

PHYSIKALISCHES KOLLOQUIUM

Wintersemester 2022/23

Das Kolloquium findet (soweit nicht anders angegeben) **jeweils montags um 17:15 Uhr in Präsenz im Röntgen-Hörsaal des Physikalischen Instituts, Hubland Campus Süd, Universität Würzburg und online via Zoom statt.**

Link zum Zoom-Raum:

<https://go.uniwue.de/physkolloqzoom>



19.12.2022

Vorstellungsvortrag im Rahmen des Habilitationsverfahren

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Search for leptoquarks in the final states involving top quarks and tau lepton at the ATLAS experiment

Abstract

Leptoquarks are hypothetical particles predicted by many theories beyond the Standard Model. These particles can provide a transition between a lepton and a quark, and have been proposed to explain theoretically the similarities between the lepton and quark generations in the Standard Model. According to many phenomenological studies, they can also potentially provide solutions to recent discrepancies found in the low energy measurements for observables testing the lepton flavor universality. These tests indicate that the leptoquarks couplings to third-generation quarks or leptons are interesting probes. Direct searches of these particles are crucial to revealing their existence and understanding their coupling structure. Experimental particle physicists have been searching for them in several final states produced from their decay at high-energy collider experiments, such as the LHC. Final states containing top quarks also offer great potential to reduce the Standard Model background, although with significant challenges in reconstructing and identifying the decay products and modeling the remaining background. I will give a brief introduction and present

the recent search results for the leptoquarks decaying into final states containing top quarks or tau lepton, using the 13 TeV proton-proton collision data collected at the ATLAS experiment.

Für die Dozentinnen bzw. Dozenten der Fakultät

PD. Dr. Meyer, Prof. Dr. Assaad, Dr. Feichtner und Hr. Kögel