

Abstract Submitted  
for the SES20 Meeting of  
The American Physical Society

**Rare Higgs Decays into  $Z J/\psi$** <sup>1</sup> HIMAL ACHARYA, University of Tennessee, CMS COLLABORATION — Rare decays of Higgs bosons into the  $Z$ -boson together with a vector meson are a promising laboratory to search for physics beyond the standard model (BSM). Such BSM physics might alter Yukawa couplings to lighter quarks and add loop diagrams, possibly resulting in higher decay rates than predicted by the standard model. A search for decays of the Higgs boson into a  $Z$ -boson and a  $J/\psi$  meson, with subsequent decays of the  $J/\psi$  meson into muon pairs, and the  $Z$ -boson into an electron or muon pair is performed with the Compact Muon Solenoid detector at the Large Hadron Collider (LHC). A data sample of proton-proton collisions collected at a center-of-mass energy of 13 TeV during the LHC Run-2 is used. I will present the searches and implications for future searches of BSM signatures at high luminosity.

<sup>1</sup>DOE contract DOE-SC0020267

Himal Acharya  
University of Tennessee

Date submitted: 15 Oct 2020

Electronic form version 1.4