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Quartz Cherenkov Detectors for Calorimetry and Timing in LHC Forward Processes.

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Abstract submitted by Aldo PENZO

Due to extremely high rates near the intense LHC interacting beams, forward regions of LHC experiments are challenging for most detectors, that need to have superior time resolution and radiation resistance. Detectors based on Cherenkov light produced in quartz elements meet these requirements and are ideal components for forward calorimeters.

For instance in CMS three calorimeters extend the pseudorapidity coverage of the central CMS detector ($|\eta| < 3$) in the forward direction :

- HF ($3 < |\eta| < 5$),
- Castor ($5 < |\eta| < 7$),
- ZDC ($8 < |\eta| < 9$).

All these calorimeters are based on the Cherenkov quartz technology. These detectors are undergoing important improvements, to make them compatible with the increasing LHC luminosity. This talk will present their status and recent evolution. Other applications of quartz Cherenkov detectors for high resolution timing will be discussed also.

Registered

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