

Searches for new resonant phenomena in final states with two quarks using the ATLAS detector

Tuesday, 13 July 2021 15:00 (15 minutes)

Many theories beyond the Standard Model predict new phenomena, such as Z' and vector-like quarks, in final states containing bottom- or top-quarks. It is challenging to reconstruct and identify the decay products and model the major backgrounds. Nevertheless, such final states offer great potential to reduce the Standard Model backgrounds due to their characteristic decay signature. The latest search in the two quark final states using the full Run-2 (139 fb^{-1}) proton-proton collision data collected at a center-of-mass energy of $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector will be presented. In particular, this presentation will summarize the recent results of dijet and top-antitop resonance searches in the hadronic top-quark final state. This talk will also highlight associated improvements coming from deep learning-based b -quark and top-quark identification techniques. Furthermore, the interpretations of these results in the context of s -channel dark matter mediator models will be discussed.

Are you are a member of the APS Division of Particles and Fields?

No

Primary author: KHODA, Elham E (University of Washington (US))

Presenter: KHODA, Elham E (University of Washington (US))

Session Classification: Beyond Standard Model

Track Classification: Beyond Standard Model Physics