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## Beam Conditions Monitoring in ATLAS

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Beam conditions and the potential detector damage resulting from their anomalies have pushed the LHC experiments to build their own beam monitoring devices. The ATLAS Experiment decided to build two independent systems based on Chemical Vapor Deposition (CVD) diamond material.

The ATLAS Beam Conditions Monitor (BCM) consists of two stations (forward and backward) of detectors each with four modules. The sensors are required to tolerate doses up to 500 kGy and in excess of  $10^{15}$  charged particles per  $\text{cm}^2$  over the lifetime of the experiment. The BCM has operated reliably in ATLAS for the last 24 months, has provided feedback on every beam dump during that time and is required to show a clean abort before ATLAS returns the LHC injection permit. In addition the BCM provides collision rate and background measurements that have been instrumental in ATLAS achieving a luminosity precision of better than 4%. As luminosity reached unprecedented levels in 2011 and other luminosity monitors in ATLAS reached saturation, ATLAS reported luminosity comes from BCM measurements.

For the ATLAS Beam Loss Monitor (BLM) a simpler detector was installed. There are 12 sensors, 6 on each side of ATLAS Inner Detector. The readout electronics is based on LHC BLM systems. ATLAS BLM justifiably aborted the LHC beams twice in Summer 2011 which prevented possible damage to the Inner Detector.

The performance of the BCM and BLM detectors and their contributions to ATLAS physics will be presented.

### for the collaboration

ATLAS BCM Collaboration

**Primary author:** Dr GORISEK, Andrej (J. Stefan Institute, Ljubljana)

**Presenter:** Dr GORISEK, Andrej (J. Stefan Institute, Ljubljana)

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