

Following the end of the maintenance period for the ATLAS detector in LHC, CERN, a series of calibrations have to be performed to ensure the quality of measured data. This thesis details the work done on time calibrations of the Tile Hadronic Calorimeter. The Tile Calorimeter uses multiple time calibration methods; these include calibration via laser (a precise light input sent to the detector's photomultipliers), and splash events analysis (measuring the overall response to high-energy particles traversing the length of the calorimeter). Several available sets of laser and splash data were analysed to determine necessary adjustments to the internal electronics and appropriate software going forward. As of April 2022, we have been able to calibrate roughly two thirds of the calorimeter, and will continue calibration once we can acquire additional data.