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The Analysis of Zh in association with missing transverse momentum using the CxAOD Framework with the ATLAS detector

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Abstract content
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With the discovery of the Higgs boson at the Large Hadron Collider in 2012 a new window of opportunity has opened to discover physics beyond the Standard Model. In order to study the distortion of the Higgs transverse momentum spectrum observed with Run I data a heavy boson, H, with a mass around 300 GeV that decays into the Higgs boson, h, and something else, including missing energy, has been hypothesised. If embedded into a second complex doublet, the decay channel $A \rightarrow ZH$ opens up, where A is the CP odd boson, leading to the $Z+h+\text{missing energy}$ final state. The 'zhmet' analysis was created to work within the CxAOD Framework, as does the pre-existing 'VHbb' analysis. Using the 'zhmet' framework, the 13TeV ATLAS data and MC samples are used for the analysis. The decay $Z \rightarrow ll$ resulting in either same or different flavour leptons is presented.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

Main supervisor (name and email) and his / her institution

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No

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