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Status of the Atlas Liquid Argon Calorimeter and its Performance after one year of LHC operation

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The ATLAS experiment is designed to study the proton-proton collisions produced at the LHC with a centre-of-mass energy of 14 TeV. Liquid argon (LAr) sampling calorimeters are used in ATLAS for all electromagnetic calorimetry covering the pseudorapidity region $\eta<3.2$, as well as for hadronic calorimetry from $\eta=1.4$ to $\eta=4.8$. The calorimeter system consists of an electromagnetic barrel calorimeter and two endcaps with electromagnetic (EMEC), hadronic (HEC) and forward (FCAL) calorimeters. The lead-liquid argon sampling technique with an accordion geometry was chosen for the barrel electromagnetic calorimeter (EMB) and adapted to the endcap (EMEC). This geometry allows a uniform acceptance over the whole azimuthal range without any gap. The hadronic endcap calorimeter (HEC) uses a copper-liquid argon sampling technique with plate geometry and is subdivided into two wheels in depth per end-cap. Finally, the forward calorimeter (FCAL) is composed of three modules featuring cylindrical electrodes with thin liquid argon gaps. The barrel and the two endcaps are housed into three cryostats kept at about 87 K. The different parts of the LAr calorimeter have been installed inside the ATLAS cavern between October 2004 and April 2006.
Since October 2006 the detector has been operated with liquid argon at nominal high voltage, and fully equipped with readout electronics including a LVL1 calorimeter trigger system.
First cosmic runs were recorded and used in various stages of commissioning. Starting in September 2008 beam related events were collected for the first time with single beams circulating in the LHC ring providing first beam-gas interactions and then beam-collimator splash events. The first p-p collisions at 450 GeV per beam were seen in 2009. During 2010 almost 50 pb-1 of p-p collisions have been collected at 7 TeV center-of-mass energy.
During all these stages the LAr calorimeter and its electronics has been operating almost optimally thanks to an intense effort by a large community.
The latest status of the detector as well as problems and solutions addressed during the last years will be presented. The talk will cover aspects of operation of a large detector over a long time period. Selected topics showing the performance of the detector with particles will be shown. Particular emphasis will be placed in measurements dependent on the high quality of the 200K channels of readout electronics and its calibration (e.g. noise, timing precision$\cdots$), all of which are operating according to design specification.

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