

Dear Colleagues

We are pleased to announce that the *ATLAS Tile Calorimeter Upgrade Week* will take place at iThemba LABS, March 15th-17th. This workshop will focus on questions of instrumentation related to the upgrade of the Tile Calorimeter of the ATLAS detector at the Large Hadron Collider. There will be an open session on March 15th from 10:00 to 12:00, where everyone is invited. The agenda is as follows:

10:00 Opening address by the Director of iThemba LABS, Dr Faïçal Azaiez

10:30 "Capabilities of South African Electronics Industry" by Daniel Dock, Managing Director, TraX Interconnect (Pty) Ltd

11:00 Colloquium: "The upgrade of the Tile Calorimeter of the ATLAS detector at the Large Hadron Collider" by Dr. Oleg Solovyanov, Project Leader of the Tile Calorimeter of the ATLAS detector.

Below is the abstract of the colloquium:

*The ATLAS Tile Calorimeter (TileCal) is the hadronic calorimeter of ATLAS, covering the central region of the ATLAS experiment at Large Hadron Collider (LHC) at CERN. TileCal is a sampling calorimeter with steel as absorber and plastic scintillator as an active medium. The scintillators are read-out by wavelength shifting fibres coupled to photomultiplier tubes (PMT). The analogue signals from the PMTs are amplified, shaped and digitised every 25 ns.*

*The High Luminosity Large Hadron Collider (HL-LHC) will have a peak luminosity of up to  $10^{35} \text{cm}^{-2}\text{s}^{-1}$ , ten times higher than the design luminosity of the LHC. TileCal will undergo a major replacement of its on- and off-detector electronics for the high luminosity programme of the LHC starting in 2026. All signals will be digitised and then transferred to the off-detector electronics, where the signals will be reconstructed, buffered, and sent to the first level of the trigger at a rate of 40 MHz. This will provide a better precision of the calorimeter signals used by the trigger system, will provide more information and will allow the development of more complex trigger algorithms. Changes to the electronics will also contribute to the reliability and redundancy of the system.*

*Three different front-end options are presently being investigated for the upgrade and a final solution will be chosen after extensive laboratory and test beam studies that are in progress. For the high voltage system (HV) two options, one with internal and one with remote regulation, are being considered. To test new electronics and readout organisation, a hybrid demonstrator module was developed, conserving compatibility with the current system, including analogue trigger output. The demonstrator undergoes extensive testing and will be installed during one of the next maintenance periods.*

For those who wish to connect remotely to the Open Session on Wednesday:

Auto-join URL: <http://vidyoportal.cern.ch/flex.html?roomdirect.html&key=sfwPalla5QBD>

Pin: 1234

Alternatively, through the polycom system:

The Vidyo meeting extension: 109335721

Pin: 1234

Looking forward to seeing you on March 15<sup>th</sup>

Best regards

Bruce Mellado