



FZU

Institute of Physics
of the Czech
Academy of Sciences

Invitation

to the seminar of Division of Elementary Particle Physics of the
Institute of Physics of the Czech Academy of Sciences



Petr Baroň

Faculty of Science,
Palacký University Olomouc

Observation of top-quark pair production in proton-lead collisions in ATLAS

Abstract: Top-quarks and Higgs boson are the only elementary particles that have not been observed in heavy-ion collisions in the ATLAS detector yet. In particular top quarks, the heaviest elementary particles carrying colour charges, have been argued to be attractive candidates for probing the quark-gluon plasma produced in heavy-ion collisions. In proton-lead collisions, top-quark production is expected to be sensitive to nuclear modifications of parton distribution functions (PDF) at high Bjorken- x values which are hard to access experimentally using other probes available so far. In 2016 the ATLAS experiment collected proton-lead collisions at centre-of-mass energy of 8.16 TeV per nucleon pair. The data sample corresponds to an integrated luminosity of 165 nb⁻¹, which allows for the first time in this data set with ATLAS, to measure top-quark pair production. In this work, we discuss the inclusive cross section measurement for the top-quark pairs production in dilepton and lepton+jets decay modes with electrons and muons recorded by the ATLAS experiment. The measurement is compared to the NNLO predictions for top-quark production using various PDF sets.

When: Thursday, April 4, 2024 at 2PM

Where: Main conference hall, Institute of Physics, Na Slovance 2, Prague 8

For more information, please see <https://indico.fzu.cz/event/243/>