

## Impact of pixel size and shape on physics analysis

*Thursday 6 September 2012 16:50 (20 minutes)*

A Monte Carlo study will be presented to quantify the impact of the z resolution of the pixel detector to a new physics search. The choice of the pixel shape and size in the r- $\phi$  and z-directions results in different position resolutions, that in turn influence the selection power for the analysis of a certain physics channel. The presented study illustrates the effect of the pixel z resolution on signal and background candidates in the case of the search for the rare decay  $B_s \rightarrow \mu\mu$ . Within the framework of the SM this decay channel is expected at the level of  $\sim 10^{-9}$  and therefore requires a very high background rejection ratio to reach the sensitivity necessary to observe a signal. The study will compare and illustrate the physics performance of this rare decay for different scenarios.

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