

Abstract Submitted  
for the FWS20 Meeting of  
The American Physical Society

**Fake Rate Estimations in the  $ZH \rightarrow \gamma\gamma D$  Decay** BLANCA NINO,  
Fresno State — Many beyond the Standard Model (SM) theories predict the existence of a dark photon which can couple to the SM Higgs. One such way to search for this signature is with the production of a Higgs boson in association to a Z boson where the Z decays to leptons and the Higgs decays to an SM photon and a dark photon. The decay of a WZ boson pair however mimics this dark photon signature. In order to take this into account, we look at the rate at which electrons are misidentified as photons, or the fake rate (FR). Here, we discuss this FR applied as a background to the  $ZH \rightarrow \gamma\gamma D$  decay region using data from the LHC 2015/2016 run.

Blanca Nino  
California State University, Fresno

Date submitted: 30 Sep 2020

Electronic form version 1.4