

T 28: Invited Topical Talks 1

Time: Tuesday 14:00–15:40

Location: T-H15

Invited Topical Talk T 28.1 Tue 14:00 T-H15
Hadronic Jets: Accuracy and Precision of their Reconstruction and Calibration in ATLAS — ●CHRISTOPHER YOUNG — University of Freiburg, Freiburg im Breisgau, Germany

Hadronic jets are prolifically produced in LHC collisions such that their reconstruction is essential for understanding many different physics processes. This talk will detail how such jets are precisely reconstructed in the ATLAS detector using a particle flow algorithm developed for the high pile-up environment of Run 2 of the LHC and beyond. Additionally the accuracy of the calibration of the energy scale of hadronic jets is a leading source of experimental systematic uncertainty in many searches and measurements. The derivation of the latest calibration using data, and the accuracy and understanding achieved will also be covered.

Invited Topical Talk T 28.2 Tue 14:25 T-H15
Direct searches testing BSM explanations of the flavor anomalies — ●ARNE CHRISTOPH REIMERS — Universität Zürich, Switzerland

Anomalies measured in the decay of B mesons have revealed first indications for the possible existence of lepton flavor universality violation. If confirmed by future measurements, the presence of such processes in nature would imply physics beyond the standard model.

In this presentation, LHC results of direct searches for new particles that are commonly proposed as an explanation for the flavor anomalies are reviewed. Particular emphasis is given to final states with large transverse momenta.

Invited Topical Talk T 28.3 Tue 14:50 T-H15
ATLAS probes QCD measuring photons — ●HEBERTH TORRES — TU Dresden, Germany

The production of prompt isolated photons in proton-proton collisions is an important test of perturbative QCD prediction. Despite its electromagnetic nature, photon production at the LHC is affected by surprisingly large strong-interaction effects. Thanks to the precise ATLAS measurements of photon processes, the collaboration is able to probe these effects and scrutinise state-of-the-art theoretical calculations. In this talk, we present the latest measurements of prompt photon production using proton-proton collision data collected by the ATLAS experiment at $\sqrt{s} = 13$ TeV.

Invited Topical Talk T 28.4 Tue 15:15 T-H15
The upgrade of the ATLAS trigger to augment the physics reach of Run-3 — ●DANIELE ZANZI — Albert-Ludwigs-Universität Freiburg, Freiburg, Germany

The ATLAS experiment uses a two-level trigger system to record about 1 kHz out of the 40 MHz of collisions delivered by the LHC. After a very successful operation in Run-2, the ATLAS trigger system has gone through a radical upgrade both in hardware and in software in preparation for Run-3. This upgrade is critical for maintaining the high data-taking efficiency achieved in Run-2, while opening up new trigger opportunities to augment the ATLAS physics programme. This talk will present an overview of the ATLAS trigger system in Run-3 together with studies on its expected performance.