



Contribution ID: 161

Type: Poster

Emergent new symmetry from the Higgs shadow

Tuesday 13 December 2022 14:00 (1 hour)

We show in this work how a sub-100 GeV Z' in a $U(1)$ extension of the Standard Model (SM) can emerge through Higgs mediated channels at the Large Hadron Collider (LHC). The light Z' has minimal interaction with the SM sector as well as vanishing kinetic mixing with Z boson which allows it to be light and below the SM gauge boson masses. Interestingly such a light Z' is very difficult to observe in the standard production modes. We show that it is possible to observe such a gauge boson via scalar mediators that are responsible for the symmetry breaking mechanism of the model. The model also provides a dark matter candidate whose compatibility with the observed relic density is established due to the light Z' . We also comment on other interesting possibilities such a light Z' may present for other observables.

Session

Beyond the Standard Model

Primary authors: RAI, Santosh; SAMUI, Tousik; Dr ABDALLAH, Waleed (Faculty of Science, Cairo University, Egypt); BARIK, anjan

Presenter: BARIK, anjan

Session Classification: Poster - 2