A new on-line luminometer and beam conditions monitor using single crystal diamond sensors.

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$R = 6.5 \text{ cm}; z = \pm 1.8 \text{ m}.$

position at maximum time difference between incoming machine induced background particles and outgoing collision products of 12.5 ns

$12 \text{ sCVD diamond sensors on each side, with two pads metallization for each diamond (2.25x4.5 mm}^2$)
Successful operation of Fast Beam Condition Monitor in 2015

Response of the BCM1F detector to a single particle of machine induced background.

An example of the BCM1F amplitude spectrum. The VME ADC data was collected with first colliding beams in the LHC.

This is an illustrative plot. The BCM1F detector counting rates during a beam loss. The beam intensity as a function of time is shown in blue. The count rates of the BCM1F detectors are shown in red and black. At the time when the beam loss starts the count rates of BCM1F detectors are rapidly growing.