



PHYSICS AND ASTRONOMY SEMINAR

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“Search for dark sector particles with the ATLAS detector at the LHC”

Abstract

“This seminar will present the search for the dark sector process $h \rightarrow Z_d Z_d \rightarrow 4l$ in events collected by the ATLAS detector at the Large Hadron Collider in 2015--2018. In this theorized process, the Standard Model Higgs boson (h) decays to four leptons via two intermediate Beyond-the-Standard-Model particles each called Z_d . This process arises from interactions of the Standard Model with a dark sector. A dark sector consists of one or more new particles that have limited or zero interaction with the Standard Model, such as the new vector boson Z_d (dark photon). It could have a rich and interesting phenomenology like the visible sector (the Standard Model) and could naturally address many outstanding problems in particle physics. For example, it could contain a particle candidate for dark matter. In particular, Higgs decays to Beyond-the-Standard-Model particles are well-motivated theoretically and are not tightly constrained; current measurements of Standard Model Higgs properties permit the fraction of such decays to be as high as approximately 30%. The results of this search will be presented in this seminar.”

Tuesday, October 27 2020

3:00 p.m.

Zoom link: <https://uvic.zoom.us/j/82026515776>