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Searches for invisible Higgs decays with the ATLAS detector

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The total decay width of the Higgs has not yet been constrained precisely, which allows for up to 30% of the branching fraction to be from beyond the standard model decays. If sufficiently light, dark matter motivates a decay of the Higgs to invisible final states. This talk will discuss searches for invisible decays of the Higgs produced in all production modes in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector, with a particular emphasis on the vector boson fusion, the most sensitive search channel. The statical combination of the different channels as well as a comparison between these searches and the constraints from the visible decay modes will be addressed. Finally, these results will be compared to direct detection dark matter experiments, assuming the Higgs portal model.

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