



Contribution ID: 135

Type: Oral

Search for high mass scalar decays to ZZ Final States using Run2 dataset of CMS experiment

A search for a high mass scalar decays to a pair of Z bosons ($H \rightarrow ZZ$) is performed using proton-proton collision data from the Run2 dataset of CMS experiment at the Large Hadron Collider, CERN. The ZZ final state provides a clean and sensitive probe for both Standard Model Higgs processes and potential new physics phenomena, such as heavy resonances decaying to Z boson pairs. Advanced techniques, including kinematic event categorization and machine learning methods, are employed to maximize the discovery potential and optimize the signal-to-background separation. The results are interpreted within the Standard Model framework and extended to set limits on new physics scenarios, including models predicting additional scalars.

Field of contribution

Experiment

Author: VIJAY, Anusree (Indian Institute of Technology Madras (IN))

Presenter: VIJAY, Anusree (Indian Institute of Technology Madras (IN))

Track Classification: Higgs physics