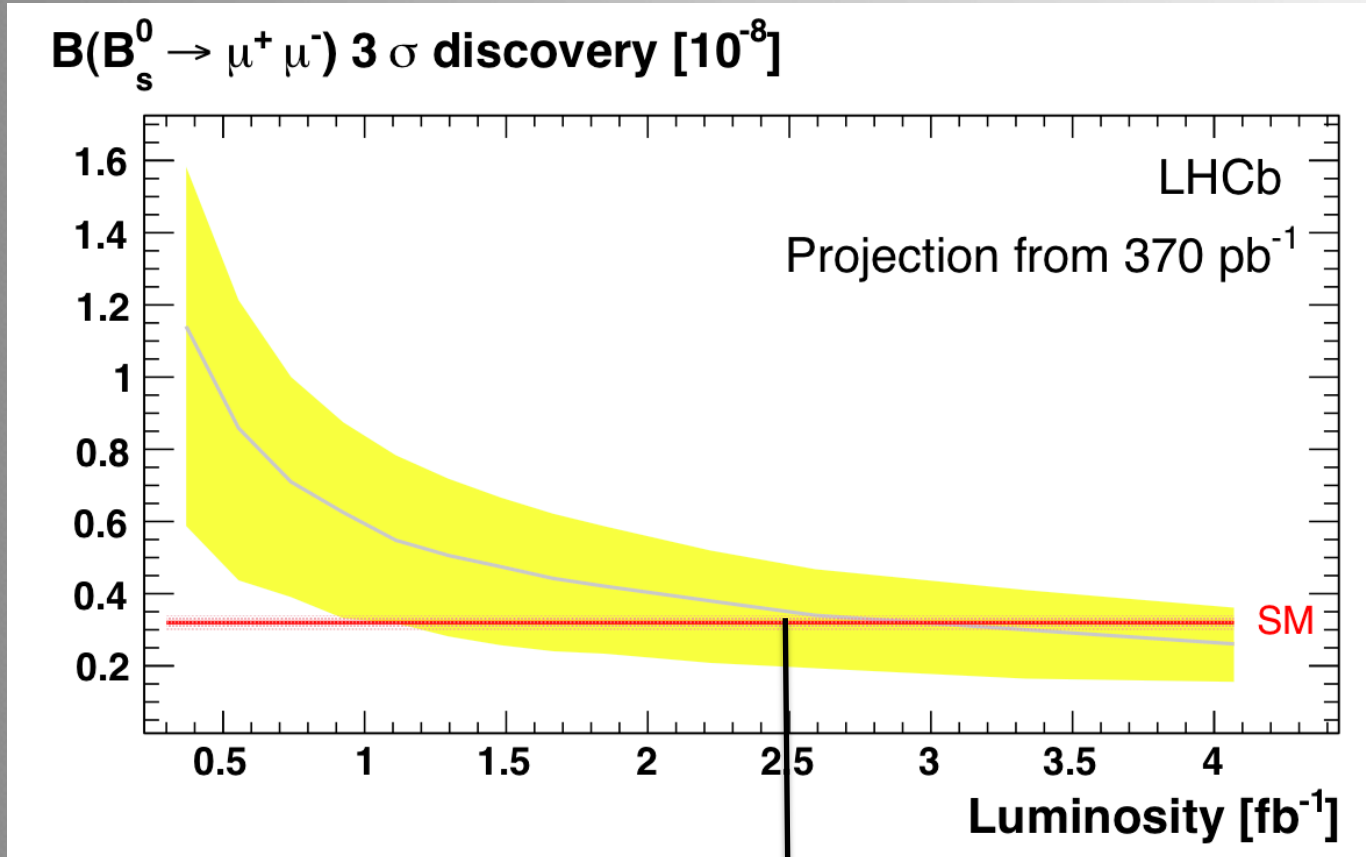


No one did like LHC(b) !

If the evil is in the details, more data is needed to find it

# A needle in the haystack

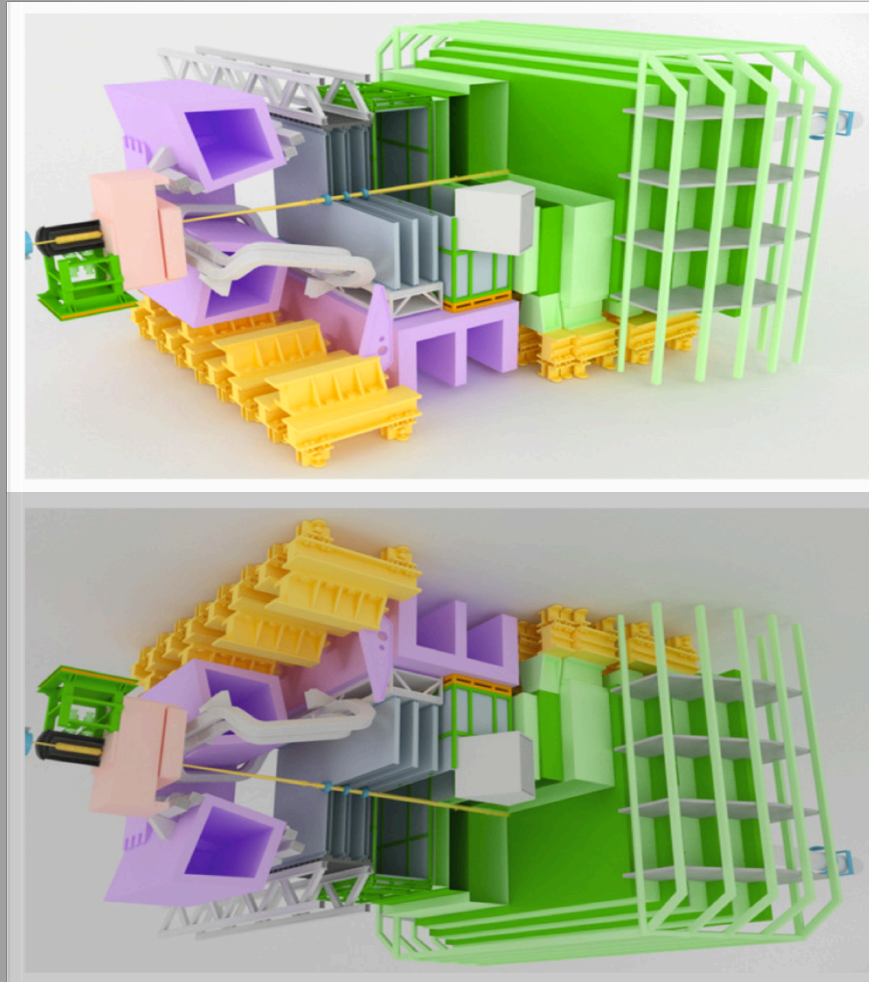
## Looking for Supersymmetry in the $B_s \rightarrow \mu\mu$



