

Letters of Interest Submission



Contribution ID: 72

Type: **not specified**

Search for invisible Higgs bosons produced via vector boson fusion at the LHC using the ATLAS detector

Despite dark matter abundance, its nature remains elusive. Many searches of dark matter particles are carried out using different technologies either via direct detection, indirect detection, or collider searches. In this work, the invisible Higgs sector was investigated, where Higgs bosons are produced via the vector boson fusion (VBF) process and subsequently decay into invisible particles. The hypothesis under consideration is that the Higgs boson might decay into a pair of weakly interacting massive particles (WIMPs), which are candidates for dark matter. The observed number of events are found to be in agreement with the background expectation from Standard Model (SM). Assuming a 125 GeV Higgs boson with SM production cross section, the observed and expected upper limits on the branching fraction of its decay into invisible particles are found to be 0.145 at 95% confidence level.

Primary Category

Particle Physics

Secondary Category

Instrumentation & Detectors

Subgroup categories

NONE

Did you / will you submit this LOI to another category?

NO

Additional Information

NONE

Primary author: ZAAZOUA, Mohamed (Universite Mohammed V (MA))

Co-authors: ASSAMAGAN, Ketevi Adikle (Brookhaven National Laboratory (US)); FASSI, Farida (Universite Mohammed V (MA)); BOYE, Diallo (Brookhaven National Laboratory)

Presenter: ZAAZOUA, Mohamed (Universite Mohammed V (MA))