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Performance of the CASTOR calorimeter at CMS during Run II of LHC

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CASTOR is an electromagnetic and hadronic tungsten-quartz sampling Cerenkov calorimeter located at CMS at the LHC, with pseudorapidity (denoted η) borders at -5.2 and -6.6. To measure in this η acceptance, the (2 tonnes weighing) detector is installed within a distance of 1 cm from the LHC beampipe and at 14.4 m from the interaction point.
CASTOR can measure energy deposits, jets and is very well suited to identify forward rapidity gaps. It is an excellent tool for studying forward physics, small-x hadron structure, diffraction and forward low-pt QCD. CASTOR has successfully collected data during LHC Run I and Run II. The purpose of this talk is to give an overview of various aspects of the performance of CASTOR in LHC Run II and the relations between these aspects. We'll state the key numbers obtained with the design, lessons learned and we point out improvements in the performance w.r.t. Run I.
When the magnetic field of CMS is turned on, CASTOR gets displaced from its initial location which makes the installation an even more delicate task. This displacement has also consequences for the alignment of CASTOR which we discuss.
For CASTOR the calibration is done in a two step procedure. First the 16 sectors and 24 modules are intercalibrated using muons from dedicatedly selected beam-halo events. To distinguish the small muon signal from noise a good estimate of the noise and baseline per channel of CASTOR is indispensable. We show the pedestal energy spectrum of the PMT's contains contributions from the electronic noise, thermal photoelectrons and ion feedback.
After the intercalibration, a provisional absolute scale is obtained by equating the energy of p+p collisions measured with CASTOR with MC based extrapolations of energy measurements with another CMS subsystem. We conclude the calibration by showing some results on the longitudinal and azimuthal profiles of energy in CASTOR in data and MC and the tower noise cutoff obtained from measurements at Run II.
We finish by discussing the CASTOR jet trigger efficiency and the collected data samples.

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