A lucky chance for 2012 ?



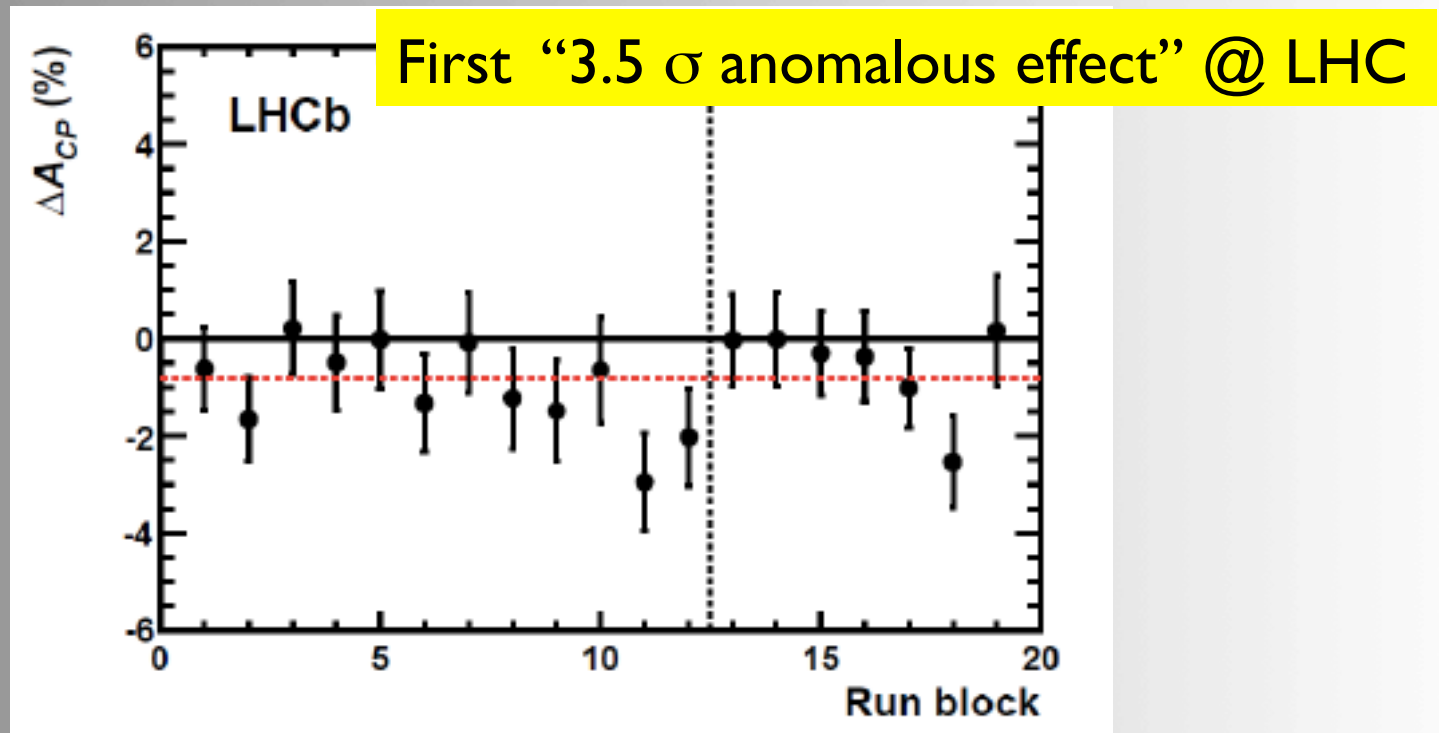
# The recovered symmetry: LHC swapping LHCb magnet up and down



Critical for discovering CP asymmetries

# A charming, unexpected, asymmetry

CP violation in charm (never seen) would mean New Physics !  
Need confirmation (more data...)



Sometimes “charm is more than beauty” (Yiddish proverb)



In 2011 LHCb “slalomed” between  
quiet Symmetries and exciting Asymmetries

These great times were possible thanks to  
the fantastic work of the LHC women and men,  
to their ingenuity, to their ideas – and to Massi!

More has to come ...

New Physics could be around the corner

Let's find it !

We will be happy to share with you  
the future success of LHC(b)

...

*Men and women are not content to comfort themselves with tales of gods and giants, or to confine their thoughts to the daily affairs of life; they also build telescopes and satellites and **accelerators**, and sit at their desks for endless hours working out the meaning of the data they gather.*

*The effort to understand the Universe is one of the few things that lifts human life a little above the level of farce, and gives it some of the grace of tragedy*

S. Weinberg – Epilogue - The First Three Minutes