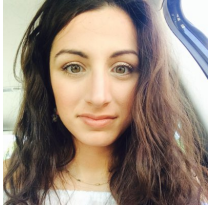




Cherenkov Detector for Beam Quality Measurement

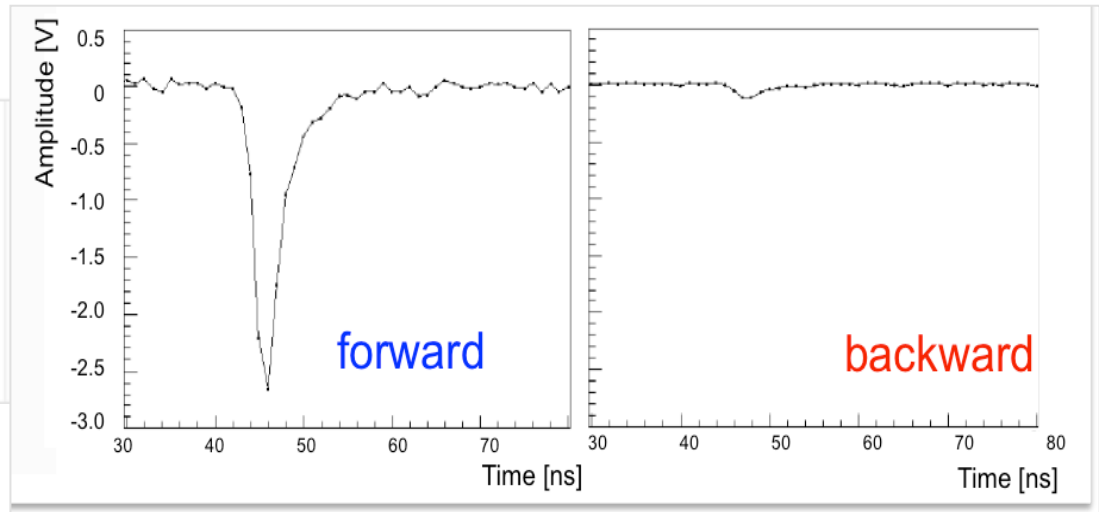
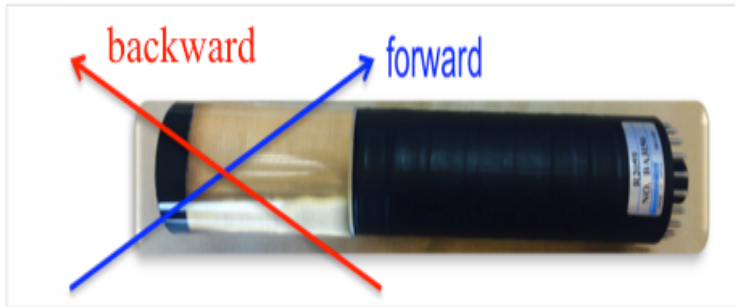
A. E. Dabrowski¹, R.Loos¹, S. S. Orfanelli^{1,2}, J.Mans³, R. Rusack³, K. Stifter³, D. P. Stickland⁴, F. Fabbri⁵, A. Montanari⁵, N.Tosi⁵

1. CERN, 2. National Technical University of Athens, 3. University of Minnesota, 4.Princeton University, 5. INFN Bologna

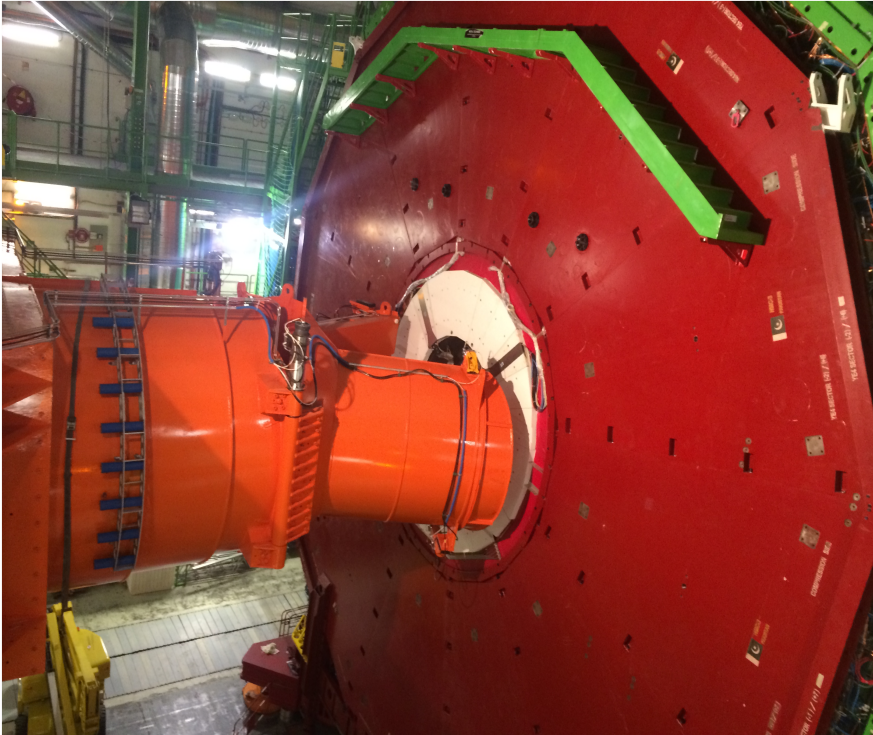


Beam Halo Monitor in CMS: novel, fast & directional

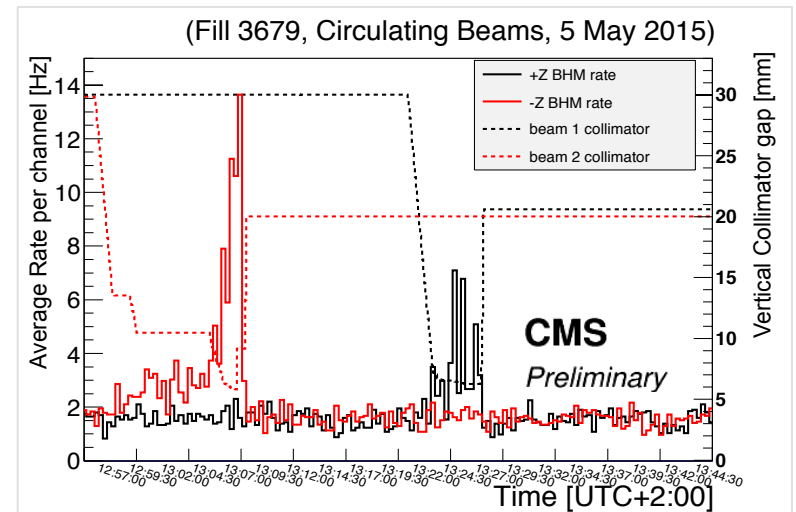
- Beam Halo Monitor (BHM) is a new monitor to measure online bunch-by-bunch beam background in the CMS experiment at LHC.
- BHM will provide feedback to the LHC about the beam quality.
- Since Cherenkov radiation is emitted in a forward cone around the charged particle's trajectory, BHM can distinguish the low rate of machine induced background from collision products.



Installation & first beams results



The BHM units in blue as installed parallel to the beam pipe around the CMS rotating shielding at radius ~ 180 cm from beam pipe, 20.6 m from IP.



The increase in BHM rate occurs, as expected, when the collimator gap is reduced.