

Design of a new front-end electronics test bench for the upgraded ATLAS detector's Tile Calorimeter

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The Large Hadron Collider (LHC) is scheduled to be upgraded in the year 2022, in order to increase its instantaneous luminosity. The High Luminosity LHC, also referred to as upgrade Phase-II, means an inevitable complete re-design of the read-out electronics in the Tile Calorimeter of the ATLAS detector, in which the completed new read-out architecture is expected to have the front-end electronics transmit full digitized information of the full detector to the back-end electronics system. The back-end system will provide digital calibrated information with greater precision and granularity to the first level trigger, thereby resulting in improved trigger efficiencies. In Phase II, the current MobiDICK4 test bench will be replaced by the next generation test bench for the TileCal super-drawers, the new Prometeo (A Portable ReadOut ModulE for Tile-cal ElectrOnics). The Prometeo's prototype is being assembled by the University of the Witwatersrand and installed at CERN for further developing, tuning and tests. A presentation will be made on the overall design of the Prometeo, and how it fits into the Tile Calorimeter electronics upgrade.

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